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Defense Environmental Restoration Program

Annual Report to Congress for Fiscal Year 1992

April 1993

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ADA 198424 (1987)

ADA 230262 (1988)

ADA 230263 (1989)

ADA 231362 (1990)

ADA 244196 (1991)



Defense Environmental Restoration Program

Annual Report to Congress for Fiscal Year 1992

April 1993

Foreword

The Department of Defense (DoD) is pleased to provide the Congress with this report on the accomplishments of the Defense Environmental Restoration Program (DERP) for Fiscal Year (FY) 1992. The Department's goal is to demonstrate prudent environmental stewardship on its lands by cleaning up and restoring them in a timely and fiscally responsible manner. We will accomplish this by using innovative approaches and sound business practices in an open partnership with the public and the regulatory agencies.

During the past year, the Department continued its steady progress throughout the DERP, completing characterization efforts at an additional number of sites and expanding the number of cleanups in progress. The most significant achievements this past year dealt with putting management improvements in place to assist in future program execution. These efforts involved:

- Accelerating remediation and transfer of property at installations scheduled for closure
- Developing strategies for accelerating cleanups at all installations.

DoD is continuing its efforts to accelerate cleanups, particularly at bases scheduled for closure. During the past year, we developed and implemented procedures to transfer and reuse property at these bases. Since last summer, the Department has been working with the U.S. Environmental Protection Agency (EPA) and the State of California to develop procedures for identifying and transferring uncontaminated portions of a closed installation. This has resulted in a procedure whereby DoD will prepare a Finding of Suitability to Transfer (FOST) document with concurrence by EPA and the states. This will assist in the timely transfer of properties to the community for beneficial reuse.

At conferences held in Sacramento, California, and in Boston, Massachusetts, DoD, EPA and state representatives developed extensive plans for accelerating the cleanup process. These include installation-wide, joint planning efforts to establish cleanup standards on the basis of reasonable and anticipated use of property; concurrent review of documents by DoD and regulatory authorities; compressed document review schedules and improved contracting procedures.

During this past year, we have laid a firm groundwork that will assist us in expediting our future cleanups. We look forward to working with Congress, the regulators and the public to ensure our past waste disposal sites are promptly remediated in a fiscally responsible manner.



David J. Berteau
Principal Deputy
Assistant Secretary of Defense
(Production and Logistics)

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The Defense Environmental Restoration Program

The Defense Environmental Restoration Program (DERP) was established in 1984 to promote and coordinate efforts for the evaluation and cleanup of contamination at Department of Defense (DoD) installations. The program currently includes:

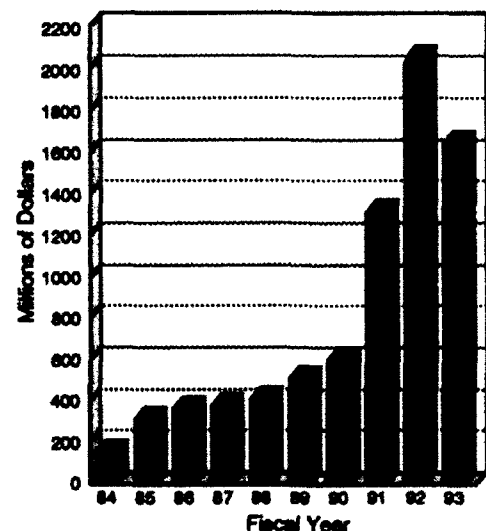
- The Installation Restoration Program (IRP), where potential contamination at DoD installations and formerly used properties is investigated and, as necessary, site cleanups are conducted; and
- Other Hazardous Waste (OHW) Operations, through which research, development, and demonstration programs aimed at improving remediation technology and reducing DoD waste generation rates are conducted.

In addition, a small number of Building Demolition and Debris Removal (BDDR) projects were conducted under DERP in fiscal year (FY) 1992. These involved demolishing and removing unsafe buildings and structures at DoD installations and formerly used properties.

DERP is managed centrally by the Office of the Secretary of Defense. Policy direction and oversight of DERP is the responsibility of the Deputy Assistant Secretary of Defense (Environment). The Military Departments (Departments of Army, Navy, Air Force, and the Defense Logistics Agency) are responsible for program implementation.

The Superfund Amendments and Reauthorization Act of 1986 (SARA) provides continuing authority for the Secretary of Defense to carry out this program in consultation with the U.S. Environmental Protection Agency (EPA). Executive Order 12580 on Superfund Implementation, signed by the President on January 23, 1987, assigned responsibility to the Secretary of Defense for carrying out the Department's Environmental Restoration Program within the overall framework of SARA and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The Defense Appropriations Act provides the primary funding for DERP. Funding for restoration work at bases scheduled for closure is provided in the Military Construction Act.

Cleanup Funding



Cleanup funding has grown steadily, from \$150 million in FY 1984 to over \$2 billion in FY 1992. FY 1992 investments included a supplemental appropriation of \$610.2 million for accelerating cleanup. FY 1991 through FY 1993 investments include funds for restoration work at base closure and active military installations.

The Installation Restoration Program

The Installation Restoration Program (IRP) conforms to the requirements of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). EPA guidelines are applied in conducting investigation and remediation work in the program.

The initial stage, a **Preliminary Assessment or PA**, is an installation-wide study to determine if sites are present that may pose hazards to public health or the environment. Available information is collected on the source, nature, extent, and magnitude of actual and potential hazardous substance releases at sites on the installation. The next step, a **Site Inspection or SI**, consists of sampling and analysis to determine the existence of actual site contamination. Information gathered is used to evaluate the site and determine the response action needed. Uncontaminated sites do not proceed to later stages of the IRP process.

Contaminated sites are investigated fully in the **Remedial Investigation/Feasibility Study or RI/FS**. The RI may include a variety of site investigative, sampling, and analytical activities to determine the nature, extent, and significance of contamination. The focus of the evaluation is determining the risk to the general population posed by the contamination. Concurrent with these investigations, the FS is conducted to evaluate remedial action alternatives for the site.

After agreement is reached with appropriate EPA and/or state regulatory authorities on how to clean up the site, **Remedial Design/Remedial Action or RD/RA** work begins. During this phase, detailed design plans for the cleanup are prepared and implemented.

A notable exception to this sequence involves **Removal Actions and Interim Remedial Actions (IRAs)**. These actions may be conducted at any time during the IRP to protect public health or control contaminant releases to the environment. Such measures may include providing alternate water supplies to local residents, removing concentrated sources of contaminants, or constructing structures to prevent the spread of contamination.

Each step in the IRP process is thoroughly documented in reports available to the general public. These reports are normally made available to the public by placing them in the Administrative Record and/or Information Repository. In addition, public meetings and hearings are also held at various times during the cleanup process to further facilitate public participation.

The National Priorities List (NPL)

EPA established a Hazard Ranking System (HRS) for evaluating contaminated sites based on the potential hazard posed to public health and the environment. In 1991, a revised Hazard Ranking System (HRS2) was adopted by EPA. The application of this system, using PA/SI data, generates a score for each site evaluated. The score is computed based on factors such as the amount and toxicity of the contaminants present, their potential mobility in the environment, the availability of pathways for human exposure, and the proximity of population centers to the site.

The NPL is a compilation of sites scoring 28.5 or higher under HRS. Such sites are first proposed for NPL listing. Following a public comment period, proposed NPL sites may be listed final on the NPL or may be deleted from consideration.

IRP Priorities

DoD is continuing to carry out its policy of assigning highest priority to sites that present the greatest potential threat to human health and the environment. Top priority is assigned to:

- Removal of imminent threats from past hazardous or toxic substances or ordnance and explosive waste;
- Interim and stabilization measures to prevent sites from deteriorating and achieve life cycle cost savings;
- RI/FS at sites either listed or proposed for the NPL and RD/RAs necessary to comply with SARA.

DoD is developing the Defense Priority Model (DPM) to assist in ranking sites based on relative risk to human health and the environment. During the RI/FS Phase, sites can be scored using the model. DPM scores may be considered in determining funding priority for remedial action.

About 100 DoD personnel were trained in scoring sites with the DPM. A support network, including a user hotline, is available to assist scorers. DoD site managers applied the DPM to over 230 sites where remedial action was planned for FY 1992. An analysis of the site scores showed that:

- The most common types of sites scored were landfills, spills, and surface impoundments. DoD used on-post landfills and surface impoundments for many decades as a primary method of waste disposal, and now has many of these to remediate. Significantly more landfills were scored this year than last; fewer

spill sites were scored. These trends may indicate that most surface contamination (immediate threats) have already been cleaned up, and the department is now addressing more long-term requirements.

- On a scale of 0-100, scores ranged from 1-67. Most sites scored less than 30, which suggests that the majority of DoD sites do not present great risks.
- Ground water is contaminated at most sites (80%) that were scored. This may be because DoD sites are old; contamination has had time to migrate through soil to ground water.

These results give valuable information to DoD managers regarding program trends and also identify areas for focus, e.g., a need for ground water cleanup strategies and technologies.

Base Closures

The Base Closure and Realignment Acts of 1988 (BRAC 1) and 1990 (BRAC 2) resulted in the identification of 120 military bases scheduled for closure and another 62 installations scheduled for realignment. Appendix F of this report identifies those installations scheduled for closure. Considerable investigation and, in certain cases, remediation may be required before properties at closed bases can be transferred from DoD or used for other purposes.

Congress provided \$443.5 million during FY 1992 through the DoD Base Closure Account for environmental restoration at bases scheduled for closure. DoD is applying the same remediation methodologies and protocols used at other IRP sites to cleanup efforts at installations scheduled for closure or realignment.

During FY 1992, DoD, in cooperation with EPA and the State of California, reached agreement on procedures for the transfer of uncontaminated land by deed at closing military installations. Under this procedure, DoD, in consultation with EPA or the state, will prepare a Finding of Suitability to Transfer (FOST) document. The document describes the process necessary to identify and document parcels of land that are environmentally suitable for transfer. DoD is continuing to work with the states and EPA to develop procedures for transferring contaminated parcels of land.

Accelerating Cleanup

In addition to the efforts discussed above, DoD organized two conferences, one in Sacramento, California during June of 1992, and another during September of 1992 in Boston, Massachusetts to develop methods for accelerating cleanup progress at closing military installations. DoD, EPA, and state representatives examined the experiences of a number of accelerated cleanup efforts throughout the country. Some of the proposals showing the greatest promise for accelerating progress include installation-wide joint planning efforts, establishing cleanup levels on the basis of existing and reasonably expected use of property, concurrent review of documents by the military and regulators, use of interim remedial actions, initiating the next phase of the CERCLA process while final review of the prior project is underway, and improving contracting procedures.

Total Environmental Restoration Program Contracts

The Army is implementing a program to consolidate cleanup work under a single contract. The program, which is called Total Environmental Restoration Program Contracts (TERCs) would streamline the current process by using a single contractor for all work needed from the initial study phase through the operation and management of the final cleanup. Until now, the Army has used separate contracts for each project phase. The advantage of this new procedure is that it allows contractors to continue working through the transitions between contract phases.

Future Land Use and Cleanup

In a related but separate effort, the Department of the Air Force has contracted with Clean Sites, an Alexandria, Virginia-based non-profit organization that focuses on waste site remediation problems, to examine how future land use considerations can be integrated into cleanup decisions at Air Force installations. As part of the first phase of the project, the Air Force developed an information matrix that identifies each of the reasonable future uses for a site and the corresponding levels of cleanup required to achieve each use. This information could be developed early in the site cleanup process and expanded to contain technology and cost information for achieving identified future uses. The benefits of using such an approach could include accelerating cleanup and

reducing the cost of site evaluation, improving working relationships with regulators, improving communication with stakeholders, and creating uniform expectations for site cleanup. The second phase of the project will involve implementing the results of the report at two Air Force Bases. The third phase, if the project is successful, would include working with the Air Force to develop training and guidance documents on future land use issues for application to other bases.

Western Governors' Association

In July, 1991, a Memorandum of Understanding (MOU) regarding environmental restoration and waste management in western states was signed among the U.S. Departments of Defense, Interior, and Energy, EPA, and the Western Governors' Association (WGA). The purpose of the MOU was to promote cooperation on expediting waste site cleanups and advance the use of new technologies.

After assessing the alternatives available for addressing Federal facilities cleanup in the west, the WGA and the four federal agencies decided at their October 7, 1992 meeting to recommend the use of pilot projects to test new models for community involvement, regulatory streamlining, and the use of more efficient and effective technologies. The tests will be designed to help assure financial feasibility, insurability, and eventual commercialization of innovative technologies. Pilot projects are expected to be announced in mid 1993 when agreements have been reached and sources of funding identified.

Number of IRP Installations and Sites

The number of installations included in the IRP remained relatively constant. DoD's initial emphasis was to identify industrial facilities with the highest probability for contamination. Efforts expanded yearly to include installations with lower hazard potential. The IRP addresses past contamination. Sites can be identified and cleaned up either under the requirements of SARA or under the requirements of the Resource Recovery and Conservation Act (RCRA). Installation reassessments initiated to satisfy SARA requirements as well as RCRA Corrective Action efforts continued to locate additional smaller sites not previously included in the program.

IRP site counts increased by six percent during FY 1992. This was due to the identification of additional sites through RCRA inspections. At the end of last fiscal year, a total of 18,795 sites at 1,800 installations were included in the IRP.

In October of 1992, EPA added five DoD installations to the NPL. They included:

- Andersen AFB, Guam
- Pearl Harbor Naval Complex, Hawaii
- Yorktown Naval Weapons Station, Virginia
- Dahlgren Naval Surface Warfare Center, Virginia
- Defense Distribution Region Central, Tennessee.

In addition, Concord Naval Weapons Station, California was proposed for listing on the NPL. By the end of FY 1992, 88 DoD installations were final listed on the NPL and six were on the proposed list. Because EPA has listed two NPL locations at each of seven installations, 101 DoD installation listings appear on the NPL. Weldon Springs, Missouri and West Virginia Ordnance NPL Sites are in the FUDS program and are no longer carried in the DoD installation totals.

DoD Supports State Participation Through DSMOA

To facilitate active state participation in the IRP, DoD reimburses the states for technical services up to one percent of Defense Environmental Restoration Account (DERA) and BRAC costs.

The Defense State Memoranda of Agreement (DSMOA) not only address state agency support at NPL sites, but also provide the process for work at non-NPL sites. Along with non-NPL reimbursement, DSMOA provides a process for DoD and the states to resolve technical disputes before judicial remedies are sought. The dispute resolution process is necessary, as most non-NPL work does not require any formal dispute resolution mechanism to accomplish cleanups. The DSMOA also include provisions reflecting the willingness of the state to accept DPM as DoD's method of establishing remedial action priorities among sites in the event of a funding shortfall.

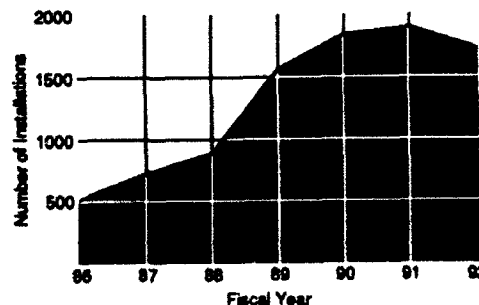
Reimbursement is available through a Cooperative Agreement (CA) to those states that have a signed DSMOA.

States' reporting requirements under CAs are minimal and allow them to transfer their oversight funding between installations. States that have entered the program or have expressed interest in participating in the program by October 1, 1992 are eligible for costs incurred after October 17, 1986 (the date SARA was enacted). Base Realignment and Closure and Defense Logistics Agency Stock Fund installations and Formerly Used Defense Sites are eligible for reimbursement. Formerly Used Defense Sites meeting specific criteria are also included in the program for reimbursement.

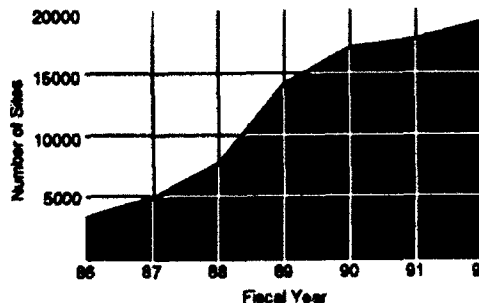
All states and territories have been contacted and encouraged to participate in the DSMOA process. DoD signed 9 DSMOA in FY 1992, bringing the total of signed memoranda to 41. In addition, 9 CAs were completed last year, yielding a total of 35 agreements. Almost \$20 million was provided to states in FY 1992 under these CAs to enhance their participation in the IRP process. Appendix D, Table D-2 provides state-by-state DSMOA status.

The progress made in FY 1992 in preparing DSMOA and CAs represents a significant achievement in enhancing cooperation among DoD and state authorities. The establishment of Interagency Agreement (IAG), CA, and DSMOA model language and the training of DoD and state personnel in their development helps provide a nationally consistent process for effective site cleanup.

Number of Installations in the IR Program



Number of IRP Sites



IAGs Are An Important Step in the Cleanup of NPL Sites

SARA requires that an IAG be reached between EPA and DoD within 180 days after completion of the Record of Decision (ROD) for each NPL-listed facility. The ROD, a public document explaining which cleanup alternatives will be used at an installation, marks the official completion of the RI/FS. (An exception involves interim RODs

sometimes used to document agreements concerning Interim Response Actions.) The completed IAG provides a detailed management plan for the effective cleanup of the facility.

The early involvement of EPA and state authorities in preparing the IAG ensures their concurrence and enhances the credibility of the course of action taken by DoD. The IAG also provides a strong management tool for resolving issues rising from overlapping or conflicting jurisdictions.

The Department seeks a cooperative and collaborative ongoing effort with all parties to avoid problems late in the process that could result in costly delays. The early establishment of good working relationships also resolves potentially duplicative and possibly conflicting regulatory requirements governing cleanup, such as those that occur between CERCLA and RCRA. To fully realize these benefits, we are routinely entering into IAGs during the RI/FS phase. These "pre-ROD" IAGs, or Federal Facilities Agreements (FFAs), are amended or attached to the agreement as IRP work progresses and become the IAG required under SARA.

In 1988, the Department and EPA completed negotiation of IAG model language for NPL sites. Subsequent guidance was issued to the Components concerning the state role in the IAG process. Workshops were held with EPA and states to refine site-specific language for the agreements. Training sessions for DoD personnel who will negotiate agreements also were held.

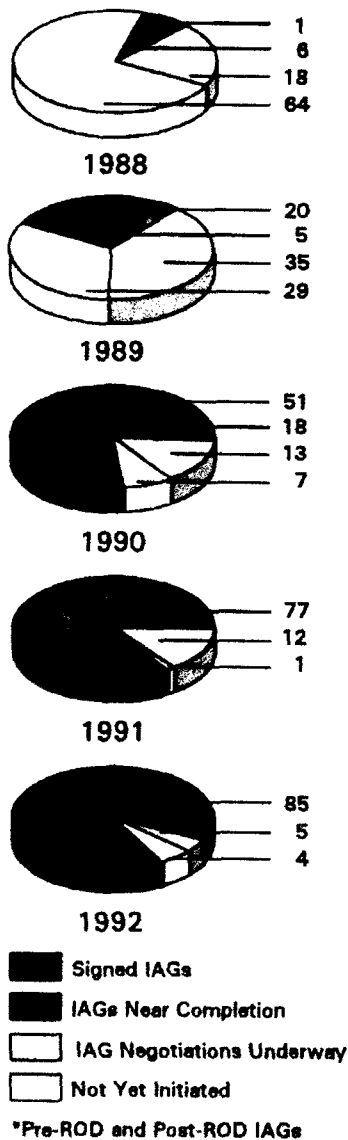
The progress already made is evident from the number of IAGs signed and nearing completion. By the end of FY 1991, IAGs had been signed for 77 DoD installations final-listed on the NPL. By the end of FY 1992, this number grew to 85. In addition, another four IAGs were near completion.

Federal Facility Environmental Restoration Dialogue

DoD is participating in a dialogue on improving the cleanup process at federal facilities. Central issues being discussed are: sharing information with external stakeholders, increasing federal agency/stakeholder consultation during the decisionmaking process, and allocating funds. The dialogue committee has endorsed the concept of site specific advisory boards similar to existing DoD Technical Review Committees (TRCs). These boards provide advice to installation commanders. DoD has established TRCs at almost 200 installations. TRCs are typically comprised of representatives of DoD, regulatory agencies, local interest groups and the community near a site.

Other participants in the dialogue are federal agencies with restoration responsibilities (DOE, DOI, NOAA, NASA), EPA, state agencies and environmental interest groups. The group has established a committee under the Federal Advisory Committee Act, with a goal of developing consensus recommendations for improving stakeholder acceptance and confidence in federal decisionmaking. The Committee expects to issue a report in 1993.

IAG Status at NPL Installations*



Installation Restoration Program Status

During FY 1992, DoD expanded its efforts to move contaminated sites into the cleanup phases of the IRP. Increased emphasis was placed on moving forward with measures that stabilize sites, such as removing contaminant sources and halting the further spread of ground water plumes, rather than waiting until sites are completely characterized to begin cleanup work. This approach, which is consistent with EPA's Superfund Accelerated Cleanup Model (SACM), is allowing DoD to increase the rate at which human health and environmental risks are reduced while minimizing future IRP costs. This bias for action will increase even more in FY 1993.

The end point for IRP is site closeout (SC). A closed-out site is one where no further actions are considered appropriate and no further response action is planned (NFRAP). NFRAP is a CERCLA term incorporated into the NCP final rule in March 1990. The

primary criteria for NFRAP is a determination that the site does not pose a significant threat to public health or the environment. NFRAP decisions can be made at any point in the IRP process, but must be documented and may be reversed if future information reveals that

additional remedial activities are warranted. The majority of site closeout decisions are for non-NPL sites. These decisions are made by the Components and then coordinated with the appropriate regulatory agencies.

Installation Restoration Program Summary of Installations and Sites

Component	Number of Installations	Number of Sites	Number of Active Sites	Sites Where Response is Complete (RC)***	Closed Out Sites (SC)
Army	1,144	10,603	4,216	6,387	5,944
Navy*	290	3,258	2,481	777	615
Air Force	332	4,474	3,191	1,283	1,010
DLA**	34	460	270	190	75
Total	1,800	18,795	10,158	8,637	7,644

*Includes Marine Corps.

**DLA = Defense Logistics Agency.

***Response Complete (RC) is equivalent to the term Closed-Out (CO) in last year's report.

Interim Remedial Actions by Type of Activity

Summary for all IRP Installations

Type of Activity	Interim Actions: Number of Activities (Underway or Complete)	Interim Actions: Number of Installations (Underway or Complete)
Alternate Water Supply/Treatment	122	6
Bioremediation	36	31
Capping	31	18
Drainage Controls	6	5
Fence or Other Site Access Control Measures	54	13
Groundwater Treatment	113	51
In-Situ Soil Treatment	6	6
Incineration	63	5
Long-Term Monitoring	11	9
Other	94	39
Soil Vapor Treatment	10	7
Waste Removal - Drums, Tanks, Bulk Containers	256	109
Waste Removal - Soils	158	88
Total	960	387

To better measure the rate at which cleanup work is progressing, the Department has begun analyzing activities at two additional points prior to site closeout. New site status codes, Response Complete (RC) and Remedy in Place (RIP), are being used to identify sites where cleanup work is far along but formal site closeout has not occurred. In addition to adding these new cleanup codes, DoD began separate tracking of the status of IRAs during FY 1992. The addition of this new information (IRAs, RIP and RC) to our tracking and reporting systems allows a more thorough evaluation of actual cleanup progress. The tracking of IRAs is consistent with EPA's new Superfund Accelerated Cleanup Model (SACM), which emphasizes the taking of early actions to reduce immediate risks to people and the environment. EPA's primary measure of success under SACM will be substantially reducing or elimi-

nating threats to public health and the environment within a short, specified time frame. Early actions, such as IRAs can usually eliminate the majority of risk at contaminated sites.

By the end of FY 1992, responses were considered complete at 46 percent of DoD's sites; site closeout had occurred at nearly 90% all of these sites. Final remedies were in place at another two percent of our sites by the end of FY 1992. A total of 10,158 sites were considered active at the end of the year, that is, they still require additional investigation, close out as no potential threat, and/or cleanup work.

As the table above shows, the Components are using a variety of technologies for interim remedial actions. Of particular note is that the Components are promoting the

use of innovative technologies such as bioremediation.

Interim Remedial Action (IRA)

A short-term response action, consistent with a permanent remedy, but not the entire remedy in itself.

Remedy in Place (RIP)

The final RA is functioning properly and performing as designed.

Response Complete (RC)

IRP actions are deemed complete by the DoD and the site is not a threat to public health or the environment.

Site Close-Out (SC)

Response is complete and, if required, concurrence has been received from regulatory agencies.

Installation Restoration Program Status as of September 30, 1992

Summary by Military Service

	Number of Sites																				
	PA**				SI**				RI/FS				RD			RA				Total	
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	C	U	F	RC	RC	SC
Army	10,508	86	9	4,829	4,594	437	520	1,209	459	1,869	1,213	224	108	146	1,400	159	52	1,342	125	6,387	5,944
Navy*	2,925	226	107	546	1,042	353	130	188	110	872	1,143	12	12	15	1,509	37	35	2,033	31	777	615
Air Force	4,274	138	62	264	3,537	352	106	610	945	1,233	245	295	210	176	659	196	216	66*	114	1,283	1,010
DLA	458	1	1	2	455	1	1	155	71	226	39	14	26	17	264	24	6	221	19	190	75
Totals	18,165	451	179	5,641	9,628	1,143	757	2,162	1,585	4,200	2,640	545	356	354	3,832	416	309	4,280	289	8,637	7,644

C = Completed Activity ♦ U = Underway Activity ♦ F = Future Activity ♦ RC = Response Complete ♦ SC = Closeout

*Includes Marine Corps

** Occasionally, new sites are discovered during the SI or RI/FS phases. Although formal PA or SI documents may not exist for all such sites, the PA and SI phases are normally considered complete when equivalent studies are performed in later phases.

Installation Restoration Program

Summary by Military Service

	IRAs**		RIP
	Number of Sites (Actions)		
	C	U	
Army	265(352)	129(133)	2
Navy*	126(150)	79(89)	7
Air Force	122(122)	54(54)	51
DLA	55(57)	3(3)	2
Totals	568(681)	265(279)	62

= Completed Activity ♦ U = Underway Activity

*Includes Marine Corps

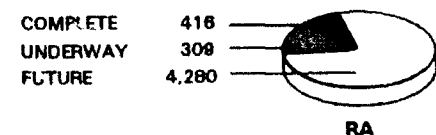
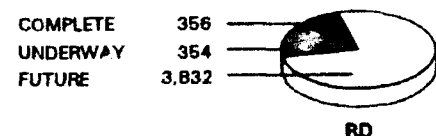
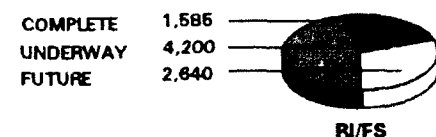
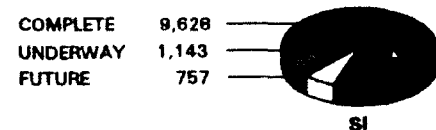
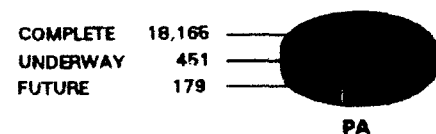
**Figures in parenthesis refer to number of activities at a specific site, not the number of sites.

Across the Board Progress Registered in All Phases of the IRP

In prior years, we have not separately reported the number of interim and final RAs. Although significant, final RAs represent but a portion of the cleanup work performed by DoD. Because completed IRAs are consistent with and contribute to the final cleanup, an understanding of their status allows a more balanced evaluation of the progress of the IRP.

By the end of FY 1992, 960 interim RAs had been completed or were underway at 387 DoD installations. A majority of these actions were measures that served to stabilize conditions and reduce risks. Activities such as fencing and providing alternate drinking water supplies to reduce risks posed by sites by eliminating exposure to contaminants. Actions such as source removal, capping, and pumping-and-treating of ground water serve to stabilize contaminants at a site by controlling their migration. In keeping with the Department's policy of emphasizing cleanup at the most contaminated sites, almost 56 percent of the interim RAs

IRP Status by Program Phase



IRP Status by Program Phase

completed have been at the 94 Defense installations on or proposed for listing on the NPL.

New IRP Tracking System Improves Ability to Measure Progress

During FY 1992, the Department developed and fielded an improved system for tracking IRP activities across all Components. This system, the Restoration Management Information System (RMIS), takes advantage of advanced relational database management systems that are available, providing rapid access to the detailed information needed to manage IRP activities effectively. However, even more significant is RMIS's ability to track progress towards final cleanup as interim actions are completed.

A majority of the cleanup work completed to date by DoD has been aimed at stabilizing sites that pose a risk to human health and the environment. This work involves Interim Remedial Actions that remove or isolate contaminant sources and halt or reverse the further spread of contamination. However, in the past, the Department has not tracked and reported interim and final remedial actions separately. Using the expanded information fields programmed into RMIS, we now have the capability to track all IRAs taken at a site and to measure progress towards final cleanup incrementally.

In addition, using the flexibility inherent in the new system, information fields will be added as appropriate to respond to future needs.

Solid Progress at NPL Sites

The Department continued to make progress in the evaluation and cleanup of NPL sites in FY 1992. Completed PA activities at listed NPL installations increased from 90 to 94. The number of RI/FSs completed or underway increased from 90 to 94. Further, the number of installations with interim remedial actions or RAs completed or underway went from 86 to 91 in FY 1992. (See the chart on this page.)

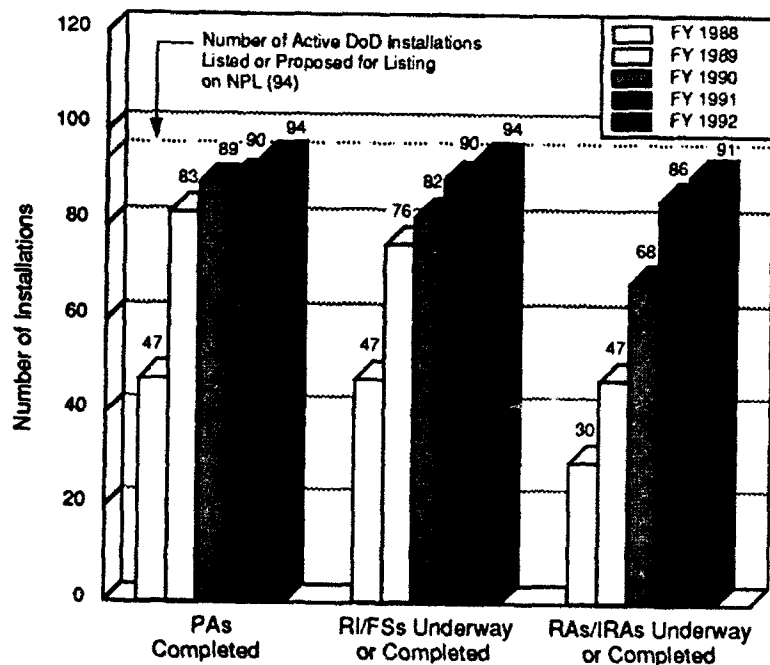
During FY 1992, RODs for at least one Operable Unit (OU)* were completed at 22 installations. This brings to 39 the number of NPL installations with signed RODs.

*An Operable Unit is part of the total cleanup response at an installation. It can be either a separate geographical area of treatment or a separate type of treatment in the same geographic area. It can consist of one or more DoD sites at an installation.

Community Relations in the IRP Program

The Department of Defense emphasizes two-way communication between local communities and DoD Remedial Project Managers (RPMs) responsible for planning and implementing site activities. Public involvement requirements in CERCLA/SARA and the NCP are followed for each phase of the process.

DoD believes that the earlier the public is involved in the process, the sooner their concerns can be incorporated into the planning for remedial response at an installation. Therefore, DoD begins community relations as soon as it is determined that the installation will be going through a Remedial Investigation/Feasibility Study (RI/FS). The public involvement effort is composed of specialized plans, committees, information dissemination, and meetings which are explained below.




Restoration Progress at DoD NPL Installations as of September 30, 1992

The Technical Review Committee (TRC) required by SARA, Section 211, was established for the purpose of reviewing and commenting on an installation's cleanup activities and remedial actions. The TRC offers unique opportunities to gather technical input from all affected parties, including the public. TRCs are established at all NPL sites as early in the process as possible. Local authorities and the public are encouraged to provide representatives with appropriate technical backgrounds. Minutes are prepared by the Component and retained in the administrative record. News releases covering topics covered and decisions made during the meeting are generally prepared for distribution. Some installations hold public meetings following TRCs so that the public can be informed of all on-going progress and actions.

A Community Relations Plan, is based on community interviews and includes a description of the installation background, history of community involvement, community relations strategies, a schedule of community relations activities, and a list of contacts (mailing list). It is developed and implemented at all NPL installations. DoD involves Regulatory agencies in the preparation of this plan wherever appropriate.

Normally, an information repository is established at or near the site as soon as the installation considers the possibility of undertaking remedial studies. The repository is available to the public, contains site-related documents, and may contain information that is of general interest to the public such as newspaper articles, press releases, and fact sheets. It is maintained by the installation's community relations staff who are also responsible for notifying interested parties of the existence of the information repository.



Service & Support
Training & Maintenance
MARINE CORPS LOGISTICS BASE BARSTOW CA

MCLB BARSTOW

MARINE CORPS LOGISTICS BASE

Installation Restoration Program

Fact Sheet No. 1

May 1992

This fact sheet includes a brief overview of:

- The Marine Corps Logistics Base Barstow environmental investigation and cleanup program.
- The site investigation process, potential sources of hazardous waste contamination, and current field investigation activities.
- How the Installation Restoration Program works.
- How you can obtain more information and become more involved in the Marine Corps Logistics Base Barstow environmental investigation process.

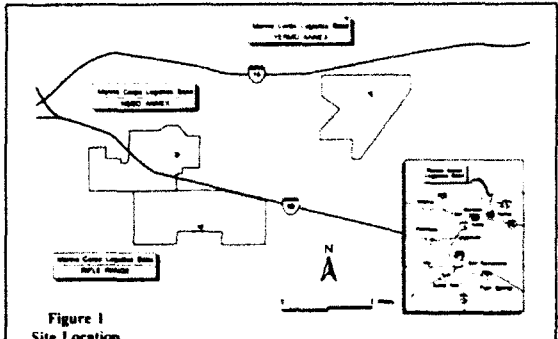


Figure 1
Site Location

MCLB Barstow is the second largest employer in the Barstow area with a work force consisting of approximately 500 military and 2,000 civilian personnel.

Site Background
MCLB Barstow was established at what is now the Nebo Annex in 1942 as a staging area for supplies and equipment.

Example of a Marine Corps Fact Sheet distributed to the public.

An administrative record, available to the public, is established at or near the installation when the remedial investigation phase begins. It normally contains documents the lead agency relies upon when selecting a response action and may be in the same location as the information repository.

The installation publishes in a local newspaper a notice informing the public of the availability of the RI/FS and identifying the preferred remedy, other alternatives analyzed, community involvement opportunities, the name of the agency point of contact, and the location where the public can review the administrative record.

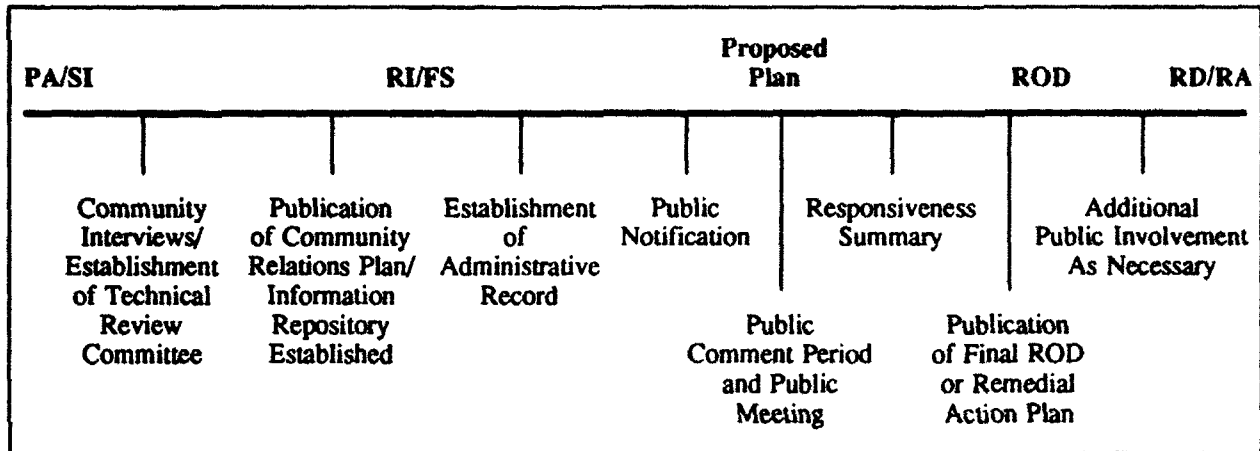
The public is provided the opportunity, during a minimum 30-day comment period, for submission of oral and written comments on the Proposed Plan and RI/FS. A public meeting to discuss the proposed plan should be held during the comment period. A proposed plan briefly discusses the nature and extent of contamination at a site,

and the cleanup alternatives considered, including the preferred alternative.

The DoD installation normally prepares a response to significant comments, criticisms, and new data submitted in written or oral form during the comment period. This responsiveness summary is attached to the final remedial action plan, record of decision, or other decision document.

Additional public input may be required after the preparation of the responsiveness summary. The DoD installation will compare the final selected remedy with the alternatives described in the RI/FS and proposed plan to determine if any significant changes have occurred. If so, these changes are discussed in the Record of Decision (ROD). In some situations, additional public comment must be solicited. The final remedial action plan is usually published in a major local newspaper and made available for public inspection. If necessary, the Community Relations Plan is revised to account for needs and concerns identified during the remedial

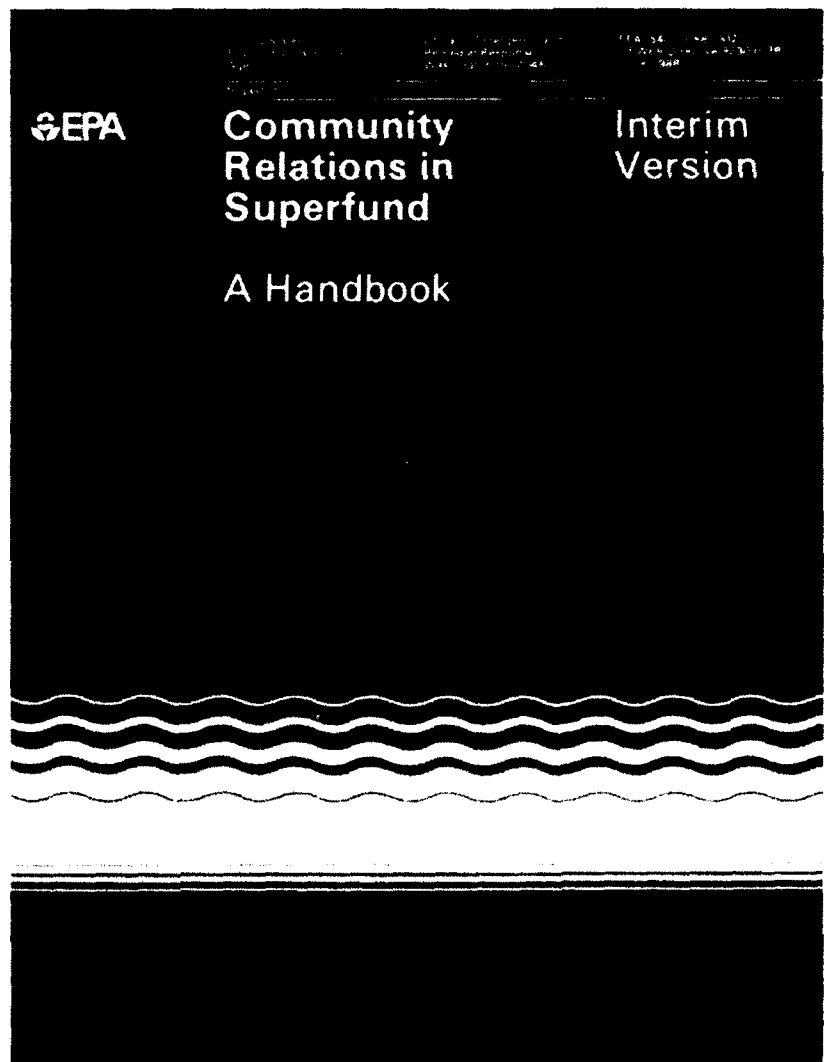
Public Involvement Points in the CERCLA Response Process



design/remedial action (RD/RA) phase. A fact sheet and public briefing is usually made available prior to the initiation of the remedial action. A sample fact sheet is shown on page 11. Information provided will include construction schedules, traffic pattern changes, locations of monitors and plan for providing information. The figure above shows where public involvement occurs within the CERCLA process.

Success Stories Showcase Progress

The flowing discussions of IRP progress among the Components showcase the work underway at a number of our installations. These stories demonstrate the focus on reducing potential threat to public health and the environment through early interim remedial actions. They also show how DoD involves the community through an active community relations program. These showcase stories explain how we are attempting to expedite the site restoration effort by partnering with the public and regulatory agencies to quickly move our sites into and through the cleanup phase of the program.



DoD follows EPA Community Relations Guidance for Superfund



Army IRP Progress

The number of sites included in the Army IRP rose slightly to 10,603 in FY 1992. IRP activities have been completed and no further response actions are planned at 6,387 sites, or over 60 percent of the Army sites in the program.

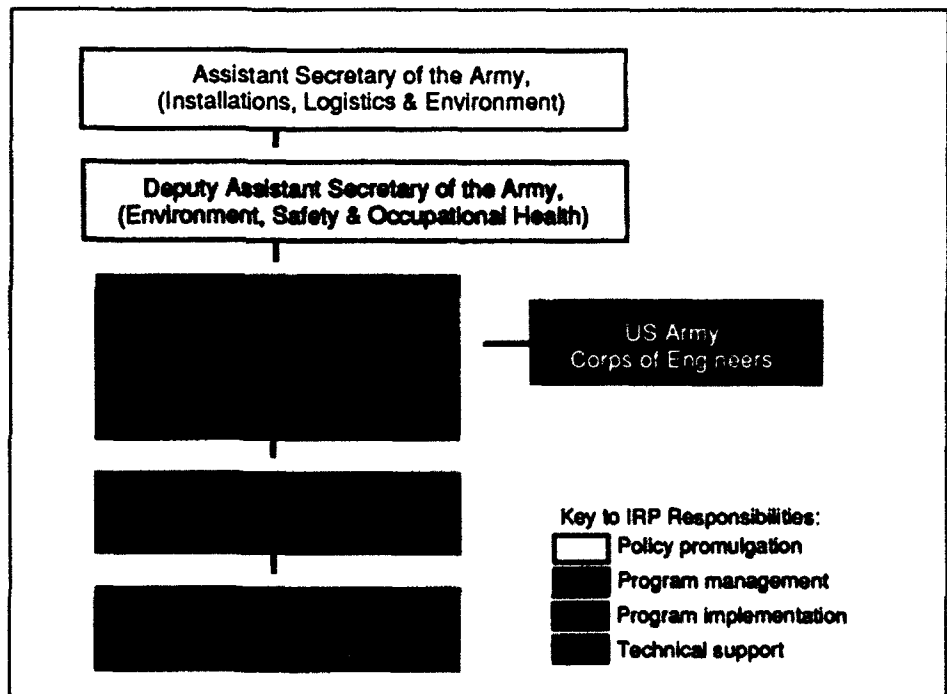
The Army's Installation Restoration and Base Closure Environmental Programs made significant progress in Fiscal Year (FY) 1992. Approximately \$385 million (DERA and BRAC funds) was obligated in FY 1992 for the Army's Environmental Restoration projects.

The Army initiated an effort in FY 1992 to review the status of installations in the Army restoration site inventory.

The following types of installations were deleted from the inventory:

- State-owned National Guard Bureau installations;
- Government-owned National Guard Bureau installations with no valid sites;
- Installations included in the FUDS program; and
- Installations which are wholly tenants or other services' installations.

As a result of these deletions, the number of active Army installations decreased from 1,265 in FY 1991 to 1,144 in FY 1992.



Army IRP Organization

During FY 1992, the number of sites where RI/FS work is completed or underway increased from 1,310 to 2,328. Also, of significance are the 485 interim remedial actions/removals and 211 final remedial actions that are completed or underway.

In FY 1992, the Army prepared 40 active sites installation action plans. The action plans targeted high-priority installations and included the identification and verification of all sites of environ-

mental concern. The purpose of the action plans was to identify targets of opportunity for cleanup actions. A program is being implemented by the Army in FY 1993 to begin to accelerate interim removal and remedial actions at certain sites.

Army Measures of Merit at NPL Installations — Records of Decision					
Installation/ ROD Title	Description of Remedy	Contaminant(s) of Concern	Initial Quantity/ Concentrations	Cleanup Objective	Current Status
Aberdeen Proving Ground White Phosphorous Burial Area	No action	White Phosphorous			5 Year Relook
Aberdeen Proving Ground Michaelsville Landfill, OU #1	Install new cap, surface water controls and gas venting system	Metals, Organics	Metals: 16-24 ppb Organics: 5-7 ppb	Prevent Contaminant Migration to GW	RD Completed, Cap Construction April 93
Anniston AD Groundwater OU	SE industrial area GW treatment system	VOC/Metals, Phenols		Contaminant Migration Control	Operational since 1990, treats 100,000 gpd (avg)
Fort Lewis Landfill #5	No Action	Solvents, Metals	TCE: < 1 ug/l Manganese: 7.8 ug/l		Long-Term Monitoring
Milan AAP O-Line Ponds, OU #1	GW pump, treat and re injection	Explosives	20,000-28,000 ppb TNT 15,000-20,000 ppb RDX	10 ppb TNT 10 ppb RDX	RD 35% complete Start construction FY 93
Umatilla AD Washout Lagoons OU	Soil remediation by composting	Explosives	6,000 cubic yds. < = 8% TNT	Reduce Source TNT/RDX of 5 ppb	RD Underway RA 1st qtr FY 94

The Army has 34 listings on the NPL at 30 Army installations. Two installations signed Inter-Agency Agreements (IAG) in FY 1992. The number of Army installations with IAGs remained at 29 since Weldon Springs (MO) and West Virginia Ordnance Works (WV) have been transferred to the FUDS program and are no longer carried in Army installation totals. RI/FS activities are underway, with some individual site completions, at all 30 NPL installations.

Also, in FY 1992, nine Records of Decision (ROD) were signed for cleanup actions at Army NPL installations. Actions agreed to include; incineration of contaminated soils at Alabama Army Ammunition Plant (AL) and Savanna Army Depot Activity (IL), bioremediation of soils at Umatilla Army Depot (OR) and a ground water pump and treat system at Milan Army Ammunition Plant (TN).

The Army has devoted considerable effort to monitoring progress at its NPL installations, in particular. The table above provides examples of measures of merit, Records of Decision, used to demonstrate progress at Army NPL installations.

The following showcase success stories are examples of significant Army IRP project activities conducted in FY 1992. These stories explain in detail cleanup efforts and the progress made in reducing risk to human health and the environment at two major Army installations, Louisiana Army Ammunition Plant (LA) and Twin Cities Army Ammunition Plant (MN). (Appendix B provides additional descriptions of installations on the NPL.)

Twin Cities Army Ammunition Plant, Minnesota

Twin Cities Army Ammunition Plant (TCAAP), Minnesota has conducted numerous interim remedial actions that have significantly reduced risk for nearby residents. Over 320,000 pounds of volatile organic compounds (VOCs) have been removed from contaminated soils and ground water, and 1,400 cubic yards of soils contaminated with PCBs have been excavated and decontaminated. To date, 3.4 billion gallons of ground water have been successfully treated.

Background

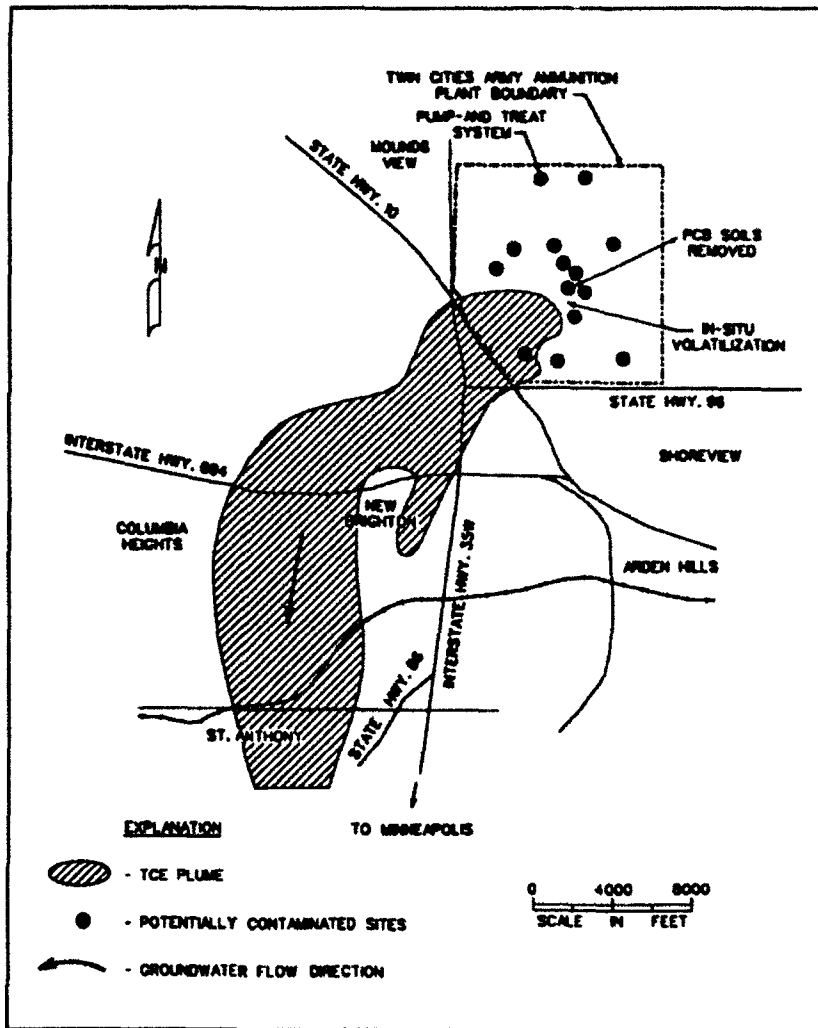
The Twin Cities Army Ammunition Plant is located in Ramsey County, Minnesota, north of the St. Paul-Minneapolis metropolitan area. It covers about four square miles and is bounded on all sides by suburbs of the Twin Cities: Shoreview to the north and east, Arden Hills to the south, and Mounds View to the west.

The plant was built to produce small caliber ammunition in support of America's armed forces. During World War II, Korea and the Vietnam conflict, TCAAP produced 16.5 billion rounds of ammunition. Currently, most of the plant is still in standby status, although two major lessees are manufacturing ammunition products at the site.

Ground Water Contamination Discovered

Preliminary investigations conducted in the early 1980s indicated that ground water on or near TCAAP was contaminated with volatile organic compounds (VOCs) from the plant. The contamination was first detected in the TCAAPs water supply wells, in water supply wells serving the nearby Arden Manor Trailer Park, and in six private wells in New Brighton and Arden Hills. However, an expanded ground water survey indicated that some of the municipal wells belonging to the cities of New Brighton and St. Anthony, providing drinking water for approximately 32,000 people, had also been contaminated with VOCs.

The primary contaminant found in the ground water was trichloroethene (TCE), a commonly used industrial solvent and suspected carcinogen. Because of the level of concentration of TCE, EPA placed the New Brighton - Arden Hills Area (including TCAAP) on the National Priorities List in 1982.



Twin Cities AAP Areas of Contamination

Protection of Public Health Given Highest Priority

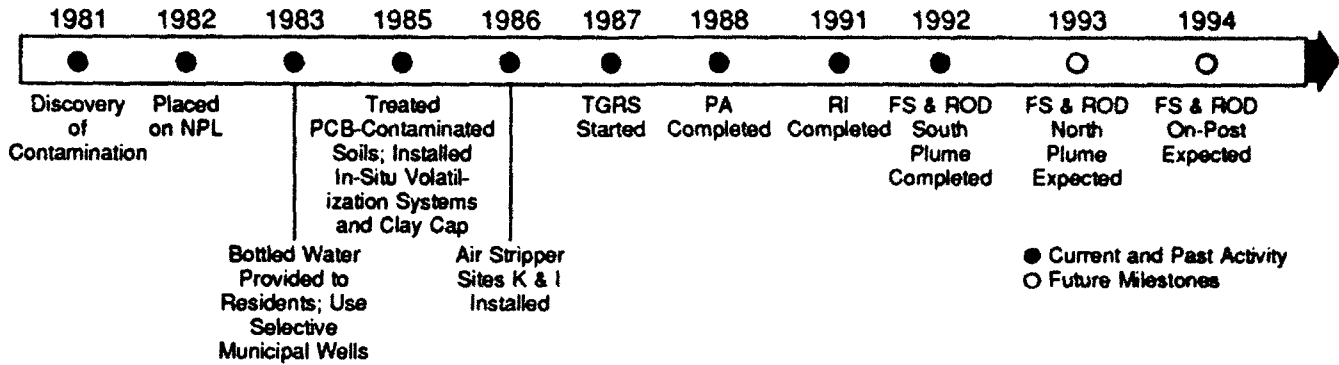
Interim Remedial Actions (IRAs) were immediately taken to ensure that people on and off the installation had clean drinking water. In 1983, the Army provided bottled water to the six affected individual residences until they could be connected to a municipal water supply. In 1988, the Army provided temporary granular activated carbon treatment for the City of New Brighton

municipal water wells until the construction of a permanent municipal water treatment facility, also funded by the Army, was completed in 1990. The City of St. Anthony was also provided with a permanent granular activated carbon municipal water treatment facility funded by federal and state dollars. The City of St. Anthony facility was completed in early 1991. The installation map shows the location of interim remedial actions and potentially contaminated sites at TCAAP.

TCAAP is "a model of what can be accomplished in the Superfund Program."

**Dr. Mark Schmitt
Minnesota Pollution Control Agency**

CLEANUP TIMELINE



Site Risks Have Been Reduced Through Interim Remedial Actions

The overall facility remediation plan targets 2002 as the date for all source area and plume cleanup systems to be in place. While studies and work continue toward a final remedy at TCAAP, a number of IRAs are being taken to reduce human health and environmental risks to acceptable levels.

In 1985-1986 about 1,400 cubic yards of soil contaminated with PCBs were excavated from a former burning area. The soils were stored, and subsequently decontaminated by incineration in 1989. Once their safety was verified, the soils were graded into the landscape, covered with top-soil, and seeded.

Also in 1985, layers of clay were placed over two sites to keep rain and snow from washing more contamination down into the ground water. Then ISV (in-situ volatilization) systems were installed to force air and VOCs through the soil and remove VOCs. The VOCs were captured using granular activated carbon filters. Between the two sites, 128 air extraction vents and associated filtration equipment have removed more than 228,000 pounds of VOCs since 1986 (see table).

In 1987, the TCAAP Ground Water Recovery System, known as TGRS, was put into operation. The system has treated more than five billion gallons of water since then, and returned the clean water to a site on TCAAP where it reenters the ground water. The TGRS is designed to prevent migration of VOC-contaminated ground water beyond the plant's southwest boundary. Seventeen wells, twelve located along the southwest boundary and five at contamination sources, pump contaminated ground water through air stripping towers and carbon filters. More than 90,000 lbs of VOCs have been removed using this method to date.

Twin Cities Army Ammunition Plant Installation Restoration Program Remedial Action Status Estimated VOC Removal Through June 1992		
Site/System	Description	VOC Removal
SOIL REMEDIATION		
Site D	Soil ISV	131,335 lbs.
Site G	Soil ISV	97,500 lbs.
Subtotal		228,835 lbs.
GROUNDWATER REMEDIATION		
Site A	G.W. Treatment	4 lbs.
Site I (Building 502)	G.W. Treatment	353 lbs.
Site K (Building 103)	G.W. Treatment	53 lbs.
BGRS/TGRS	G.W. Treatment	90,390 lbs.
New Brighton	G.W. Treatment	3,400 lbs.*
St. Anthony	G.W. Treatment	110 lbs.**
PGRS	G.W. Treatment	0 lbs.***
Subtotal		94,310 lbs.
TOTAL		323,145 lbs.

*Through May 1992

**Through February 1991

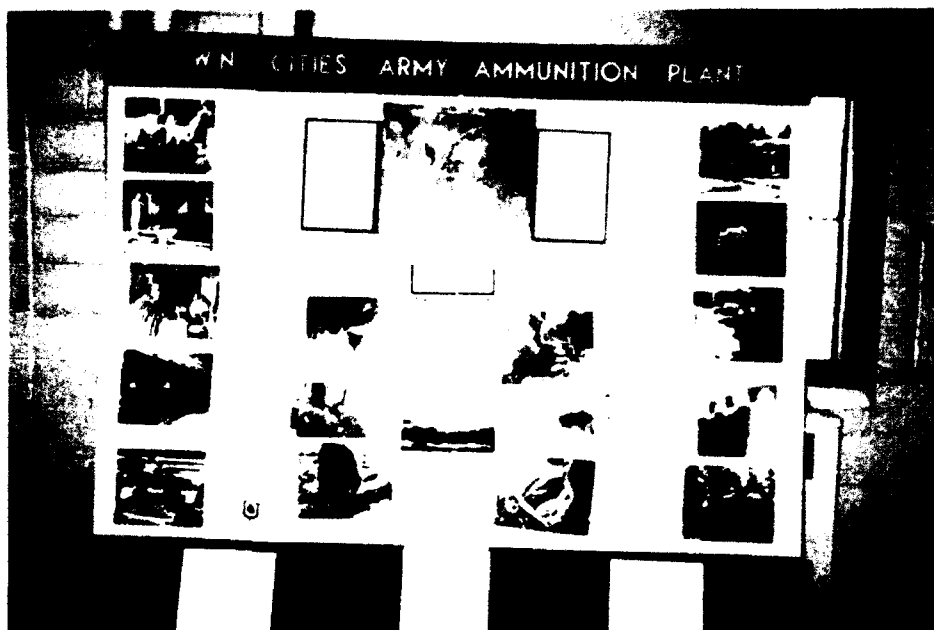
***Estimated start-up is FY 1993

Decision Nearing On Future and Final Ground Water Cleanup Method

The ground water plume at TCAAP is geographically divided into three operable units (south plume, north plume, and on-post). In August 1992, TCAAP completed investigation work on the south plume and issued a proposed plan for containing the contamination, removing VOCs from the aquifer, and using the treated water to meet local municipal water supply needs. The plan, developed jointly by EPA, the Minnesota Pollution Control Agency, and the Army, requires the installation of one or more ground water extraction wells, monitoring wells, and a water remediation/treatment facility where contaminants would be removed and water would be treated to drinking water quality using granular activate carbon. The water would be provided to the City of New Brighton to augment its municipal supply. The system is expected to operate as a remediation system for 50 years or more. When remediation is completed, it will become part of New Brighton's municipal water system for long-term use.

Community Relations Aid In Problem Resolution

An active program to initiate and maintain a dialogue with affected communities has been in place at TCAAP since early May 1987. Nineteen fact sheets have been prepared and distributed to the site information repositories. These fact sheets were also presented to attendees at five public meetings. In addition, more than 25 press



TCAAP Exhibit Used at Expositions and Public Meetings

releases have been distributed to major media, local media and concerned citizens, as well as to local, state and federal officials. As required by the Federal Facility Agreement (FFA), each press release and fact sheet is coordinated with the EPA and the State of Minnesota prior to release.

Public meetings are a proven method of fostering understanding. TCAAP, the Minnesota Pollution Control Agency (MPCA) and EPA have worked together to ensure such meetings are conducted at critical times in the remediation process. To date, five such meetings have been held. The first was to announce the signing of the FFA. Others addressed the boundary ground water recovery system, the New Brighton granular activated carbon treatment facility and other subjects.

At the beginning of a soil incineration program, a site tour was conducted for local citizens to explain the process. At the conclusion of the Remedial Investigation in November 1991, a tour of all sites on the installation was conducted for local officials, and was repeated in October 1992. A TCAAP open house for the general public, featuring bus tours and environmental displays, was held in October 1992.

An exhibit, designed to be used in malls surrounding the TCAAP area and at public meetings, has been delivered to the installation and will be updated as cleanup progresses. This method of taking visual information into the community is expected to further strengthen citizen understanding of cleanup processes and progress.

References

1. "Twin Cities Installation Restoration Program Equals Cleaner Environment," Briefing Paper, 1982.
2. Proposed Plan for Ground Water Remediation for Operable Unit 3 at the New Brighton/Arden Hills Superfund Site, EPA, MPCA, US Army, August 1992.
3. United States Army Toxic and Hazardous Materials Agency, "Remedial Investigation: Twin Cities Army Ammunition Plant," November 1991.
4. Minnesota Pollution Control Agency, "Twin Cities Army Ammunition Plant/New Brighton, Arden Hills/St. Anthony: Off-TCAAP Remedial Investigation," November 1991.

Louisiana Army Ammunition Plant, Doyline, Louisiana

At Louisiana Army Ammunition Plant (LAAP) near Doyline, Louisiana, the Army has removed and treated over 102,000 tons of contaminated soil and 53.6 million gallons of contaminated water, effectively eliminating any potential health threat to on-site workers and off-site residents.

Background

Louisiana Army Ammunition Plant (LAAP), located approximately 22 miles east of Shreveport, Louisiana, was built in 1942 to produce ammunition. An important Army munitions facility, LAAP is used today to produce and assemble a variety of projectiles, mortars and mine clearing charges.

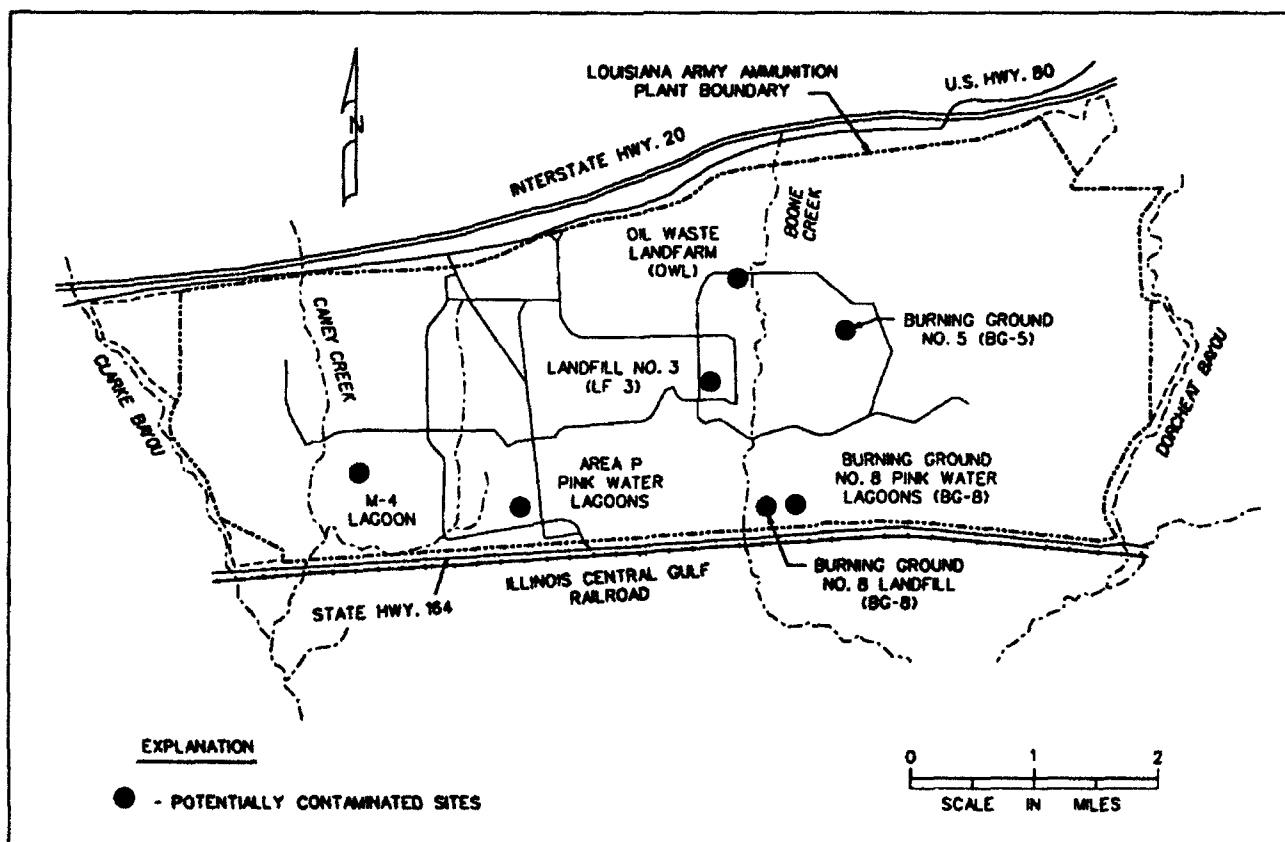
Past operations at numerous manufacturing, loading and support facilities resulted in the generation of explosive and metal contaminated wastes that were disposed of at several locations on the installation. Seven areas of concern were identified for field investigation and evaluation. They are shown on the installation map.

Of these seven areas, the site that presented the most immediate concern was Area P. From the early 1950s to 1981, Area P received explosives contaminated wastes. Pink water (explosive contaminated wastewater) generated from various manufacturing lines was disposed of in 16 unlined lagoons in this area. As a result of ground water contamination from the lagoons, the installation was placed on the National Priorities List (NPL) in 1989.

Interim Response Actions at Area P Control Risk

Even before LAAP was listed on the NPL, efforts were taken to mitigate the risk posed by Area P contaminants. An IRA initiated in 1987 treated 102,000 tons of contaminated soil and 53.6 million gallons of contaminated water in a lagoon at Area P. The IRA was completed in 1990. In October 1990, the cleaned-up soils were returned to excavated areas and a protective cap was installed.

The Area P cleanup relied upon high-temperature incineration to treat soil and carbon adsorption for remediation of contaminated lagoon water. To control the costs and risks of cleanup work, all soil and water treatment was performed on site. Cleanup of the soils was accomplished over a 15-month period using a mobile incineration system. Contaminated lagoon water



Louisiana Army Ammunition Plant Areas of Contamination

was treated using a custom-designed carbon adsorption system that was constructed and operated on-site.

The IRA effectively eliminated risks to onsite workers posed by the presence of the lagoon contamination. Studies completed during FY 1992 have shown that contamination remaining at other LAAP sites poses no risk to off-site or onsite populations under current and reasonably foreseeable future land use.

To evaluate contaminant transport potential, a three-dimensional computer ground water flow and contaminant transport model was developed and calibrated for the site. Conditions were simulated for a 100-year period using five year increments. The computer simulations showed that the contaminated ground water in the upper aquifer will not cross the boundaries of the facility and that none of the municipal well fields in the area would be impacted.

All seven areas of concern on the facility, including Area P, have been evaluated under a Feasibility Study and associated risk assessment. With the completion of the IRA at Area P, all of the areas of concern show no risk under current and reasonably foreseeable future industrial land use scenarios. A Record of Decision is anticipated to be signed for the entire installation in 1993. At that time, efforts will be taken to remove the installation from the NPL.

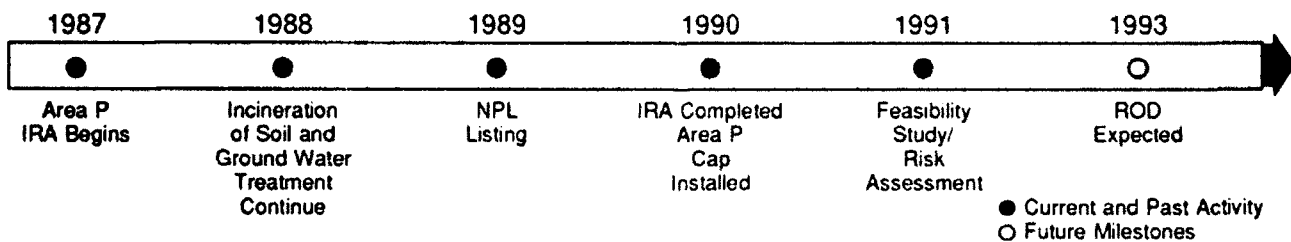
Computer Modeling And Risk Assessment Lead The Way

Preliminary ground water investigations at LAAP indicated that the subsurface flow system at the installation occurs in three aquifers. Contamination had been detected in the surficial aquifer but it was not known if it was being drawn deeper or had the potential to impact the three municipal drinking water well fields located within a 3-mile radius.



Area P Lagoons After Cleanup

CLEANUP TIMELINE



References

1. U.S. Army Installation Restoration Program at Louisiana Army Ammunition Plant: A Case History, Barbara Ann Campbell, February 1992.
2. Installation Action Plan for Louisiana Army Ammunition Plant, May 1992.
3. Three-Dimensional Ground Water Quality Modeling In Support of Risk Assessment At The Louisiana Army Ammunition Plant, Anderson et al, January 1992.

Formerly Used Defense Sites

The Secretary of the Army is the DoD Executive Agent for implementing DERP at Formerly Used Defense Sites (FUDS). As Executive Agent, the Army is responsible for environmental restoration activities under DERP on lands formerly owned or used by any DoD Component. The U.S. Army Corps of Engineers (USACE) is responsible for executing the FUDS program. Investigation and cleanup procedures at formerly used sites are similar to those at currently owned installations. However, information concerning the origin of the contamination, land transfer information, and current ownership must be evaluated before DoD considers a site eligible for restoration.

The funding allocated to the FUDS program in FY 1992 accelerated the progress of IRP and BDDR activities. During FY 1992, 1,116 PAs were completed and 1,084 new PAs were initiated at FUDS. In FY 1992, continuing and new work for sites requiring remedial/removal action was performed for each of the following phases: 92 SIs, 93 RI/FSSs, 234 RDs, 154 RAs, and 25 IRAs. There was also work performed on 53 BDDR projects.

A total of 7,344 FUDS with potential for inclusion in the program have been identified through inventory efforts. The number of FUDS increased by 558 over last year. Entries that were determined to be duplicative were removed from the inventory and numerous

other sites not previously counted were added to the inventory. The quality of data in the inventory continues to improve.

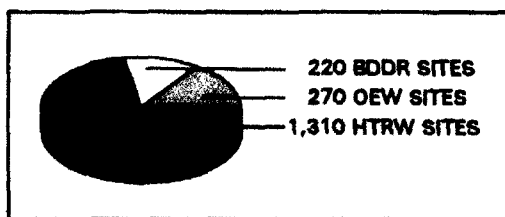
By the end of FY 1992, PAs had been initiated at 5,233 properties. Of these, 1,119 were underway and 4,114 were complete. During the PA phase, an Inventory Project Report (INPR) is conducted to determine if the property is eligible and if any hazards exist. Based on the completed PAs, we have determined that 2,832 sites are eligible and 1,282 are ineligible for the FUDS program. Of the eligible properties, 1,815 require no further action. Each of the other 1,017 properties require one or more remedial/removal projects.

Work requirements have been identified for approximately 1,800 sites on 1,017 properties. Of the identified sites, approximately 1,310 are required to address hazardous, toxic, or radioactive waste (HTRW) contamination from formerly used underground fuel storage tanks, landfills, leaking polychlorinated

biphenyl (PCB) transformers and other sources. Approximately 270 have been identified for the detection and removal of ordnance and explosive waste (OEW) from former target ranges, impact areas or storage/disposal areas, and approximately 220 have been identified that require the removal/demolition of unsafe buildings, structures or debris (BDDR).

USACE also represents DoD interests at NPL sites where former properties are located and where DoD may be a Potentially Responsible Party (PRP). Former properties that have passed from DoD control may have been contaminated by past DoD operations as well as by other owners, making DoD one of several PRPs. Ongoing USACE efforts will determine the allocation, if any, of DoD cleanup responsibility.

Thirteen FUDS are currently listed on the NPL. The sites are described in Appendix E. West Virginia Ordnance Works, a formerly owned site that was being



Ongoing and Completed Projects

remediated under the Army IRP in FY 1991 is now described in Appendix E. All work for this site was transitioned from the Army into the FUDS program in FY 1992.

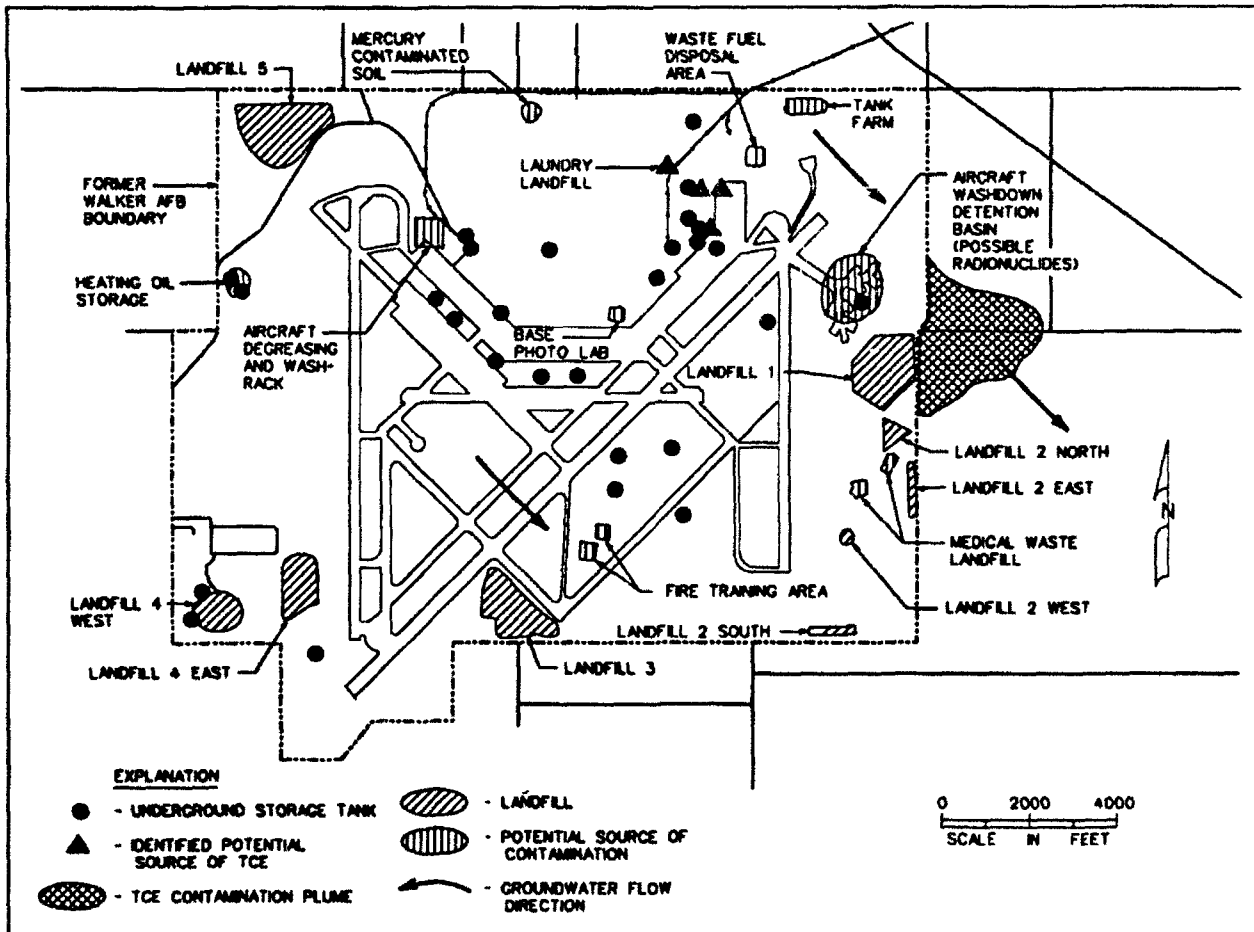
In FY 1992, \$126.6 million was invested in IRP and BDDR activities at former sites. The following are success stories detailing important work conducted by USACE at sites in the FUDS program. (Appendix E provides additional details for FUDS on the NPL.)

Former Walker Air Force Base, Roswell, New Mexico

At the former Walker Air Force Base, Roswell, New Mexico, the U.S. Army quickly mitigated a potential health threat from contaminated ground water providing alternate water supplies to affected residents. The effort is notable for how quickly the interim remedial action was implemented.

Background

Walker AFB was a large installation, supporting up to more than 5,000 personnel, on over 5,000 acres. Construction and land acquisition began on April 4, 1942, at which time the base was called the Roswell Air Field. Originally constructed as an Army Air Corps flight training school, it was used by the Air Force as a Strategic Air Command (SAC) base. The SAC base mission was to support the 6th Bombardment Wing, with two squadrons of B-52s and two squadrons of KC-135s. It was closed on July 1, 1967. Currently, the property is owned by the City of Roswell and is known as the Roswell Industrial Air Center (RIAC). It is used for commercial and military air transport, and continues to be an active hub for commerce in the region. (See the installation map below.)



Former Walker Air Force Base TCE Plume and Potential Source Areas

Discovery of the Problem

Residents of Y-O Acres, a rural subdivision south of Roswell, New Mexico complained of foul tasting water from their wells after a heavy rainstorm and local flooding in July 1991. Personnel from the New Mexico Environment Department (NMED) sampled and re-sampled the wells and confirmed that the ground water was contaminated with TCE, with concentrations of up to 120 parts per billion (ppb). The regulatory standard for TCE in drinking water set by the EPA is 5 ppb. Families whose wells were affected by the contamination were told by water resource specialists of NMED not to drink, bathe, or wash clothes in their household water.

From information gathered during a site visit, the Albuquerque District, Army Corps of Engineers, concluded that the contamination could possibly be coming from a source or sources located on the former Walker AFB. Confirmatory sampling and analysis verified TCE contamination in the drinking water. Record searches and site visits conducted during September 1991, and examination of historic aerial photographs indicated many potential sources of contamination at the former base. Four landfills, two fire training areas, more than 20

abandoned underground storage tanks, and various waste burial sites are the major possible sources of contamination that are currently being investigated.

Interim Remedial Measures by COE

The Chavez County Board of Commissioners formally declared an emergency on September 16, 1991, and requested assistance from the Corps of Engineers. After analyzing the situation, the COE made recommendations to address the immediate problem of ground water contamination. Two days after declaring an emergency, the COE announced that it would provide bottled water as an interim measure to the approximately 65 residents that used the 12 wells. On October 10, 1991, the residents whose wells were affected were told in a public meeting that an alternative water supply amounting to 50 gallons per person per month would be provided, until a more permanent supply could be established. Bottled water delivery from a local vendor began the next day, fifteen days after the emergency had been declared. The measures effectively eliminated the risks to residents' health from the TCE-contaminated wells.

More Permanent Measures by COE Provide Municipal Water Supply

After COE authorization was sought and received, and contracting and funding issues were negotiated, the City of Roswell agreed to extend their municipal water supply lines to these residents. The city will charge standard city rates for the water until the contamination is remediated. COE-funded work began on November 4, 1991, and water line construction was completed on November 21, 1991.

The COE has conducted a cost comparison study, calculating the difference in cost that is incurred by the residents in receiving municipal water over what it cost them to pump their own. The additional cost, estimated at approximately \$7,000-\$8,000 per year for all of the residents combined, is currently paid to the residents by the COE.

Investigation of the Soil/Ground Water Problem

Concurrent with the immediate interim remedial action taken to protect human health, the COE began the process to plan the investigation that will ultimately lead to the cleanup of the contamination. Currently, the COE is planning a Remedial Investigation of contaminated ground water and soils at the site. The investigation will include sampling and chemical analysis of soils, soil vapors and ground water. Also planned is the removal of more than 20 abandoned underground storage tanks (USTs), the contents of which are unknown, but which historically have contained fuel, waste oil, solvents or waste solvents.



Construction of 6" Water Supply Lines

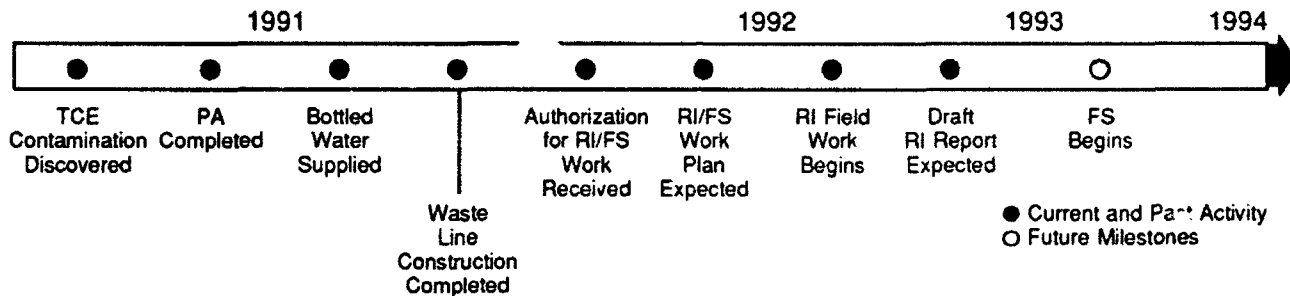
Based on available data, the dimensions of the contamination, as estimated by the NMED in December 1991, are about 3,600 feet by 2,500 feet, extending downgradient from the former Walker Air Force Base. The aquifer, located at a depth of about 150-160 feet, flows in an east to southeast direction, from the RIAC towards the Pecos River. The areal extent of contamination that will need to be cleaned up has been estimated at about 7.2 million square feet.

The possible sources of contamination that have been identified in the preliminary assessment are many and varied. More than 20 USTs have been identified, some of which may have been used for solvent storage. Often, wash racks have historically been sites of disposal of used solvents directly to the soils. Also, a base laundry, which also conducted dry cleaning operations, burned to the ground and was demolished prior to closure in 1967. The demolition wastes

were bulldozed into what were previously brine pits, and covered over with native soil.

With the completion of the interim measure of supplying a clean water source, the COE is currently developing plans to locate the source of contamination, and to remediate it.

CLEANUP TIMELINE



References

1. U.S. Army Corps of Engineers, "Potential Hazardous Waste Site Preliminary Assessment," September 1991.
2. Dennis Goodnight, "High TCE Level Found in Water," *Roswell Daily Journal*, September 4, 1991.
3. U.S. Army Corps of Engineers, "DERP Formerly Used Defense Sites Inventory Project Reports," October 9, 1991.
4. Steven J. Cary, Chief, Ground Water Protection and Remediation Bureau, State of New Mexico Environment Department to Thomas J. Wash, Chief, Formerly Used Defense Sites Branch, Environmental Restoration Division (CEMP-RF), U.S. Army Corps of Engineers, December 4, 1991. Official file of David Epperly, Tulsa District U.S. Army Corps of Engineers, Geotechnical Branch.
5. Rob Goldsmith, "Well Plan Not 'Feasible'." *Roswell Daily Record*, September 22, 1991.



Removal of Booster Adapters near Building 118.

Former Raritan Arsenal, Edison, New Jersey

The U.S. Army removed over 113,000 items of unexploded ordnance and 12,360 pounds of trinitrotoluene (TNT) from the former Raritan Arsenal in Edison, New Jersey. This action significantly reduced the risk to human health and safety in what is now a heavily-developed commercial and industrial area. This cleanup is noteworthy for the technical complexities of a state-of-the-art operation involving the detection, removal and detonation of large amounts of explosives in a heavily developed area. Close communication and coordination with Federal, State and local authorities, the press, and the general public contributed to the success of this project.

Background

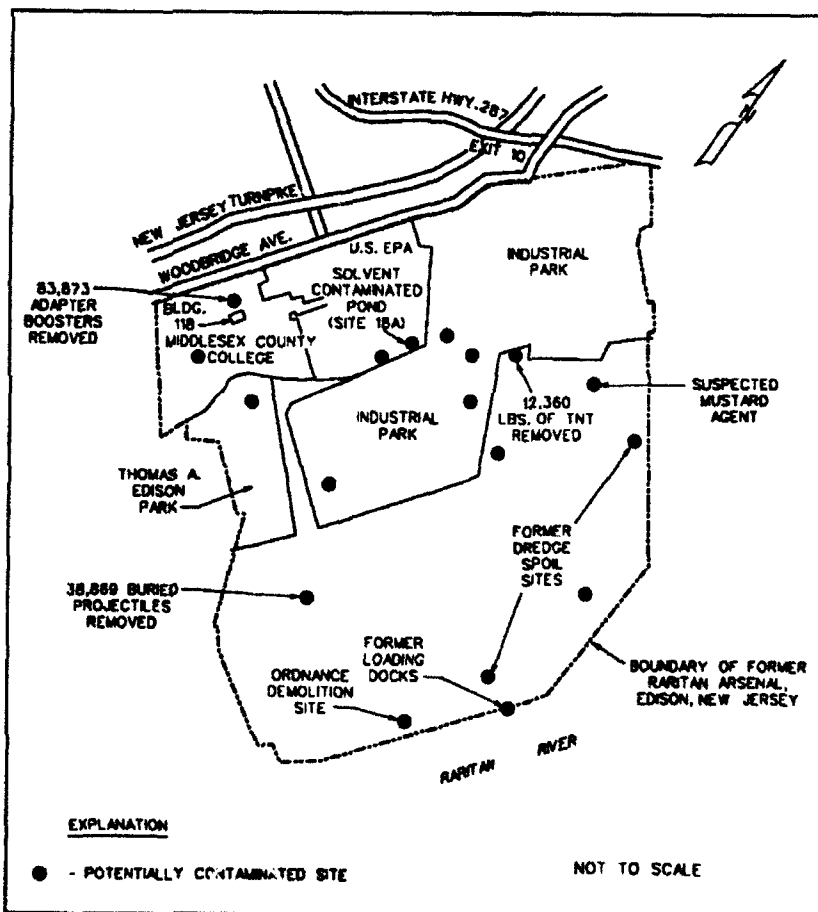
The former Raritan Arsenal is located in a heavily-industrialized portion of Middlesex County, New Jersey, about 20 miles southwest of New York City. The 3,200-acre arsenal site is located on the Raritan River in the township of Edison, which has a population of about 70,000 people.

The Army used the arsenal for the receipt, storage, shipment and decommissioning of ordnance, arms and machinery. From its opening in 1917 during the First World War to 1963, waste materials, including ordnance and chemical agents were buried and burned on-site.

From 1961 to 1963 operations were phased out and property was transferred to a number of owners. Subsequently, heavy commercial development occurred within the boundaries of the former arsenal. The property now contains a large

industrial park, a hotel-convention center, a major EPA facility with 400 employees, Middlesex County College, and a county park. The southern part of the installation, however, remains largely undeveloped wetlands. Although land was cleared of ordnance prior to construction, the Army identified 17 ordnance-contaminated sites in adjacent, undeveloped areas. (See map.)

In addition to large amounts of unexploded ordnance, the types of contamination resulting or suspected from former arsenal activities include explosive residues, chemical agents, and contaminants such as spent solvents and fuels. The ground water beneath the area is not used for drinking water purposes, and there is no indication that nearby drinking water supplies have been contaminated by former arsenal activities.



U.S. Army Corps of Engineers Former Raritan Arsenal Potentially Contaminated Sites

Ordnance Removal

The U.S. Army Corps of Engineers recovered 113,619 items of ordnance from the former arsenal as of June 1992, and removal is still occurring (see table at right). Ordnance investigation and removal activities have taken place at 17 locations and are expected to continue through FY 1997.

Removal Procedures

The U.S. Army Corps of Engineers has carefully cleared large areas of munitions in a logical sequence that protects the health and safety of those doing the demolition as well as of the many workers and students in the area. Often, this has been a complex and painstaking task, as many of the removals were conducted in close proximity to schools or office buildings.

The Corps conducts detection and removal in a carefully planned sequence. Work begins with ordnance searching. Crews clear brush, locate suspected hot spots, and use magnetometers to detect ordnance. "Hits" are marked with red flagging. Munitions within one foot of the surface are excavated by shovel and removed by hand. Munitions deeper than one foot are excavated using search moving equipment to remove most of the soil. Final removal is accomplished

Unexploded Ordnance Destroyed On-Site at Former Raritan Arsenal

UXO, MK II Grenades (unfuzed)	9
UXO, 37mm projectiles	30,149
UXO, MK II Booster Adapters	83,352
UXO, Grenade Rifle, VB French	67
UXO, MK 23 Practice Bomb	1
UXO, 9.2" Projectile	1
UXO, 75mm Projectile	21
UXO, Adaptor Booster	9
UXO, 155mm Projectile	1
UXO, TNT	12,360 lb
UXO, 20mm Projectile	8
UXO, Stokes Mortar Round	1

by hand. Crews excavate to six feet or the ground water table. After excavation, soils are sifted and examined and the area is backfilled after it is determined to be ordnance free.

The Corps restricts access and maintains security in cooperation with local police and security services to prevent injury to the public. A Health and Safety Plan is strictly followed and includes daily safety meetings, monthly safety audits, and air quality monitoring. Personnel cold stress monitoring, regular

medical surveillance, and personal protective procedures are also part of the Health and Safety Plan. As a result of these precautions, no incidents or injuries have occurred despite the large amount of explosives recovered.



Site 18A Before Cleanup



Site 18A After Cleanup

Removal Action Eliminates Direct Threat to Human Health and Wildlife

In order to eliminate any possible direct threat to humans and wildlife, the Army removed, during June of 1992, over 4,100 gallons of hydrocarbons and solvents, 26 55-gallon drums, and over 200 cubic yards of contaminated soils and materials from an abandoned man-made pond (Site 18A). The pond is on land now owned by EPA, and was adjacent to a jogging trail used by EPA employees. Analysis of samples collected at the site revealed concentrations of the carcinogenic chemicals trichloroethylene, vinyl chloride, and polycyclic aromatic hydrocarbons (PAH) far in excess of levels considered safe for drinking water. Although the water is not used for drinking, the site posed a threat of accidental exposure to office workers and could have contaminated surface and ground water.

The pond has been drained and soil removed, and other work is continuing at the site to determine the presence of any residual contamination, buried drums or ordnance in the area. The threat to human health and the environment has been substantially reduced.

Ongoing Studies and Schedule for Final Cleanup

Work is ongoing to determine the extent of any other contamination at the former arsenal. This is being addressed through a Remedial Investigation/Feasibility Study (RI/FS), which began in 1991 and is scheduled for completion in 1993. The remedy design study (Remedial Design) will begin in 1993, with final cleanup expected in 1994 (see timeline on the next page).



US Army Corps
of Engineers
New York District

News Release

Release Date: 7-27-92

For Immediate Release

Contacts: MAJ Ben Bauman (908) 603-9517
Andrew L. Miller (212) 264-9113

Technical Review Committee Meeting Scheduled

NEW YORK — The Former Raritan Arsenal project office of the U.S. Army Corps of Engineers announced that the Technical Review Committee meeting for the Former Raritan Arsenal will take place on August 7, 1992, at 10 a.m. The meeting will be held at the Expo Center, located at 97 Sunfield Avenue, in Raritan Center.

The meeting will review present and future activities concerning the remediation of the Former Raritan Arsenal. The public information repository is located at the Edison Township, Main Library, 340 Plainfield Avenue, Edison, N.J.

Sample News Release

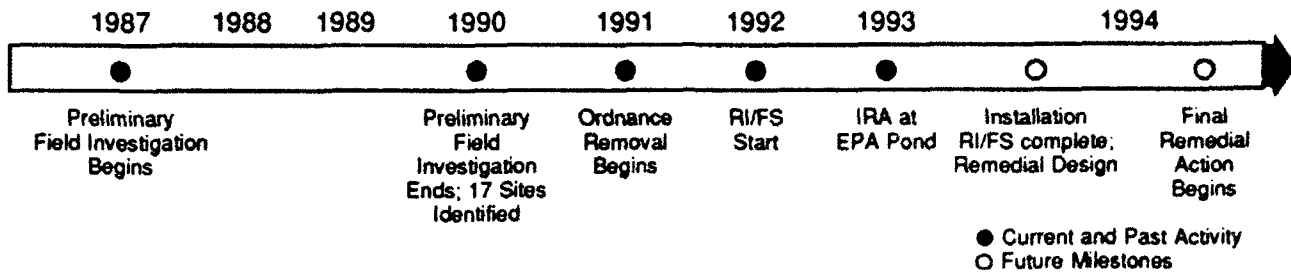
Public Communication

Since the spring of 1990, the former Raritan Arsenal has received a great deal of attention from the media, local citizens, special interest groups, and local officials. The hazardous waste and ordnance work has become a high profile project. Awareness has been heightened by the fact that Middlesex County has the most hazardous waste sites of the 21 counties in New Jersey.

The Army has responded to these concerns by providing an on-site project manager to deal with the public, by maintaining a constant flow of information, and by implementing activities that reach broad audiences within the community and address their concerns. Examples (see sample news release above) of such activities include distribution of frequent project updates, news releases and fact sheets, regular meetings of the Technical Review Committee, site tours, briefings, and maintenance of information repositories and telephone information lines.

These community relations activities have allowed the Army to be responsive to public concerns about cleanup activities. For example, ordnance detonation activities were successfully modified to address complaints about noise from demolition activities on-site near the Raritan River. Explosives were laid in trenches and covered with two feet of sand prior to detonation, and noise levels were significantly reduced.

CLEANUP TIMELINE



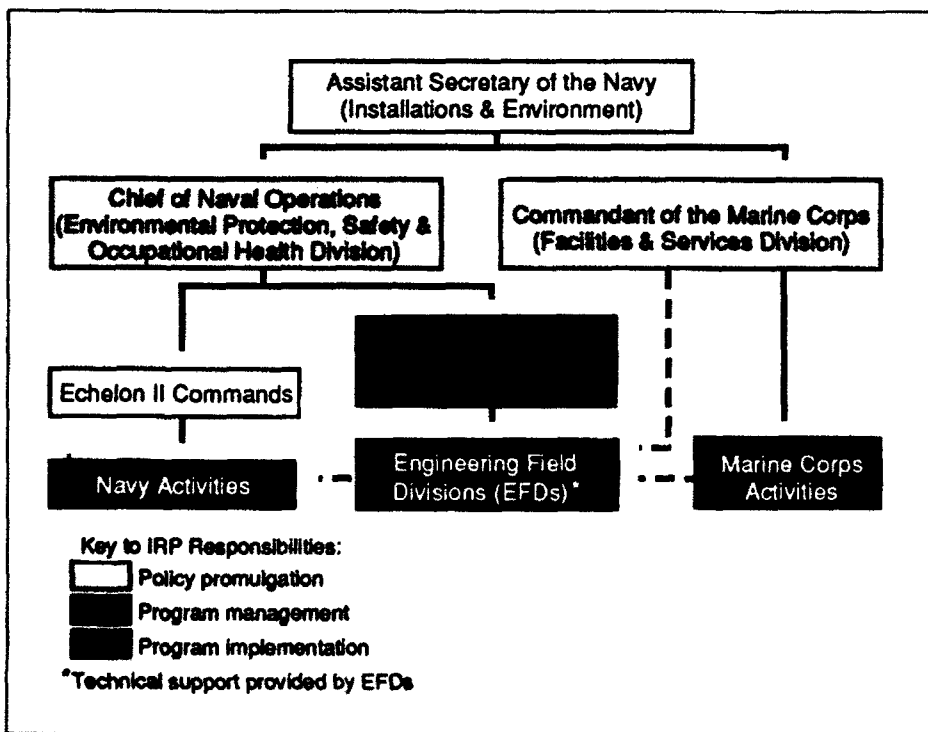
References

1. Dames and Moore, "Community Relations Plan for the Former Raritan Arsenal," Prepared for the U.S. Army Corps of Engineers, March 1992.
2. IT Corporation, "Final Report, Former Raritan Arsenal, Edison, New Jersey," Prepared for the U.S. Army Corps of Engineers, May 1992.
3. Richard C. Salkie, Associate Director for Removal and Emergency Preparedness Programs, "Removal Site Evaluation for Raritan Depot Pond," U.S. Environmental Protection Agency, Region II, September 6, 1991.
4. U.S. Army Corps of Engineers, "Raritan Arsenal Cleanup Fact Sheet," June 18, 1992.



Department of Navy IRP Progress

The most significant IRP growth among DoD Components in FY 1992 occurred in the Department of Navy's program. The number of Navy and Marine Corps sites included in the IRP increased from 2,409 to 3,258 including USTs and DERA-eligible RCRA Solid Waste Management Units (SWMUs) identified during RCRA Facility Assessments. Progress in IRP activities has occurred mostly in RI/FS completions which almost tripled during FY 1992.



Department of Navy IRP Organization

The National Contingency Plan and protocol developed by the Environmental Protection Agency (EPA) for assessing and cleaning up sites are followed by the Department of the Navy (DON) as the basis for the Navy/Marine Corps

Environmental Restoration Program. As of October 1, the Department of the Navy has 23 installations on the National Priorities List (NPL) and four proposed for listing on the NPL.

The Department of the Navy continues to make significant progress in the Installation Restoration Program. The major Navy and Marine Corps accomplishments in FY 1992 include the initiation of new RI/FS work and continued progress in cleanup actions. Funding received in FY 1992 was invested in RI/FS activities, increasing the number of sites where RI/FS work was completed from 38 to 110. RD completions at Department of Navy sites increased from 9 to 12 during FY 1992 and PA work was completed at 2,925 sites by the end of the fiscal year. As the DON's experience in conducting studies increases, technical experts are able to develop new methods, based on that knowledge, to expedite the process at installations in the early phases of the program. This allows flexibility and should be reflected in increasing numbers of interim remedial actions, removals, and remedial actions.

An important aspect of the Department of Navy's process are studies of wetlands and estuarine and marine environments on or adjacent to DON installations. These studies include biota and

Whidbey Island Naval Air Station, Washington

sediment sampling in order to determine if contaminants are present in these environments and to measure their impact if they are present. An example of such a study conducted by the Department of the Navy in conjunction with EPA's Narragansett Laboratory is the Allen Harbor Study at NCBC Davisville, an installation which is being closed under the Base Closure Act.

Initiatives begun in 1992 include:

- Speeding up the process by working on more than one phase concurrently rather than in sequence.
- Using the partnering concept to improve working relationships with both regulators and contractors.
- Emphasizing teamwork and early identification of roles and authorities of all team members, planning flexible workplans and sampling based on specific objectives and goals.
- Using a non-phased sampling and analysis approach.
- Reducing review time by reviewing documents concurrently with regulators.
- Using the value engineering process to refine the decision making process.
- Using new contracting procedures.

In order to streamline site investigations and the design of remediation projects, the Navy has awarded eight CLEAN (Comprehensive Long-Term Environmental Action Navy) contracts, which provide coast-to-coast coverage at all DON facilities. These contracts cover Preliminary Assessments, Site Inspections, Remedial Investigations, Feasibility Studies and Remedial Designs. Remedial Actions are covered by eight separate contaminant specific contracts called

Remedial Action Contracts (RACs). When used in conjunction, these contracts allow the Navy to rapidly respond to contaminated sites as well as demonstrate innovative cleanup technologies.

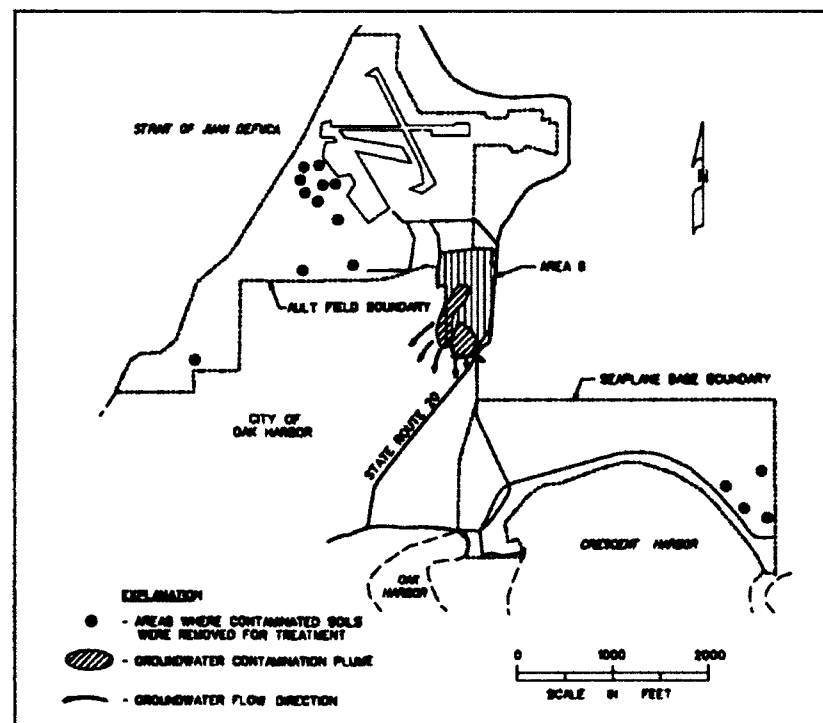
The Department of Navy signed four IAGs covering NPL installations in FY 1992. This action brings the total number of Navy and Marine Corps NPL installations covered by IAGs to 22. RI/FS activities are underway or completed at all NPL facilities and removal actions and IRAs were completed or were ongoing at 25 of the 27 Department of Navy facilities final-listed or proposed for listing on the NPL.

The following are showcase stories detailing significant Department of Navy IRP efforts at selected installations. (Appendix B provides additional details for installations final-listed or proposed for listing on the NPL.)

The Navy has reduced potential risk from contaminated ground water at Whidbey Island Naval Air Station through several interim remedial actions, including provision of alternate water supplies and the construction of a ground water extraction and treatment system. In addition, the Navy has applied a phased RI/FS approach to expedite cleanup. The approach has resulted in significant cost savings and has helped streamline IRP activities at the installation.

Background

Since the 1940s, operations at Whidbey Island Naval Air Station (NAS), Washington have generated a variety of hazardous wastes which were disposed of onsite at a time when regulatory requirements had not been established. Wastes consisted primarily of solvents, oily



Removal Actions (Interim Remedial Actions) Areas at Whidbey Island Naval Air Station.

sludges, and thinners. An initial investigation conducted in 1984 identified the waste disposal areas as potential sources of contamination. In 1985, EPA completed a Hazardous Ranking System (HRS) evaluation at Whidbey Island NAS and nominated the Station's two sites, Ault Field and the Seaplane Base, for inclusion on the National Priorities List (NPL). In 1990, both sites were added to the NPL. A Federal Facilities Agreement (FFA) was signed in 1990 by the Navy, EPA, and Washington State Department of Ecology. The Navy is conducting RI/FSs to determine the nature and extent of soil and ground water contamination and to evaluate potential remedial alternatives.

NAS Whidbey's offer to provide city water to residents and businesses that are in close proximity to the presumed contaminant flow is a positive and proactive action.

**Joyce E. Bouvouloir, R.S.
Environmental Health Director
Island County Health Department**

Application of a Phased Approach to RI/FS

To help expedite cleanups at Whidbey Island NAS, the Navy grouped the 14 contaminated areas (see installation map on previous page) on the two NPL sites into 4 Operable Units (OUs) based on similar characteristics such as type of contaminants and pathways (i.e.,

soil, ground water). This strategy allows each OU to progress independently through the IRP process instead of delaying remediation activities until agreement on cleanup procedures for all sites is reached. The remaining 26 areas that had little or no contamination were isolated and studied separately with limited field work to determine if any additional investigation was needed. This approach resulted in significant cost savings by avoiding unnecessary RI/FS work at uncontaminated areas and has contributed to continuous progress by streamlining and prioritizing IRP activities based on nature and extent of contamination as well as threat to public health and environment.

Naval Air Station Whidbey Island, Oak Harbor, Washington



Proposed Plan Superfund Interim Remedial Action at Ault Field Area 6 Landfill

This proposed plan describes an interim action that will be taken to reduce the potential hazard from the migration of a contaminated plume of ground water at the Area 6 landfill. The interim action will comply with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, commonly known as Superfund). The Navy, the U.S. Environmental Protection Agency (EPA), and the Washington Department of Ecology (Ecology) are seeking comments from the public on this proposed plan.

This plan, submitted in accordance with Section 117(a) of CERCLA, highlights the interim action alternative preferred by the agencies. The actual remedy selected may be the preferred alternative, a combination of elements from some or all of the alternatives, or another identified response action. Comments are being sought on all alternatives. The alternative to be used will not be selected until the public comment period has ended and all comments have been received and considered.

HOW YOU CAN PARTICIPATE

You are encouraged to submit written comments on the proposed interim remedial action or any of the other alternatives presented, during the Public Comment period which will be from January 3, 1992 to February 3, 1992.

Comments may also be made in person during the PUBLIC MEETING to be held at 7:00 pm, January 27, 1992 at the Chief Petty Officers Club, Clover Valley Road and Heller Road, Oak Harbor. **Please send your written comments or requests for more information to:**

Mr. Howard Thomas
Public Affairs Officer
Naval Air Station Whidbey Island
Oak Harbor, Washington 98278-5000
Phone: (206) 257-2287

OVERVIEW OF THE PROPOSED PLAN

A plume of contaminated ground water is migrating from the Naval Air Station's (NAS) landfill located west of Highway 20, south of Clover Valley Road and east of Goldie Road. This area is known as Area 6. This proposed interim action is being taken to retard or completely stop the spread of the plume until an overall plan can be developed.

In a separate action, landowners adjacent to or near Area 6 boundaries are being offered hookups to Oak Harbor or Navy water sources.

PUBLIC COMMENT PERIOD: JANUARY 3, 1992 through FEBRUARY 3, 1992

PUBLIC MEETING: JANUARY 27, 1992

**LOCATION: CHIEF PETTY OFFICERS CLUB, CLOVER VALLEY ROAD
and HELLER ROAD, OAK HARBOR, WASHINGTON**

Proposed Plan for Interim Remedial Action at Ault Field Area 6 Landfill

Interim Remedial Action for Area 6 Landfill

Since ground water contamination was migrating from Area 6 where one of the landfills is located, the Navy proposed interim remedial actions (IRAs) to contain the spread of contamination until an overall remediation plan can be developed. Area 6 comprises a portion of OUI at Ault Field. The contaminants of concern include chlorinated solvents, vinyl chloride, and metals, primarily chromium. After evaluating several potential alternatives, the Navy, working with EPA and the Department of Ecology, selected ground water extraction and treatment as the interim action that would most reduce the potential risk to human health and the environment, comply with Federal and State applicable or relevant and appropriate requirements (ARARs), and be cost effective. The selection of this interim remedy

is now documented in a Record of Decision signed in April 1992 by the three parties. The IRA includes the installation of extraction wells to remove ground water from the shallow aquifer beneath Area 6, the treatment of extracted ground water using metal precipitation, and air stripping, and the discharge of the treated water in the aquifer by irrigation or reinjection. It is estimated that the system will treat approximately 200,000 gallons of water daily. Implementation of the IRA is expected in the beginning of FY 1993.

Potable Water Offered to Neighboring Residents

The initial RI results have indicated that a plume of contaminated ground water is migrating from Area 6 toward drinking wells located offbase. As a result, the Navy contracted with the Washington Department of Health to test the water in private drinking wells. Although no contamination was found in the samples collected, the Navy coordinated with the EPA, the Department of Ecology, the Washington Department of Health and local agencies to offer alternate water supplies to residences located adjacent to Area 6. Water agreements have been subsequently signed between the Navy and neighboring property owners certifying that the Navy will connect two well owners to the local public water system or to the Navy water system, as a preventative measure to risks associated with any future contamination of the drinking wells. The water connections were completed during the summer of 1992. A baseline risk assessment was conducted for Area 6 identifying ground water as the primary medium of concern for potential human health effects. Cancer and non-cancer health risks from potential future use of Area 6 shallow ground water are high.



Environmental Exhibit at Whidbey NAS Air Show

Removal Action at Whidbey Island NAS

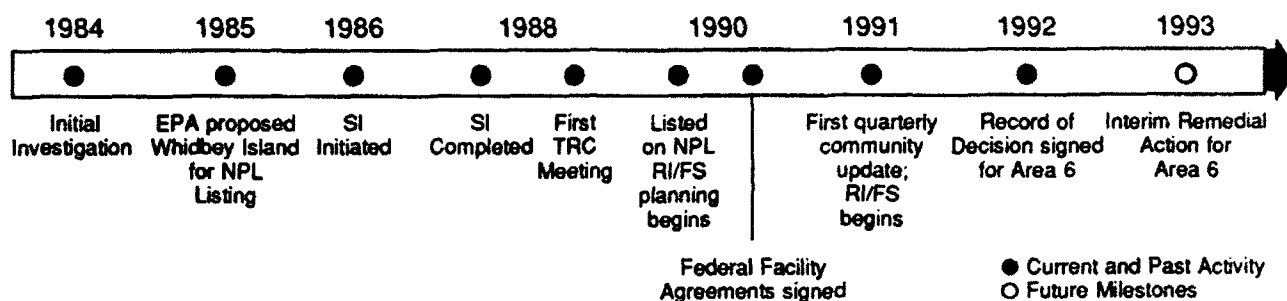
Under the underground storage tank (UST) program, 17 tanks were removed from 14 sites. A total of 1,984 cubic yards of soils contaminated with petroleum hydrocarbons were excavated for treatment. These soils are currently stockpiled on-site and covered with a 9 mm thick permalon cover waiting to be land farmed on Navy property. At all of the sites where contaminated soil was removed for treatment, no further remedial action was determined to be warranted. In the remaining 13 sites, 4 require no further action and 9 are being evaluated to determine cleanup approach(s).

Public Involvement in the Interim Remedial Action Evaluation

The Navy is continuously encouraging the public to become involved in issues concerning Whidbey Island NAS. First, the Navy held a public meeting in January 1992 to take comments on a proposed IRA plan. The plan provided four potential remedial alternatives that address ground water contamination migrating from Area 6 to off-Navy property. The Navy responded to comments presented by the public and considered

the public comments and concerns in making the final decision on the appropriate IRA for OUI. Second, Whidbey NAS has invited public representatives as Technical Review Committee (TRC) members to represent the community interests in the area that is impacted or potentially impacted by response actions at Whidbey NAS. Third, Whidbey Island NAS developed a comprehensive Community Relations Plan that describes a program for community involvement in all remedial investigations and feasibility studies. Fourth, fact sheets are published and distributed by Whidbey Island NAS to inform the community about the Navy's program to evaluate and clean up the old hazardous waste (HW) disposal sites. Finally, information on contamination at Whidbey Island NAS has been made available to the public at three informational repositories.

CLEANUP TIMELINE



A Technical Review Committee (TRC) has been formed to review and comment on actions and proposed actions for suspected contaminated sites that will undergo RI/FS activities at Whidbey Island NAS. Members of the committee include representatives from the installation, EPA Region X, Washington Department of Ecology, public representatives from the involved community, and other federal and state representatives. Regular meetings are held every quarter at Whidbey Island NAS with additional meetings scheduled when necessary. These efforts maintain interaction among the involved parties and ensure progress in IRP activities at the Naval Air Station.

Future Activities

The Navy is currently considering removal actions for portions of OUs 2 and 4. Area 4, included in OU2, has polychlorinated biphenyls (PCBs)-contaminated soil as a result of leaks from PCB transformers stored in the area in the past. Area 14, also a portion of OU2, was used as a pesticide rinsate disposal area. At the Seaplane Base, where five contaminated sites were grouped to form OU4, storm drains were found contaminated as a result of past disposal activities. The Navy will determine if removal actions such

as the excavation of the PCB- and pesticide-contaminated soil and the cleanup of the storm drains will be conducted, based on Phase II sampling results. The Interim Remedial Action planned for Area 6 landfill is expected to begin early Fiscal Year (FY) 1993.

Removal of USTs will continue and excavation and treatment of soil contaminated with petroleum hydrocarbons as a result of USTs will be conducted in FY 1993.

References

1. "UST Removal, Closure, and Assessment Report," January 1992.
2. "Draft Feasibility Study Report for Whidbey Naval Air Station," June 1992.
3. "Draft Final Remedial Investigation Report," June 1992.
4. "Draft Community Relations Plan for Superfund Activities at Whidbey Island NAS," June 1991.

Brunswick Naval Air Station, ME

At Brunswick Naval Air Station, the Navy has expedited cleanup through the use of focused Feasibility Studies, and an overlap approach whereby proposed plans are initiated before the final feasibility study is completed. These approaches can reduce the time needed to complete the remedial phase by as much as six months. In addition, the Navy has signed two interim RODs, and thereby minimized the potential health risk to nearby residents.

Background

Brunswick Naval Air Station (NAS) is an active facility supporting the Navy's antisubmarine warfare operations in the Atlantic Ocean and Mediterranean Sea. The installation's primary mission is to operate and maintain P-3 Orion aircraft. Early hazardous waste investigations at Brunswick NAS were conducted under the Navy Assessment and Control of Installation Pollutants (NACIP) program which was later restructured and renamed the Installation Restoration (IR) Program to be consistent with CERCLA and SARA.

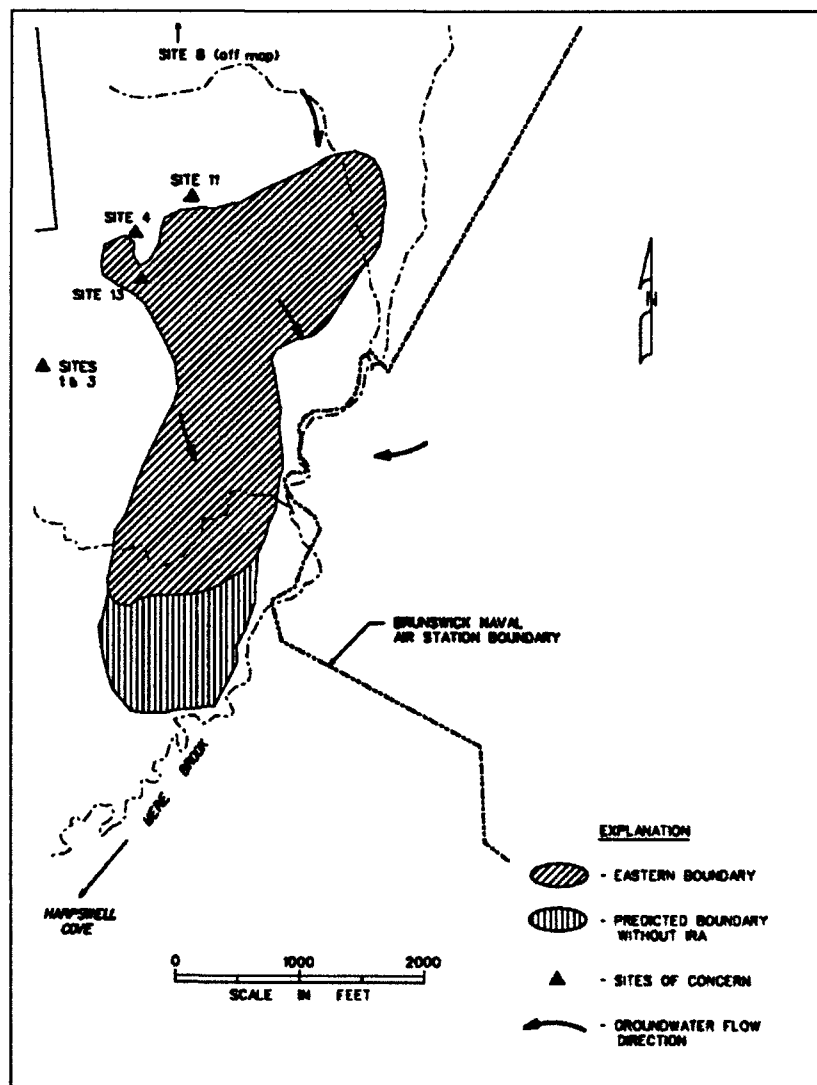
In 1981, the Chief of Naval Operations nominated Brunswick NAS to be one of the first Navy activities to undergo review of past hazardous waste practices under the NACIP program. An Initial Assessment Study (IAS), completed in 1983, confirmed the presence of past disposal or spill sites that contain hazardous wastes. Past disposal practices started as far back as the 1940s when the installation became active. The installation was placed on the National Priorities List (NPL) in 1987. In 1990, the Navy entered into a Federal Facility Agreement (FFA) with the EPA and the Maine Department of Environmental Protection for the cleanup of contamination at Brunswick NAS.

The Navy is currently investigating 13 contaminated sites.

A Navy Approach to Expediting IRP Activities

In order to accelerate the FS/ROD/RD process at Brunswick NAS, the Navy completed Focused Feasibility Studies (FFS) at Sites 1 and 3, and Site 8 (see installation map below). In this approach, the feasibility study is conducted for critical sites separately from the overall FS to speed up the transition of these sites from the study phase into the cleanup phase without being constrained to a schedule that is based on the status of other sites.

Further, the Navy is using an overlap approach to speed up actions within the IRP process. This involves the initiation of the Proposed Plan for remediation before the final feasibility study is completed, and the development of remedial design before the Record of Decision is finalized. This approach can reduce the time needed to reach the remedial phase by at least six months. In order to conduct this process successfully, a high level of effort is required by all involved parties to participate and provide comments early in the process and reach an informal agreement on future activities planned for each phase. Also, this requires the Navy to keep the community well informed on these issues.



Brunswick Naval Air Station Eastern Plume Area

Two Records of Decision for Brunswick NAS

In June 1992, two interim Records of Decision (RODs) were completed and signed by the Navy and EPA for Brunswick NAS. These RODs are aimed at controlling and containing the spread of known contamination at several sites until all investigations are completed and an overall plan is developed to remove contamination from all sites. This will minimize the potential health risk associated with migration of contaminant off the installation. They are the first RODs reached in the air station's installation restoration program that address former waste sites. The first ROD addresses a selected interim remedial action (IRA) that provides containment of landfill wastes and contaminated ground water at Sites 1 and 3. Based on the proximity of Sites 1 and 3, common historical land use, and hydrogeologic characteristics, the two sites are combined and addressed as one site in the ROD. The two sites operated as disposal areas between 1955 and 1975. Wastes disposed of included solvents, paints, pesticides, petroleum products, and oils. The contaminants found include volatile and semi-volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons, pesticides, and inorganic compounds. The Navy evaluated a total of six potential remedial alternatives addressing the contaminants of concern. The final selected remedy includes containment by constructing a cap over the landfills and a slurry wall around the waste to divert clean water away from the landfills. Contaminated ground water contained by the cap and slurry wall will be pumped through extraction wells and treated by ultraviolet (UV) oxidation to destroy organic compounds. The future discharge of the treated water in the Brunswick Publicly-Owned Treatment Works (POTW) is pending POTW approval. Ground water cleanup levels for contaminants have been set at the Maximum Contaminant Levels (MCL) (see table for cleanup levels).

Proposed Cleanup Levels for Sites 1 and 3 Proposed Plan: Sites 1 and 3			
Medium	Maximum Concentration Detected at NAS	Target Clean-up Level	Rationale
HUMAN HEALTH			
Groundwater			
Arsenic	107 µg/L	50 µg/L	MCL ^{1,3}
Vinyl Chloride	180 µg/L	2 µg/L	MCL ⁴
Methylene Chloride	460 µg/L	5 µg/L	MCL (p)
1,2-Dichloroethylene (cis)	140 µg/L	70 µg/L	MCL ³
1,2-Dichloroethylene (trans)	140 µg/L	100 µg/L	MCL ⁽³⁾
Chromium (total)	11 µg/L	100 µg/L	MCL (p) ²
Lead	60 µg/L	5 µg/L (at source)	MCL
Nickel	78 µg/L	100 µg/L	MCL (p) ²
ECOLOGICAL			
Leachate Soil/Sediment			
Mercury	3.3 mg/kg	1 mg/kg	risk-based

NOTES:

MCL = Maximum Contaminant Level
MCL(p) = Proposed Maximum Contaminant Level
mg/kg = milligrams per kilogram
µg/L = Micrograms per liter

¹ = The MCL for arsenic is currently under review; USEPA 1991a.
² = MCL (p) is equal to MCLG.
³ = USEPA 1991b.
⁴ = MEG for Vinyl Chloride is 0.2 µg/L

The second ROD describes an Interim Remedial Action (IRA) for the Eastern Plume, to prevent further migration of the plume. The Eastern Plume is a result of contamination at the Acid/Caustic Pit (Site 4), the former Fire Training Area (Site 11), and the Defense Reutilization and Marketing Office (DRMO) (Site 13). The principal threat associated with the plume is the discharge of contaminated water into Mere Brook which further discharges into the Harpswell Cove estuary. Studies conducted by the Navy show that without any effort to stop the migration of the plume, the contamination will reach the discharge zone in approximately five years. The contaminants of concern are primarily volatile organic compounds (VOCs). The potential threat to human health was determined not to be an immediate threat because water from the contaminated plume is not currently used as a drinking water supply. With the implementation of the IRA, migration of the contamination into the estuary can be stopped and a reduction of contaminant concentrations in the ground water can be

achieved until a final remedy is chosen. The IRA involves the installation of extraction wells, the treatment of contaminated ground water using ultraviolet (UV) light/oxidation, and finally, the discharge of the treated water into the Brunswick POTW. Discharge to the POTW has not yet been approved.

The remedial design (RD) is underway for each of the selected interim remedial actions described in the RODs. The RD field program began in April 1992 and consists of geotechnical investigation and ground water treatability testing. Geotechnical activities include testing to determine the thickness and depth of the clay layer, the installation of soil borings to characterize soils along the slurry wall and within the landfill limits, and the placement of gas probes in the landfill to detect landfill-generated gases. Further, a bench-scale ground water treatability study was initiated in May 1992 to obtain quantitative data to determine the appropriate design process for treating the contaminated water.

Public Participates in Brunswick NAS Issues

The Navy is continuously keeping the community of Brunswick informed about remediation activities at Brunswick NAS through informational meetings, fact sheets, press releases, general public and Technical Review Committee (TRC) meetings. The Navy first informed the public about the presence of past waste disposal areas at the base in 1981 when these areas were identified as potential sources of contamination. In 1987, the Navy established an information repository at the local library for public review of site-related documents. In 1988, the Navy released a Community Relations Plan describing a program that will address community concerns and disseminate information to the community. Further, the TRC, formed in 1988, has served as an important link between the Navy, EPA, and the State of Maine Department of Environmental Protection, and the public, and has provided an important vehicle for public participation. Several informational meetings have also been held to discuss RI findings and proposed remedial plans. Finally, in 1992, the community received a Technical Assistance Grant (TAG) from EPA to review and interpret the Navy Program at Brunswick NAS. The Figure below shows the significant events in the IRP at Brunswick NAS.

Future Activities

The Navy is planning several actions for 1993 at Brunswick NAS. A "non-time-critical" removal action will be conducted at Building 95 where soils have been contaminated with pesticides and herbicides. This action, by definition, is an IRA that can involve more than six months planning before response actions must begin. The chemicals found were used between 1955 and 1983 and include primarily pesticides. Polynuclear aromatic hydrocarbon (PAH), used as a liquid carrier in the application of pesticides was also found in soils in the vicinity of Building 95. An Engineering Evaluation and Cost Analysis (EE/CA) was prepared to document the identification and evaluation of removal actions in support of "non-time-critical" removal action. The Navy will select and implement one of the alternatives proposed in the EE/CA which will consist of constructing a soil cover over the contaminated soils to prevent contact by humans or ecological receptors, excavating the top 2 foot soil layer for off-site incineration, or excavating contaminated soil for on-site treatment by solvent extraction. The EE/CA serves as the basis for an Action Memorandum which provides the written record of the selection of the remedial alternative after it is approved by the regulatory agencies.

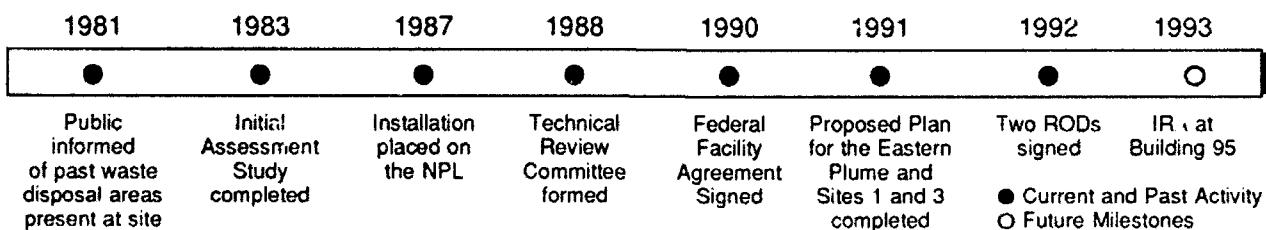


Soil Gas Studies, Site 1

Other future activities include the construction and operation of the remedial systems selected for Sites 1 and 3 and the Eastern Plume. Further, the Navy will conduct a risk assessment at the completion of the ground water remediation. If the excess cancer risks are greater than a one-in-one-thousand lifetime risk, the Navy will implement additional remedial actions.

In addition, to further accelerate the cleanup process, the Navy is currently preparing proposed plans and remedial designs concurrently for Sites 5, 6, 8, and 9. Remedial Action is expected in 1993.

CLEANUP TIMELINE



References

1. "Record of Decision for an Interim Remedial Action at the Eastern Plume Ground Water Operable Unit, Brunswick NAS, Maine," June 1992.
2. "Record of Decision for a Remedial Action at Sites 1 and 3, Brunswick NAS, Maine, June 1992.
3. "Draft Remedial Design Work Plan, Sites 1 and 3 and Eastern Plume," July 1992.
4. "Draft Engineering Evaluation/Cost Analysis, Building 95, Volume 1, August 1992.
5. "Proposed Plan, Eastern Plume," December 1991.
6. "Proposed Plan, Sites 1 and 3," December 1991.

Accelerated Cleanups at Moffett Field NAS, CA

At Moffett Field NAS, EPA, and the State of California have formally agreed to a modified schedule that will allow cleanup to begin more than three years earlier than previously planned. The cleanup will be expedited organizing the existing 19 IRP sites into six operable units (OUs) with different schedules. This will allow individual OUs to progress independently through the cleanup process, rather than delaying remedial activities until agreement is reached on cleanup base-wide.

In addition, three source control activities are currently being implemented: a pump and treat system to control petroleum hydrocarbons migration from several excavated leaking tanks; excavation and bioremediation of petroleum hydrocarbon-contaminated soil; and the January 1993 construction of a pump and treat system to control fuels and chlorinated solvents migration from an abandoned fuel farm and a former dry cleaning facility.

Cleanup of PCB- Contaminated Soil at Naval Supply Center Pearl City Junction, HI

The Navy has removed and disposed of 954 cubic yards of PCB-contaminated soils in an open storage area at Naval Supply Center, Pearl City Junction, Hawaii. Completion of removal and disposal of approximately 26 cubic yards remaining is expected by November 1992. Building 4 and the adjacent open storage area were used for storage of various supply materials, including electrical transformers containing PCB oil. The Navy is transferring this property to the State of Hawaii, and the cleanup is being expedited to ensure cleanup prior to land transfer.

X-Ray Cooling Water Remediation NSWC-Indian Head, MD

The Navy is using solidification/stabilization to treat soils contaminated with silver from past X-ray photography activities.

The silver contamination resulted from the discharge of X-ray photographic rinse water from Building 730 at the Naval Surface Weapons Center at Indian Head, Maryland, during the period 1953 to 1965.

Seven-hundred twenty pounds of silver solution were spread over 600 feet of drainage swales. A study conducted in 1991 revealed sediment concentrations of silver to be as high as 570 ppm. Higher concentrations were adjacent to the building, with decreasing concentrations at downstream locations indicating a continued migration of silver through sediment/surface water flow within the drainage system. TCLP testing showed that the contaminated sediment was not characteristically hazardous. A risk assessment concluded a borderline risk to site workers but a significant risk to aquatic invertebrates. The Navy, with the Maryland Department of Environment, selected a remedy which would excavate soils/sediments exhibiting silver concentrations greater than 10 ppm, treat the excavated soil using solidification/stabilization technology, and provide long-term management through incorporation of the treated material within an on-site explosion berm. This remedy will give the Navy an alternative to costly off-site disposal and possible PRP responsibilities. It will also be consistent with the construction of an explosion berm required for a military construction project.



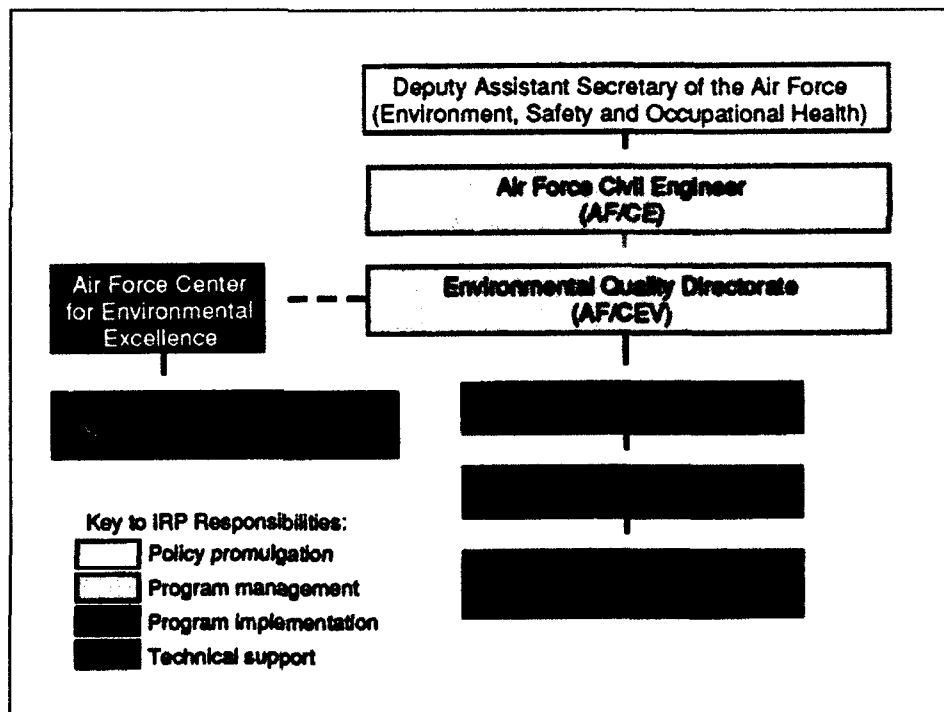
Air Force IRP Progress

An additional Air Force installation, Andersen AFB, Guam, was proposed for the NPL in 1992. The total number of sites at Air Force installations increased slightly from 4,354 to 4,474. By the end of FY 1992, IRP activities were complete and no further remedial actions were planned at 1,283 Air Force sites, an increase of more than 50 percent over FY 1991 totals.

The Air Force has identified its cleanup strategy as a "bias for action"—getting out of the study stage by closing out the sites posing no risk or moving into the cleanup phase. This task has been especially challenging because of pressure by regulatory agencies to more thoroughly characterize and study sites. The Air Force is working aggressively with EPA and state regulators to reduce the time and cost of cleanup.

In addition, in FY 1992, the Air Force made significant progress in five distinct areas: management action plans, training, contracting, cost estimating and development of generic cleanup protocols.

- **Management Action Plans (MAP)** – The MAP is a summary of the status of the environmental restoration and compliance programs at each installation. In addition, the MAP outlines the strategy for implementing the environmental restoration response actions necessary to protect human health and the environment. The MAP guidebook was finalized in May 1992 and six regional workshops were conducted for RPMs and State and Federal representatives. Draft MAPs are scheduled to be completed for all bases by the end of December 1992.



Air Force IRP Organization

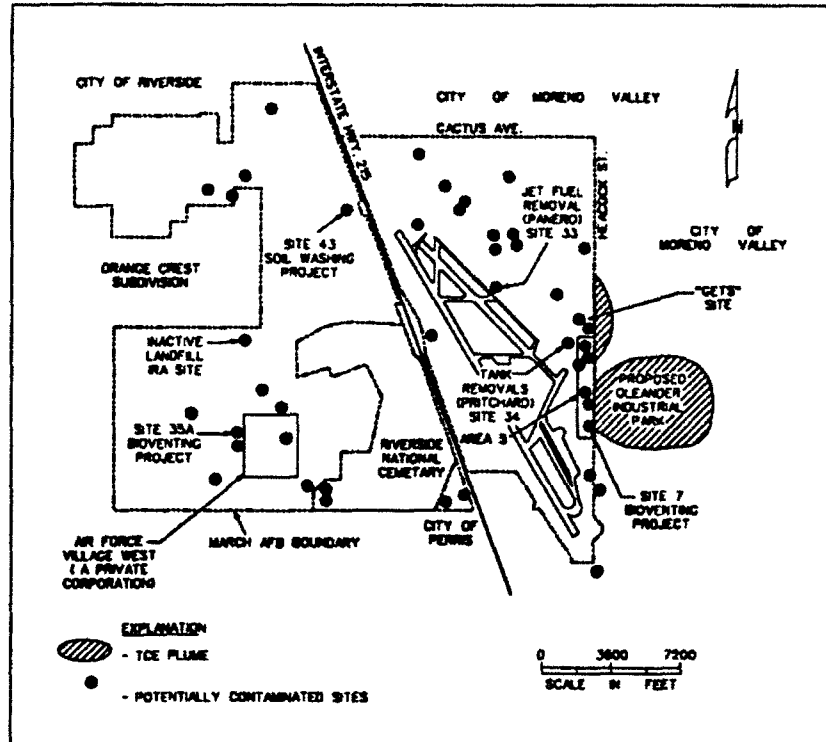
- **Training** – The Air Force continued environmental leadership courses during 1992. By the end of the year, all senior officers in all major commands had received training. The Air Force offered a variety of other courses during FY 1992 (see "Training of DoD Personnel in DERP Activities" section in this report).
- **Contracting** – The Air Force implemented guidance for the use of a single contractor for site study and assessment.
- **Cost Estimating** – The first phase of a parametric cost estimating software was completed. The software, which is used to estimate the cost of all phases of cleanup, was distributed and ten training classes conducted.

- **Generic Cleanup Protocol** – The Air Force implemented a generic protocol for the cleanup of petroleum contaminated sites using bioventing technology. The protocol which has been endorsed by EPA, will be implemented at 35 sites at 20 installations throughout the country.

The Air Force's major accomplishments in FY 1992 included increasing the number of closed-out sites and registering significant progress in RI/FS and RD/RA work. In past years, limited funding has restricted the Air Force to addressing only contamination at NPL installations and a few non-NPL installations. The additional funding received in FY 1992 allowed the Air Force to expand the assessment of potential contamination to all Air Force installations.

The number of closed-out sites increased from 834 to 1,283 in FY 1992. The number of sites at which RA is complete increased from 150 to 196 in FY 1992. By the end of the year, 122 IRAs had been completed and 54 were underway.

During FY 1992, the Air Force completed and signed IAGs for three NPL installations. This brought the total number of Air Force NPL installations with signed IAGs to 30. RI/FS activities are underway or complete at all of these NPL facilities. Remedial



March AFB Areas of Contamination

actions and IRAs have occurred at all of the 32 Air Force NPL facilities. RODs were signed at six Air Force installations in FY 1992, bringing the total number of Air Force installations with at least one signed ROD to ten.

The following are examples of significant Air Force IRP project activities. These studies illustrate cleanup progress and community relation activities at several installations, including an active base,

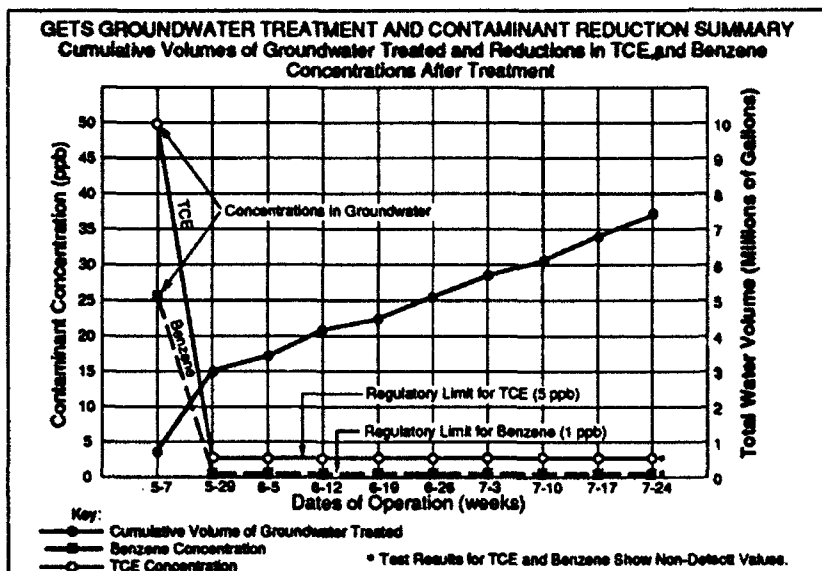
March Air Force Base, CA, and a closure base, Pease Air Force Base, NH. (Appendix B provides additional details for installations on the NPL.)

March Air Force Base, Riverside, CA

Solvent-contaminated ground water migrating off March Air Force Base (AFB), near Riverside, California, is being interdicted and treated by a pump-and-treat system. The system started operation on May 22, 1992 and is meeting and even exceeding State of California maximum contaminant levels for organic contaminants in ground water. This system will prevent migration of ground water contaminants off-base and further contamination of several drinking water wells located adjacent to the installation. In addition, March AFB is actively identifying other immediate threats to public health and the environment and taking action to reduce those risks.

Area 5 and Site 4 Groundwater Contaminants and Regulatory Limits in ppb				
Contaminant	Groundwater Concentrations Detected			Regulatory Limit*
Benzene	<0.2	-	26.0	1.0
Carbon Tetrachloride	<0.12	-	2.1	0.5
Trichloroethylene	<0.12	-	50.0	5.0
Tetrachloroethylene	<0.03	-	170.0	5.0
Trans-1,2-Dichloroethylene	<0.1	-	38.0	10.0
Vinyl Chloride	<0.18	-	5.6	0.5

*State of California Maximum Contaminant Levels (MCLs).



GETS Contaminant Reduction

Installation Setting and History

March AFB is located on 7,123 acres about 60 miles east of downtown Los Angeles near Riverside, California. Moreno Valley, a city of approximately 120,000 people, is immediately adjacent to the base boundaries on the north and east sides of the base. An endangered species, the Stephen's kangaroo rat, and a sizable population of burrowing owls (a California species of special concern) are protected on the base.

March AFB was originally opened in 1918. It was the first U.S. Army Air Base established in the western United States. Currently, March AFB is used primarily to maintain an effective air-to-air refueling operations capability. March AFB was placed on the NPL in October 1989; a Federal Facility Agreement (FFA) was signed in 1990. The FFA divided the IRP sites into three operable units.

Ground Water Contamination

The most probable source of contaminated ground water flowing off-base is Area 5, which is located on the eastern border of the base (see map). Area 5 includes an inactive landfill (IRP Site 5), two inactive fire training areas (IRP

Sites 7 and 29), and a main oil/water separator, a system that prevents oil from washing into drainage channels (IRP Site 9). The principal ground water contaminants that have been detected are trichloroethylene (TCE), tetrachloroethylene (PCE), and trans-1-2-dichloroethylene. Concentrations range from 170 parts per billion (ppb) of PCE and 130 ppb TCE on base, to 15 ppb TCE in one off-base private well. The table on Page 38 shows ground water concentrations for various contaminants and the regulatory limits that will be used as standards for those contaminants.

Interim Response Action: Provision of Alternate Water Supplies

During an early investigation of ground water contamination, the Air Force found that contamination from adjacent areas had polluted one well on base, and had migrated off the base and contaminated five private drinking water wells. The contaminated well on base was taken out of service. The base began supplying bottled water to the off-base well owners in 1986. The Air Force then contracted with the local water company to extend its water mains to the homes with contaminated wells.

Interim Response Action: Ground Water Extraction and Treatment System (GETS)

To prevent further migration of contaminated ground water off-base, the Air Force installed a ground water extraction and treatment system (GETS). GETS consists of a carbon adsorption treatment system connected to a series of nine wells that are placed like a fence along the eastern boundary of the installation. One-hundred thousand gallons of contaminated water per day is extracted and pumped through the carbon adsorption unit. The diagram on this page shows the



GETS Filtration Unit

progress of the system in terms of the cumulative volume of ground water treated over time and the effluent contaminant reductions achieved for benzene and TCE. The diagram on the next page shows how the system operates.

The effluent from the system meets or exceeds Federal and California drinking water standards. This water is then used to irrigate the base golf course, and ultimately to recharge the aquifer.

GETS became fully operational May 18, 1992. The U.S. Environmental Protection Agency (EPA) recently commended the base for surmounting some start-up problems and bringing this project on line quickly.

Other Remedial Activities

Base-wide investigations have revealed 43 potentially-contaminated sites (see map). Where necessary, the Air Force has conducted emergency response actions to eliminate immediate threats to base personnel and surrounding communities and to stabilize the site. For example, in January 1992, the Air Force discovered metal drums and construction debris in an old, on-base inactive landfill. Heavy rains and resulting storm water runoff had eroded soil in a drainage channel revealing this potentially

"It is obvious that it was the very good efforts on the part of March Air Force Base...that turned this project around and brought the start-up of this facility after EPA had expressed concern. I want to thank you for your efforts, and I hope that you will pass along the words "job well done" to those others on your team responsible for bringing this project to completion."

Richard T. Russell, P.E.
Remedial Project Manager
U.S. EPA Region IX

hazardous material. The Air Force acted promptly to warn regulators and the public of the potential hazard, and posted warning signs, put up a fence around the site, and took samples of the materials and sent them to a laboratory for analysis. Test results indicate that no immediate threat existed. However, since the materials were located on base property, there was a potential for contaminant migration as a result of continued storm water discharges.

Analysis of the materials at the inactive landfill revealed elevated levels of lead and hydrocarbons. The Air Force met with Federal, state and county regulators to determine appropriate actions. The Air Force is implementing site stabilization actions which include steps to divert and control storm water flow

such as installation of rock check dams, and excavation of 5,000 cubic yards of soil to form shallow impoundments.

Other interim remedial actions were taken in FY 1992 including removal of 6,046 gallons of jet fuel floating on top of the ground water and 34 50,000-gallon tanks and associated piping and support equipment from the Panero Aircraft fueling system (Site 33) along with the removal of six 50,000-gallon tanks from the Pritchard aircraft fueling system (Site 34).

In addition to these immediate removal actions, a schedule for the long-term cleanup of the base has been developed. A base-wide RI/FS is planned for completion in August of 1995, a base-wide proposed cleanup plan is expected in September of 1995, and a base-wide Record of Decision will be completed in March of 1996. The base cleanup timeline is shown on the next page.

Air Force will use Innovative Technologies to Accelerate Cleanup Schedules

The Air Force is considering the use of several innovative cleanup technologies. These include soil washing and bioventing. In addition, the base is proposing to the regulatory agencies that sites contaminated with low levels of hydrocarbons be cleaned up using low

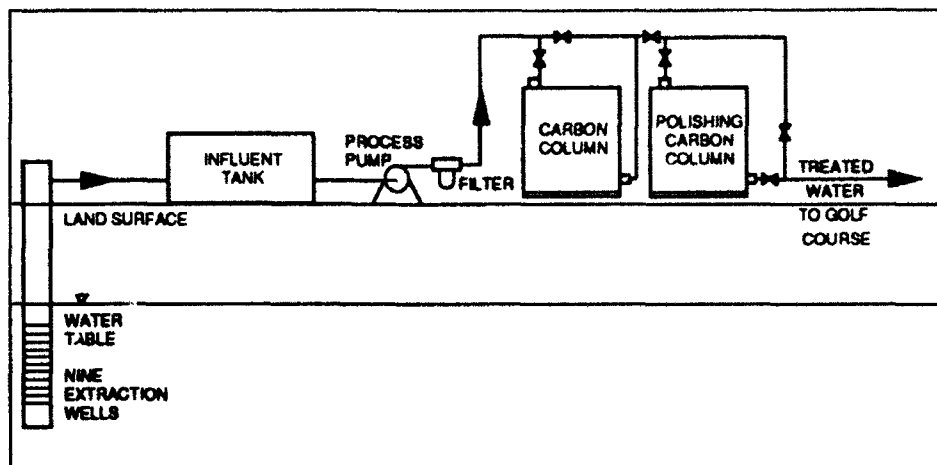


Fence and Warning Signs at Old Landfill Site

temperature thermal incineration in lieu of being included in the lengthy RI/FS process for the base. March AFB, in cooperation with the regulators, has proposed to accelerate remedial action at OU3 from January 1995 to September 1993.

The EPA has selected a former gasoline pump island in an isolated portion of the western side of the base as the location for the test of a soil washing project. The project is part of EPA's Superfund Innovative Technology Evaluation (SITE) program. The technology will be used to treat soil contaminated with organic compounds, such as gasoline and diesel fuels. The soil washing project is scheduled to start during FY 1993.

During the process, contaminated soil is excavated and fed into a "washer" where a special cleaning agent is added and mixed with the soil. In addition to cleaning the soil,

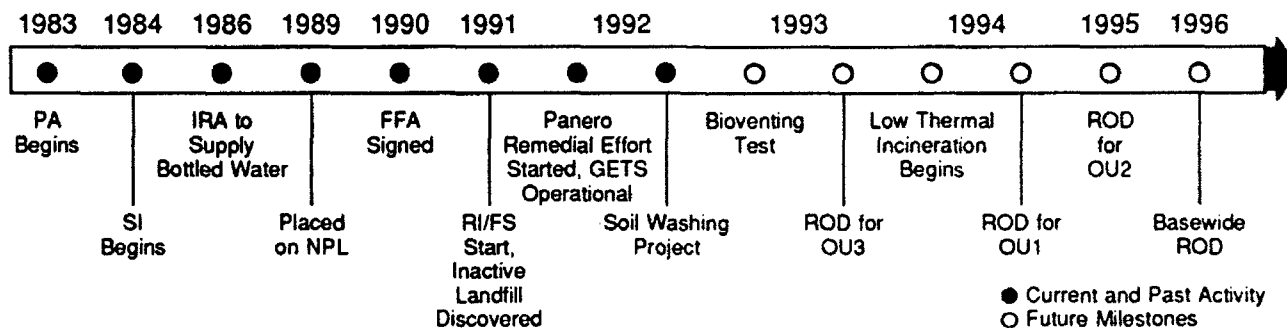


Groundwater Extraction and Treatment System

the cleaner stimulates common soil microbes that digest the hydrocarbons and break them down into harmless substances. Investigations are continuing to locate additional sites for cleanup with this treatment.

Another innovative treatment planned for March AFB is bioventing, which is also used to treat petroleum-contaminated soil. This treatment consists of injecting oxygen or nutrients into the soil to stimulate the growth of hydrocarbon-eating microbes. The bioventing test is scheduled to begin in January 1993 at Site 35a or Site 7.

CLEANUP TIMELINE



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1. The Earth Technology Corporation, "Installation Restoration Program Remedial Investigation Feasibility Study Final Base-Wide Workplan, March Air Force Base, California," Prepared for the United States Air Force, January 1992.
2. Environmental Management, 22nd Civil Engineering Squadron, March AFB, California, "Fact Sheet: Soil Cleaning Project at March AFB," August 24, 1992.
3. Environmental Management, 22nd Civil Engineering Squadron, March AFB, California, "Ground Water Cleanup at East March AFB and Ground Water Extraction and Treatment System," May 20, 1992.
4. Gary Polakovic, "Base Waste Dump Found in Gravel Pit," *The Press Enterprise*.
5. Richard T. Russell, P.E., Remedial Project Manager, United States Environmental Protection Agency, Region IX, Letter to John R. Sabol, P.E., Program Manager, Installation Restoration Program, March AFB, May 27, 1992.

Pease Air Force Base, Newington, NH

Pease Air Force Base is a successful example of how environmental cleanup and cleanup-related compliance activities can be coordinated so that property disposal and reuse goals can be met at a closing installation. Key to this coordination is comprehensive planning to integrate cleanup with reuse concerns and close cooperation among the installation and Federal, state, and local authorities.

Background

The base is located in a commercial and residential area, about 60 miles north of Boston, in coastal southeastern New Hampshire. The Great Bay, a National Estuarine Research Reserve, adjoins the base along 6.5 miles of shoreline. This area is used for recreation and fishing for shellfish. The base covers 4,356 acres, of which about 2,600 acres of the base are forested, 57 acres are ponds, and approximately 800 acres are wetlands.

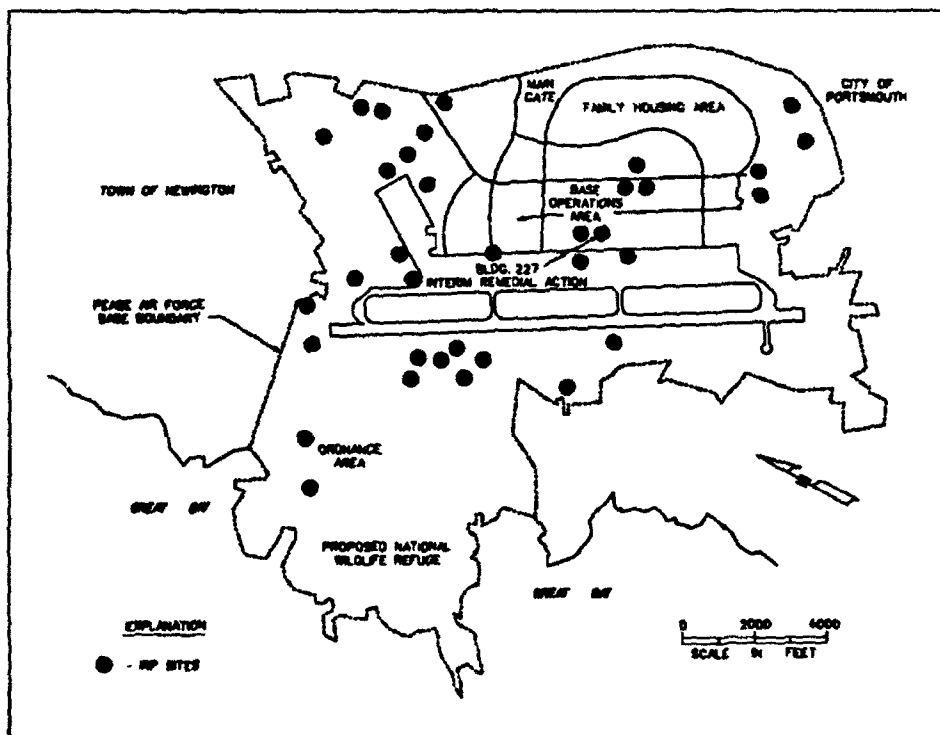
Pease AFB was ranked by the EPA in 1989 and was listed on the NPL in 1990. Its listing was based, in part, on contaminants that include organic solvents and degreasing agents, pesticides and herbicides, paint thinners and strippers, and petroleum products (primarily fuels and lubricating oils). Thirty-two hazardous waste sites were identified at the beginning of the IRP at Pease AFB in 1983.

In April 1991, the Air Force, EPA Region 1, and the NHDES signed a Federal Facility Agreement (FFA) in which the Air Force agreed to undertake, seek adequate funding for, fully implement, and report on all base environmental restoration efforts for 23 areas of concern identified under the IRP (see map below). In addition, the Air Force agreed to further review eight additional waste locations and to conduct a second base-wide PA/SI to ensure all potential waste sites were identified.

The second PA/SI was published in February 1991. In addition to 23 areas of concern identified in the ongoing IRP, 21 points of interest were identified in the PA/SI, of which seven were designated for no further action. Follow-up SIs or RIs are being conducted on the remaining 14 locations. Other locations under investigation and/or remediation include Buildings 120, 119, 213, and 215; underground storage tanks; and hangar-building 227.

Closure and Plans for Reuse

On March 31, 1991, Pease AFB became the first major military installation to be closed in the United States under the Base Realignment and Closure Act of 1988 (Public Law 100-520). The key to the reuse of Pease is the development over a 20-year period of an international airport. Commercial trade, manufacturing and aviation-related activities would be developed in adjacent areas. This concept also includes the conservation of about 1,100 acres of land for a National Wildlife Refuge, preservation of land for public recreation (golf course), and the retention of land by Air Force for use by the Air National Guard. Air Force disposal of property at Pease may also involve the transfer of land parcels to other government agencies or private entities for related commercial and industrial development.



Pease Air Force Base IRP Sites

In compliance with NEPA, the Air Force has completed an Environmental Impact Study (EIS) for the disposal and reuse of the base. During the preparation of the EIS, the Federal Aviation Administration and the Department of the Interior were invited to participate as cooperating Agencies. The DOI shared jurisdiction because of the proposed inclusion of part of Pease AFB in the National Wildlife Refuge System while the FAA was invited as sponsor of the Pease Development Authority (PDA) airport authority. The PDA intends to reuse the runway and associated facilities as an airport.

The completion of the EIS process led to the signing of a Record of Decision (ROD) that stated the Air Force's intention regarding disposition of the base property. The ROD was signed August 20, 1991, dividing the base into 13 parcels.

Coordinating the Cleanup Process with Reuse

Federal law (Section 120(h) of CERCLA) requires that the Federal Government remediate contaminated properties before they can be transferred by DoD to private entities. Therefore, it has been necessary to lease contaminated properties that have no immediate health threat in order to achieve property reuse goals. In addition, the Air Force has developed a comprehensive strategy that integrates cleanup efforts with property transfer goals and requires close coordination with other Federal, State and local authorities.

This approach involves the grouping of sites into geographic zones that consider reuse goals, the identification of contaminated versus uncontaminated areas, the organization of contaminated areas into operable units, and the use of interim remedial actions.

In addition, Pease AFB has used an Environmental Baseline Survey (EBS) to identify portions of property that may or may not be contaminated with hazardous wastes. Information obtained from site inspections and document reviews was used to classify properties into one of three categories based on contamination present and potential for exposure. This information was evaluated in deciding the future disposition of the properties.

Operable Unit/Zone Strategy

In order to expedite the cleanup process at Pease AFB, the U.S. Air Force has grouped the IRP sites on the installation into Operable Units or Zones. Sites are grouped and identified by the type of media (e.g. ground water, soil) and by geographic areas. Each OU or Zone has its own set of deadlines for RI/FS reports, proposed plans, and RODs. This approach allows investigations for separate OUs to proceed independently, at an accelerated pace, instead of delaying progress at those sites until agreement on cleanup procedures has been reached at all sites throughout the installation.

Interim Remedial Actions

In 1984, an aeration system was installed to remove TCE from the base water supply. The system was successful in reducing TCE concentrations below detectable levels, and its operation was discontinued. A number of other remedial activities have been implemented at Pease: three pilot ground water treatment systems are currently being operated at the base, underground stor-

age tanks have been excavated and removed, buried drums discovered during the investigation were excavated and removed, and soils in the vicinity of the tanks and the drums have been chemically characterized. In cases where the soils have been found to be contaminated, they have been excavated and removed for treatment. Through its ongoing IRP activities, the Air Force is addressing the contamination as it is found at various sites across the base.

Interagency Coordination

To accomplish an accelerated effort, the Air Force has acted in partnership and cooperation with the State of New Hampshire Department of Environmental Services (NHDES), EPA Region 1, and the Pease Development Authority (PDA, a state chartered redevelopment authority) to develop plans for future base reuse and to implement cleanup actions at the base. Other state, Federal and local agencies and the public have been crucial in the planning and assessment of alternatives for base disposal and reuse. This close coordination has shortened regulatory review, compressed cleanup schedules, and integrated cleanup with reuse activities. For example, the integration of zones, leading to the development of consolidated RODs, has required revamping of schedules established in the Federal Facility Agreement. Close communication between the installation and regulators has facilitated this process and eliminated a potential stumbling block for the rapid cleanup and turnover of the property for beneficial economic reuse.

"One of the most successful decisions at Pease was to establish a team on-site consisting of the Disposal Site Manager, and a representative of the secretariat's and Air Force Base Disposal Agency Pentagon staff."

**Robert Cheney
National Association of
Installation Developers**

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2. J. G. Cooper, Assistant Secretary of the Air Force (Manpower, Reserve Affairs, Installations and Environment) "Supplemental Record of Decision for the Disposal and Reuse of Pease AFB, Portsmouth, New Hampshire," April 13, 1992.
3. Roy F. Weston, Inc., "Installation Restoration Program Community Relations Plan," Draft Report for Pease Air Force Base, New Hampshire, October 1990.
4. U.S. Air Force, "Installation Restoration Program Update: Pease Air Force Base, Information Update," December 1992.

Technical Review Committee Ensures Coordinated Cleanups at Tinker AFB, OK

In January 1985, Tinker Air Force Base became one of the first Air Force bases and the first site in its EPA region to institute a Technical Review Committee. More than seven years later, that committee is still serving as a primary means of cooperation with regulators.

The Technical Review Committee (TRC) is composed of representatives from the Oklahoma State Department of Health (OSDH), EPA's Region VI; and Tinker's Environmental Management Directorate. The Environmental Management member chairs the group. The purpose of the TRC is to help communication between Tinker and regulatory agencies. By involving all parties in the progress of Tinker's Environmental cleanup efforts, the TRC provides a coordinated direction to CERCLA NPL and IRP activities. A Technical

Working Group meets a month before the TRC to discuss technical issues.

Innovative Technology and Public-Private Partnership at McClellan AFB, CA

McClellan AFB implemented several innovative treatment projects in FY 1992. A soil vapor extraction system was installed to clean up contaminated soils on the northwest edge of the base, and several innovative treatability studies were initiated, including steam injection vacuum extraction and soil solidification.

In addition, an agreement is being negotiated with eight private companies for a joint industry-government program to test and evaluate innovative remediation technologies at selected sites on the base.

The objective of the proposed industry-government joint testing program is to produce and exchange the much-needed cost and performance data for a variety of innovative technologies tested under "real-world" conditions. The availability of this type of information will encourage the development and use of environmentally sound, less costly solutions to hazardous waste problems. McClellan AFB was selected to participate in this program because of the wide variety of contaminated sites on base and because of substantial environmental management support structure.

NPL Cleanup is Completed at Minneapolis-St. Paul ARB, MN

On September 24, 1992, EPA notified Minneapolis-St. Paul Air Force Reserve Base that the status of the one NPL site on the installation (The Small Arms Range Landfill) is "response complete." This means that EPA will be counting MSP ARB as "cleaned up" even though the Record of Decision (ROD) requires two more years of ground water monitoring. If there is no evidence of increased levels of contamination after two years, it is expected that EPA will delete the site from the NPL.

"Both the Technical Review Committee and the Technical Working Group have been excellent forums to facilitate communication between Tinker and the Oklahoma State Department of Health."

**Damon Wingfield
Oklahoma State
Department of Health**



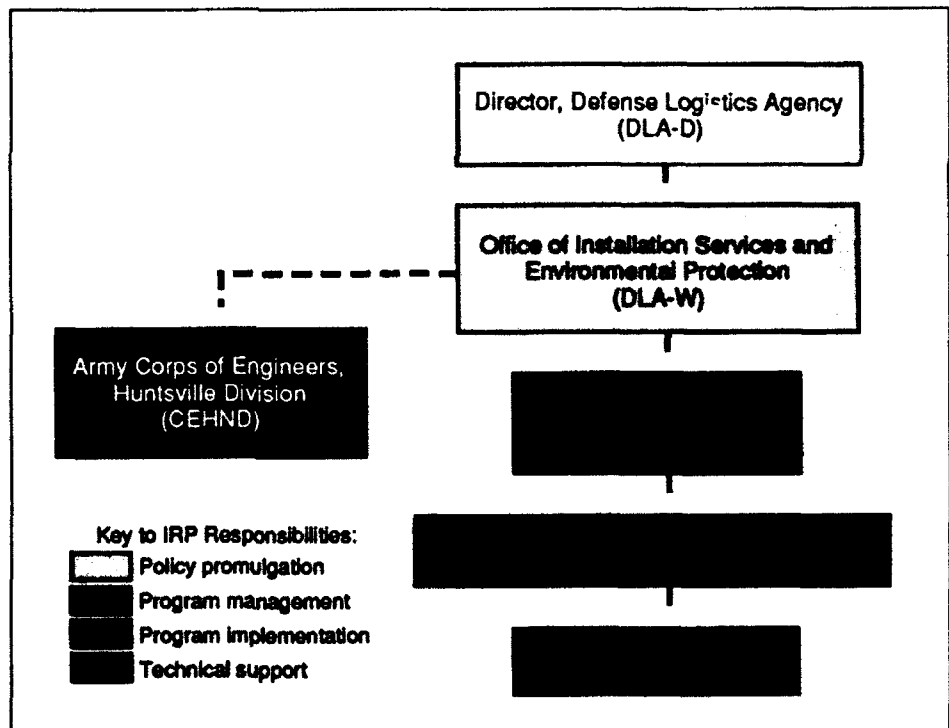
Defense Logistics Agency IRP Progress

The Defense Logistics Agency (DLA) IRP continued to show steady progress in all areas in FY 1992. The number of sites in DLA's program increased slightly in FY 1992, to 460 sites, while the number of installations remained constant at 34. IRP activities have been completed and no further remedial action is planned at 190 sites.

The increased funding received in FY 1992 by DLA was invested primarily in RI/FS and IRA work. As a result, the number of sites at which RI/FS work has been completed or is underway increased from 210 to 297 last year. This represents 88 percent of the total number of sites targeted for an RI/FS. All four DLA NPL sites had an IRA complete or underway by the end of FY 1992. Further, PA work had been completed at all but two of DLA's 460 sites. RA completions at DLA sites increased from 16 to 24 in FY 1992, an increase of 50%.

PA/SI work has been completed and RI/FS activities are underway at all four of the DLA installations final-listed on the NPL. In addition, IRAs have occurred at all of DLA's NPL facilities.

During 1992, Defense Distribution Region Central Tennessee was proposed for listing on the NPL. This brings to five the number of DLA sites on, or proposed for listing on, the NPL. No IAGs were signed in 1992.



Defense Logistics Agency IRP Organization

The following are two showcase stories explaining major DLA IRP cleanup efforts at two installations listed on the NPL. In addition, a short success story on DFSC, Cameron Station (VA) has been included. (Appendix B provides additional details for other DLA installations on the NPL.)

Defense Distribution Region West, Tracy, CA

Defense Distribution Region West (DDRW) Tracy has eliminated immediate threats to nearby residents through a series of interim remedial actions. These include the provision of alternate water supplies to affected residents and rapid installation of a pump-and-treat system to stop further migration of contaminated ground water. The State of California has praised Tracy for voluntarily expediting its ground water protection program.

Background

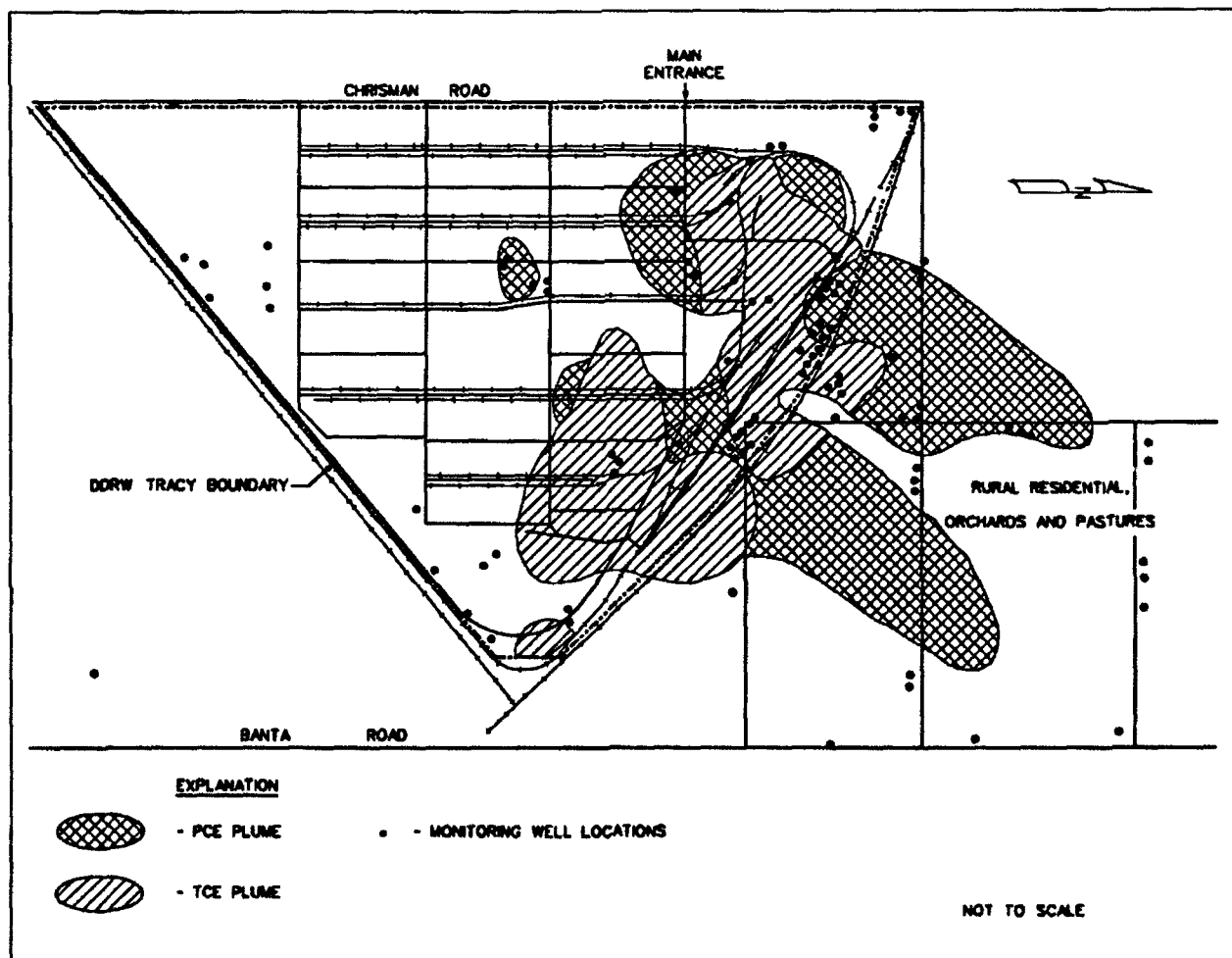
Defense Distribution Region West Tracy, CA, is located 1½

miles southeast of the city of Tracy, California, and 60 miles east of San Francisco. DDRW Tracy is one of seven principal distribution depots in the Defense Logistics Agency (DLA). The depot functions as a storage and distribution facility for food, medicines, construction, clothing, electrical, industrial, and general supplies common to all U.S. military services located within the western U.S. and throughout the Pacific overseas area. In addition to handling supplies, DDRW provides support functions including preservation and repackaging, equipment modification, inspection and repair of materials returned from the field, and operates the West Coast Army Watercraft Maintenance and Storage facility at Rough and Ready Island in Stockton. The 448-acre site has been used as a depot since 1942 (See the installation map below).

Ground Water Contamination

Trichloroethylene (TCE) and perchloroethylene (PCE) were used as cleaning solvents in the depot's industrial areas until 1976. Prior to the early 1970s, many wastes such as solvents, pesticides, fuels, and lubricants were disposed of onsite by such practices as burning, discharge, soil percolation, and burial. Identified waste disposal sites include burn pits, medical supplies burial, embalming fluid dumps, construction materials burial, pesticide waste disposal trenches, lube/oil dumps, battery acid sumps, maintenance areas, fuel storage tanks, and other locations of hazardous waste disposal.

DDRW Tracy was placed on the National Priority List (NPL) on August 30, 1990, primarily due to the contamination of the ground water and its migration off-site. As



Defense Distribution Region West (DDRW) Tracy Site Areas of Contamination

a result of placement on the NPL, Tracy entered into a three-party Federal Facilities Agreement (FFA) on June 27, 1991. The agreement was between DDRW Tracy, the California Regional Water Quality Control Board (RWQCB), the U.S. Environmental Protection Agency, and the California Department of Health Services.

Previous Studies

DDRW Tracy's Preliminary Assessment/Site Inspection (PA/SI) was completed in 1980. The PA identified 32 sites of contamination on-depot with strong migration potential. Eighteen of the 32 sites were closed out as a result of the SI.

DDRW Tracy began sampling a series of 14 ground water monitoring wells to determine the quality of the water beneath the depot. This Depot Hydrogeological Study was completed in 1985. The results of the sampling indicated that in three of the monitoring wells, TCE and PCE levels in the uppermost aquifer exceeded the state action level of five parts per billion (ppb). In an attempt to identify the possible sources of the contamination and to determine if the contamination had migrated beyond the depot's property, 12 additional test wells were installed including 10 along the northern boundary. It was determined that contaminated ground water migrated approximately 2700 feet off site in a northeasterly direction. Two private, off-depot drinking water wells have been contaminated with VOCs. Figure 1 is a plan view of DDRW Tracy with the TCE and PCE contamination plumes illustrated.

Residents living in the immediate vicinity of the site are aware of issues that may affect them. Some farmers located closer to DDRW Tracy have expressed concern regarding PCE and TCE contamination of their water and crops. In an effort to address these concerns, DDRW Tracy has taken water and crop samples and had them ana-

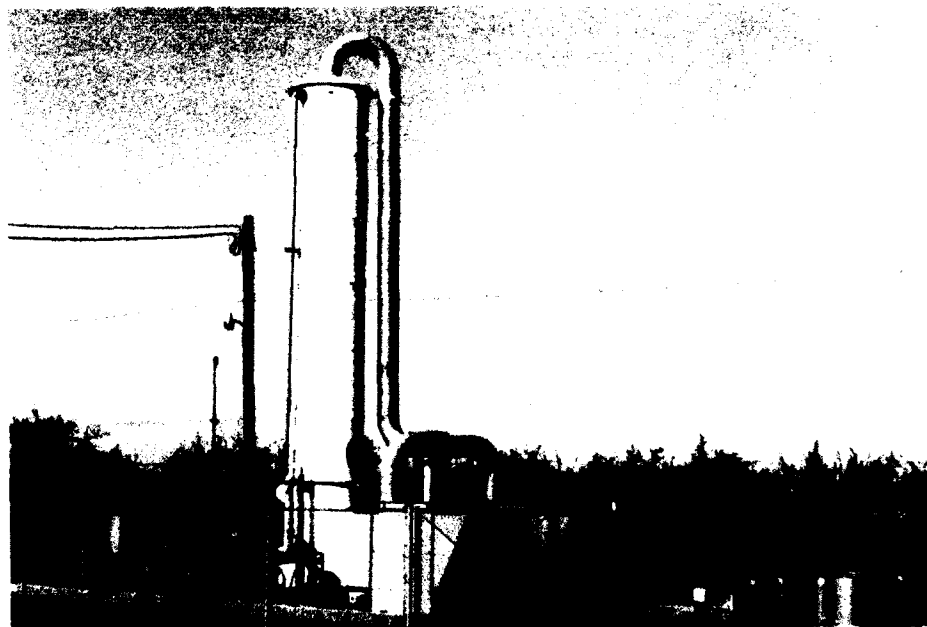
lyzed for PCE and TCE. The results indicated that some irrigation water is contaminated with PCE and TCE, but that there was no crop uptake of these contaminants.

Interim Remedial Actions

Numerous remedial projects are currently underway at DDRW Tracy. A Remedial Investigation/Feasibility Study (RI/FS) began in September 1986 for the 14 sites not closed out during the PA/SI. All sites were grouped into one operable unit with the ground water issue being the main focus. This has resulted in the application of a variety of Interim Remedial Actions (IRAs). Below are descriptions of the actions already taken by DDRW Tracy.

Due to the known migration of the contamination off-site, immediate action was taken to reduce the risk to human exposure. Private drinking water wells within a 1-mile radius were sampled and analyzed. As a result of these tests, DDRW Tracy is providing bottled water to two private residences whose wells are close to or within the contamination plumes, where concentrations of TCE and PCE exceeded 5 ppb.

To prevent further migration of the contaminant plumes and to intercept the most contaminated portion of the ground water, an IRA contract was awarded in September 1989. This effort included the construction of a ground water withdrawal, treatment, and reinjection system. The system consists of a series of six ground water extraction wells, a water transmission pipeline, an air stripper to remove contaminants from the ground water, a carbon adsorption system to remove volatilized contaminants from the air stream, three reinjection wells, and ten monitoring wells. The system is capable of treating 500 gallons per minute of water with a maximum influent contaminant level of 500 ppb of TCE and PCE to an effluent level of 1 ppb TCE and PCE. The activated carbon adsorption system captures all the volatilized TCE and PCE with a net result of zero contaminants released through the air stream. Construction of the IRA was completed in April 1991 with installation costs reaching approximately \$1.7 million and system operation began on October 4, 1991. The system has the capacity to be expanded to include an additional ten extraction wells and three reinjection wells. DDRW Tracy has



Air Stripper at DDRW Tracy

received praise from the California RWQCB and the California Department of Toxic Substances Control for voluntarily expediting the ground water protection program and bringing the system on line ahead of regulatory requirements.

Collection and analysis of ground water samples from all monitoring wells are completed on a quarterly basis. In addition, the water level at selected wells are measured on a monthly basis. This data is assisting in the determination of the effectiveness of the IRA. The full-size treatment system is anticipated to be installed within the next 2 to 3 years. The extent of the full-size system will be based on the performance of the IRA. The duration for complete restoration is estimated to take 20 to 30 years at a cost of \$1 to \$1.5 million annually.

In addition to the contaminated upper aquifer, lead-contaminated and petroleum-contaminated soil was found at the depot during the remedial investigation. A total of 450 cubic yards of suspected lead-contaminated soil was removed from the Subsistence Warehouse Construction Project area. Removal and remediation of the petroleum-contaminated soil was required. A total of 670 cubic yards of petroleum-contaminated soil was removed and remediated from the Building 201 underground storage tank area. The soils were processed through a rotary kiln where they underwent low temperature desorption. The soils were successfully treated to nondetect levels of total petroleum hydrocarbons.

Two other projects conducted at DDRW Tracy include an abandoned well project and point source investigation. The abandoned well project consists of the proper closure of two previously abandoned deep drinking water wells located on the depot in the area of highest contamination. These were of concern due to their capacity to potentially provide a conduit for the

contaminated water to be drawn down into the lower aquifer. The point source investigation focused on clean closure of the depot's lined waste ponds.

Future Work

The initial RI/FS is being completed that addresses only the ground water issues. This RI/FS is scheduled to be completed by the end of fiscal year (FY) 1992. A Record of Decision (ROD) which also addresses only the ground water issues is scheduled for completion in FY 1993.

An installation-wide RI/FS will then be prepared. This site-wide RI/FS is scheduled for completion by the end of FY 1994. An installation-wide ROD will then be prepared for completion in FY 1996. Completion of the site-wide ROD will hopefully lead to an approach to clean up the entire facility. A cleanup timeline demonstrating past cleanup and future plans for remediation of the facility is shown on the next page.

Community Relations

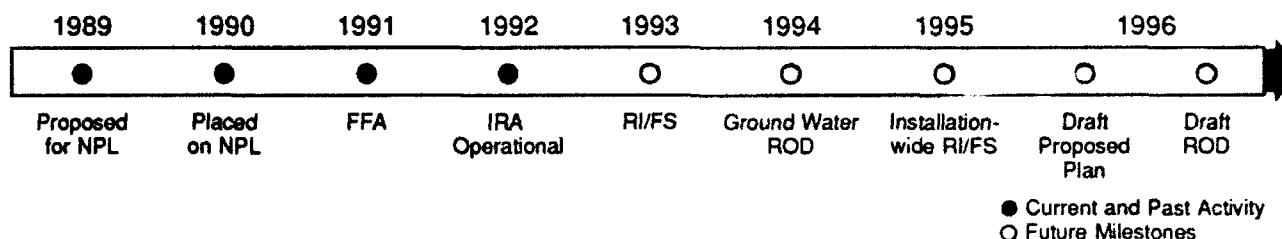
A Community Relations Plan (CRP) was originally prepared in November 1986. A requirement of the FFA established in 1991 was for DDRW Tracy to amend the 1986 CRP to reflect the work at Tracy completed through June 1991. The purpose of the CRP is to involve the community and other interested parties in the IRP process at DDRW Tracy. This is accomplished by the establishment of procedures for the accurate and timely release of information to interested citizens and public officials, and encourage two-way communication between DDRW Tracy and the community. DDRW Tracy encourages public involvement and monitors community concerns and information needs during all IRP activities. Numerous community relations activities/articles have been conducted/published by the DDRW Public Affairs Office/

Environmental Protection Office since 1984. Activities include public meetings, press releases and tours of the site.

Local print media coverage of DDRW Tracy is handled by the *Tracy Press* and the *Western Region Roundup* (a DDRW publication). In addition to these two papers, the Public Affairs Office of DDRW also keeps the *Stockton Record*, *Manteca Bulletin*, and *Modesto Bee* informed of events as they are scheduled or occur at DDRW Tracy. For actions at DDRW Tracy which require the publication of public notice announcements, the DDRW Environmental Protection Office uses the *Tracy Press* and the *Stockton Record*. These two papers have the highest circulation in the potentially affected area. All of these newspapers have carried articles about the ground water monitoring program. Many of these articles contained excerpts from statements by local residents and representatives from the RWQCB, the California Department of Health Services, and the San Joaquin County Health District.

The public's concerns for DDRW Tracy were determined by public interview. The interviews were conducted in May 1991 and consisted of mail solicitation, and telephone and personal interviews. Based on these interviews, the level of community concern at DDRW Tracy was assessed as medium. Evelyn Costa, County Board of Supervisors member, was interviewed during the community interviews. Ms. Costa stated that she did not have any current concerns regarding the site and felt it was being handled properly. In addition, she also indicated that she was pleased with DDRW Tracy's public image and interest in the community.

CLEANUP TIMELINE



References

1. Defense Logistics Agency, Defense Distribution Region West, Environmental Program, Community Relations Plan, 1991.
2. U.S. Department of Defense, Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1991, Document Number ADA 244196, February 1992.

DFSC Develops a Generic Statement of Work for Fast Cleanup

The Defense Fuel Supply Center (DFSC), Cameron Station (VA) has streamlined the environmental cleanup contracting process. They have designed a "generic" SOW which can be put into place for emergency situations where soil and/or surface or ground water have been impacted by fuel from a spill or leak. The first step will be to task the facility contractor to obtain bids on interim investigation and cleanup measures. This can be awarded to the selected A/E firm in less than one month. Follow-on work to satisfy regulatory requirements can begin within three months from the start date.

This procedure was developed in response to an emergency situation in 1987, when a leak was discovered in a 250-mile pipeline connecting DFSP Searsport, Maine with Loring Air Force Base. The generic statement has been improved upon and has been used for six additional sites where soil and ground or surface water was threatened by fuel.

DFSC will use this procedure at DFSPs on a permanent basis. Two major benefits occur when this in-house procedure is used. First, it demonstrates to regulatory agencies that DFSC is pursuing cleanup of soil and ground water in a timely fashion. Secondly, it is less cumbersome and less costly than using conventional contracting methods.

Defense Distribution Depot, Ogden, UT

DoD has been criticized for not moving quickly enough to clean up contaminated sites. The Department has been encouraging timely site decisions to close out or remediate sites. Defense Distribution Depot Ogden, Utah is the first Federal Facility in EPA Region VIII to complete the study phase (RI/FS) at all sites and to move into final, long-term cleanup. The progress is a result of several factors, most notably a strong working relationship among key DLA, EPA and State personnel. The installation has also moved rapidly to eliminate a potential threat to human health at the installation by taking early actions to remove buried chemical warfare agents at the site. A public

health assessment by ATSDR has recently placed Defense Distribution Depot Ogden, Utah (DDOU) in the category of "no apparent health hazard."

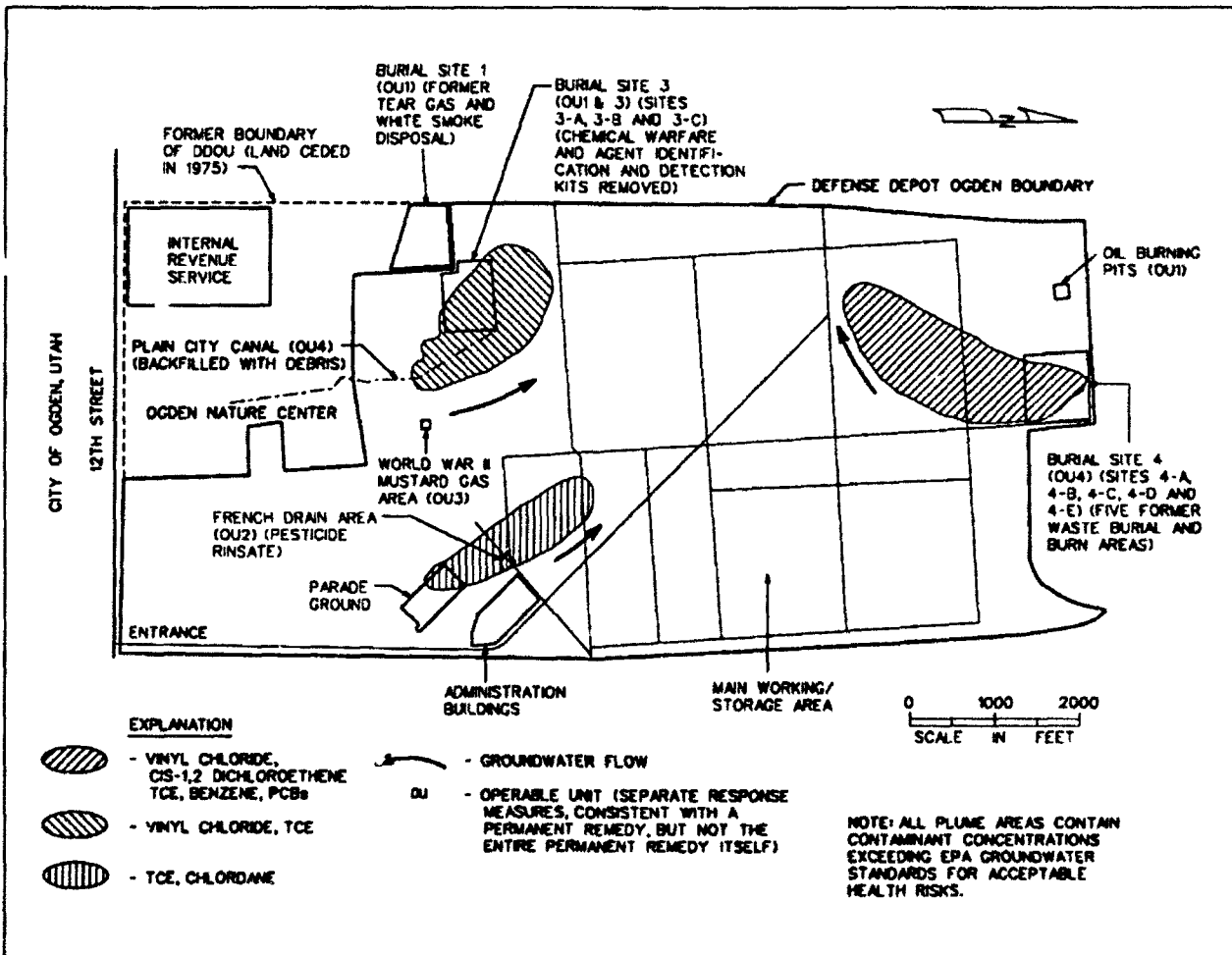
Background

The facility, now known as DDOU, was established eight days after the beginning of World War II. It provided a critical staging point for supplies used by allied forces in the Pacific theater throughout the war, as well as during the Korean, Vietnam, and Persian Gulf conflicts. As was common practice throughout the U.S. prior to the adoption of land disposal restrictions, unusable materials and wastes were buried on site. DDOU's current mission includes receipt, storage, maintenance, inventory and issue of non-

ordnance items such as electronic, industrial, construction, clothing and textile items, package petroleum and industrial/commercial chemicals to military installations, other DoD agencies, and federal civilian agencies. DDOU serves primarily the Western United States and the Pacific area.

Contaminants

Among the wastes buried at DDOU were training kits used to train U.S. forces on the effects of mustard gas (see site map below). The kits contained dilute amounts of mustard gas that the soldiers would rub on their arms, enabling them to recognize the poison if they were ever exposed during combat. In addition, over 1 million pounds of mustard gas were stored at DDOU during World War II, but



Defense Depot Ogden Areas of Contamination

were removed shortly after to Dugway Proving Ground, also in Utah. It was primarily because of concern over the amount of mustard gas potentially present and its mobility in the environment that DDOU was listed on the NPL in 1987.

Moving rapidly to address the most significant and immediate threat to human health at DDOU, DLA conducted an interim remedial action to remove all chemical warfare agents including the mustard kits from their burial places by the end of 1988. An exhaustive search has shown that no other chemical warfare agents remain on site. In addition, the extensive characterization and study work that has been conducted at DDOU since 1979 has enabled the facility to proceed rapidly to the final cleanup stage. Furthermore, in a public health assessment dated September 30, 1992, the Agency for Toxic Substances and Disease Registry (ATSDR) has placed DDOU in the category of "no apparent health hazard."

Studies Completed

The U.S. Army and Hazardous Materials Agency (USATHAMA) records search and subsequent investigations identified 44 sites on the installation where hazardous materials may have been stored, treated, or disposed of. Investigations have confirmed that no further risk to public health exists at 34 of these sites, and they have been closed-out. Ten sites will be remediated. These ten sites are grouped into four operable units. They are:

- **Operable Unit 1:** Contains riot control agent and white smoke containers, and other debris.
- **Operable Unit 2:** Contamination includes rinsate from pesticide containers; pesticides have been detected in ground water.
- **Operable Unit 3:** Contained chemical agent identification and detection kits, unfused red smoke and tear gas grenades; all chemical warfare agents were removed during an interim remedial action in 1988.

- **Operable Unit 4:** Consists of open burning pit trenches, an oil holding/burning pit, fluorescent tube burial area, sanitary landfill, and possible methyl bromide cylinder/water purification tablet burial area. (No methyl bromide cylinders were discovered during the remedial investigation.)

DDOU is the First Federal Facility in EPA Region VIII to Complete All Study Work

DDOU's restoration program is leading the way among Defense Department NPL sites. With the signing in late FY 1992 of the fourth and final ROD required at DDOU, it has become the first federal facility in EPA Region VIII to complete all required study work and begin long-term cleanup. Even prior to the signing of the last ROD, work was well underway to cleanup contamination problems.

The progress registered at DDOU is the result of several factors, most notably a strong working relationship among key DLA, EPA and State personnel. This good working relationship is evidenced by a long history of close coordination with regulatory agencies and the public. For example, DDOU

signed the first Memorandum of Agreement (MOA) in Utah for cleanup with the State and EPA in 1986. DDOU also established a Technical Review Committee to provide for public input and review of the study and cleanup of contaminated sites at the installation. Early signing of a Federal Facility Agreement in 1987 resulted in the early identification of, and resolution of areas of potential disagreement. The significant milestones of progress at DDOU are shown on the cleanup timeline at the end of this story.

Future Cleanup Work Will Focus on Ground Water and Contaminated Soil

In addition to the chemical warfare agents mentioned earlier, on-site soil and ground water contamination at DDOU has resulted from fire training activities, rinsing of pesticide containers, and burial of tear gas grenades, water purification tablets, and other miscellaneous materials. The principal on-site chemicals of concern are trichloroethylene (TCE), and vinyl chloride, but pesticides, dioxins, furans, and PCBs have also been found.



Cleanup at Operable Unit 2

As the installation map shows, levels of several of these contaminants exceed acceptable levels on-site.

However, this contamination currently poses little risk to off-site residents, since it occurs in isolated areas on-site at relatively low concentrations and it is not currently migrating off the installation. Furthermore, the shallow ground water aquifer on the base is not used for drinking water. In order to prevent any possible future contact with hazardous substances at DDOU, however, all ground water contamination will be reduced to acceptable levels (Federal Maximum Contaminant Levels). Analysis of data from off-depot ground water wells indicate levels of contaminants below national drinking water standards. All private wells are safe for human use. (see table).

Field work has already begun at the area polluted by rinse water used to clean pesticide and herbicide containers (Operable Unit 2). DDOU has installed wells which will extract the contaminated ground water. The ground water will then be pumped through an air stripper to remove pollutants, and, if necessary, the water will also be sent through a carbon absorption

Summary of Contaminants Detected in Ground Water Wells Off Site						
Analyte	Water Quality Standard	Well Location and Approximate Depth (ft)				
		Devries (14 ft)	Hodson (15 ft)	Illum-1 (21 ft)	Illum-2 (65 ft)	Okey (13 ft)
Volatile Organic Compounds (ug/L)						
cis-1,2-Dichloroethene	70	<0.5	<0.5	<0.5	<0.5	<0.7
Metals (mg/L)						
Arsenic	0.05	<0.005	<0.005	<0.005	0.024	<0.005
Barium	2.0	0.16	0.13	0.33	0.13	0.17
Iron		<0.1	0.30	0.15	2.0	0.10
Manganese		<0.015	0.18	0.068	0.12	0.23
Lead	0.05	0.003	0.008	0.009	0.006	0.003

unit. Water purified to below drinking water standards (Maximum Contaminant Levels) will be pumped back into the ground; where no standards exist water will be treated until the contaminants pose less than one in a million excess cancer risk. A one in a million excess cancer risk means that no individual will have more than a one in a million chance of developing cancer in their lifetime as a result of living or working at or near DDOU.

Contaminated soils will be removed off-site and treated. Cleanup levels for the pesticides bromacil and chlordane will be 1 mg/kg or the lowest concentration that can be consistently detected. The remedies selected for the other OUs are basically the same as for OU 1: ground water extraction combined with air stripping and if necessary, carbon adsorption and removal and off-site treatment of contaminated soils. Final cleanup is expected to begin at Operable Units 1, 3, and 4 during FY 1993.

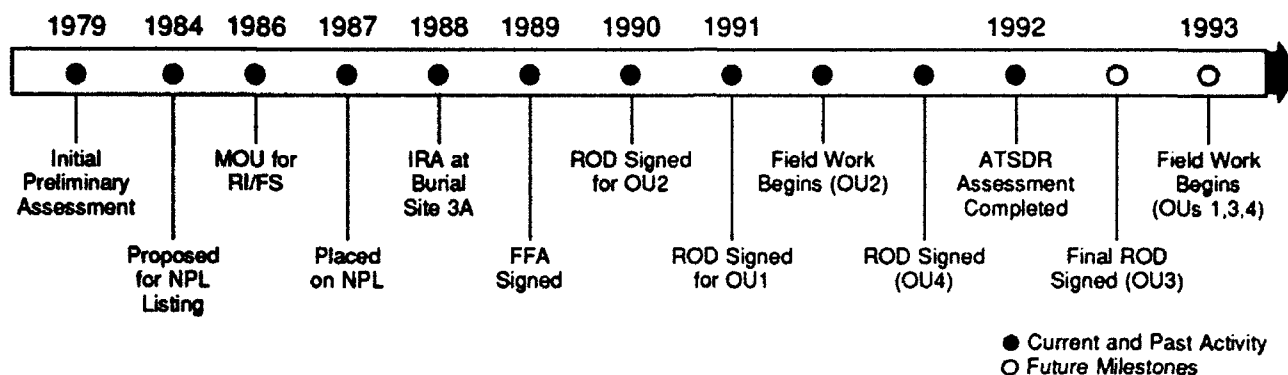
DDOU Ground Water Monitoring Plan to Serve as an EPA Model

The EPA is interested in using a ground water monitoring plan developed by DDOU as a guide for other facilities throughout the nation. The plan, which is one of the first developed in the U.S., lays out a network of carefully-placed wells that are used for sampling to determine if contaminants are being effectively removed from ground water. Currently there are about 100 such wells on the installation.



The Depot Environmental Coordinator examines one of the first wells installed at DDOU

CLEANUP TIMELINE



References

1. Defense Logistics Agency, "Final Record of Decision and Responsiveness Summary for Operable Unit 1, Defense Depot Ogden," Utah, June 10, 1992.
2. Defense Logistics Agency, "Draft-Final Record of Decision and Responsiveness Summary for Operable Unit 2, Defense Depot Ogden," Utah, September 7, 1990.
3. James M. Montgomery, Consulting Engineers, Inc., "Draft Final Remedial Investigation/Feasibility Study Report for Operable Unit 3, Defense Distribution Depot Ogden, Utah" Prepared for U.S. Army Corps of Engineers, December 6, 1991.
4. James M. Montgomery, Consulting Engineers, Inc., "Draft Final Remedial Investigation/Feasibility Study Report for Operable Unit 4, Defense Distribution Depot Ogden, Utah," Prepared for the U.S. Army Corps of Engineers, September 27, 1991.
5. Defense Logistics Agency, "Final Record of Decision and Responsiveness Summary for Operable Unit 4, Defense Distribution Depot Ogden, Utah," August 3, 1992.
6. Defense Logistics Agency, "Final Record of Decision and Responsiveness Summary for Operable Unit 3, Defense Distribution Depot Ogden, Utah," August 21, 1992.
7. Agency for Toxic Substances and Disease Registry (ATSDR) "DDOU Public Health Assessment," September 30, 1992.

"DDOU is to be commended for its efforts to remediate its sites on schedule. No other federal facility in Region Eight has reached this milestone."

Robert L. Duprey
Hazardous Waste Management Director
EPA Region VIII

Research, Development, and Demonstration/ Other Hazardous Waste Program Progress

DoD is working to identify and develop cost-effective cleanup technologies, efficient and cost-effective waste site investigation technologies, and efficient methods to manage wastes and prevent pollution at the point of generation. Such efforts include research, development, and demonstration of pollution prevention and innovative cleanup technologies. Our progress this year in these areas is explained in this section. Efforts in this area are very important to DoD's overall cleanup program as they will allow for more cost-effective cleanup. Pollution prevention and hazardous waste minimization efforts will avoid the creation of future waste sites and pollution problems. In FY 1992, DoD invested approximately \$28 million in research, development, and demonstration of cleanup and pollution prevention technologies.

Bioventing Demo at Eielson Air Force Base, AK

An effort was initiated by the Air Force at Eielson AFB, in conjunction with the EPA Risk Reduction Laboratory (EPA RREL) to develop an in-situ, inexpensive treatment technology for effectively treating hydrocarbon contaminated fuel in a sub-Arctic environment. Various soil warming methods are being tested to determine if warmed soil enhances the performance of bioventing.

The anticipated benefit will be a low-tech, inexpensive soil clean-up technology that could be operated

year-round at the numerous Air Force fuel contamination sites in the northern U.S. Additionally, data illustrating the effectiveness of bioventing for remediating hydrocarbon contaminated soil and the effect of soil warming techniques on in-situ biodegradation rates will be collected as part of the study.

This three-year field effort will end in the summer of 1994. At that time Eielson AFB will decide if the bioventing system should be expanded to influence the entire contaminated site and possibly implement bioventing at other base sites.

Ion Vapor Deposition

The Air Force Civil Engineering Support Agency (AFCESA) has demonstrated the use of Ion Vapor Deposited (IVD) aluminum as a replacement for cadmium electroplating. During a three-phase, four year project, AFCESA evaluated, improved, and demonstrated the applicability of IVD aluminum as a substitute for electroplated cadmium, a toxic metal.

AFCESA installed a state-of-the-art IVD coater at Warner-Robins Air Logistics Center (WR-ALC), Robins AFB, GA. From June 1991-July 1992, coating procedures were developed for 122 parts which used to be cadmium plated. As a result, the cadmium plating line at WR-ALC has been completely eliminated and all other ALCs are switching from cadmium-plated parts to IVD aluminum.

Use of the IVD aluminum process not only eliminated the need for using cadmium, but also for cyanides and other hazardous materials used in the plating baths. In addition, processing of parts with IVD aluminum is quicker and less labor intensive than cadmium electroplating. The savings which result from decreased labor requirements, reduced occupational hazards, and eliminated ventilation requirements and hazardous materials disposal are estimated to be between \$160,000 and \$400,000 per ALC.

Supercritical Water Oxidation of Hazardous Wastes

The Air Force is using supercritical water oxidation to determine the chemistry, chemical kinetics, and safety of oxidizing explosive propellant ingredients in supercritical water. Supercritical water oxidation is a promising technology that rapidly and completely oxidizes hazardous wastes above the critical point of water where gas-like mixing and densities are observed. A 30-gallon per day bench scale reactor has been built, automated and tested. The results of the testing are being used by a Joint Service Program to develop a prototype system capable of disposing of 800 to 4,000 pound rocket motors. The system uses liquid nitrogen to remove the propellant from the motor casing for subsequent disposal by a supercritical water oxidation reactor with a 250 pound per day yield. The 30 month effort is

expected to demonstrate the environmentally safe disposal of three government furnished Minute-man II 3rd stage Class 1.1 motors.

Photocatalytic Oxidation Demo at Tyndall AFB, FL

A new ground water treatment process was demonstrated in a joint Air Force-Department of Energy (DoE) effort at Tyndall AFB, FL this summer at a fuel contamination site. The photocatalytic process uses sunlight to activate a catalyst flowing through the contaminated ground water. First, the ground water is pumped to the surface. A powerful oxidant is then released from the activated catalyst and the organics in the water are destroyed. The National Renewable Energy Laboratory (NREEL, A DoE laboratory) has been working on the process in parabolic trough reactors. Preliminary results indicate favorable performance of the new treatment system, particularly if coupled with conventional pretreatment procedures. Final analysis, including comparisons to other commercial and innovative technologies, will be completed this winter. This technology is aimed at the 1,100 Air Force and numerous DoE sites contaminated with organics in the ground water. Continued development of more active photocatalysts is ongoing to bring the costs of this solar activated system even lower. Estimated availability date for the complete advanced solar reactor system is July 1994.

Site Characterization and Analysis Penetrometer System (SCAPS)

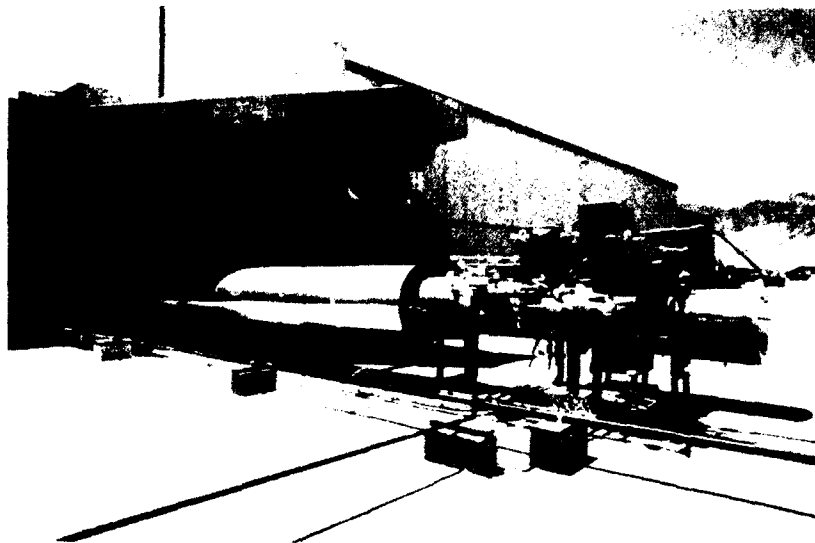
This joint effort aimed at meeting Department of Defense and Department of Energy needs for quicker, more cost-effective methods of gathering data for site cleanup, resulted in the development of a penetrometer based system which maps areas of subsurface contamination. Current hazardous waste site assessment practice relies on a system of exploratory well drilling and sampling and laboratory analyses of soil and ground water samples to obtain information. The cone penetrometer provides a more effective means of placing fewer monitoring wells to achieve the same results obtained utilizing exploratory drilling. Penetrometer-based investigations have the potential of being faster, more cost effective, and safer than those involving drilling at waste sites. The development of sensors which are capable of detecting in-situ explosive and chlorinated contamination is currently underway and expected to be integrated with SCAPS units in FY 1993. Among some of the sites where the penetrometer has been successfully demonstrated are Savannah River DOE Site, Tyndall Air Force Base, Jacksonville Naval Air Station, and Ft. Dix, New Jersey.

Bioremediation of Explosive Contaminated Soils

Composting is a biotreatment technology which has the potential to effectively degrade the high explosives TNT, RDX, HMX at a low cost. Composting studies at Louisiana Army Ammunition Plant have revealed that composting is economically feasible and that the by-products of composting exhibit little to no toxicity. The composted soil can also be used to assist the restoration of the contaminated site. Current composting R&D efforts include a study and a demonstration recently completed at Umatilla Army Depot Activity (UMDA). Test results provided the impetus for the use of composting over other technologies to remediate explosive-contaminated UMDA washout lagoons which are currently on the National Priorities List (NPL). Cost analyses have indicated that the full-scale application of composting will be possible at a cost of approximately \$200 per cubic yard of contaminated soil (approximately a 50 percent savings as compared to incineration).

Hot Gas Decontamination System

The Army currently owns a large inventory of excess facilities and equipment that cannot be disposed of due to contamination from chemical agents and energetic materials. The only currently acceptable method of decontaminating this material has been through the expensive process of disassembly and incineration. This process is not only expensive, but it also destroys the intrinsic value of the decontaminated material. The Hot Gas Decontamination System provides a nondestructive alternative by using hot gas to vaporize and thermally



Hot-gas Decontamination of Explosives-Contaminated Equipment

destroy explosives contaminants. The hot gas concept has been proven in pilot-scale tests at Cornhusker Army Ammunition Plant and Hawthorne Army Ammunition Plant for explosives contamination. The Hot Gas system is currently being installed at the Western Area Demil Facility (Hawthorne Army Ammunition Plant) to decontaminate metal sea mine casings. The Hot Gas Decontamination System provides the Army with a mechanism to more economically decontaminate and dispose of excess property formerly used in the processing of explosives and chemical weapons.

Super Tropical Bleach Rejuvenation Facility

Military units would use Super Tropical Bleach (STB) for decontaminating equipment in case of a chemical agent attack. For this reason, Army units stock STB as part of their "basic load" of supplies for deployment. Army logisticians and the Defense Logistics Agency (DLA) maintain stores of STB to augment unit-level supplies in case of a conflict.

As with other materials, STB has a finite shelf life. The Army and DLA must dispose of approximately 750,000 pounds of expired STB each year. Since STB is a strong oxidizer, it must be disposed of as a hazardous waste.

Pine Bluff Arsenal (AR) has developed a process to rejuvenate expired STB. This process rechlorinates the bleach and removes moisture, bringing the STB back to its original specifications. The savings in disposal costs and new STB purchases amount to more than \$2 million per year.

In 1992, Pine Bluff completed its design and awarded a contract to finish constructing the STB rejuvenation facility. The facility should be operational by the end of FY 1993. At that point, Pine Bluff will begin reclaiming spent STB throughout the Department of Defense.

Field Demonstration of Fiber Optic Laser Spectrometer at Tinker AFB, OK

The Air Force has supported for the past three years the development of a novel transportable laser system. Lasers are extremely desirable light sources because the light can be launched into the optical fiber with high efficiency. Unfortunately, most laser systems only offer one or a few fixed wavelengths. This system is unique for its combination of broad wavelength tunability in a field transportable package.

In August of 1991, the system was transported in a van from Fargo, ND, to Oklahoma City, OK for a small-scale field test. No significant problems were encountered over 50 hours of running time.

This research could lead to development of monitoring devices to meet the current and anticipated requirements of the Air Force. Such monitoring devices will accelerate other R&D projects such as in-situ biodegradation or other ground water remedial actions by providing in-situ real-time collection of data. With the support of Tinker AFB, the laser spectrometer is being teamed with cone penetrometer technology forming a sophisticated site characterization tool. Tinker will be conducting a long-term field demonstration of the laser spectroscopy system for ground water monitoring. System development and demonstrations will occur over FY 1993-1994. It is anticipated that, by the end of FY 1995, such systems will obtain EPA acceptance for satisfying monitoring requirements at hazardous waste sites. The probability of meeting Air Force objectives of developing long-term, in-situ ground water monitoring techniques that will provide cost savings over traditional monitoring methods is excellent.

Cleanup of PCB-Contaminated Soil at the Navy Public Works Center, Naval Station, Guam, M.I.

An on-site pilot test of a chemical dechlorination process conducted at the Navy Public Works Center, Naval Station, Guam, M.I., has demonstrated PCB destruction from several thousand parts per million (ppm) to levels below 2 ppm. A refined full-scale system is planned for operation and site cleanup.

The PCB on-site treatment technology used for the pilot test was developed by the U.S. EPA Risk Reduction Engineering Laboratory and the Naval Civil Engineering Laboratory (NCEL). The refined full-scale system to be used for the cleanup is called Base Catalyzed Decomposition Process (BCDP). The use of this technology offers a permanent solution to the problem as compared to removal and off-site disposal. *R&D Magazine* selected this technology as one of the Top 100 Technologically Significant Products of the Year.

Paint Spray Gun Washers at the Pearl Harbor Naval Shipyard

In October 1991, the Pearl Harbor Naval Shipyard (NAVSHIPYD PEARL) spent approximately \$600 to procure a paint spray gun washer for evaluation at one of the shipyards's paint shops. The washer has worked so well, the paint shop requested four more washer units.

Before the paint shop received the washer, paint spray guns were cleaned manually. Using this process to clean 15-20 spray guns

consumed approximately 360 gallons of organic solvent and took around 15 minutes per gun. During the first five months of new washer operation, approximately 15 to 20 paint spray guns were cleaned per week. During this time, studies show the gun washer consumed a total of seven gallons of thinner and required less than five minutes to clean each gun. One of the major advantages is the filtration and reuse of thinner in the gun washer.

By applying the average hazardous waste disposal unit cost for Hawaii of \$38 per gallon and the average solvent procurement cost of \$4 per gallon, the gun washer has reduced disposal costs from \$15,120 to just \$300 during the five-month evaluation period. Also, by applying the typical labor rate figure of \$45 per hour, the gun washer has reduced labor costs from \$4,050 to \$1,350 during the same period. Based on a \$600 investment cost, the gun washer paid for itself in under one month.

Unexploded Ordnance Detection Systems

The Army demonstrated two prototype unexploded ordnance (UXO) detection systems by conducting a UXO survey at the site for the construction of the U.S. Navy's Underwater Explosions (UNDEX) Test Facility at Aberdeen Proving Ground, Maryland. The two prototype systems, the Surface-Towed Ordnance Locator System (STOLS) and the Ground Penetrating Radar Ordnance Search System (RADAR), are designed to detect, identify by size and depth, and map potential subsurface UXO. The STOLS sensor technology is magnetometry-based; whereas, the RADAR sensor technology is ground penetrating radar. The advanced development and demonstration of STOLS and RADAR are being managed by the Army as part

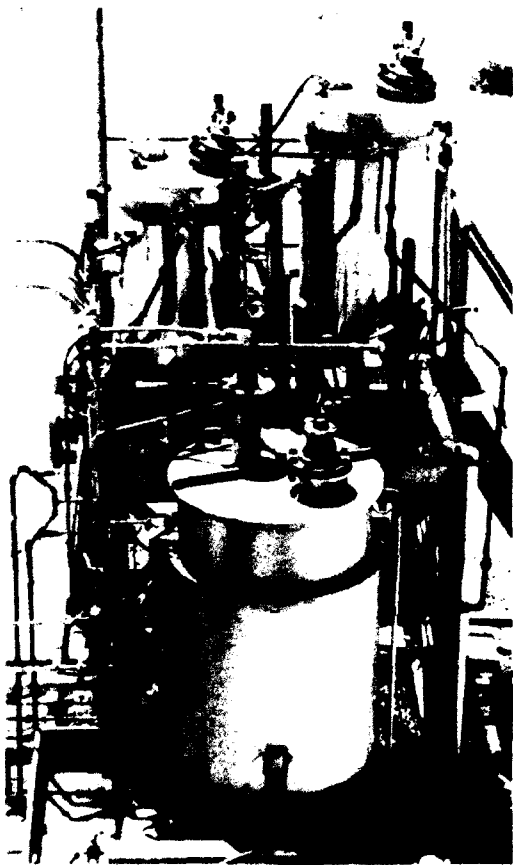
of its technology transfer program to develop and demonstrate UXO detection and remediation technologies.

The UNDEX Test Facility site was a 60-acre ordnance test area with known UXO contamination. The site had been used as an artillery projectile impact area, a bombing range, a mine test area, and a munition disposal area for over 50 years. The UNDEX Test Facility site was successfully surveyed and a report issued which detailed over 4,000 subsurface anomalies. Of these 4,000 anomalies, many were live, fuzed, high explosive filled bombs and projectiles. Accurate location, size, and depth determinations of the UXO by STOLS and RADAR allowed explosive ordnance disposal technicians to safely uncover and dispose of the UXO.

This was the first operational demonstration and evaluation of both systems and the results indicate that STOLS and RADAR outperform current ordnance detection technologies in categories of speed, accuracy, reliability, depth of detection, estimation of size, and mapping of UXO locations. Additional development and demonstrations are planned for both systems.

Use of Waste Energetics as Supplemental Fuels

The Army, as the sole manager of munitions, is faced with a serious problem of disposing of an ever-growing inventory of waste energetic material. The current disposal methods of incineration and open burning/open detonation are becoming increasingly expensive while also becoming more restricted by regulatory requirements. One possible alternative technique is the reuse of these energetic materials as a supplemental fuel for industrial boilers. Initial studies have shown that it is feasible to utilize the energy content from explosives in the form of fuel supplements. These results were obtained in tests, conducted at the Hawthorne Army Ammunition Plant, which demonstrated explosives/fuel oil mixtures could be safely fired in industrial boilers. These tests utilized a state-of-the-art pilot scale system for explosives solvation and fuel oil blending. The pilot system was successful in burning the explosives supplemented fuel in a standard boiler configuration. Future research and testing calls for the development of propellant supplemented fuels and the determination of full-scale design information. In addition, systems will be examined to determine the possibilities of increasing the energetics concentration beyond those currently established.



Waste Energetics as Supplemental Fuels

Dry Filters Minimize Disposal Cost

The Aircraft Intermediate Maintenance Division (AIMD) was painting ground support equipment in two wet filter paint booths at Naval Air Station, Barbers Point. Spray painting in the paint booths created a fine mist of waste paint or overspray. The wet filter used a water curtain which stripped the paint overspray from the air and collected the paint in the water curtain well. This filtering process generated wastewater and waste paint sludge approximately 5,000 gallons of wastewater and sludge generated annually by the two wet filter booths contained a variety of paint constituents which required disposal as hazardous waste (HW).

To minimize this waste stream, the two paint booths were converted from wet to dry filter operation for less than a thousand dollars. The dry filters minimize this waste stream in two ways. First, the spent disposable dry filters occupies significantly less volume and is significantly lighter than the waste water and sludge generated by the water curtain. Second, the dry filters need only pass the Toxicity Characteristic Leaching Procedure (TCLP) to be exempt from HW disposal regulations.

Each dry filter change generated only 220 gallons of HW while each wet filter change generated 1,705 gallons of HW. Replacement filters cost only \$100 per booth. Although the first set of dry filters proved to last twice as long as the water curtain filters between filter changes, cost savings based on similar filter change frequencies including three filter changes per year and a disposal unit cost of \$38 per gallon, the annual disposal cost of this waste stream dropped from approximately \$194,400 to \$25,100. The economic payback for conversion was almost immediate.

Training of DoD Personnel in DERP Activities

The Defense Environmental Restoration Program requires a team effort to complete effectively its varied and complicated tasks. This is especially true in the IRP portion of the program. DoD has implemented training programs so that personnel can effectively manage various aspects of the cleanup process. During FY 1992, over 3,700 DoD personnel received DERP-related training. The following are examples of courses of instruction provided in FY 1992. In the future, the Air Force will be the lead component for DERP training.

USACE DERP Training

The Directorate of the Army Corps of Engineers Training Management located at the Huntsville Division of the USACE has provided DERP training to Army and Corps personnel involved with the Army IRP and FUDS programs. During FY 1992, the Corps trained over 1,700 individuals in 68 course sessions under the Hazardous/Toxic and Radioactive Waste Training Program. These courses are designed to meet the unique hazardous/toxic and radioactive waste (HTRW) training requirements encountered in DERP and to meet specific requirements mandated by Congress under SARA.

The HTRW Training Program is taught by experts in the environmental field. Courses include Hazardous/Toxic and Radioactive Waste Overview, Safety and Health for Hazardous Waste Sites, 8-Hour Refresher, Implementation of HTW Environmental Laws and regulations on USACE projects. In

addition, several new courses are currently under development for implementation in the FY 1993 training program. These include Geotechnical Aspects for HTW Sites, Technical Applications of Environmental Requirements, and Explosive Ordnance Recognition and Safety.

Army Training

In FY 1992 the Army provided a variety of IRP training courses. The training included a ground water modeling use and needs workshop, an Army DERP Conference/Workshop, and initiation of an environmental electronic bulletin board.

The USATHAMA, in conjunction with the Waterways Experiment Station, and the Directorate of Military Programs, hosted the first ever Army Ground Water Modeling Use and Needs Workshop in Denver, Colorado. The purpose was to define the near-term and long-term Army user needs in the areas of ground water flow and

transport modeling in support of the IRP. Over 75 individuals, from DA, universities and industry attended. The two-day workshop included presentation of case histories, panel discussions, and a tour of the Rocky Mountain Arsenal ground water treatment system. Workshop proceedings will be published in early 1993.

A DERP Conference/Workshop entitled "Partners in Restoration" was held in Dallas, Texas in April 1992. This was the first conference at which the entire CONUS-based active Army environmental restoration community gathered to communicate the latest in Army policy, guidance, and to explain the mechanics of the DERP process. The focus of presentations was on the installation and its role/responsibilities in the DERP. The presentations covered both technical and financial issues. Four hundred Army and regulatory agency personnel attended.

The Army Defense Environmental Electronic Bulletin Board System (ADEEBBS) is an on-line communication system initiated by the USATHAMA and developed by U.S. Army Construction Engineering Research Laboratory (USACERL). ADEEBBS is dedicated to the exchange of information concerning the Army's mission. It serves as forum for disseminating and sharing information on Army cleanup technologies, program policy and guidance, regulatory compliance, Legacy, cultural and natural resources, meetings, and environmental training. Its capabilities include use as a communications platform, an electronic bulletin board, a reporting mechanism, an information source, and a portal to

other systems. System equipment and user training has been completed at 125 Army installations.

Department of the Navy Environmental Training Plan

The Navy has created a comprehensive, Navy-wide, environmental training plan. The Plan will ensure that every person in the Navy can obtain the environmental and natural resource training needed to ensure that their actions comply with, protect, and enhance our environment and its laws. The Plan will also ensure that appropriate

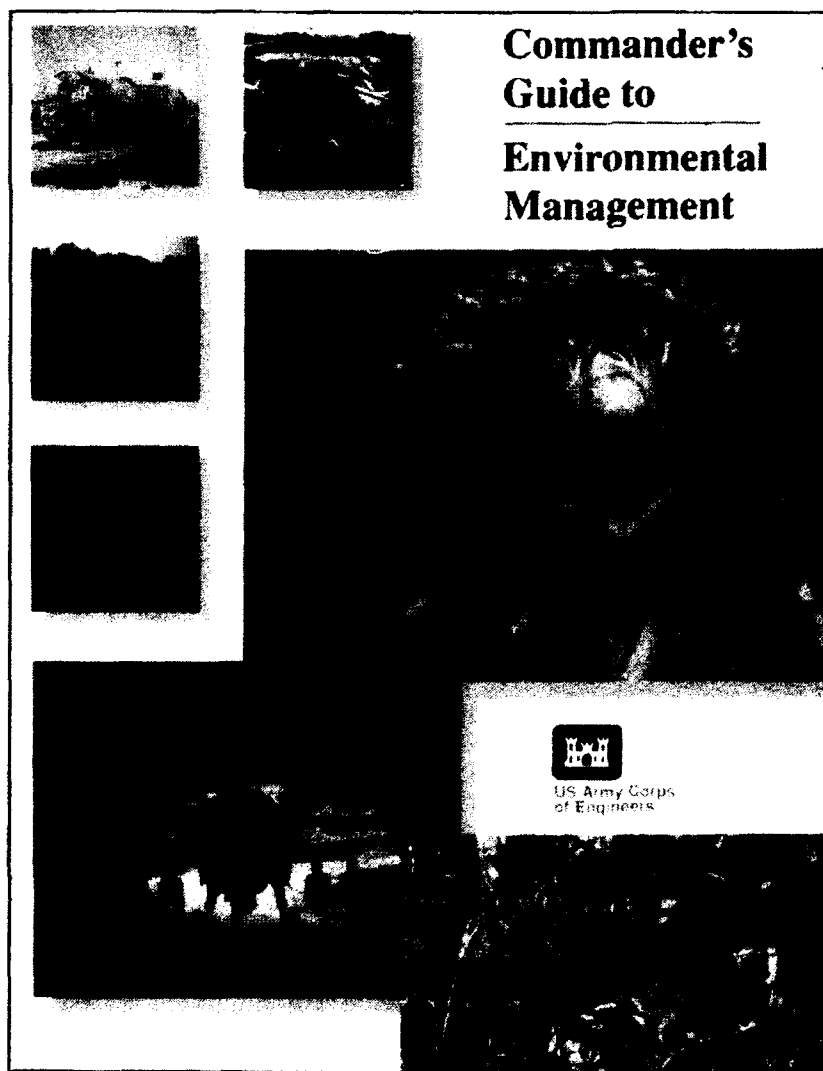
training is available and that sufficient resources are applied to guarantee the effectiveness of the programs.

The Plan identifies which courses are available to meet these requirements and/or can be modified to do so. Opportunities to train personnel in-house or use other DoD component and EPA courses are being and will be used wherever practical. A substantial part of the Plan addresses the environmental training needs of environmental remediation personnel including not only compliance-oriented courses but also competence in technical and regulatory partnering issues.

DERP Education

The Center for Environmental Restoration Education (CERE) at the Air Force Institute of Technology at Wright-Patterson AFB, OH, completed a successful first year. CERE's goal is to locate and provide Air Force students the best, most cost effective education to support their DERP related duties. Over 2,000 students attended courses offered by various agencies covering DERP related topics such as ground water hydrology, CERCLA Legal Issues, Toxicology, and Risk Communication.

Of particular interest has been the cooperative efforts between the Air Force and other agencies to develop two new courses. For example, a CERCLA cleanup course was developed through cooperative efforts of the Air Force and the EPA. The team approach was designed to foster teamwork between Air Force and regulatory personnel in remediating federal facility hazardous waste sites.



Training Manual

The course, which was attended by 520 students this year was so successful that efforts are now underway to expand the course to include other DoD Components and state regulators. The EPA Deputy Assistant Administrator for Federal Facilities Enforcement lauded the course as a "...step toward establishing more effective working relationships between EPA and the Air Force."

The Air Force also teamed with the Agency for Toxic Substances and Disease Registry (ATSDR) to develop a Health/Risk Assessment and Health Risk Communication training course. The course is aimed at informing students of the roles of ATSDR and health/risk assessments in the Installation Restoration Program cleanup process.

Defense Environmental Restoration Account funds were also used to sponsor students attending three professional continuing education courses (two of them offered for the first time this year) at the Air Force Institute of Technology (AFIT).

The introductory Installation Restoration Program course, which has been offered at AFIT since 1988, continued to familiarize students with the basic technology, law, management, and public affairs knowledge required to work in the DERP. This year, 259 students, with engineering, legal, public affairs, and contracting backgrounds, attended the course.

Also, this year, 75 students attended a new AFIT course in Environmental Restoration Project Management, designed to familiarize students with the methods, processes, and techniques of managing environmental restoration projects; and 32 students attended a new AFIT course in Environmental Restoration Contracting, which provided information on how to plan, organize, prepare, manage, and administer environmental restoration contracts.



Air Force DERP Training Session

Looking to the future, CERE hopes to improve and expand its systems for publicizing and evaluating courses, and for assisting users in identifying their educational requirements. These improvements will serve to ensure that every student who needs education to perform his or her DERP-related duties has access to the highest quality education available.

DLA Training—Safety and Health for Hazardous Waste Sites

DLA personnel new to the environmental program completed the 40-hour CERCLA site safety and health course. This course fulfills OSHA requirements and helps assure the safety and health of personnel working at hazardous waste sites. The course specifically addresses CERCLA sites (NPL and non-NPL sites) and RCRA sites where investigations or cleanup operations are underway. In addition, DLA personnel who had previously completed the 40-hour course received the mandatory 8-hour refresher training during FY 1992.

Pilot Expedited Environmental Cleanup Program

Senate Appropriations Act 102-154 directed DoD to establish a Pilot Expedited Environmental Cleanup Program that includes at least five major projects for each Military Department. As stated in the bill, the program is based on the following principles:

- Full compliance with all environmental laws;
- Use of existing authorities (such as CERCLA interim remedial actions) when appropriate for substantial cleanups;
- Use of turnkey contracts to cover more than one phase of any cleanup;
- Establishment of special expedited procedures for any required approval of DoD actions by other Federal, State and local agencies; and
- Use of competition in contract solicitation and contractor competency and cost in contract awards.

The Departments of the Army, the Navy, and the Air Force are conducting expedited projects at several of their installations.

The Army's Presidio of San Francisco (CA) has implemented several expedited efforts. These include the use of base closure funds to remove leaking underground storage tanks, the use of interim remedial actions and coordinating with California regulatory agencies to shorten document review periods from 60 to 30 days.

At Fort Devens (MA), the Army has conducted joint reviews with regulators to accelerate the investigation process. The Army and EPA have jointly implemented steps to accelerate removal actions, including use of an action memorandum to document these actions, an accelerated review period, and treating removals as time critical.

Fort Sheridan (IL) and Fort Benjamin Harrison (IN) have attempted to initiate pilot projects, but have been hampered by disagreements with regulatory agencies in the former case and by funding concerns in the latter case.

At Fort Ord (CA), an Environmental Restoration Plan has been developed to accelerate the cleanup of the installation. The installation has used existing authorities with emphasis on actions and problem solving being handled at the lowest possible level of authority. The installation is also using one engineering firm to conduct all investigations and designs for base-wide cleanup. This has shortened the original procurement schedule by 12 months.

The Department of the Navy has a number of pilot projects throughout the country.

At **Camp Lejeune Marine Corps Base (NC)**, the installation has accelerated the remedial study phase through the use of a non-phased sampling and analysis approach. Under this approach, all data are gathered during one instead of multiple field events, thereby shaving months off of the study process. Other expedited procedures include use of concurrent Navy/Marine Corps/EPA and State reviews of draft contract documents, and holding meetings at regulators' offices to expedite review. Up to six months has been saved over normal review times by these approaches.

At **Twentynine Palms Marine Corps Air Ground Combat Center (CA)**, expediting approaches in use include editing of draft documents on electronic disk, a tiered sampling approach where additional sampling is done only as needed, and use of large indefinite quantity (IQ) contracts to expedite contracting procedures.

Chase Field Naval Air Station (TX) has undertaken several expedited actions in cooperation with regulatory agencies. For example, the installation has designed its site investigations so that they meet both the requirements of RCRA and CERCLA. Use of an Environmental Advisory Committee is helping shorten reviews by regulators, since the reviewers sit on the committee and (in true Total Quality Management fashion) contribute to the review long before a report arrives on their desks.

Davisville Naval Construction Battalion Center (RI) has used turnkey contracts and has overlapped phases of the IRP process to save both time and money. A specific example of such an overlap is starting the design of a landfill remedial action before all field data are available.

Long Beach Naval Shipyard (CA) is still in the early phase of cleanup, and is using value engineering, analysis and management techniques to avoid problems that have affected many Federal Facilities. In addition, a long-term site management plan is being created that will coordinate the IRP with base closure activities.

The **Air Force** is also conducting pilot projects at several of its installations. **Castle AFB (CA)** has effectively realigned the sequencing of RI/FS studies to identify contamination in the study process and taking early remedial measures. Castle AFB has also proposed a schedule for remedial action that will save 14 months. These savings will be achieved by overlapping activities where possible, and minimizing regulatory review cycles for project documents.

George AFB (CA) has accelerated cleanup of two ground water contamination plumes by working closely with California regulatory agencies. In addition, George AFB has worked with regulators to use innovative technologies such as bioremediation and soil venting. The use of these technologies will result in significant cost savings and accelerated cleanup times.

Mather AFB (CA) has effectively redefined the RI/FS phase for ground water and soil sites to produce a more efficient and technically sound approach to cleanup through the use of focused feasibility studies. The installation is considering reuse objectives in its cleanup and accelerating cleanup at parcels targeted for early reuse.

Myrtle Beach AFB (SC) is establishing a joint management team (JMT) at the installation. It is composed of representatives of the State, EPA, the Army Corps of Engineers, the Air Combat Command, as well as installation staff. The JMT will facilitate coordination and communication among all parties and facilitating site cleanup.

The installation is also using a turnkey approach to contracting. A new contract vehicle, called a Total Environmental Restoration Contract (TERC) provides one contractor for all phases of cleanup, from initial investigation to final remediation.

The use of accelerated interim remedial actions and accelerated lease actions have expedited cleanup at **Norton AFB (CA)** and permitted the profitable reuse of Air Force facilities by an aircraft manufacturer.

Expedited Pilot Projects

Installation	Congressional Criteria				
	Full Compliance with Environmental Laws	Use of Existing Authority	Use of Turnkey Contracts	Establishment of Special Expedited Procedures	Use of Competition in Contract Solicitation
ARMY					
Presidio of San Francisco	X	X		X	X
Fort Devens	X	X		X	X
Fort Sheridan *					
Fort Benjamin Harrison **	X	X			X
Fort Ord	X	X	X	X	X
NAVY					
Camp Lejeune MCB	X	X		X	X
Twentynine Palms MCAGCC	X	X		X	X
Chase Field NAS	X	X		X	X
Davisville NCBC	X	X		X	X
Long Beach NSY	X	X		X	X
AIR FORCE					X
Castle AFB	X	X		X	X
George AFB	X	X		X	X
Mather AFB	X	X		X	X
Myrtle Beach AFB	X	X	X	X	X
Norton AFB	X	X		X	X

* Project work cannot proceed because of a disagreement with the state regulators.

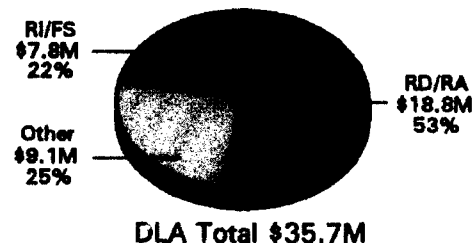
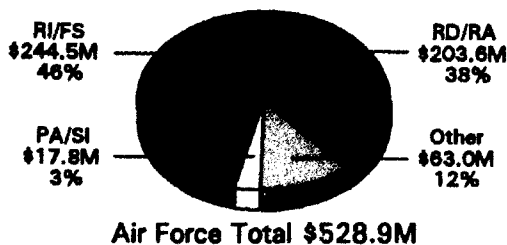
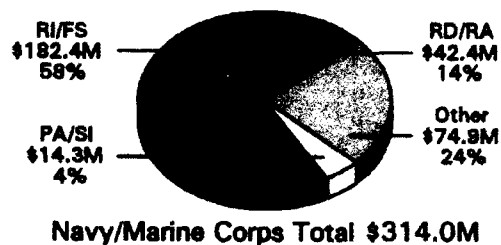
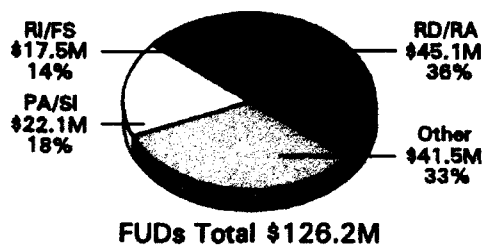
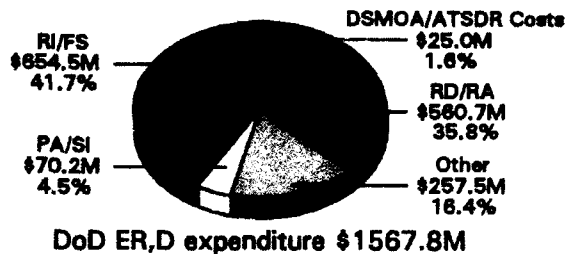
** Project work is being delayed because of funding concerns.

"X" indicates activity in this category.

Program Funding

During FY 1992, over 97 percent of the funding provided by Congress through the Environmental Restoration, Defense (ER,D) Appropriation (more commonly referred to as the Defense Environmental Restoration Account (DERA)) was invested in IRP activities. Of this, nearly 36 percent, or \$560.7 million was used for RD/RA projects at DoD installations. RI/FS investigation work required almost 42 percent of last year's IRP funds. These funding breakouts are for DERA only. Total funding includes \$1,562.4 million in FY 1992 appropriated funds and \$5.4 million recovered through court actions against liable third parties. They do not include Base Realignment and Closure Funds.

FY 1992 DERP Expenditures*
(Millions of Dollars)



* Other category includes such items as management, manpower, OHW, BDDR, PRP, etc.
Numbers may not add up to totals due to rounding.

Appendix A

Information Requested by the Superfund Amendments and Reauthorization Act

This Appendix to the Annual Report provides information requested in Section 120(e)(5) of the Superfund Amendments and Reauthorization Act of 1986 (SARA), which applies to all Federal Facilities, and Section 211 of SARA (codified at 10 USC 2706), which pertains to the Defense Environmental Restoration Program.

Federal Facilities Reporting Requirements

Section 120(e)(5) of the SARA legislation specifies that each Federal department or agency shall annually report on the following items:

- A report on the progress in reaching interagency agreements.
- The specific cost estimates and budgetary proposals involved in each interagency agreement.
- A brief summary of the public comments regarding each proposed interagency agreement.
- A description of the instances in which no agreement was reached.
- A report on progress in conducting investigations and studies under Paragraph (1). [Paragraph (1) discusses the timing of RI/FS work at NPL sites].
- A report on progress in conducting remedial actions.
- A report on progress in conducting remedial actions at facilities which are not listed on the National Priorities List.

In addition, SARA specifies "With respect to instances in which no agreement was reached within the required time period, the department, agency, or instrumentality filing the report under this paragraph shall include in such report an explanation of the reasons why no agreement was reached. The annual report required by this paragraph shall also contain a detailed description on a State-by-State basis of the status of each facility subject to this section, including a description of the hazard presented by each facility, plans and schedules for initiating and completing response action, enforcement status (where appropriate), and an explanation of any postponements or failure to complete response action. Such reports shall also be submitted to the affected States."

Appendix B contains a description of each installation final-listed or proposed for listing on the NPL. Each description summarizes the background of the installation, including the types of environmental hazards present, the status of IAG negotiations, the status of IRP response actions, and schedules for initiating and completing those response actions. The information in Appendix B addresses the requirements of the preceding paragraph. Appendix E describes formerly used defense sites (FUDS) that are listed and proposed for listing on the NPL. Appendix B, Table B-1, catalogs DoD facilities that are final-listed and proposed for listing on the NPL and Appendix E, Table E-1, catalogs FUDS that are final-listed on the NPL. The following paragraphs provide detailed responses to the SARA information requirements.

Progress in Reaching Interagency Agreements

During FY 1992, efforts to complete IAGs were accelerated through diligent work by the Components. These IAGs continue to receive a high priority because they establish comprehensive installation-specific arrangements for proceeding with DoD's waste cleanup activities. DoD's goal is to have an agreement in place for all installations final-listed or proposed for listing on the NPL. Extensive field negotiations took place in FY 1992 with EPA and state authorities, and resulted in the signing of more agreements.

The signing of IAGs for 9 installations listed on the NPL in FY 1992 brought the total number of signed IAGs to 85. The installations with finalized agreements are shown in Table A-1. West Virginia Ordnance Works and Weldon Spring Former Ordnance Works are not included on the table because they have been transferred to the FUDS program. The large increase in signed agreements can be attributed to an all-out effort by the Components to negotiate agreements.

Interagency Agreement Cost Estimates and Budgetary Proposals

DERP funding is discussed in the body of this report. The estimate for total program funding is based on existing budget documentation, including program cost data from the individual DoD Component IRPs, and consideration of existing Superfund cost data. Table A-1 lists the installations with signed IAGs along with the estimated expenditures to-date and the estimated additional cost to implement each IAG. Total IRP costs associated with signed IAGs is \$11.83 billion (\$2.15 billion through FY 1992, and \$9.68 billion in future costs). These costs include past IRP costs along with future budgetary estimates for continued investigation and cleanup of the sites at installations where an IAG has been finalized.

Additional details of past expenditures at all DoD NPL installations are shown in Appendix B, Table B-1. That table includes additional funding data for IRAs, RAs, and RI/FSs.

Public Comments Regarding Proposed Interagency Agreements

As of September 30, 1992, public comments had been received on one of the 9 IAGs completed in FY 1992. These comments are summarized below.

Newport Naval Education and Training, Newport, Rhode Island

Five comments were received from the public concerning the status and management of the cleanup process of sites that have not been included in the pre-ROD IAG. The comments were responded to without modification required to the IAG.

Instances Where No Agreement Was Reached

There are no instances where DoD has failed to reach an agreement within the required time period.

Remedial Investigation/Feasibility Study (RI/FS) Progress

Section 120(e)(1) of SARA specifies that RI/FS work must be initiated at sites within six months of listing on the NPL. RI/FS work has been started at 94 DoD installations final-listed or proposed for listing on the NPL. RI/FS start dates are shown in the Installation Narratives in Appendix B.

Table A-1

Installations Covered by Signed IAGs as of September 30, 1992

Page 1 of 4

Location	Through FY 1992 \$(K)	Estimated Additional Cost to Implement IAG \$(K)
ARMY		
1. Aberdeen PG, MD (2)*	72,718	678,618
2. Alabama AAP, AL**	19,549	14,196
3. Anniston AD, AL	13,606	11,791
4. ARDEC (Picatinny Arsenal), NJ	21,120	62,207
5. Cornhusker AAP, NE	19,259	15,832
6. Fort Devens, MA **	10,239	55,888
7. Fort Devens, Sudbury Annex, MA	5,614	13,194
8. Fort Dix, NJ	6,332	26,603
9. Fort Lewis, WA (2)*	21,500	46,610
10. Fort Ord, CA **	21,333	174,573
11. Fort Riley, KS	7,992	71,374
12. Fort Wainwright, AK	7,925	30,012
13. Iowa AAP, IA	11,474	18,012
14. Joliet AAP, IL (2)*	12,082	31,862
15. Lake City AAP, MO	30,556	44,850
16. Letterkenney AD, PA (2)*	20,320	65,170
17. Lone Star AAP, TX	6,339	12,866
18. Longhorn AAP, TX	1,860	37,990
19. Louisiana AAP, LA	38,963	1,335
20. Milan AAP, TN	8,039	34,422
21. Riverbank AAP, CA	12,307	12,857
22. Rocky Mountain Arsenal, CO	510,900	1,325,956
23. Sacramento AD, CA**	27,389	39,104
24. Savanna ADA, IL	16,601	31,565
25. Schofield Barracks, HI	2,011	24,000
26. Tobyhanna AD, PA	5,963	11,518
27. Tooele AD, UT	44,543	105,182
28. Twin Cities AAP, MN	39,570	163,675
29. Umatilla AD, OR	20,705	21,172
Army Total	1,036,809	3,182,434

*Both NPL listings for this installation are covered under one IAG.

**BRAC installations

Table A-1

Installations Covered by Signed IAGs as of September 30, 1992

Page 2 of 4

Location	Through FY 1992 \$(K)	Estimated Additional Cost to Implement IAG \$(K)
DEPARTMENT OF NAVY		
1. Albany MCLB, GA	5,924	66,570
2. Bangor NSB, WA (2)*	21,134	46,450
3. Barstow MCLB, CA	23,016	92,391
4. Brunswick NAS, ME	5,880	14,448
5. Camp Lejeune MCB, NC	9,852	98,560
6. Camp Pendleton MCB, CA	23,201	52,868
7. Cecil Field NAS, FL	3,156	57,363
8. Davisville, RI**	2,217	24,290
9. Earle Naval Weapons Station, NJ	2,515	33,790
10. El Toro MCAS, CA	25,492	124,579
11. Fridley NIROP, MN	7,533	11,128
12. Jacksonville NAS, FL	9,326	116,019
13. Keyport NUWC, WA	11,113	29,869
14. Lakehurst NAWCAD, NJ	15,143	21,275
15. Moffett NAS, CA**	34,487	24,146
16. Newport, RI	3,314	61,552
17. Pensacola NAS, FL	11,667	46,485
18. Sabana Seca, PR	1,305	15,487
19. Treasure Island NS – Hunters Point, CA**	42,039	88,025
20. Warminster NAWCAD, PA	1,539	9,160
21. Whidbey Island NAS, WA (2)	17,352	49,468
22. Yuma MCAS, AZ	2,896	116,049
Department of Navy Total	280,101	1,199,972
AIR FORCE		
1. AFP #4 (General Dynamics), TX	15,129	81,101
2. Castle AFB, CA**	22,504	63,960
3. Dover AFB, DE	13,286	34,864
4. Edwards AFB, CA	39,858	488,420

*Both NPL listings for this installation are covered under one IAG.

**BRAC installations

Table A-1

Installations Covered by Signed IAGs as of September 30, 1992

Page 3 of 4

Location	Through FY 1992 \$(K)	Estimated Additional Cost to Implement IAG \$(K)
AIR FORCE (Continued)		
5. Eielson AFB, AK	24,336	159,535
6. Ellsworth AFB, SD	8,521	63,000
7. Elmendorf AFB, AK	23,227	107,263
8. Fairchild AFB (4 Waste Areas), WA	13,738	37,000
9. F.E. Warren AFB, WY	13,696	73,000
10. George AFB, CA**	41,882	31,355
11. Griffiss AFB, NY	24,030	115,000
12. Hill AFB, UT	32,871	509,542
13. Homestead AFB, FL	7,082	13,000
14. Loring AFB, ME**	14,710	212,851
15. Luke AFB, AZ	13,038	19,000
16. March AFB, CA	25,948	201,161
17. Mather AFB, CA**	33,860	134,787
18. McChord AFB, WA (2)*	9,381	13,230
19. McClellan AFB, CA	81,281	1,560,221
20. Minn.-St. Paul AFRB (Small Arms Range Landfill), MN	2,707	2,395
21. Mountain Home AFB, ID	4,246	8,000
22. Norton AFB, CA**	25,800	57,200
23. Otis ANGB, MA	23,487	123,815
24. Pease AFB, NH**	52,910	73,722
25. Plattsburgh AFB, NY	17,419	58,328
26. Robins AFB (Landfill #4/Sludge Lagoon), GA	21,955	257,257
27. Tinker AFB (Soldier Creek/Building 3001), OK	54,012	356,500
28. Travis AFB, CA	16,093	62,806
29. Williams AFB, AZ**	12,981	22,853
30. Wright-Patterson AFB, OH	94,904	295,105
Air Force Total	780,646	5,236,271

*Both NPL listings for this installation are covered under one IAG.

**BRAC installations

Table A-1**Installations Covered by Signed IAGs as of September 30, 1992**

Page 4 of 4

Location	Through FY 1992 \$(K)	Estimated Additional Cost to Implement IAG \$(K)
DEFENSE LOGISTICS AGENCY		
1. Defense General Supply Center Richmond, VA	7,821	6,049
2. Ogden Defense Depot, UT	11,246	22,344
3. Sharpe Site, DDRW, CA	17,249	5,324
4. Tracy Site, DDRW, CA	15,098	23,818
DLA Total	51,414	57,535
DoD TOTAL	2,148,970	9,676,212

Remedial Action Progress

Section 120(e)(2) of SARA requires that on-site remedial action must be initiated within 15 months of completion of an RI/FS and the issuance of a ROD at an NPL facility. At the end of FY 1992, RD/RA efforts were underway at all 8 DoD NPL installations for which RODs had been completed 15 months earlier or more. These were: Bangor Naval Submarine Base, Lakehurst Naval Air Station, Castle Air Force Base, Fort Dix, Letterkenney Army Depot, Dover AFB, McChord AFB, and Robbins AFB. In FY 1992, final RODs were signed at 22 installations including 7 Army, 8 Navy, and 5 Air Force and 2 DLA installations. DoD anticipates beginning final RA activities at all 22 of these installations within the required time period.

By the end of FY 1992, response actions had been undertaken at 91 DoD installations with sites listed or proposed for the NPL. This work involves several types of Removal Actions and/or IRAs. Additional information on RD/RA initiatives at DoD NPL installations is provided in the narratives in Appendix B.

Remedial Action at Non-NPL Facilities

Remedial actions have been completed or are underway at 725 DoD sites (including sites at NPL installations). At non-NPL facilities, remedial actions had been completed or were underway at 521 sites by the end of FY 1992.

Defense Environmental Restoration Program Reporting Requirements

Section 211 of SARA (10 USC 2706) specifies that the Annual Report to Congress shall include:

- “(1) A statement for each installation under the jurisdiction of the Secretary of the number of individual facilities at which a hazardous substance has been identified.”
- “(2) The status of response actions contemplated or undertaken at each such facility.”
- “(3) The specific cost estimates and budgetary proposals involving response actions contemplated or undertaken at each such facility.”
- “(4) A report on progress on conducting response actions at facilities other than facilities on the National Priorities List.”

Appendix C summarizes the information requested in items 1, 2, and 4 above. It denotes the number of sites undergoing each step of the IRP at any one installation. The response to item 3 above is found in the Program Funding section of this report. This year, four new milestones have been added which are the counting of interim remedial actions, and the inclusion of remedy-in-place, response complete and site closeout categories.

Appendix C, Table C-1 provides a detailed listing of IRP status for each installation in the program. For each IRP phase listed in Table C-2, five status categories exist: “C,” “U,” “F,” “RC” and “SC.” Category “C” represents the total number of sites for which that particular study or action has been completed. The “U” category denotes the number of sites having that particular study or action underway. The “F” category shows the number of sites scheduled to have that study/action performed in the future. “RC” indicates that DoD Component believes the site is closed-out because no further action was required for the site at the completion of the particular IRP phase. “Site closeout (SC)” indicates all required regulatory agency approvals have been obtained. “Remedy-in-place” means that the final RA is functioning properly and performing as designed.

Facilities Having Identified Hazardous Substances

The universe of sites at DoD installations in the IRP is summarized on pages 8 and 9 of this report and explained further in Appendix C. Referring to these tables, a PA is a Preliminary Assessment of an installation to determine if a site may pose hazards to public health or the environment, and may require further study. An SI is a Site Inspection of an installation, which follows a PA and may consist of limited sampling and on-site analysis to determine the existence of actual site contamination. The information collected in the SI is used to score the site with the HRS to determine whether a site should be placed on the NPL. The RI/FS involves quantitative sampling and analysis to identify those sites that are contaminated, the types of contaminants present and their levels, and whether the contamination is causing or contributing to any ground or surface water pollution. RD is an engineering phase following the ROD in which technical drawings and specifications are developed for the subsequent remedial action at a site. RA is the actual construction or implementation phase that follows the design of the selected cleanup alternative for a site.

An RI is required to confirm which sites are actually contaminated, and present a health or environmental risk. Because RIs are still underway at many sites, the absolute number of sites with hazardous substances cannot be determined. A rough estimate can be made by assuming that all sites with RD/RA scheduled, underway at this time or completed have identified hazardous waste that may present a risk. A rough estimate of the number of known hazardous waste sites in DoD is 5,005, the sum of RA work completed, underway, or planned for the future, as shown on page 9.

Status of Current or Contemplated/Undertaken Response Actions

The number of response actions undertaken at any one installation is indicated by the sum of the numbers in the "C" and "U" categories of each response action type listed in the table in Appendix C. Similarly, the "F" category under each type of response action indicates the number of contemplated (future) response actions for each installation.

Four-hundred sixteen cleanups (i.e., final remedial actions) have been completed. This includes 159 Army, 37 Navy, 196 Air Force, and 24 DLA actions at IRP sites. In addition, 960 interim actions have been completed or are underway at 387 installations.

Response Action Cost Estimates and Budgetary Proposals

In FY 1992, the Congress appropriated \$1,568 million for the DERP, of which \$1,545 million was targeted for the IRP. This includes the supplemental appropriation received in September of 1992. These funds were used primarily to expand and accelerate studies and remedial actions at more than 18,795 individual sites.

Response Action Progress at Non-NPL Facilities

DoD has continued to make progress during FY 1992 in investigating all sites or facilities on DoD installations potentially contaminated with hazardous substances and cleaning up those sites that pose a threat to human health and the environment, regardless of whether they are on the NPL. A total of 18,795 sites on 1,800 military installations are currently included in the IRP. Of the total number of sites, 3,875 are sites associated with facilities listed on the NPL. Facilities not listed on the NPL have a total of 14,920 sites in various stages of the IRP. RAs are ongoing or completed at 521 sites at non-NPL facilities.

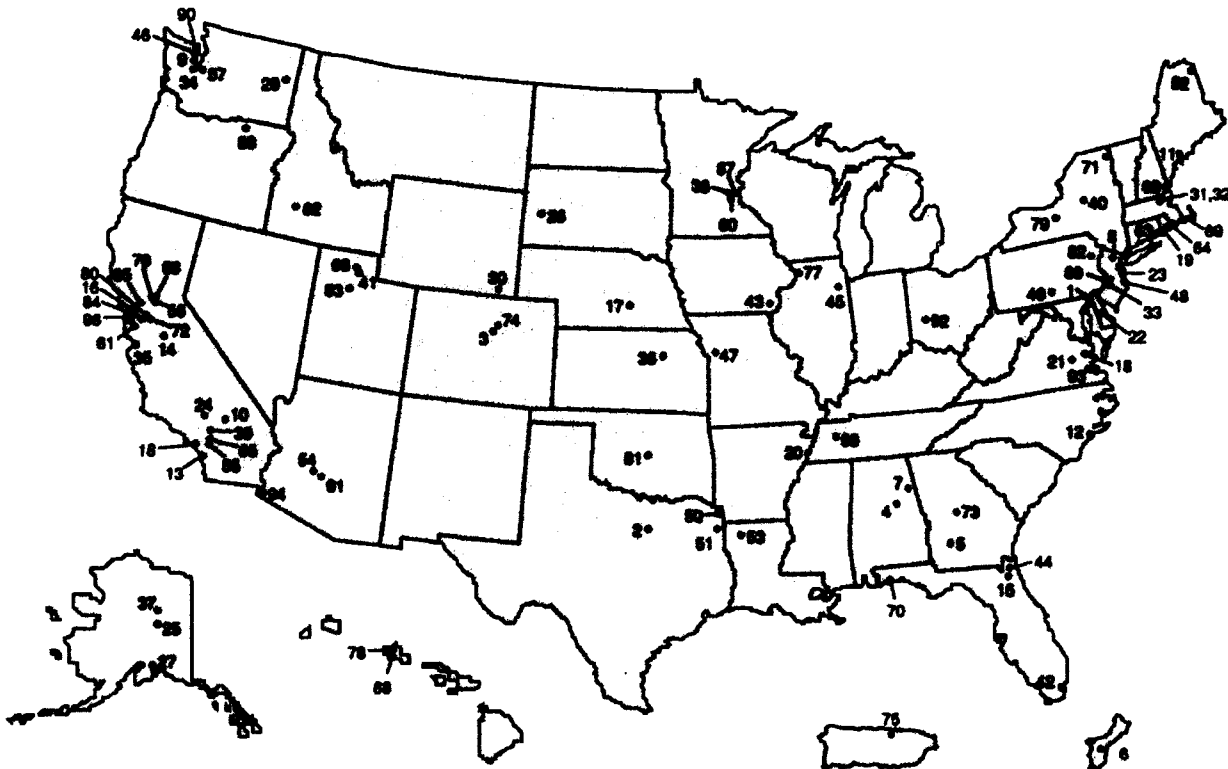
Appendix B provides data regarding IRP response actions at DoD facilities on the NPL. The listing in Appendix C, in addition to providing additional information on NPL sites, provides the status of work at non-NPL facilities.

Appendix B

DoD NPL Installations

This Appendix to the Annual Report summarizes information for each DoD installation listed and proposed for listing on the NPL as of the end of FY 1992. Table B-1 provides key data for the facilities listed on the NPL. Narrative summaries for each DoD installation listed on the NPL begins on page B-8.

As of September 30, 1992, 88 DoD installations were listed and six (Pearl Harbor Naval Complex, Concord NWS, Dahlgren NSWC, Yorktown NWS, Defense Distribution Region Central, Andersen AFB) were proposed for listing on the NPL. Two separate areas of seven of these 94 installations are listed twice on the NPL, bringing the total number of DoD NPL listings to 101. Weldon Spring and West Virginia Ordnance Works have been transferred to the FUDS program. They are now included in Appendix E. Weldon Spring is no longer carried in the DoD installation totals.



Location of DoD Installations on the NPL
(Narratives beginning on page B-8 are keyed to map numbers)

Table B-1
DoD Installations Proposed for or Listed on the National Priorities List (NPL)

Installation	State	HRS Score	Removal Action/Interim Remedial Action		RI/FS	IAG		
			Year (Latest)	\$(K) Thru FY 92	\$(K) Thru FY 92	Status	Signing Year	
ARMY								
1. Aberdeen PG (Edgewood Area)	MD	53.57	92	21,160	35,035*	FIN	90	
1a. Aberdeen PG (Michaelsville Landfill)	MD	31.09	92	5,838	893	FIN	90	
2. Alabama AAP	AL	36.83	91	8,443	11,106*	FIN	90	
3. Anniston AD (Southeast Industrial Area)	AL	51.91	92	2,471	8,671	FIN	90	
4. ARDEC (Picatinny Arsenal)	NJ	42.92	92	8,720	7,947	FIN	91	
5. Cornhusker AAP	NE	51.13	92	10,984	8,225	FIN	90	
6. Fort Devens	MA	42.24	92	511*	9,728*	FIN	91	
7. Fort Devens Sudbury Training Annex	MA	35.57	—	0	5,564	FIN	91	
8. Fort Dix (Landfill Site)	NJ	37.40	92	2,769*	3,563*	FIN	91	
9. Fort Lewis (Landfill No. 5)	WA	33.79	—	0	4,557	FIN	90	
9a. Fort Lewis Logistics Center	WA	35.48	92	9,697	3,110	FIN	90	
10. Fort Ord	CA	42.24	92	3,041*	14,318*	FIN	90	
11. Fort Riley	KS	33.79	92	4,618	3,367	FIN	91	
12. Fort Wainwright	AK	42.40	91	550	7,375	FIN	92	
13. Iowa AAP	IA	29.73	92	2,142	9,332	FIN	90	
14. Joliet AAP (LAP Area)	IL	35.23	—	0	3,455	FIN	89	
14a. Joliet AAP (Mfg Area)	IL	32.08	85	1,496	3,305	FIN	89	
15. Lake City AAP (Northwest Lagoon)	MO	33.62	92	12,639	17,523	FIN	89	

*Dollars include BRAC money.

FIN = Finalized (signed) • IN = Initiated • NYI = Not yet initiated • (e) = Expected • BRAC installations in italics

(Continued)

Table B-1

DoD Installations Proposed for or Listed on the National Priorities List (NPL)

Installation	State	HRS Score	Removal Action/Interim Remedial Action		RI/FS	IAG	
			Year (Latest)	\$(K) Thru FY 92	\$(K) Thru FY 92	Status	Signing Year
ARMY (Continued)							
16. Letterkenny AD (PDO Area)	PA	37.51	91	340	2,789	FIN	89
16a. Letterkenny AD (Southeast Area)	PA	34.21	92	2,679	13,043	FIN	89
17. Lone Star AAP	TX	31.85	92	580	5,759	FIN	90
18. Longhorn AAP	TX	39.83	—	0	1,578	FIN	92
19. Louisiana AAP	LA	30.26	92	33,964	4,999	FIN	89
20. Milan AAP	TN	58.15	84	966	6,993	FIN	89
21. Riverbank AAP	CA	63.94	92	5,145	6,553	FIN	90
22. Rocky Mountain Arsenal	CO	58.15	92	329,635	107,312	FIN	89
23. Sacramento AAP	CA	44.46	92	19,253*	8,136	FIN	88
24. Savanna ADA	IL	42.20	92	11,664	4,867	FIN	89
25. Schofield Barracks	HI	28.90	—	0	1,860	FIN	91
26. Seneca AD	NY	35.52	92	1,239	2,631	IN	93(e)
27. Tobyhanna AD	PA	37.93	92	2,451	3,435	FIN	90
28. Tooele AD (North Area)	UT	53.95	92	19,978	24,235	FIN	91
29. Twin Cities AAP**	MN	59.16	92	14,043	23,943	FIN	87
30. Umatilla DA (Lagoons)	OR	31.31	92	316*	19,371*	FIN	90

*Dollars include BRAC money.

**Listed as New Brighton/Arden Hills, not as a federal facility.

(Continued)

Table B-1

DoD Installations Proposed for or Listed on the National Priorities List (NPL)

Installation	State	HRS Score	Removal Action/Interim Remedial Action		RI/FS	IAG		
			Year (Latest)	\$(K) Thru FY 92	\$(K) Thru FY 92	Status	Signing Year	
DEPARTMENT OF NAVY								
1. Albany MCLB	GA	44.65	92	1,490	3,820	FIN	91	
2. Bangor NSB	WA	55.91	92	included below		FIN	90	
2a. Bangor Ordnance Disposal	WA	30.42	92	580	20,350	FIN	90	
3. Barstow MCLB	CA	37.93	92	1,620	10,680	FIN	91	
4. Brunswick NAS	ME	43.38	92	1,060	4,360	FIN	89	
5. Camp Lejeune MCB	NC	33.13	92	1,690	5,720	FIN	91	
6. Camp Pendleton MCB	CA	33.79	86	7	17,270	FIN	91	
7. Cecil Field NAS	FL	31.99	—	—	2,060	FIN	91	
8. Concord NWS***	CA	50.00	92	5,730	13,560	NYI	—	
9. Dahlgren NSWC***	VA	50.03	91	1,330	1,130	NYI	93(e)	
10. Davisville NCBC	RI	34.52	91	340	1,380	FIN	92	
11. Earle NWS	NJ	37.21	92	100	1,180	FIN	91	
12. El Toro MCAS	CA	40.83	92	—	24,120	FIN	91	
13. Fridley NIROP	MN	30.83	92	4,050	3,440	FIN	91	
14. Jacksonville NAS	FL	32.08	92	2,050	5,950	FIN	91	
15. Keyport NUWC	WA	32.61	92	50	10,390	FIN	90	
16. Lakehurst NAWCAD	NJ	50.53	92	8,200	6,220	FIN	89	
17. Moffett NAS	CA	24.49	92	2,730	31,327	FIN	89	

***Proposed for listing on the NPL.

(Continued)

Table B-1

DoD Installations Proposed for or Listed on the National Priorities List (NPL)

Installation	State	HRS Score	Removal Action/Interim Remedial Action		RI/FS	IAG	
			Year (Latest)	\$(K) Thru FY 92	\$(K) Thru FY 92	Status	Signing Year
DEPARTMENT OF NAVY (Continued)							
18. New London NSB	CT	36.53	91	530	2,130	IN	93(e)
19. Newport NETC	RI	32.25	92	90	2,660	FIN	92
20. Pearl Harbor Naval Complex***	HI	70.82	92	10,210	5,320	NYI	—
21. Pensacola NAS	FL	42.40	91	3,540	5,850	FIN	91
22. Sabana Seca NSG	PR	34.28	88	10	1,240	FIN	92
23. <i>Treasure Island NS - Hunters Point Annex</i>	CA	48.77	90	3,140	37,959	FIN	90
24. Warminster NAWCAD	PA	57.93	90	70	1,400	FIN	90
25. Whidbey Island NAS (Ault Field)	WA	47.58	92	340	13,960	FIN	90
25a. Whidbey Island NAS (Seaplane Base)	WA	39.64	92	included above		FIN	90
26. Yorktown NWS ***	VA	50.00	—	—	2,830	NYI	93(e)
27. Yuma MCAS	AZ	32.24	92	590	380	FIN	92
AIR FORCE							
1. AFP #4 (General Dynamics)	TX	39.92	92	6,196	6,001	FIN	90
2. AFP PJKS	CO	42.93	92	5,168	1,513	IN	93(e)
3. Andersen AFB ***	GU	50.00	92	3,551	9,579	IN	93(e)
4. <i>Castle AFB</i>	CA	37.93	92	1,379	16,604	FIN	89
5. Dover AFB	DE	35.89	92	995	6,425	FIN	89
6. Edwards AFB	CA	33.62	91	5,614	27,215	FIN	90

(Continued)

Table B-1

DoD Installations Proposed for or Listed on the National Priorities List (NPL)

Installation	State	HRS Score	Removal Action/Interim Remedial Action		RI/FS	IAG		
			Year (Latest)	\$(K) Thru FY 92	\$(K) Thru FY 92	Status	Signing Year	
AIR FORCE (Continued)								
7. Eielson AFB	AK	48.14	92	7,055	14,799	FIN	91	
8. Ellsworth AFB	SD	33.62	91	690	7,831	FIN	92	
9. Elmendorf AFB	AK	45.91	92	6,102	16,779	FIN	92	
10. Fairchild AFB (4 Waste Areas)	WA	31.98	92	1,978	11,265	FIN	90	
11. F.E. Warren AFB	WY	39.23	90	2,027	11,669	FIN	91	
12. George AFB	CA	33.62	92	12,211	4,167	FIN	90	
13. Griffiss AFB	NY	34.20	92	11,844	12,178	FIN	90	
14. Hill AFB	UT	49.94	92	8,528	16,275	FIN	91	
15. Homestead AFB	FL	42.40	90	722	6,360	FIN	91	
16. Loring AFB	ME	34.49	92	4,697	9,563	FIN	91	
17. Luke AFB	AZ	37.93	92	1,999	9,392	FIN	90	
18. March AFB	CA	31.94	92	9,506	16,351	FIN	90	
19. Mather AFB	CA	28.90	92	306	29,084	FIN	89	
20. McChord AFB (Wash Rack/ Treatment Area)	WA	42.24	92	1,610	7,771	FIN	89	
20a. McChord (American Lake Garden Tract)	WA	31.94	92	included above		FIN	90	
21. McClellan AFB	CA	57.93	92	29,107	43,598	FIN	90	
22. Minneapolis-St. Paul Reserve Base	MN	33.62	92	1,102	1,544	FIN	89	
23. Mountain Home AFB	ID	57.80	92	65	4,180	FIN	92	

(Continued)

Table B-1

DoD Installations Proposed for or Listed on the National Priorities List (NPL)

Installation	State	HRS Score	Removal Action/Interim Remedial Action		RI/FS	IAG	
			Year (Latest)	\$(K) Thru FY 92	\$(K) Thru FY 92	Status	Signing Year
AIR FORCE (Continued)							
24. Norton AFB	CA	39.65	92	5,585	18,460	FIN	89
25. Otis ANG Base/ Camp Edwards	MA	45.92	92	4,865	17,107	FIN	91
26. Pease AFB	NH	39.42	92	10,534	42,556	FIN	90
27. Plattsburgh AFB	NY	30.34	92	6,363	11,057	FIN	91
28. Robins AFB (Landfill #4/Sludge Lagoon)	GA	51.66	92	11,301	7,323	FIN	89
29. Tinker AFB (Soldier Creek/Building 3001)	OK	42.24	92	32,534	18,520	FIN	88
30. Travis AFB	CA	29.49	92	2,172	13,940	FIN	90
31. Williams AFB	AZ	37.93	92	6,582	6,078	FIN	90
32. Wright-Patterson AFB	OH	57.85	92	22,939	64,335	FIN	91
DEFENSE LOGISTICS AGENCY							
1. Defense General Supply Center Richmond	VA	33.85	92	507	6,562	FIN	91
2. Defense Distribution Region Central ***	TN	58.06	91	1,200	2,475	IN	93(e)
3. Ogden Defense Depot	UT	45.10	92	811	4,859	FIN	89
4. Sharpe Site, DDRW	CA	42.24	92	6,009	11,010	FIN	89
5. Tracy Site, DDRW	CA	37.16	92	3,408	11,121	FIN	91

Aberdeen Proving Ground (Edgewood Area and Michaelsville Landfill) Edgewood and Aberdeen, Maryland

(1)

Service: Army

Size: 72,518 Acres

HRS Score: 53.57 (Edgewood Area)
31.09 (Aberdeen Area)

Base Mission: Develop and test equipment; Provide training

IAG Status: IAG signed March 1990

Action Dates: PA/SI completed 1976; Placed on NPL 1990

Contaminants: VOCs, semi-volatiles, arsenic, phosphates, PCBs, UXO, explosives, nitrates, solvents, petroleum products, pesticides, heavy metals, asbestos, low-level RAD waste, chemical surety material and their degradation products

Funding to Date: \$72.7 million

Preliminary Assessment/ Site Inspection (PA/SI)

The PA/SI identified eight areas of contamination and recommended three areas for preliminary survey and two for further monitoring. Large areas contaminated or potentially contaminated with UXO, chemical munitions, and manufacturing wastes were identified. RCRA Facility Assessments (RFAs) completed under the RCRA Corrective Actions Permits in 1990 refined PA/SI work and identified 319 Solid Waste Management Units (SWMUs). These SWMUs were combined into 13 study areas under an IAG that was signed by EPA on March 27, 1990. Substantial VOC contamination of surface and ground water was detected. As a result, four drinking water wells were removed from service.

Remedial Investigation/ Feasibility Study (RI/FS)

Environmental investigations initially pursued under RCRA Corrective Actions Permits have been submitted to EPA as initial documents under the IAG. While no significant off-base migration has been reported from any of the contaminated areas on base, small amounts of surface water contamination (VOCs) have been identified in on-post portions of the Chesapeake Bay and on-post tributaries to the Chesapeake Bay. Resampling has confirmed original survey findings. The IAG requires that initial studies be revised into RI/FS efforts under CERCLA/SARA. A total of 23 RI/FS and risk assessment work plans have been drafted and finalized in 1992. Presence of explosives and chemical agents severely restricts RI/FS actions prolonging study time requirements. Thirteen ground water and 26 water level monitoring wells have been

installed as part of the RI at the Fire Training Area.

Remedial Design/ Remedial Action (RD/RA)

Removal actions have been completed at 21 SWMUs (including eight underground storage tanks). A total of 1,200 tons of PCB and DDT contaminated soil and concrete was removed and incinerated during 1991. In 1992, 799 tons of hazardous materials and 116 tons of non-hazardous materials were removed. Five removal actions were completed in 1992. Twenty-eight removal actions are scheduled for 1993. RODs for O Field and the White Phosphorous Study Area were published in 1991. One ROD for the Michaelsville Landfill cap and cover system was published in 1992. One remedial design for a landfill cap and cover system was completed and approved and a remedial action contract awarded in 1992.

Air Force Plant #4 (General Dynamics) Fort Worth, Texas

(2)

Service: Air Force

Size: 602 Acres

HRS Score: 39.92

Base Mission: Manufacture aircraft and associated equipment

IAG Status: Pre-ROD IAG signed August 20, 1990

Action Dates: PA/SI completed 1984; Placed on NPL 1990; RI/FS scheduled for completion 1992

Contaminants: Solvents, paint residues, spent process chemicals, PCBs, waste oils and fuels, heavy metals, VOCs, cyanide

Funding to Date: \$15.1 million

Preliminary Assessment/ Site Inspection (PA/SI)

Air Force Plant #4, owned by the government, is operated by General Dynamics. Approximately 13,000 people in the city of White Settlement rely on the aquifer underlying the base for drinking water. Thirty sites were studied and identified as potentially contaminated. Ground and surface water contaminants include di-, tri-, and tetrachloroethylene, ethylbenzene, toluene, methylene chloride, heavy metals, cyanide, and petroleum products.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS began in August 1986. Confirmation/quantification studies examined 30 sites and confirmed contamination of soil, surface, and ground water. Twenty-three sites were recommended for additional RI/FS study, and one site will undergo additional sampling. No further action was recommended for seven sites. The RI/FS scheduled for completion in 1992 was delayed in part due to unanticipated geologic complexities and is expected to be completed in 1993.

Remedial Design/ Remedial Action (RD/RA)

Contaminated soil was excavated at four sites in 1986. Wells for the city of White Settlement are sampled quarterly by the Air Force. An interim ground water treatment system to address contamination that originated from two spill sites will be on line by April 1993. Quarterly monitoring is ongoing. Long-term monitoring will begin in 1994.

Air Force Plant PJKS Waterton, Colorado

(3)

Service: Air Force

Size: 464 Acres

HRS Score: 42.93

Base Mission: Research and development; Missile assembly; Engine testing

IAG Status: Initiated and expected to be signed 1993

Action Dates: PA/SI completed 1986; Draft Final RI/FS 1988; Placed on NPL 1989

Contaminants: Chlorinated organic solvents, fuel, hydrazine

Funding to Date: \$10.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

The site is surrounded by approximately 5,200 acres of land owned by Martin Marietta (Denver Aerospace). Since 1956, Martin Marietta has developed missiles and missile components for the Air Force at this location. The production, testing, and storage facilities are located southeast of, and at a lower elevation than, the Air Force property. Chlorinated organic solvents frequently were used to clean equipment and piping. Fuels containing hydrazine were developed, purified, and tested in support of the Titan III missile program.

The Air Force PA/SI investigated potentially contaminated areas on the plant, including the Deluge Containment Pond, a two-million gallon, concrete-lined surface impoundment that receives water potentially contaminated with hydrazine from rocket engine testing; the D-1 landfill, which accepted construction debris, household wastes, and unspecified chemical wastes before its closure and cover in 1974; and three areas

within a hydrazine-contaminated water and TCE spill zone.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS began in March 1986. Samples taken in 1988 from monitoring wells near the contaminated areas detected TCE, 1,1,1-trichloroethane, and Freon 113. Tests conducted in 1986 identified TCE and cis-1,2-dichloroethylene in Brush Creek, which flows from the plant 1.8 stream miles to the South Platte River. Hydrazine was also discovered in soils primarily around the old test facilities. The Air Force published a draft RI/FS in December 1988. The U.S. Environmental Protection Agency (EPA) and the Colorado Department of Health (CDH) have contested the findings in the RI/FS. Extensive negotiations to resolve the issues have continued during 1992 and are nearing final resolution.

Remedial Design/ Remedial Action (RD/RA)

Seventeen draft final No Further Action Decision Documents were published and forwarded for EPA's and CDH's review and concurrence prior to 1992. These documents covered the removal and remediation of eleven USTs. A facility-wide ground water monitoring program began in May 1991. The program sampled 96 monitoring wells and eight surface water stations. A study to establish background soil quality was completed. The contaminant levels which occur naturally were identified. A ground water extraction system is currently located on Martin Marietta property on the West Fork Brush Creek, near its confluence with the East Fork. This system intercepts contaminants migrating in the alluvial ground water system of the West Fork of Brush Creek.

Alabama Army Ammunition Plant Childersburg, Alabama

(4)

Service: Army

Size: 2,200 Acres

HRS Score: 36.83

Base Mission: Inactive; Former explosives manufacturing plant (closure installation)

IAG Status: Pre-ROD IAG signed December 1989; Became effective March 1990

Action Dates: PA/SI completed 1983; RI/FS initiated 1985; Placed on NPL 1987

Contaminants: Munition-related wastes, heavy metals, nitroaromatic compounds

Funding to Date: \$19.5 million

Preliminary Assessment/ Site Inspection (PA/SI)

A PA/SI identified a number of sites as potential contaminant migration sources, with several targeted for an RI/FS. The studies identified potential vertical contaminant migration within the aquifers and surface water contamination. A confirmation study delineated parameters and migration patterns for one aquifer and identified nitroaromatic compounds in onsite soils and in an aquifer beneath and downgradient from the manufacturing areas.

Additional sites were identified in subsequent studies; however, it is anticipated that several of these sites will not require further action.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS, begun in September 1985, is currently ongoing under the Federal Facilities Agreement (FFA). RIs for Area A soils and Area B have been tentatively approved. Risk assessments for these areas (and an RI for Area A ground water) are currently under negotiation with EPA Region IV. A proposed plan for additional soil removal (and incineration) from Area A has received regulatory approval. Investigations to date have determined that the ground water is contaminated with nitroaromatic compounds in concentrations above Federal Ambient Water Quality Criteria (AWQC). Onsite surface water is contaminated with nitroaromatic compounds and lead. Migration of contaminants at levels exceeding criteria is not expected.

Remedial Design/ Remedial Action (RD/RA)

Cleanup of Area A, including soil excavation and decontamination of storage igloos and buildings, was completed in 1988. Additional sampling was conducted in 1991 to confirm completion of cleanup at Area A following EPA Region IV's request. Two additional portions of soil have been identified for remediation as a result of this sampling effort.

A determination has been made by the Army to address the stockpiled soils from the remediation of Area A that are now stored in Area B as a separate operable unit (OU). An incineration contract was awarded in May 1991, allowing the option of incinerating the explosives-contaminated soils located in Area B. The Feasibility Study, proposed plan, and ROD for this OU were finalized in FY 1992. Incineration is currently scheduled for summer 1993. Approximately 25,000 cubic yards of soil will be incinerated. The two additional portions of soil from Area A are expected to be remediated during this effort.

Albany Marine Corps Logistic Base Albany, Georgia

(5)

Service: Navy

Size: 3,327 Acres

HRS Score: 44.65

Base Mission: Supply center; Training center

IAG Status: Signed July 1991

Action Dates: PA/SI completed 1985; Placed on NPL 1989; RI/FS initiated 1989

Contaminants: Waste oil and fuels, solvents, mineral spirits, PCBs, paints and thinners, stripping compounds, DDT, cleaning solutions

Funding to Date: \$5.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

An Initial Assessment Study (IAS), equivalent to a PA, was completed in September 1985 and identified eight potentially contaminated sites (01-08) at Marine Corps Logistics Base Albany (MCLB Albany). Six sites (01, 02, 03, 05, 06, and 07) were recommended for Confirmation Studies (CSs). These sites include landfills, a storm sewer, and a leaking drum storage area. Sites 04 and 08 were not originally recommended for further study, but both were included in the IRP later. Site 04 is included in a PSC/RI/FS, which began in FY 1992, and is underway. Site 08 is slated for a Remedial Investigation/Feasibility Study (RI/FS) beginning in August 1994.

A CS, equivalent to an SI, was completed in May 1987 and addressed a total of nine sites. Six of the nine sites were recommended for confirmation in the IAS. Three new sites were added (09, 10, and 11). Additional work was recommended for all sites except Sites 07

and 10, for which no further action was recommended.

Remedial Investigation/ Feasibility Study (RI/FS)

The FFA identified 13 potential sources of contamination (PSCs) requiring an RFI and 11 PSCs requiring screening. The PSCs have been separated into these categories depending on the level of investigation previously performed at the individual PSCs. The site screening PSCs will require initial confirmation and characterization sampling prior to determining if further investigation is necessary. An RCRA Facility Investigation (RFI), completed in September 1989, addressed nine sites; all were sites included in the FFA.

An enforceable schedule has been prepared as part of the FFA's site management plan. Parts of this schedule have been superseded by an expedited schedule. The 13 sites requiring RI/FS have been divided into Operable Units (OUs) based on the type of waste disposed or typical profile of suspected contaminants.

A Technical Review Committee (TRC) has been formed and meetings periodically held since September 1989.

Remedial Design/ Remedial Action (RD/RA)

RD/RA work will commence upon completion of the RI/FS activities and is expected to consist of action such as capping, ground water pump and treatment, excavation and disposal of contaminated soil and long-term monitoring (LTM).

An Interim Record of Decision (ROD) was signed in August 1992 for PSC 16, a former transformer station, and PSC 17, a chrome plating waste area. The selected remedies will consist of excavation capping and ground water monitoring. The Interim ROD was signed approximately one month ahead of the expedited schedule and 17 months ahead of the enforceable schedule.

Andersen Air Force Base Yigo, Guam

(6)

Service: Air Force

Size: 15,400 Acres

HRS Score: 50.00

Base Mission: Provide highest quality peacetime and wartime support - people, equipment, facilities to protect global power and reach and protect U.S. interests from our vital location.

IAG Status: Pre-ROD IAG expected to be signed early 1993

Action Dates: PA/SI completed 1985; Placed on NPL 1992

Contaminants: POL, solvents, tars, UXO

Funding to Date: \$16.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

Early PAs identified active and abandoned landfills and burial trenches referred to as burrow pits, fire training areas, and chemical storage areas. Many of the 50 sites identified in the PAs are above the sole source aquifer for the Capitol City of Agana, Guam. Due to the large population dependent upon the high quality limestone karst aquifer, preliminary findings recommended further action at many of the sites originally identified in the PAs.

Remedial Investigation/ Feasibility Study (RI/FS)

The active landfill complex at Andersen AFB has been under a Resource Conservation and Recovery Act Closure Plan that has driven extensive assessment and design activities to date. This activity is planned to be shifted from RCRA oversight to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) oversight upon signing of the Fed-

eral Facility Agreement. The FFA is projected to be signed in early 1993.

The landfill complex, along with the 39 sites listed in the FFA are divided into six operable units (OUs) under the FFA. An RI/FS for Andersen AFB was initiated in 1986 but since the initiation of the FFA process has been deferred. All data generated in the 1986 RI/FS is being reviewed for QA/QC concerns. Acceptable data will be integrated into new RI/FS initiatives developed through the FFA process.

An RI/FS must be conducted for each of the OUs. Due to the depth of the aquifer, which often exceeds 400 feet, and the complex nature of karst geology, the aquifer is not well characterized. A major dye tracer study will be completed in 1993 to characterize the aquifer in relation to the Andersen AFB landfill complex. This study will drive future investigation activities as well as risk assessment assumptions and ultimately, selection of remedial actions.

Due to the rapid development of non-military lands on Guam,

Andersen AFB has become a defacto nature preserve for federally listed endangered species. Federal Endangered Species Act, Section 7 consultations are required before any field activities can be conducted in endangered species habitat. Extensive ecological inventories will have to be completed to provide a baseline for future decision-making at the affected IRP sites.

Remedial Design/ Remedial Action (RD/RA)

An interim action is being planned for the Andersen AFB landfill complex. All other sites are being evaluated throughout the investigation process to determine if early actions are appropriate. Currently, no other early actions are planned. Unless additional sites are identified as appropriate for early actions, RI/FSs will have to be completed before further remedial design and remedial action can be implemented at Andersen AFB.

Anniston Army Depot (Southeast Industrial Area) Anniston, Alabama

Service: Army

Size: 15,245 Acres

HRS Score: 51.91

Base Mission: Maintain combat vehicles and artillery equipment

IAG Status: Pre-ROD IAG signed June 1990

Action Dates: PA/SI completed 1983; Initial RI/FS completed 1989; Placed on NPL 1989

Contaminants: VOCs, heavy metals, paints, acids, solvents, phenols, degreasers, ammunition wastes, oils and greases, fly ash

Funding to Date: \$13.6 million

Preliminary Assessment/ Site Inspection (PA/SI)

A PA/SI identified past disposal or spill sites potentially contaminated with hazardous wastes. The PA/SI also determined that hazardous wastes from some sites had contaminated the surface water and were probably also contaminating the ground water.

Remedial Investigation/ Feasibility Study (RI/FS)

RI/FS work confirmed that the local ground water is contaminated, primarily with VOCs, phenols, and metals. Chrome at levels exceeding the National Pollutant Discharge Elimination System (NPDES) permit have been detected in ground water. Low levels of contaminants have migrated beyond the depot boundary. Studies since 1983 have indicated that contamination on the depot originates from four main sources: the residual Z-1 trench area, the Building 114 dewatering sump, the southern landfill area, and the northeast industrial area near Building 130. Activities in 1992 included follow-on RI/FS work resulting from EPA and state review of previous work under the Federal Facility Agreement. Investigations were conducted at five operable units covering the southeast industrial area.

Remedial Design/ Remedial Action (RD/RA)

Approximately 62,000 tons of contaminated materials at Site Z-1 were excavated and removed to an RCRA disposal facility in 1983. Contaminated (VOCs, phenols, chromium) ground water from the Building 114 dewatering sump is treated via chemical filtration, air stripping, and carbon filtration of VOCs. Expansion of the existing system to allow treatment of chromium currently is being contracted under USACE.

Interim ground water extraction and treatment systems were installed in areas of major contamination within the Southeast Industrial Area, including the Site Z-1 trench area, the landfill, and the northeast area near Building 130. A Record of Decision (ROD) was signed in September 1991 to cover this interim remedial action.

ARDEC (Picatinny Arsenal) Rockaway Township, New Jersey

(8)

Service: Army
Size: 6,500 Acres
HRS Score: 42.92
Base Mission: U.S. Army Armament Research, Development, and Engineering Center (ARDEC)
IAG Status: Signed July 1991; Effective August 1991; Schedule approved October 1991
Action Dates: PA/SI completed 1987; Placed on NPL 1990
Contaminants: Heavy metals, VOCs, nitroaromatics and BNAs
Funding to Date: \$21.1 million

Preliminary Assessment/ Site Inspection (PA/SI)

The PA/SI determined that contamination in ground water, surface water, sediment, and soils is present.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS concept plan, which reviewed all existing environmental data and prioritized sites based on their potential impact on public health and the environment, was finalized in March 1991. Overall, 160 sites have been identified and grouped into three RI phases and the Burning Ground RI study. The Phase 1 RI addresses six areas which include 51 sites. Final plans for the Phase 1 RI are due to the regulatory agencies in early 1993. A contract has been awarded to prepare the RI plans for the Phase 2 sites. These plans are due to the regulators in March 1993. Plans for the RI of the Burning Ground are currently being revised. Implementation of these RI activities is covered under the IAG with EPA.

Remedial Design/ Remedial Action (RD/RA)

RDX has been detected in off-post residential wells and bottled water is being supplied. Negotiations are currently underway to extend municipal waterlines to the affected residents. During the spring of 1992, TCE-contaminated soil was removed from the area around Buildings 24 and 95 (inactive metal shops). Additionally, an IRA to pump and treat TCE-contaminated ground water near Building 24 was implemented in September 1992.

A removal action was conducted at the post farm landfill during the summer of 1992. Contaminated soils and over 250 drums were removed from the landfill.

Bangor Naval Submarine Base Silverdale, Washington

(9)

Service: Navy

Size: 6,692 Acres

HRS Score: 30.42 (Site A)
55.91 (Sub Base Bangor)

Base Mission: Support for Trident submarines

IAG Status: IAG signed January 1990

Action Dates: PA/SI completed 1983; Site A placed on NPL 1987; RI/FS initiated 1988; Subbase Bangor and Site F placed on NPL 1990

Contaminants: TNT, RDX, picric acid, picramic acid

Funding to Date: \$21.1 million

Preliminary Assessment/ Site Inspection (PA/SI)

An Initial Assessment Study (equivalent to a PA) was completed in June 1983. Of Bangor NSB's 29 sites, 11 were recommended for further study due to suspected contamination of ground water and soil.

A Current Situation Report for Site A was completed in April 1988 and found that surface soil at Site A was contaminated with TNT and that the burn mounds were contaminated with RDX. Shallow ground water samples were also found to contain TNT and RDX. The report recommended three Interim Remedial Actions to isolate and control the site, including covering the burn mounds, erecting a fence, and abandoning grouting wells. These actions were taken. All of the sites were recommended to continue to an RI/FS.

On January 29, 1990, the Department of the Navy signed a Federal Facility Agreement (FFA) for Bangor NSB. The FFA grouped the 22 sites identified into 7 operable units.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS for OU1 was completed in August 1991, and the Record of Decision formalizing the selected remedy was signed in December 1991. The remedy involves cleaning the contaminated soil using a passive washing system for TNT and RDX. Six separate RI/FS for the remaining Operable Units are underway and are expected to be completed in 1993 and 1994.

A local citizen's group, Over-C, has obtained a grant from EPA and the State of Washington to oversee operations at the Bangor NSB and Keyport NUWC installations.

Remedial Design/ Remedial Action (RD/RA)

RD for OU1 is underway and includes three phases of work for the operable unit. Phase I involves the construction and use of a leachate basin for removed soil; Phase II involves the design and implementation of a leachate treatment sys-

tem; and Phase III involves long-term treatment of ground water for up to ten years.

A Record of Decision for an Interim Remedial Action at OU2 was signed in September 1991 to contain the spread of contaminated ground water from Site F. The action is expected to begin in early 1993. The action will involve pumping and treating the ground water and then reintroducing the ground water into the aquifer. The first treatment system used will be an activated carbon system. This system will later be replaced with an ultraviolet oxidation system.

A removal action is currently underway at a former disposal site. The action involves the removal of drums beside and beneath a roadway embankment. The first phase of the drum removal was completed in the fall of 1992, with the second phase targeted for the spring of 1993.

A removal action involving the excavation and disposal of buried drums was completed at two other sites in September 1992.

Barstow Marine Corps Logistics Base (10) Barstow, California

Service: Navy

Size: 5,687 Acres

HRS Score: 37.93

Base Mission: Store and distribute supplies and equipment

IAG Status: Signed October 1990

Action Dates: PA/SI completed 1983; Placed on NPL November 1989; RI/FS initiated in 1990

Contaminants: Waste fuels, oils, degreasers, solvents, paints/paint residues, pesticides, PCBs

Funding to Date: \$23.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

A PA/SI was completed in 1983 and identified 33 potentially contaminated sites. The SI recommended that four sites progress into the RI/FS phase.

Ground water from the Mojave River Basin beneath the Nebo and Yermo areas used for both domestic and agricultural purposes is contaminated with VOCs. Laboratory analyses conducted in November 1988 indicated VOC contamination of the Yermo drinking and ground water, at concentrations exceeding California drinking water standards. An RFA was initiated in 1991 and is scheduled for completion in 1993.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS work plan and sampling and analysis plan were conditionally agreed to by FFA parties in May 1990. These documents address 38 potentially contaminated sites and include a solid waste water quality assessment test of the

Yermo Landfill. The 38 sites are divided into six operable units. An FFA was signed in 1990 and establishes an RI/FS schedule for all 38 sites. An investigation of the water quality at 17 offsite drinking water wells in the adjacent community of Yermo was completed in May 1990. Two wells showed contamination at trace levels. The offsite wells are scheduled for continued monitoring during the RI. The first TRC meeting was held in November 1990. RI/FS field work was initiated in 1991 with funding provided for the installation of monitoring wells, sampling and analysis of ground water and soil, and preparation of an RI/FS report addressing several Operable Units (OUs).

Remedial Design/ Remedial Action (RD/RA)

A removal action involving removal of industrial waste sludge is planned at the Sludge Waste Disposal Area, Yermo (Site 18) and the Sludge Storage Area, Yermo (Site 29), and is expected to be completed in FY 1993.

An Interim Remedial Action involving removal of volatile organic compound contamination in ground water at the Yermo Annex is currently underway. Two activated carbon ground water treatment systems were installed in September 1989 and are scheduled to operate until 1994 or until it can be proved that contamination no longer exists. The system has been effective in removing volatile organic contamination to below detectable limits.

Two Interim Remedial Actions are planned for OUs 1 and 2. The percolation ponds at the Sanitary Sewer Plant will be aerated and a filter will be installed to remove tetrachloroethylene from water before discharge to the ponds if sampling indicates concentrations above the state action level. In addition, a treatment system will be installed to remove volatile organic contamination from ground water at the Yermo Annex and is expected to be completed in FY 1998.

Brunswick Naval Air Station

Brunswick, Maine

(11)

Service: Navy

Size: 7,259 Acres

HRS Score: 43.38

Base Mission: Provide facilities, services, materials, and aircraft for anti-submarine warfare

IAG Status: Pre-ROD IAG signed 1989 between EPA and the Navy; Modified in 1990 to include the Maine Department of Environmental Protection

Action Dates: PA/SI completed 1983; RI/FS initiated 1986; Placed on NPL 1987

Contaminants: Waste oils, contaminated fuels, solvents, acids, paint residues, photographic chemicals, pesticides/herbicides, asbestos

Funding to Date: \$5.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Initial Assessment Study (IAS), equivalent to a PA, and the Confirmation Study (CS), equivalent to an SI, were completed in 1983 for Brunswick Naval Air Station (Brunswick NAS). Thirteen sites were identified as potentially contaminated areas and all were recommended for further study. Another CS was completed in May 1985 on all 13 sites and 12 of the original 13 went for further study in a Remedial Investigation (RI). Contamination of ground and surface waters was the major concern justifying the Remedial Investigation/Feasibility Study.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS began in September 1985 for the twelve sites recommended for further study by the CS. In October 1991, the RI was completed for the 12 sites and all 12 went into the FS phase. In April 1992, the report of the detailed FS was submitted. Site 12 is expected to have a Record of Decision (ROD) recommending no further action submitted and final in FY 1993 to close out the site. Sites 02 and 07 will proceed with LTM which will last into FY 1998 and after. The balance of the sites are in the process of developing a Remedial Design.

Remedial Design/ Remedial Action (RD/RA)

Two RODs were signed between the EPA and the Department of the Navy in June 1992. The first ROD is for a final remedy including containment by construction of a

cap over the Sites 1 and 3 (landfills) and a slurry wall around them to divert clean water away from the sites. Contaminated ground water contained by the cap and slurry wall will be pumped through extraction wells and treated by ultraviolet (UV) oxidation to destroy organic compounds. The second ROD is for Sites 04, 11, and 13. The action prescribed by the second ROD will be a pump and treat with LTM.

A Non-Time Critical Removal Action course is being pursued by the Engineering Field Division (FFD) to expedite the cleanup at Building 95, the Former Pesticide Shop. Residuals of the pesticide DDT were found to be a contaminant at this site. RD/RA will be in FY 1993 with the remediation complete in FY 1994. LTM will be prescribed and will last into FY 1998 or after.

Camp Lejeune Marine Corps Base

Jacksonville, North Carolina

(12)

Service: Navy

Size: 151,000 Acres

HRS Score: 33.13

Base Mission: Provide housing, training, logistical, and administrative support for Fleet Marine Force Units

IAG Status: Pre-ROD IAG signed February 1991

Action Dates: PA/SI completed 1983; RI/FS initiated 1984; Placed on NPL 1989

Contaminants: Waste oils, fuels, solvents, battery acid, lithium batteries, paints, thinners, pesticides/herbicides, PCBs

Funding to Date: \$9.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

A PA/SI identified 76 past spill and disposal sites as potentially contaminated with migrating contaminants. Thirty sites were targeted for further investigation. Additional sites have been discovered. Currently, 16 sites are in the PA/SI phase. Wastes disposed of in landfills create a potential for soil, surface, and ground water contamination. Surface waters drain from the base to the Atlantic Ocean through the New River, both of which support recreational and commercial fishing. Several endangered species, including the American Alligator and the RedCockaded Woodpecker, inhabit protected areas on the base. Ground water is the sole source of potable water for the base and surrounding communities.

Remedial Investigation/ Feasibility Study (RI/FS)

An accelerated RI/FS for the Hadnot Point Industrial Area is expected to be completed in 1992. The RI/FS already has identified fuel and chlorinated solvents in the ground water and the contamination source is being investigated. Several on-base drinking water supply wells have been closed. The information available on the majority of the remaining 24 sites has been consolidated into an RI interim report focused on scoping the remainder of the RI/FS requirements.

The TRC held a meeting in February to discuss RI/FS documentation for the Hadnot Point Industrial Area Interim Remedial Action is complete.

On September 23, 1992, the Commanding General of Camp Lejeune MCB signed an Interim Record of Decision for the treatment of TCE-contaminated ground water at the Hadnot Point Industrial Area (Site 78). The Interim Remedial Action will consist of eight extraction wells, two air strippers

on-site, and discharge of the treated water into the sanitary sewer system.

Remedial Design/ Remedial Action (RD/RA)

Initiation of RD/RA work is expected in 1992. A fence was installed around the Rifle Range Chemical Dump in 1990.

An interim Record of Decision was signed in FY 1992 and the design of the pump and treat system for Hadnot Industrial Area Interim Remedial Action commenced in August 1992.

Camp Pendleton Marine Corps Base (13) San Diego County, California

Service: Navy

Size: 125,000 Acres

HRS Score: 33.79

Base Mission: Provide housing, training, logistical, and administrative support for Fleet Marine Force Units

IAG Status: Signed October 1990

Action Dates: PA/SI completed 1988; RI/FS initiated 1989; Placed on NPL 1990

Contaminants: VOCs, spent oils, fuels, PCBs, pesticides, solvents

Funding to Date: \$23.2 million

Preliminary Assessment/ Site Inspection (PA/SI)

An Initial Assessment Study completed in September 1984, identified eight potentially contaminated sites at Camp Pendleton MCB. Three sites were found not to pose a threat to human health or the environment, and no further action was recommended. Five sites were recommended for further investigation. A Confirmation Study, Verification Step Report completed in July 1988, addressed Sites 03, 04, 05, 06, and 08. During the SI field program, an additional site, the 41 Area Stuart Mesa Waste Stabilization Pond (Site 09), was added to the SI at the request of the Department of the Navy to meet the requirements of the California Toxic Pits Control Act. As a result of the SI, all six sites were recommended for further investigation.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS began in September 1989 to investigate the nine original sites. RI/FS scoping documents, including the RI/FS work plan, health and safety plan, community relations plan, and sampling and analysis plan have been developed. An FFA was signed by DoD, EPA, and the State of California in October 1990. A TRC has been formed and includes members from Camp Pendleton MCB; Southwest Division, Naval Facilities Engineering Command; California Regional Water Quality Control Board, San Diego Region 9; EPA Region IX; California Department of Health Services, Toxic Substances Control Division; and public representatives.

Remedial Design/ Remedial Action (RD/RA)

RD/RA activities are currently planned for completion in FY 1996, but removal actions will be considered if an imminent threat is identified. Interim remedial measures were taken in 1986 to secure contaminated sites from inadvertent entry.

Castle Air Force Base

Merced, California

(14)

Service: Air Force

Size: 2,777 Acres

HRS Score: 37.93

Base Mission: Combat crew training for KC-135 Stratotanker and B-52 Stratotanker (Scheduled for closure)

IAG Status: Pre-ROD IAG signed 1989

Action Dates: PA/SI completed 1983; RI/FS initiated 1986; RI/FS scheduled for completion December 1994; Placed on NPL 1987; Closure scheduled for September 1995

Contaminants: Spent solvents, fuels, waste oils, pesticides, cyanide, cadmium

Funding to Date: \$22.5 million

Preliminary Assessment/ Site Inspection (PA/SI)

PA/SI work was completed in October 1983. The PA/SI consolidated the investigation of 37 initially identified sites into 26 potential contamination source areas. These areas included landfills, discharge areas, chemical disposal pits, fire training areas, fuel spill areas, and PCB spill areas. The Air Force believes that five of the areas (PCB spill sites) require no further investigation because PCB contamination has been removed through appropriate response actions.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS began in September 1986 and grouped the remaining 21 areas into several investigative sites plus a TCE plume site. Results indicate the shallow ground water aquifer beneath and adjacent to the base is contaminated with nitrates, trace amounts of pesticides, and trichloroethylene at levels exceeding state and federal drinking water standards.

Ground water investigations conducted in 1991 focused on the main base sector of Castle. The Air Force signed an ROD with EPA and the State of California in August 1991 for the cleanup of TCE contaminated ground water in the main base area. Investigations under the pre-ROD IAG now include two additional ground water units scheduled for RODs in October 1992 and February 1994. Investigations scheduled for 1993 include a significant effort to characterize the extent of the TCE contamination.

Remedial Design/ Remedial Action (RD/RA)

In 1986, the TCE-contaminated drinking water supply on-base was replaced with a potable well water. In 1987, filter systems were installed in off-base wells to remove TCE contamination. Bottled water was supplied to off-base users before filter installation. In 1988, two deep wells replaced TCE-contaminated water supplies: one for the city of Atwater (2,000 gpm) and one to meet on-base needs (2,100 gpm). These wells are 800 to 900 feet deep. In 1989, a 1,400-gpm granular activated carbon filtration system for TCE-contaminated ground water was constructed. Two RDs were initiated in 1991 for the remediation of ground water and fuel-contaminated soils. A design schedule for the main base ground water remediation scheme is being finalized under the pre-ROD IAG. RAs initiated in 1991 include ground water remediation, capping inactive production wells, and removing abandoned USTs.

Cecil Field Naval Air Station

Jacksonville, Florida

(15)

Service: Navy

Size: 20,194 Acres

HRS Score: 31.99

Base Mission: Provide facilities, services, and materials for **operation** and maintenance of naval weapons and aircraft

IAG Status: Signed October 1990

Action Dates: PA completed 1985; Placed on NPL December 1989; RI/FS field work began October 1991

Contaminants: Heavy metals, petroleum/oil/lubricants, paints, solvents, pesticides, fungicides, herbicides, acids, photographic chemicals, paint thinners, blasting grit

Funding to Date: \$3.2 million

Preliminary Assessment/ Site Inspection (PA/SI)

An Initial Assessment Study (IAS), equivalent to a PA, was completed in July 1985 for Cecil Field Naval Air Station (NAS) and identified 18 potentially contaminated sites. Ten sites (01-05, 07, 08, 11, 16, and 17) were recommended for Confirmation Studies (CS).

Remedial Investigation/ Feasibility Study (RI/FS)

In the FFA, 12 potential sources of contamination (PSCs) required an RI/FS and 6 PSCs required screening. The 12 sites requiring RI/FS have been divided into operable units based on the types of wastes disposed or typical profile of suspected contaminants. The operable units are further grouped into investigative sets.

Operable Unit 1 includes PSCs 1 and 2, both of which are landfills. Operable Unit 2 includes PSCs 3, 5, and 17, all of which are oil/sludge disposal areas. Operable Unit 3

includes PSCs 7 and 8, both of which are fire training areas. Operable Unit 4 includes PSC 10, a rubble disposal area. Operable Unit 5 includes PSCs 14 and 15, both of which are ordnance disposal areas. Operable Unit 6 consists of PSC 11, a pesticide disposal area. Operable Unit 7 includes PSC 16, an AIMD seepage pit.

Investigative Set 1 consists of Operable Unit 1, 2, and 7 and was selected because historically, landfills and unlined disposal pits have represented a source of significant soil and ground water contamination. Investigative Set 2 consists of Operable Unit 3, Set 3 of Operable Unit 6, Set 4 of Operable Unit 4, and Set 5 of Operable Unit 5. The RI/FS for Set 1 that includes sites PSC 1 and 2, PSC 3, 5, 17, and PSC 16 is currently underway with an expected completion in 1994. The RI/FS for the remaining investigative sets is expected to commence in the 1997-1998 time-frame.

An RCRA Facility Investigation (RFI) was completed in March

1988 and included 14 sites. Corrective action studies were recommended for eight sites and further investigations for four sites. No further action (NFA) was recommended for two sites. These sites are currently being addressed under CERCLA.

A Technical Review Committee (TRC) was formed in 1991. The last meeting was held January 30, 1992.

Remedial Design/ Remedial Action (RD/RA)

RD/RA work will commence upon completion of the RI/FS activities and is expected to consist of actions such as capping, ground water pump and treat, excavation and disposal of contaminated soil, and long-term monitoring (LTM).

Concord Naval Weapons Station

Concord, California

(16)

Service: Navy

Size: 13,023 Acres

HRS Score: 50.00

Base Mission: Weapons/munitions transshipment and storage facility

IAG Status: None

Action Dates: Proposed for NPL listing February 1992

Contaminants: Metals, VOCs, explosive compounds, pesticides, PCBs

Funding to Date: \$19.7 million

Preliminary Assessment/ Site Inspection (PA/SI)

An Initial Assessment Study (IAS) conducted in 1984 investigated over 32 sites of which 25 sites were identified as significant. For the purpose of further investigations, the activity was subsequently divided into three study areas: Litigation, Tidal, and Inland Area sites. An SI has been completed at the Litigation Area sites and Tidal Area sites with the Inland Area sites SI planned for completion in June 1993. Seven Litigation Area sites and four Tidal Area sites were recommended for further investigation under RI/FS.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS for the seven Litigation Area sites was conducted in 1986/87 to confirm contamination, evaluate the potential for migration, and determine migration pathways. A detailed FS for all sites was completed in 1988 with the signing of the Record of Decision (ROD) in April 1989. Scoping for the Tidal Area sites RI will begin in 1992. A TRC has been formed and includes members from WPNSTA Concord, Western Division, EPA Region IX, California Fish and Game, U.S. Corps of Engineers Waterways Experiment Station, and community representatives from the City of Concord and the town of Clyde.

Remedial Design/ Remedial Action (RD/RA)

As part of the remedial design, the seven Litigation Area sites have been further divided into Remedial Action Sub-Sites (RASSs) 1, 2, 3, and 4. Remedial design of RASS 1, 2, and 3 design is planned for completion in late 1992 with construction to begin in 1993. The RASS sites have been found to be contaminated with heavy metals. The restoration portion of the remedial action includes restoring and revegetating wetland areas at the site inhabited by two Federally-Listed endangered species: Salt Marsh Harvest Mouse and California Clapper Rail.

Cornhusker Army Ammunition Plant

Hall County, Nebraska

(17)

Service: Army

Size: 11,936 Acres

HRS Score: 51.13

Base Mission: Currently standby status

IAG Status: Pre-ROD IAG signed 1990

Action Dates: PA/SI completed 1980; RI/FS initiated 1981; Placed on NPL 1987

Contaminants: Munitions-related wastes

Funding to Date: \$19.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

An Installation Assessment Study (IAS) identified sources of contamination and ground water contamination by explosive compounds. The plant is currently in standby status and the Army is planning to excess it following the completion of environmental studies required for real estate transactions. Preliminary findings from the excessing study indicated extensive asbestos (mostly non-friable) contained in the loading line buildings and UXO in the burning ground area.

Remedial Investigation/ Feasibility Study (RI/FS)

A contaminant plume affecting more than 500 private wells in Hall County and nearby Grand Island was detected 3 1/2 miles off-post. An RI/FS and a public health evaluation report were submitted to regulators in 1986. RD/RA activities consisting of an alternate water supply and contaminant source remediation were recommended. An IAG, effective September 4, 1990,

has been negotiated with EPA and the state.

An RI/FS was initiated in 1991. Field investigations included geophysics of the burning grounds/landfill and sampling of residential gardens near the installation. Three public meetings were conducted. Additional effort funded during 1991 was completed in 1992 such as monitoring well installation and investigation of the remaining cesspools/sumps, shop area, old laboratory, and ditches/creek area. All data will be used to evaluate the alternatives for soil and ground water remediation. The RI report was submitted to regulatory agencies in January 1993.

Remedial Design/ Remedial Action (RD/RA)

In 1986, the municipal water system was extended to 800 residences in Grand Island. A dewatering system also was completed to control the high water table. In addition, remediation was initiated on contaminated soil at 58 cesspools and leaching pits to destroy all explosive compounds. Incineration operations began in 1987 and

ended in 1988. During this period, approximately 40,000 tons of soil were incinerated. The incinerated soil was landfilled onsite in accordance with procedures agreed to by the Army and Nebraska.

As a result of residential sampling and lower health limits for RDX, eight additional residences were provided bottled water as a time-critical removal action. The identification of additional affected residents has prompted the development of an Engineering Evaluation/Cost Analysis, which was made available for public comment in September 1992. A public meeting was held on August 27, 1992, during which the Army discussed the proposed waterline extension estimated at a cost of \$1.5 million for a distance of six miles. The decision memorandum for the waterline extension was approved in June of 1993. The construction is expected to begin in July 1993 and be completed by December 1993.

Dahlgren Naval Surface Warfare Center (18)

Dahlgren, Virginia

Service: Navy

Size: Main Site: 2,677 Acres; Explosive Experimental Area: 1,814 Acres

HRS Score: 50.00

Base Mission: Proofs and Tests Department of the Navy Ordnance

IAG Status: Pre-ROD IAG in negotiation

Action Dates: Installation Assessment completed in 1984; Draft RI Interim Report issued February 1989 and revised July 1991; RI/FS Work Plan issued May 1992; Proposed for NPL Listing.

Contaminants: Cleaning solvents, explosive residues, heavy metals, low-level radioactive materials, mercury, PCBs, pesticides

Funding to Date: \$2.7 million

Preliminary Assessment/ Site Inspection (PA/SI)

Established in 1918, the Dahlgren Naval Surface Warfare Center (Dahlgren NSWC), serves as the principal Navy research, development, testing, and evaluation facility for surface ship weaponry, strategic systems, and warfare analysis. Dahlgren NSWC comprises two areas: the Main Site, which occupies 2,700 acres, and the Explosive Experimental Area (EEA), a testing range on an adjacent peninsula encompassing 1,600 acres. Hazardous wastes concerns include explosives, propellants, electroplating and metal treating wastes, degreasers, battery acids, mercury, and low-level radioactive materials.

The Initial Assessment, completed in 1983, examined over 30 sites and recommended several for further evaluation. Confirmation Studies were completed for these sites in 1986, and an RI/FS was recommended for each site examined.

Remedial Investigation/ Feasibility Study (RI/FS)

A work plan has been prepared for examination of nine sites at Dahlgren NSWC. It will be reviewed by members of the Dahlgren Technical Review Committee, including members from EPA and the State of Virginia. Field work is projected to begin in Spring, 1993. The nine sites to be investigated include sites previously examined in the Confirmation Study, plus three additional sites with known contamination that were previously unexamined. The remedial activities will include evaluation of environmental impacts as well as human health. The proximity of the base to the Chesapeake Bay and the Potomac River, coupled with the presence of environmentally sensitive areas (wetlands) and endangered species (bald eagles), make the assessment of environmental impacts a priority.

Remedial Design/ Remedial Action (RD/RA)

A removal action for low-level radioactive material was conducted in Summer 1992. Material removed was contaminated with depleted Uranium (DU), and included soil and a cylindrical steel Barbette weighing approximately 40 tons. The material was transported for disposal at a low-level radioactive disposal facility in Barnwell, South Carolina.

Davisville Naval Construction Battalion Center North Kingston, Rhode Island

(19)

Service: Navy

Size: 1,284 Acres

HRS Score: 34.52

Base Mission: Mobilize reserve naval construction battalions; Supply construction equipment (Installation scheduled for closure)

IAG Status: Initiated and expected to be signed 1992

Action Dates: PA/SI completed 1984; RI/FS initiated 1988; Placed on NPL November 1989

Contaminants: PCBs, VOCs, petroleum oil/lubricants, pesticides, lead

Funding to Date: \$2.2 million

Preliminary Assessment/ Site Inspection (PA/SI)

A Phase I Initial Assessment Study (IAS), equivalent to a PA, was conducted in September 1984 at Davisville Naval Construction Battalion Center (NCBC) and identified 14 potentially contaminated sites (01-14). Even though the IAS recommended no further action at Sites 01-04, 06, 08, 10, 11, and 13, these sites were brought back into the program in subsequent phases. Three sites (05, 07, and 09) were recommended for Confirmation Studies (CSs). Limited investigations were recommended for Sites 12 and 14.

A CS, equivalent to an SI, was completed in February 1987 and addressed 13 of the 14 sites (02-14) identified in the IAS. Ten sites (02, 03, 06, 07, 09, 10-14) were recommended for further investigation. Even though no further action for Sites 02, 04, and 05 was recommended, the sites were brought back into the program in subsequent phases.

Remedial Investigation/ Feasibility Study (RI/FS)

A Phase I RI/FS began in 1988, addressed 10 sites (2, 3, 5-11, and 13), and was completed in 1992.

Concurrent with the Phase I RI/FS, a Federal Facility Agreement (FFA) was signed. The FFA identified three study areas (SAs) and 12 Areas of Concern (AOCs).

A Phase II RI/FS for 10 of the 12 AOCs identified in the FFA is currently underway with a scheduled completion in 1993. An SA screening evaluation equivalent to a RI/FS is currently underway for Sites 01, 04, and 15 with a scheduled completion in December 1993. An FS is currently underway for Sites 12 and 14 with a scheduled completion in 1993.

A Technical Review Committee (TRC) has been formed and 25 meetings have been held periodically since April 1988.

In August 1980, Davisville NCBC was issued an RCRA Generator Facility Permit that identified 13 Solid Waste Management Units

(SWMUs) (nine landfills, two storage areas, one waste oil tank storage area and injection well). The closure plans for these SWMUs are being handled under the RCRA Corrective Action Plan (CAP). These SWMUs include 10 IR sites (02, 03, 06, 07, 08, 09, 10, 11, 13, and 15).

Remedial Design/ Remedial Action (RD/RA)

PCB-contaminated concrete was removed at Sites 12 and 14 in 1991. An FS is currently underway for these sites. RD for a creosote-contaminated area was completed in 1992. Removal is expected in January 1993 with further additional sampling.

The RD/RA work for all the other sites will commence upon completion of the RI/FS activities and is expected to be completed in 1997 for most sites.

Defense Distribution Region Central (Formerly Memphis Defense Depot) Memphis, Tennessee

(20)

Service: Defense Logistics Agency

Size: 642 Acres

HRS Score: 58.06

Base Mission: Store and distribute DoD commodities throughout the south-central United States. This includes clothing, food, medical supplies, electronic equipment, petroleum products, and industrial chemicals.

IAG Status: In negotiation

Action Dates: PA/SI completed 1981; RI/FS initiated 1989; First phase of RI/FS completed 1990; Follow-on RI/FS in progress; Placed on NPL October 1992

Contaminants: Volatile organics, semi-volatile organics, heavy metals, pesticides, PCBs

Funding to Date: \$3.7 million

Preliminary Assessment/ Site Inspection (PA/SI)

A PA/SI was completed by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) in 1981. It identified 75 sites with a potential for contamination due to past hazardous materials practices. A majority of these sites were located in an area known as Dunn Field. All 75 sites have been included in the RI/FS investigation.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS was initiated in April 1989 and the first phase was completed in 1990. It concluded that ground water underlying the western portion of DDRC was contaminated with organic chemicals and that a follow-on RI/FS was necessary. A follow-on RI/FS was initiated in 1991 to address data gaps and to fully delineate the extent of the contaminant plume. The installation was placed on the NPL in October 1992. Negotiations for an IAG have begun.

Remedial Design/ Remedial Action (RD/RA)

In 1991, DDRC initiated an interim remedial action (IRA) to address the ground water contamination in Dunn Field. A pump test was conducted to characterize the ground water and to evaluate pumping and treatment alternatives. The IRA is expected to be operational by September 1993. Two IRA's were completed previously at DDRC, both involving soil removal. The entire installation has been divided into five operable units with the ground water in the Dunn Field area as the top priority.

Defense General Supply Center Richmond Chesterfield County, Virginia

(21)

Service: Defense Logistics Agency

Size: 640 Acres

HRS Score: 33.85

Base Mission: Manage general supplies for Armed Forces

IAG Status: Final IAG signed 1991

Action Dates: PA/SI completed 1985; RI/FS initiated 1986; Placed on NPL 1987

Contaminants: Phenols, solvents, paints/paint residues, corrosives, pesticides/herbicides, refrigerants/antifreeze, photographic chemicals, oils

Funding to Date: \$7.8 million

Preliminary Assessment/ Site Inspection (PA/SI)

PA/SI work revealed 33 potential past and/or current disposal sites. Six sites were recommended for further study under an RI/FS. Three of the sites are contiguous, with a high potential for contaminant migration. Both on- and off-base water have been contaminated with phenols, chloroform, methylene chloride, dichlorobenzene, di-, tri- and tetrachloroethylene, and chromium.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS began in September 1986, and to date two draft RIs for the Area 50/Open Storage Area/National Guard Area and the former fire training pits and one draft RI for former acid neutralization pits have been submitted to EPA and the Virginia Department of Waste Management (VDWM). Comments have been received from EPA and VDWM and additional field work is scheduled for the first quarter of 1993 to fill data gaps identified by the agencies. The three major areas have been subdivided into eight operable units. The operable units consist of five soil units and three ground water and surface water units. Two RODs were issued during 1992 and a draft interim ROD has been prepared for ground water remediation. It is anticipated that the interim ROD will be issued in the second quarter of 1993. The remaining focused feasibility studies (FFS) are scheduled to be completed by August 1993 and RODs

are scheduled for signing in February, April and May 1994.

Remedial Design/ Remedial Action (RD/RA)

Four IRA's have been completed at DFSC. They involve removal of DDT from a drum storage area, waste removal from the acid neutralization pits, soil removal from the gas station, and the supply of bottled water to residents. Two RODs were issued during 1992. The first ROD selected institutional controls for the open storage area. The requirements detailed in the ROD have been implemented. The second ROD for the acid neutralization pit soils selected vapor vacuum extraction as the remedial action. A contract has been awarded for design and construction and a pilot plant study will begin in early 1993. An interim remedial action contract for ground water at the area 50/National Guard area OU will be awarded in 1993 after the interim ROD is issued.

Dover Air Force Base

Dover, Delaware

(22)

Service: Air Force

Size: 3,740 Acres

HRS Score: 35.89

Base Mission: Air lift services for troops, cargo, and equipment

IAG Status: Pre-RGD IAG signed June 1989

Action Dates: PA/SI completed 1983; RI/FS initiated 1987; RI/FS scheduled completion 1995; Placed on NPL 1989

Contaminants: Solvents, paints, waste fuel and oils, VOCs, and plating wastes

Funding to Date: \$13.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

By 1990, the initial PA and various other sources of information identified 23 sites for further remedial investigation. A facility assessment and a negotiation of the Inter-agency Agreement added 34 sites. Analysis of aerial photos and field checks confirmed contamination at Site #58, an old engine test cell, added in 1992. An area of particular concern for Dover is the upper aquifer, contaminated with low levels of VOCs and heavy metals. No contamination in the deeper aquifer, which provides drinking water to the base and surrounding area, has been detected.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS of 12 sites, completed in 1986, confirmed that the concentration of VOCs and metals in the upper aquifer exceeded Delaware's drinking water standards at several sites. All ground water work at Dover will focus on the upper aquifer. Selection of actual cleanup levels are under negotiation. Contaminant source areas and the extent of contaminant migration are being investigated in an RI/FS that was initiated in August of 1987. The base-wide RI/FS work plan was negotiated in 1992. Field work will begin immediately, pending EPA concurrence. Completion of the RI/FS is projected in 1995. Two Focused Feasibility Studies (FFS) were funded in 1992. One FFS completed soil remediation at a Fire Training Area (FTA). Ground water contamination as a result of the FTA will be addressed in the base-wide RI/FS.

Remedial Design/ Remedial Action (RD/RA)

In 1986, a soil removal and closure action was conducted at Site WP-21 cleaned up the old industrial waste basin, a major source of ground water contamination. Remedial actions were conducted to comply with state regulatory requirements. Solid Waste Disposal Area Site LF-24 was remediated and closed in 1988. An ROD was signed in late 1990 for RA at Site FT-03, a former fire training area. RD is now complete for this site, and remedial action was performed in 1992.

Earle Naval Weapons Station (Site A) Colts Neck, New Jersey

(23)

Service: Navy

Size: 11,134 Acres

HRS Score: 37.21

Base Mission: Ammunition, logistics and administrative support for home-ported ships

IAG Status: Signed February 16, 1991; Effective May 16, 1991

Action Dates: Placed on NPL August 1990; PA/SI completed 1986; RI/FS initiated 1988

Contaminants: Heavy metals, petroleum/oils/lubricants, organic solvents, degreasers, paint residues, corrosive acids

Funding to Date: \$2.5 million

Preliminary Assessment/ Site Inspection (PA/SI)

An Initial Assessment Study (IAS), equivalent to a PA, was completed in February 1983 at Earle NWS which identified a total of 29 potentially contaminated sites (01-29). Eleven of these sites were designated for further investigation. In 1991, an aerial photographic interpretation analysis conducted by Environmental Photographic Interpretation Center (EPIC) for the Environmental Protection Agency (EPA) identified 17 additional sites (A-Q). In August 1992, no further action was recommended for 16 of the 17 sites. Site F, the C-50 Round House Area, was recommended for further work.

A Confirmation Study (CS), equivalent to an SI, was completed in December 1986 for 11 sites. The CS recommended additional sampling including monitoring wells, soil borings, and stream sampling for nine sites. No further action was recommended for two sites.

In 1988, the EPA recommended a site inspection for the remaining 18 sites identified in the IAS, but not studied during the CS of 1986. A Phase II SI is currently underway and is expected to be completed by April 1993. Two of the sites are being addressed under RCRA.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS began in 1991 and included all 11 sites studies in the CS of 1986. EPA Region II recommended inclusion of the two "no further action" sites from the CS. The RI/FS is expected to be completed in 1993. An interim draft report submitted in March 1992 indicates remediation for all sites to include capping, removal, and/or long-term monitoring.

An RI/FS for Phase II SI sites is scheduled to start in 1993 and be completed in 1995.

A Technical Review Committee (TRC) was formed in 1990 and meetings are held periodically.

Remedial Design/ Remedial Action (RD/RA)

Initiation of RD/RA work at current RI sites expected in 1994. Initiation of RD/RA work at current Phase II SI sites expected in 1997.

Edwards Air Force Base Kern County, California

(24)

Service: Air Force

Size: 470 Square Miles

HRS Score: 33.62

Base Mission: Aircraft research and development center

IAG Status: Pre-ROD IAG signed 1990

Action Dates: Initial PA/SI completed 1982; RI/FS initiated 1986; Placed on NPL 1990; Final PA/SI initiated in 1990

Contaminants: Waste oils, solvents, VOCs, petroleum hydrocarbons, rocket fuel, heavy metals

Funding to Date: \$39.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

When the pre-ROD IAG was signed in 1990, 16 sites and 24 Potential Release Locations (PRLs) were grouped to form 20 IRP areas based upon geographic proximity and common contamination types (identified or suspected). In addition, the NASA/Ames-Dryden and Jet Propulsion Laboratory (JPL) facilities were also designated IRP areas. After Edwards AFB was listed on the National Priorities List (NPL), the 20 IRP areas were further consolidated into seven operable units (OUs). Under the FFA terms, the Air Force agreed to conduct base-wide Expanded Source Investigations/RCRA Facility Assessment (ESI/RFA) to identify additional sites and PRLs on the base. The ESI/RFA is currently underway. To date, 217 new PRLs have been identified.

The Main/South Base, at the western edge of Rogers Dry Lake, is used primarily for maintaining and refueling aircraft. According to a 1987 IRP report, trichloroethylene, 1,2-dichloroethylene, tetra-

chloroethylene, and methylene chloride are present in the shallower ground water aquifer underlying the Main/South Base. Edwards AFB's 13,800 employees obtain drinking water from deep aquifer water wells within three miles of the Main/South Base.

An installation-wide ESI/RFA is ongoing and being conducted for operable unit. At the Main Base Flightline (OU1), 25 PRLs were identified; at South Base (OU2), 111 PRLs were identified; at Phillips Laboratory, 102 PRLs were identified.

Remedial Investigation/ Feasibility Study (RI/FS)

A site-specific RI/FS began in August 1986 to determine the type and extent of contamination in local areas and to identify alternatives for remedial action. The sites identified at Edwards AFB include drum disposal areas, waste disposal pits, USTs, a leaking jet fuel pipeline, rocket test stands, oxidation/evaporation ponds, landfills, fire protection training areas, TCE sites, and other spill sites.

Remedial Design/ Remedial Action (RD/RA)

In addition to ongoing studies and analyses, removal actions have been undertaken to reduce or control known contamination. Tank removal actions were accomplished at four sites and a drum removal action was performed at Site 1. A ground water product recovery system was installed in 1987 at Site 16 to pump petroleum-contaminated ground water into an oil/water separator for petroleum product recovery. However, the system was inactivated within a month of startup due to the presence of chlorinated solvents in the discharge water. The system is currently being redesigned and will consist of a series of skimmer pumps to remove floating product from the ground water. In 1991, through a joint effort with EPA, heavy metals and dioxins (Site 34) underwent soil stabilization and polymer sealing.

Eielson Air Force Base

Fairbanks North Star Borough, Alaska

(25)

Service: Air Force

Size: 19,790 Acres

HRS Score: 48.14

Base Mission: Tactical air support to Pacific Air Forces

IAG Status: Pre-ROD IAG signed May 1991

Action Dates: PA/SI completed 1982; RI/FS initiated 1986; Placed on NPL 1989

Contaminants: Heavy metals, petroleum/oil/lubricants, VOCs, solvents

Funding to Date: \$24.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

Eielson AFB contains an active asbestos landfill and closed, unlined landfills that extend into ground water, drum storage areas, and petroleum spill areas.

Lead, chromium, nickel, and zinc have been found in the soil at the drum storage area; trans-1,2-dichloroethylene, lead, and benzene have been found in shallow onsite monitoring wells. An estimated 9,000 people obtain drinking water within three miles of the base.

A number of new sites have entered the PA/SI phase under the IAG in 1991. In 1992, Eielson had 64 source areas, 22 were closed with "No Further Action" documentation.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS was initiated in August 1986. Ongoing RI/FS work is planned for IRP sites during 1992 to determine the extent of contamination on base and to identify alternatives for remedial action under the IAG. A management plan for sampling was completed for operable units 3, 4, and 5.

Remedial Design/ Remedial Action (RD/RA)

Several monitoring wells have been converted into static recovery wells to remove floating petroleum product from ground water. Small quantities have been recovered. Four USTs were removed in 1990.

During 1991, IRAs included removal and incineration of 10,000 cubic yards of petroleum, oil, and lubricant (POL)-contaminated soils spilled from a UST. In 1992, a system for removing floating product through vacuum extraction was installed. Twenty thousand cubic yards of POL-contaminated soil was land farmed, 2,500 drums of asphalt/cement were removed with road bed improvements; in-situ bioremediation of POL-contaminated soils was conducted, and trenches to remove floating product were installed.

Ellsworth Air Force Base

Rapid City, South Dakota

(26)

Service: Air Force

Size: 4,858 Acres

HRS Score: 33.62

Base Mission: Long-range bombardment missiles and air refueling

IAG Status: Pre-ROD IAG signed January 24, 1992

Action Dates: PA/SI completed 1985; RI/FS initiated 1987; Placed on NPL 1990

Contaminants: VOCs, metals, solvents, jet fuel

Funding to Date: \$8.5 million

Preliminary Assessment/ Site Inspection (PA/SI)

The base is bordered by open land on the north, west, and south and by commercial residential areas to the east.

The September 1985 PA/SI report identified 18 sites with potential hazardous waste disposal. Five new sites have recently been added to the IRP at Ellsworth with two undergoing PA/SI in 1993. The other three sites were identified in accordance with the pre-ROD IAG signed in 1992. The three sites will be dealt with under a number of smaller sites and will be closed out once all contaminated ground water on base is proposed for No Further Remedial Action Planned (NFRAP).

Remedial Investigation/ Feasibility Study (RI/FS)

The original RI was initiated in 1987 and completed in 1989. This work consisted of drafting decision documents recommending NFRAP for several sites. The base was listed on the NPL in 1990 requiring reevaluation of all sites. Further characterization and delineation of the sites was initiated with award of an RI/FS in late 1992 and will continue into 1996.

Remedial Design/ Remedial Action (RD/RA)

In 1991, the Badlands Bombing Range was fenced and properly labelled with warning signs. In addition, a temporary water supply line was constructed to supply an adjoining land-owner with an alternative drinking water supply. A remedial action initiated in 1991 to remediate a large hanger complex (70 hanger complex) continues and will be completed in August 1993. Seventy-two underground storage tanks (USTs) were removed in 1992 with an additional 400 set for remedial action in 1993 and 1994. A total of 31,000 gallons of petroleum products, 8,000 cubic yards of POL-contaminated soil, and 63,000 gallons of POL-contaminated ground water were removed during the 1992 UST removal project. The contaminated soil was disposed of in an approved off-base land farm and the contaminated ground water was treated in an approved facility.

Elmendorf Air Force Base Greater Anchorage Borough, Alaska

(27)

Service: Air Force

Size: 13,100 Acres

HRS Score: 45.91

Base Mission: Headquarters to Alaskan NORAD Region; F-15 Fighter Wing; NORAD Region Operations Control Center; Rescue Coordination Center; Military Airlift Group flying transports

IAG Status: Signed in 1992

Action Dates: Original PA/SI completed 1983; RI/FS initiated 1986; Placed on NPL 1990

Contaminants: VOCs, heavy metals, petroleum/oil/lubricants, solvents, paints

Funding to Date: \$23.2 million

Preliminary Assessment/ Site Inspection (PA/SI)

An estimated 121,000 individuals reside within three miles of the installation, but drinking water for these residents is obtained from surface supplies located 12 to 30 miles north of the base. Emergency backup water supply wells for Elmendorf AFB are located within three miles of identified contamination.

The original PA/SI identified a number of areas which had received hazardous wastes, including lead, acid batteries, and waste solvents. Unlined and unbermed landfills are located in sandy and gravelly soils. Shop wastes, including solvents and paint thinners, were disposed of in unlined trenches. At some locations, fuel or solvents spilled onto floor drains that feed into dry wells. The last area investigated was a JP-4 spill site.

Remedial Investigation/ Feasibility Study (RI/FS)

Thirty-three CERCLA source areas have been grouped into seven operable units for studies to be conducted under the Federal Facility Agreement. Field work was done at OUs 1, 2, 4, and 5 in 1992. In 1993, work will be done at OUs 3, 4, and 5, and in 1994, work will begin at OUs 6 and 7. In addition, 27 source areas are being studied under a separate state program.

Remedial Design/ Remedial Action (RD/RA)

Removal actions begun in 1992 include remediation of an abandoned asphalt staging area containing 4,700 drums of asphalt and other debris. This work will be completed in 1993. The asphalt will be used to pave base roads. A second project to be done in 1993 involves the removal of 28 abandoned underground 50,000-gallon JP-4 tanks.

A Record of Decision was signed on September 1, 1992 for an interim remedial action. In 1992, interim remedial action plans were designed to remove spilled fuel from soil at a four million gallon underground storage facility which was taken out of service in 1991.

El Toro Marine Corps Air Station Irvine, California

(28)

Service: Navy

Size: 4,741 Acres

HRS Score: 40.83

Base Mission: Major west coast jet fighter facility

IAG Status: Pre-ROD signed October 1990

Action Dates: PA completed 1987; RI/FS initiated 1989; Placed on NPL February 1990

Contaminants: Waste fuels and oils, organic solvents, degreasers, paints, photographic chemicals, PCBs, corrosives, refrigerants, pesticides, herbicides, VOCs

Funding to Date: \$25.5 million

Preliminary Assessment/ Site Inspection (PA/SI)

An Initial Assessment Study (IAS) completed in May 1986 recommended an SI be performed for nine of 17 sites. In response to regulatory agency comments during September 1986, four sites were added to the SI. An SI work plan was finalized in August 1988, but funding restrictions prevented implementation.

In 1985, the Orange County Water District (OCWD) discovered TCE in two off-station wells. A perimeter investigation was conducted and documented TCE contamination up to 90 ppb in shallow ground water at the station boundary, and limited migration of contamination off station. OCWD completed an off-station ground water investigation in 1989 and documented the existence of a large TCE plume in deep ground water within 3 miles of the station. As an initial remedial measure, existing monitoring wells were retrofitted with pumps and a small activated carbon treatment plant was constructed.

The California Water Quality Control Board requested that approximately 30 additional sites be investigated.

Remedial Investigation/ Feasibility Study (RI/FS)

Development of an RI/FS work plan began in December 1989 and includes 22 sites. Additional RI/FS work plans will be generated in 1993 to incorporate one more site and any additional sites identified for the RI/FS process through an RFA.

An FFA between the Department of the Navy, EPA, and the State of California was signed in October 1990. The TRC members include El Toro MCAS; Southwest Division, Naval Facilities Engineering Command; EPA Region IX; State of California Department of Health Services; California Regional Water Quality Control Board; Orange County; Orange County Water District; Irvine Water District; and public representatives.

Remedial Design/ Remedial Action (RD/RA)

A treatability study was implemented in 1989 to test the feasibility of using activated carbon to remove volatile organic compounds from ground water. Ground water was pumped continuously from three existing monitoring wells and treated using this system. RD/RA activities are expected to be initiated in 1995.

Fairchild Air Force Base (4 Waste Areas) (29)

Spokane County, Washington

Service: Air Force

Size: 4,300 Acres

HRS Score: 31.98

Base Mission: Strategic Air Command operations

IAG Status: Pre-ROD IAG signed 1990

Action Dates: PA/SI completed 1985; RI/FS initiated 1988; Placed on NPL 1989

Contaminants: Solvents, fuels, oils, electroplating chemicals, cleaning solutions, corrosives, photographic chemicals, paints, thinners, pesticide residues, PCBs, low-level radioactive wastes

Funding to Date: \$13.7 million

Preliminary Assessment/ Site Inspection (PA/SI)

A well within base boundaries is a standby water supply for the base's 5,200 employees. Approximately 250 private wells serving about 12,000 people are within three miles of the facility. West Medical Lake, Medical Lake, and Silver Lake, are located within three miles downstream of the base. These lakes support wildlife and are used for recreational activities.

A PA/SI identified several waste disposal sites at Fairchild AFB and one site at the USAF/FAA operations at Mical Peak. Land-use restrictions due to hazardous waste contamination are in effect. Four waste areas covering 85 acres comprise the NPL site and include Building 1034 French drain and dry well system; two landfills, one

northeast of Taxiway 8 and one at Craig Road; and the industrial waste lagoons. More than 4,000 drum-equivalents of carbon tetrachloride and other solvents, paint wastes, plating sludges containing cadmium and lead, and related industrial wastes have been disposed of in the four areas.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS for Craig Road Landfill began in 1988 and is expected to be completed in December 1992. An RI/FS for additional sites began in 1991 and is expected to be completed by the end of 1994. These sites are industrial waste lagoons, a fire training area, and two base landfills.

Remedial Design/ Remedial Action (RD/RA)

Four USTs were removed during 1992. A total of 1,600 cubic yards of soils contaminated with fuel and oils were removed through 1992. A pump and treat system was constructed then activated in September 1992 for the containment of TCE-contaminated ground water at the Craig Road Landfill. A sewer connection linking the Fairchild sewage system to the Spokane regional sewage system is scheduled for completion in December 1992.

F.E. Warren Air Force Base Cheyenne, Wyoming

(30)

Service: Air Force

Size: 5,866 Acres

HRS Score: 39.23

Base Mission: Strategic Air Command operations; Strategic Missile Wing; Aerospace Rescue and Recovery Squadron

IAG Status: Signed September 26, 1991

Action Dates: PA/SI completed 1985; RI/FS initiated 1991; Placed on NPL 1990

Contaminants: Lubricating oils, solvents, paints, coal and fly ash, batteries/battery acid

Funding to Date: \$13.7 million

Preliminary Assessment/ Site Inspection (PA/SI)

F.E. Warren AFB is surrounded by agricultural, light industry, and residential areas. According to tests conducted by the U.S. Geological Survey beginning in 1987 and finished in 1990, trichloroethylene (TCE), petroleum hydrocarbons, and chloroform above the maximum contaminant level (MCL) are present in ground water monitoring wells on base. TCE has also been detected in Crow and Diamond Creeks on base. Yet, TCE has been detected beyond the base boundary. Twenty contaminated sites have been identified on base. These sites include a total of approximately 400 acres of landfills and over 600 acres of contaminated ground water. Aerial photographs provided by the USEPA and from archive records are being utilized to assist in the delineation and location of the many landfills and old firing ranges which date back to the late 1800s, as well as an abandoned open burning/open detonation area.

Remedial Investigation/ Feasibility Study (RI/FS)

The official RI/FS work plan coordination started in October 1991 with actual field work starting in January 1992. All previous RI/FS data was rejected by EPA as stipulated in the Interagency Agreement between the base and EPA. The RI/FS for Operable Unit 4, the Acid Dry Wells, was completed with the Record of Decision (ROD) and signed by the Air Force Wing Commander and EPA in December 1992. The field work for the remedial investigation for Operable Unit 1 (which consists of one spill site), and Operable Unit 5 (which consists of two fire training areas), has been completed. The reports for both projects are due in August 1993. Scoping for remedial investigation of Operable Unit 3 (which consists of six landfills totaling approximately 400 acres) was completed in late 1992 and the RI/FS work will be awarded in December 1992.

Remedial Design/ Remedial Action (RD/RA)

During 1992, a pump and treat system was installed at Spill Site 7, a source of TCE-contaminated ground water. The system will prevent additional contamination of nearby Diamond Creek. A ROD for Operable Unit 4 was No Further Remedial Action Planned, with continued monitoring to verify that elevated sulfates in the soil do not leach into the ground water. The State of Wyoming and EPA regulators concurred with this remedial alternative.

Fort Devens

Fort Devens, Massachusetts

(31)

Service: Army

Size: 9,416 Acres

HRS Score: 42.24

Base Mission: Army Reserve and National Guard personnel training; Army Security Agency Training Center and School support (Scheduled for closure)

IAG Status: Pre-ROD IAG signed June 1991; Effective November 1991

Action Dates: PA/SI completed 1982; RI/FS initiated 1989; Placed on NPL 1989

Contaminants: VOCs, petroleum products, battery acid, PCBs, pesticides, herbicides, photographic chemicals, medical wastes

Funding to Date: \$10.22 million

Preliminary Assessment/ Site Inspection (PA/SI)

The initial assessment recommended that no follow-up studies are required and that the Fort Devens Sanitary Landfill facility Closure Plan should be coordinated with the Commonwealth of Massachusetts. In 1985, Fort Devens applied for a RCRA Part B permit for its hazardous waste storage facility. In the permit process, Fort Devens identified 40 SWMUs. A master environmental plan (MEP) was prepared in 1989. This plan identifies and prioritizes all potential hazardous waste sites and proposes appropriate investigative and corrective action efforts for each site. A detailed SI of the six highest priority sites was initiated in September 1990 and field work was completed in August 1991. A final SI report was issued in September 1992. In the SI report, two sites were identified for removal actions and one site was identified for no further action. A detailed SI for the second highest priority sites was initiated in September 1991. Field

work was completed in July 1992. The draft SI report is due in March 1993. A detailed SI for the third highest priority sites was initiated in February 1992. Field work was completed in September 1992. The draft SI report is due in May 1993. A detailed SI for the fourth highest priority sites is scheduled to commence in FY 1993.

Remedial Investigation/ Feasibility Study (RI/FS)

Based upon recommendations in the MEP, it was determined that study of two landfills should commence with an RI instead of an SI, based upon results from previously conducted ground water sampling. RI of two landfills was initiated in September 1990 and the field effort was completed in August 1991. A follow-on RI and FS project was initiated in September 1991. A draft RI report was received in June 1992. Based upon the draft RI report, more field work is required than originally projected in the follow-on RI. A modification to account for the field work is under

development. Award and field work start-up are anticipated in 1993. An RI at three sites in the first SI was awarded in July 1992. Field work began in September 1992 and is expected to be completed in March 1993.

Remedial Design/ Remedial Action (RD/RA)

RD/RA work will begin after completion of RI/FS activities. Several removal actions were identified from the first priority SI. One was completed in 1992 with other actions scheduled for early 1993.

Fort Devens-Sudbury Training Annex (32) Middlesex County, Massachusetts

Service: Army
Size: 2,301 Acres
HRS Score: 35.57
Base Mission: Troop training; Geophysics laboratory services; Fish and wildlife management
IAG Status: Signed June 1991
Action Dates: PA/SI completed 1980; Placed on NPL 1990; RI/FS completion expected 1993
Contaminants: VOCs, petroleum products, PCBs, pesticides, herbicides
Funding to Date: \$5.6 million

Preliminary Assessment/ Site Inspection (PA/SI)

Sudbury Annex is managed by Fort Devens Army Installation, located approximately 12 miles to the northwest. Prior to 1982, Sudbury Annex was part of the Natick Research Development and Engineering Center (NRDEC). In 1982, all but a small housing area was excised to Fort Devens. The PA/SI recommended a follow-on survey of Sudbury Annex to confirm the presence or absence of contamination, and to determine if migration had occurred. In 1992, a Master Environmental Plan (MEP) was developed which identified potentially contaminated sites. PA/SI follow-on work is occurring, and is expected to be completed in 1994.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI was initiated in November 1986. Three sites were identified as contributing to the HRS score. The MEP identified additional RI/FS work at five sites. Ongoing RI/FS work is scheduled for completion in 1994. RI/FS follow-on is scheduled to begin in 1993 and be completed in 1995.

Remedial Design/ Remedial Action (RD/RA)

RD/RA work will begin after completion of each phase of RI/FS activities. Removal actions were conducted in 1985 for the PCB Spill Area and 1986 for the Burning Ground Area. Further investigation of the PCB Spill Area is being done as a part of the SI and the Burning Ground Area as a part of the RI.

Fort Dix (Landfill Site) Pemberton Township, New Jersey

(33)

Service: Army

Size: 32,600 Acres

HRS Score: 37.40

Base Mission: Army Reserve and National Guard training and combat support

IAG Status: Effective date September 27, 1991

Action Dates: RI/FS initiated 1985; Placed on NPL 1987; PA/SI completed 1989

Contaminants: VOCs, heavy metals, petroleum hydrocarbons, solvents, photographic chemicals, pesticides, herbicides, medical wastes

Funding to Date: \$6.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

During the PA, the Army identified past disposal and/or spill sites potentially contaminated with hazardous waste. The sites were investigated further during the SI. Ground water was found to be contaminated with lead, nickel, cadmium, petroleum hydrocarbons and VOCs (1,1,1-trichloroethane, 1,1,2-TCE, and chloroform). Further remedial investigation was recommended to determine the presence, magnitude, and extent of contamination.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS was initiated in September 1985 and indicated that a plume of contaminated ground water was emanating from the southwestern portion of the Fort Dix Sanitary Landfill. The contaminants do not appear to be highly concentrated. A geophysical field investigation suggested that the stream and associated surface water bodies act as a hydraulic barrier to suspected contaminant migration. The recommended course of action is to cover the lower 50 acres of the landfill with a low-permeability cap, and to maintain two feet of final cover to the remaining uncapped portion. A long-term (30-year) monitoring program is being implemented. A phased installation-wide RI is currently underway for the remaining sites at Ft. Dix requiring further environmental evaluation. The remedial investigation was initiated in September 1989 for 14 sites, and for the remaining sites in June 1992.

Remedial Design/ Remedial Action (RD/RA)

A ROD became effective for the landfill site on September 24, 1991. The RA consists of regrading a 76-acre area (Phase I) and constructing a low-permeability cap over a 50-acre area (Phase II). Erosion and access control measures will be implemented over the entire site. The Phase I contract was awarded on September 20, 1992. The Phase II design is underway, and the Phase II Contract is currently scheduled for award in August 1993. Also, several USTs have been removed with other removals planned.

Fort Lewis

(Landfill #5 and Logistics Center)

Tacoma and Tillicum, Washington

(34)

Service: Army

Size: 86,541 Acres

HRS Score: 33.79 (Landfill)
35.48 (Logistics Center)

Base Mission: I Corps Headquarters - plans and executes Pacific, NATO, or other contingencies; Troop training; Airfield; Medical Center; Logistics for supplies and maintenance.

IAG Status: Pre-ROD IAG signed January 1990

Action Dates: PA completed 1984; Landfill 5 placed on NPL 1987; RI completed October 1991; ROD signed July 1992; Logistics Center placed on NPL 1989; RI/FS completed in May 1990; ROD signed September 1990

Contaminants: Spent solvents, metal plating wastes, pesticides, PCBs, waste oils and fuels, VOCs, asbestos, coal liquefaction wastes, polycyclic aromatic hydrocarbons, paint, battery electrolytes, metals, paint strippers and thinners

Funding to Date: \$21.5 million

Preliminary Assessment/ Site Inspection (PA/SI)

The PA investigation revealed several potentially contaminated areas. SIs have been completed at Park Marsh Landfill (used previously by the Veterans Administration), Landfill 5, and the Logistics Center. Preliminary results at Park Marsh Landfill detected PCBs and pesticides in the sediments. Landfill 5 and the Logistics Center showed ground water contamination.

Remedial Investigation/ Feasibility Study (RI/FS)

A RI/FS for the Logistics Center was completed in May 1990. The primary ground water contaminants at the Logistics Center are solvents, trichloroethylene (TCE) and cis-1,2-dichloroethylene (DCE). In general,

the ground water contamination moves off-post from the Logistics Center toward the town of Tillicum.

An RI was completed at Landfill 5 in 1991. The primary ground water contaminants at Landfill 5 are iron, manganese, benzene, TCE and vinyl chloride. The human health and ecological risk assessments were completed in December 1991. The contaminant levels have been decreasing since the installation of the landfill cap and are predicted to continue to decrease to levels that do not suggest risks to human health and the environment. A "No Further Action" ROD was signed July 24, 1992. Ground water monitoring will continue.

Remedial Design/ Remedial Action (RD/RA)

Based on the ROD, the cleanup plan for the Logistics Center is to pump and treat the ground water. The RD is conducted in two phases. Phase I includes the installation of the well fields. Phase II includes the design and installation of the treatment plant, pumps, piping and other associated equipment. Phase I pilot wells were installed, and pumping tests were completed in the summer of 1991. Installation of the Phase I well field is underway. Phase II design will follow quickly behind with RA scheduled for mid-1993.

The ROD also includes monitoring and soil sampling to ensure that all remaining sources of soil contamination have been identified and characterized.

Fort Ord Marina, California

(35)

Service: Army

Size: 29,598 Acres

HRS Score: 42.24

Base Mission: Home of the 7th Infantry Division (Light) (Base scheduled for closure)

IAG Status: Pre-ROD IAG signed July 1990

Action Dates: PA/SI completed 1990; RI/FS for landfills initiated 1989; Installation-wide RI/FS initiated 1990; RD/RA initiated 1988; Placed on NPL 1990

Contaminants: Petroleum wastes, VOAs

Funding to Date: \$21.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

A preliminary hydrogeological investigation (PHI) completed in 1987 identified the sanitary landfills as a possible source of contamination for the City of Marina's backup supply well. This investigation determined also that other installation supply wells were a potential conduit for contamination between aquifers.

PA/SIs completed in 1990 identified contaminants including petroleum wastes and VOAs. These sites include sewage treatment plants, motor pools, AAFES Dry Cleaner and Gas Station, old DRMO and DEH yards, a practice fire drill pit, and EOD range areas. In addition, the location of numerous underground storage tanks have been identified.

Remedial Investigation/ Feasibility Study (RI/FS)

The landfills' RI/FS was initiated in 1989. Eleven monitoring wells were installed to supplement the 13 PHI wells, and four sets of samples have been taken. This site is one of two operable units in the IAG.

During the literature search and interview process conducted as part of the base-wide RI/FS, several new sites were identified. Further investigation of these sites was initiated in September 1991. During FY 1992, the first round of field work was completed and 39 characterization reports for the individual sites were initiated.

Remedial Design/ Remedial Action (RD/RA)

A ground water/soil treatment system at the Fritzsche Army Air Field has been operating since 1988. One hundred percent of the contaminated soil has been cleaned and removed. Ground water treatment continued during FY 1992. Ground water at this site should be cleaned by approximately 1995. Ten installation wells identified as conduits for contamination were closed in 1990.

Fort Riley

Junction City, Kansas

(36)

Service: Army

Size: 150 Square Miles

HRS Score: 33.79

Base Mission: Develop, train and maintain the 1st Infantry Division (Mechanized)

IAG Status: Docket No. VII-90-F-0015, signed 28 February 1991

Action Dates: Placed on NPL 1990

Contaminants: Tetrachloroethane, mercury waste, pesticides wastewaters, acetone, methylene chloride, carbon tetrachloride

Funding to Date: \$7.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

The PA focused on past and current usage of toxic and hazardous materials, and their potential to migrate off the installation. Fort Riley incorporates seven landfills, numerous motor pools, burn and fire fighting pit areas, hospitals, dry cleaning shops, and pesticide storage and mixing areas. The sanitary landfills at Camp Funston and the Main Post (cleaning solvents and pesticide residues) and the former Pesticide Storage Facility are suspected potential sources of contamination. Recently, the Impact Zone and the former Dry Cleaning Facility have been added as potential sources.

The SI at the Dry Cleaning Facility has identified soil and ground water contamination and the field program is continuing with additional monitoring well installation. An early interim remedial action is being planned. Another SI began at the active Impact Zone in November 1991. This investigation is expected to be completed in 1993.

An installation-wide site assessment is reexamining the results of previous investigations to identify additional areas of potential contamination and to establish priorities for the subsequent investigations.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS field program was initiated in June 1991 to determine the nature and extent of contamination at the Southwest Funston Landfill and the Pesticide Storage Facility. Additional sampling is required at both sites. Completion is expected in December 1994.

Remedial Design/ Remedial Action (RD/RA)

Thirty-eight abandoned USTs and ancillary equipment were removed in 1990. Additional UST assessment/remediation projects are currently underway. Polychlorinated biphenyl storage areas were remediated in 1990. Additional remedial actions will begin after completion of the RI/FS. The projected actions include stabilization of the Kansas River bank at the Southwest Funston Landfill, soil removal at the Pesticide Storage Facility and the pump and treatment system at the Dry Cleaning Facility.

Fort Wainwright

Fairbanks North Star Borough, Alaska

(37)

Service: Army

Size: 917,993 Acres

HRS Score: 42.4

Base Mission: Headquarters of the 6th Infantry Division (Light)

IAG Status: Pre-ROD IAG Signed November 1991

Action Dates: PA/SI completed 1983; Placed on NPL 1990; RI/FS initiated 1989

Contaminants: Petroleum/oil/lubricants, heavy metals, solvents, pesticides, paints

Funding to Date: \$7.9 million

Preiliminary Assessment/ Site Inspection (PA/SI)

An Army assessment completed in 1981 and subsequent facility assessments have identified 41 potential source areas in addition to numerous potential POL sources at Fort Wainwright. Most sites were used for past disposal of waste oils and solvents. These sites include a 40-acre landfill where POL, solvents and paints were disposed; Fire Training pits with POL and solvent contamination; drum burial sites, a chemical agent burial site, leaking underground storage tanks that have affected the water table; and motorpools.

Remedial Investigation/ Feasibility Study (RI/FS)

Environmental investigation activities including field work and compilation of existing data have occurred at various sites. These sites include the North Post Site, the landfill, Nike Sites B and C, and an abandoned tank farm.

A Federal Facility Agreement (FFA) has divided Fort Wainwright into five operable units. Each operable unit will have an RI/FS. Previously performed and planned activities were incorporated into the IAG RI/FS efforts. The RI/FS management plan for the first two operable units, the Fairbanks Fuel Terminal and the landfill/fire burn pits/coal storage yard, have been completed. The field work will commence in the summer of 1993. The draft RODs are expected in 1995.

Preliminary Source Evaluations (PSEs) are currently being conducted. The object of a PSE is to identify potential contaminants and the extent of contamination. All sources that pose a significant risk

for contamination will begin a RI/FS in 1994 with a final ROD expected in 1997.

Remedial Design/ Remedial Action (RD/RA)

Past removals of USTs involved leaking USTs and associated contamination. A contract for incineration of petroleum-contaminated soil is expected to be completed in 1993. In 1991, a project to remove and landfarm contaminated soils was awarded. The treatability study is underway. A removal action recovered over 1,500 drums from four areas in September 1992. The drums contained petroleum products, solvents, and paint wastes that pose potential ground water contamination. The removal of suspected chemical agents located on Birch Hill is being planned for the future.

Additional RD/RA work will begin after completion of RI/FS activities.

Fridley Naval Industrial Reserve Ordnance Plant Fridley, Minnesota

(38)

Service: Navy

Size: 83 Acres

HRS Score: 30.83

Base Mission: Design and manufacture advanced weapons systems

IAG Status: Signed March 1991

Action Dates: PA/SI completed 1988; RI/FS initiated 1988; Placed on NPL November 1989; Record of Decision for ground water remediation September 1990

Contaminants: Heavy metals, VOCs, petroleum/oil/lubricants

Funding to Date: \$7.5 million

Preliminary Assessment/ Site Inspection (PA/SI)

Investigations (sampling and analyses of ground water) between the years 1983 and 1988 identified trichloroethylene (TCE) in the ground water at Fridley Naval Industrial Reserve Ordnance Plant (NIROP). A PA was completed on June 30, 1983 for four sites. (A SI was not performed for these sites.) Site 04, the Foundry Core Butt Disposal, was closed out as a result of the PA in 1983. Sites 01-03 are being handled as Operable Unit 01 (OU-01) and were recommended to continue in the Installation Restoration (IR) program. Another site, Area C Solid Waste Management Unit (SWMU), is physically located at Fridley, but is the responsibility of the present contractor who is tracking and funding the site.

On November 21, 1987, the installation was listed on the National Priorities List (NPL) with a Hazard Ranking System (HRS) Score of 30.83.

Remedial Investigation/ Feasibility Study (RI/FS)

OP-01 completed an RI in July 1988 for ground water remediation only. An FS was completed in August 1988 and a Record of Decision (ROD) signed on September 28, 1990.

A Federal Facility Agreement (FFA) between the Department of the Navy, Environmental Protection Agency (EPA), and the State of Minnesota was signed on March 23, 1991.

An RI addressing soils began in May 1992 at OU-01 and is expected to be complete in September 1993. The FS is anticipated to begin in October 1993 with a completion date of June 1994. The ROD for the soil remediation is expected to be signed in February 1995.

Remedial Design/ Remedial Action (RD/RA)

A Removal Action that was initiated in 1983 and completed in 1984 allowed for the removal and disposal of 43 drums and 1,200 cubic yards of contaminated soil. Another Removal Action for the disposal of 32 drums and 500 cubic yards of contaminated soil was performed in 1992.

The RD for the ground water phase was completed in September 1990. The RA began in September 1990 with a pump and treat system that will last beyond FY 1998. The RD for the soils will start in March 1995 and be completed in September 1995. The RA is expected to begin by November 1996.

George Air Force Base

Victorville, California

(39)

Service: Air Force

Size: 5,347 Acres

HRS Score: 33.62

Base Mission: Tactical fighter operations; Train aircraft and maintenance personnel; Maintain aircraft and ground support (Scheduled for closure)

IAG Status: Pre-ROD IAG signed 1990

Action Dates: PA/SI completed 1986; RI/FS initiated 1986; Scheduled for completion June 1993; Closure scheduled for December 15, 1992; Placed on NPL 1990

Contaminants: Petroleum/oil/lubricants, VOCs, heavy metals

Funding to Date: \$41.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

During a PA/SI, the Air Force identified several potentially contaminated areas. These sites include the Waste POL Leach Field, the Fire Training Area, the Hazardous Waste Storage Yard, the STP Percolation Ponds, the Abandoned Waste Fuel Dry Well, the Southeast Disposal Area, the Northeast Disposal Area, and the Industrial/Storm Drain. These sites were investigated further in 1986 and 1988 under the IRP.

Remedial Investigation/ Feasibility Study (RI/FS)

RI field studies were conducted in 1986 and 1988. Results indicate POL, VOC, and heavy metal contamination of soils in several areas, and TCE and radionuclide contamination of ground water. The radioactive materials are believed to be naturally occurring within the region. Ground water monitoring is being conducted to confirm previous findings.

The sites at George AFB have been combined into three operable units (OU). RIs and FSs for these OUs are continuing and are planned for completion in mid 1993.

Remedial Design/ Remedial Action (RD/RA)

The treatment system for the Northeast Disposal Area was constructed in 1990. The RA consists of extracting the TCE-contaminated ground water and treating it by using air stripping. The industrial storm drain was cleaned and removed in 1991. Removal of JP-4 pure product from ground water at several locations near the flightline commenced March 1992. Removal of underground storage tanks and surrounding contaminated soils is ongoing.

Griffiss Air Force Base

Rome, New York

(40)

Service: Air Force

Size: 5,836 Acres

HRS Score: 34.20

Base Mission: Air refueling operations; Long-range bombardment

IAG Status: Pre-ROD IAG signed June 14, 1990

Action Dates: PA/SI completed 1981; Placed on NPL 1987; RI/FS scheduled for initiation 1991

Contaminants: VOCs, heavy metals, greases, degreasers/caustic cleaners, dyes, penetrants, solvents

Funding to Date: \$24.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Mohawk River borders the base on the west and south. A PA/SI identified sites containing hazardous materials from past disposal activities. Studies detected surface contamination at the Tank Farm and potential ground water contamination from dry wells and a lindane spill.

Remedial Investigation/ Feasibility Study (RI/FS)

Confirmation studies began in October 1987. Initial studies detected contaminated ground water in a limited area near Landfill 1; PCB-contaminated soils at Building 112; fuel product contamination of soils and ground water at the Tank Farm; heavy metal contamination of soils in the Battery Disposal Pits; and VOC contamination of ground water at Landfill 7.

The RI/FS work plan was submitted to EPA and the State of New York in 1991. The RI/FS began in 1991 and is scheduled for completion in late 1994. The RI/FS was originally slated for completion in late 1992, but a year-long dispute resolution and the discovery of new sites, pushed the completion date back. All off-base areas containing wells that have been contaminated with glycols are proposed for inclusion in the RI/FS.

Remedial Design/ Remedial Action (RD/RA)

Several interim remedial actions are currently underway. In 1985-86, contaminated soil was removed from several IRP sites. Several USTs were removed from the Tank Farm and contaminated soil was removed from the Battery Acid Disposal Pits in 1987. Additional USTs were removed in 1988. RAs in 1989 included modifications to a landfill cap and the removal of several USTs. Contaminated soil from an area adjacent to an aircraft nosedock was removed in late 1990.

Construction on an off-base water distribution facility to replace the impacted private domestic wells was completed in 1991. Remedial actions completed in 1992 include the removal of UST and contaminated soil associated with Buildings 110, 101, and 112. The remedial design for landfills #2 and #9 have been rescheduled for 1993 to explore other remedial alternatives.

Hill Air Force Base Ogden, Utah

(41)

Service: Air Force
Size: 6,666 Acres
HRS Score: 49.94
Base Mission: Logistics for weapons systems
IAG Status: Pre-ROD IAG signed April 1991
Action Dates: PA/SI ongoing; RI/FS initiated 1985; Placed on NPL 1987
Contaminants: VOCs, sulfuric and chromic acids, solvents, petroleum wastes
Funding to Date: \$32.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

Preliminary Assessments and Site Investigations have been completed for all 63 of Hill's confirmed sites. However, there are presently 18 areas of concern (AOCs) which are being investigated under PA and SI.

The initial PA for Hill AFB was completed in 1982. Subsequent SIs were conducted in 1984 and 1986-87. The UTTR and Little Mountain sites were not placed on the NPL.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS was initiated in March 1985. The seven operable units at Hill AFB are in various stages of RI/FS study. All operable units have contamination of the shallow aquifer. To date, the deeper drinking water aquifer has not been affected.

An interim remedial action ROD for source recovery of the DNAPL has been signed for OU 2.

The RI/FS for Operable Unit 5 began in the summer of 1989.

Operable Unit 6 has completed its site evaluation. The report shows no contamination in the on-base soil gas. However, TCE contamination was observed in off-base field drains.

Operable Unit 7 has begun a RCRA monitoring program on the Building 220 site. The site evaluation for the Building 225 chromium site is currently under regulatory review.

The RI is complete for the Little Mountain sludge beds. A remedial design and remedial action were completed in FY 1992. The contaminated soils were treated on site.

Two RODs will be signed in 1993, one ROD in 1994, and two RODs in 1995.

Remedial Design/ Remedial Action (RD/RA)

On-base, Hill AFB has initiated several remedial actions. To date, 6,046 gallons of solvents, 10,000 gallons of fuel, and 1,700 cubic yards of contaminated soil have been removed from the environment at Hill AFB. Hill AFB capped 70 acres of landfill, extracted and treated contaminated ground water

from seven wells and two infiltration galleries, and installed a mile-long slurry wall. More than 50 million gallons of contaminated ground water have been treated. As a result of these actions, VOC concentrations in off-base seeps decreased 99 percent since 1984.

Two property owners have been connected to municipal wells and supplied with irrigation water. The ROD for interim remedial action at Chemical Pit #3 was approved at the end of 1991. The IRA, which consists of a pump and treat system, is currently being constructed.

In 1989-90, at a JP-4 spill site, soil venting removed 190,000 pounds of fuel. Two old PCB spill sites were excavated and disposed of in 1990.

In 1991, PCBs that were discovered in the asphalt were treated with a chemical known as Capsur.

In addition, Hill has tested every known tank for leaks. Ninety-six tanks have been removed and the remaining 165 are under investigation.

Homestead Air Force Base

Homestead, Florida

(42)

Service: Air Force

Size: 2,916 Acres

HRS Score: 42.40

Base Mission: Air Combat Command; F-16 Fighter Wing; ~~ATC sea-survival school~~; Tactical Control Squadron; Naval Security Group ~~Activity~~; Aerospace Rescue and Recovery Squadron (AFRES) and Fighter ~~Interceptor Group~~ operations

IAG Status: Pre-ROD IAG signed February 1991

Action Dates: PA/SI completed 1986; RI/FS initiated 1987; Placed on NPL 1990

Contaminants: Metal plating wastes, VOCs, cyanide

Funding to Date: \$7.1 million

Preliminary Assessment/ Site Inspection (PA/SI)

The area around Homestead AFB is mostly agricultural. Wastes have been disposed of onsite since the facility opened in 1942. Electroplating operations were conducted onsite, and plating wastes containing heavy metals and cyanides were allegedly disposed of directly on the ground.

The PA/SI identified three major areas of concern: the Fire Protection Training Area, the Residual Pesticide Disposal Area, and the Electroplating Disposal Area.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS was initiated in August 1987 at the Fire Protection Training Area (FPTA), Electroplating Waste Disposal Area (EWDA), and Residual Pesticide Disposal Area. Analytical results from the RI showed ground water contaminated with VOCs above MCLs. Benzene was detected in the ground water at concentrations

which exceed the Florida Primary Drinking Water Standard. Ethyl ether was detected in high concentrations in the shallow and intermediate ground water. Its presence is attributed to the disposal of approximately 5,500 gallons of ethyl ether in January 1984 by the Federal Drug Enforcement Agency and Dade County.

At the Electroplating Waste Disposal Area, cyanide was detected above MCLs in one monitoring well.

From 1977 to 1982, pesticides were sprayed or dumped onto the Residual Pesticide Disposal Area, and chlorine bleach and ammonia were applied to accelerate the decomposition of the pesticide compounds. Analytical results showed low levels of organochlorine insecticides in surface soil samples.

A monitoring plan was received from the Florida Department of Environmental Regulation (FDER) for the BX Service Station. Additional RI/FS field work and data collection was requested by FDER for all sites following their review

of draft RI/FS reports for EWDA and FPTA. Additional RI/FS investigations, including supplemental RI and SI work to determine the extent of contamination, will begin in 1993.

Remedial Design/ Remedial Action (RD/RA)

An IRA was conducted in 1987 to remove approximately 25 USTs from various IRP sites. Construction of a remedial system for Pump-house 9 was completed in 1991. The system, which is for the removal of free product contamination, is currently undergoing design modifications following a year of operations.

Iowa Army Ammunition Plant Middletown, Iowa

(43)

Service: Army

Size: 19,127 Acres

HRS Score: 29.73

Base Mission: Load-assemble-pack a variety of conventional munitions and fusing systems

IAG Status: Pre-ROD IAG signed 1990 with EPA

Action Dates: First PA/SI completed 1980; Second PA/SI initiated 1991; RI/FS initiated 1981; Placed on NPL 1990

Contaminants: VOCs, heavy metals, waste solvents, explosives containing sludges

Funding to Date: \$11.5 million

Preliminary Assessment/ Site Inspection (PA/SI)

Iowa Army Ammunition Plant (IAAP) is a government-owned/contractor-operated (GOCO) facility. Although a PA/SI was completed in 1980, an updated PA/SI was initiated in January 1991 to further assess the impact on the environment of the use, storage, treatment, and disposal of toxic and hazardous materials and to define conditions that may adversely affect health and welfare or result in environmental degradation. Forty sites/areas of concern were identified, of which 33 require further investigation or action.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS was initiated in February 1981, and a contamination survey was completed in October 1982. Explosives contamination was found in surface and ground waters within the Brush Creek drainage system. The former Line 1 Impoundment and the Pinkwater Lagoon adjacent to Line 800 were identified as sources of contamination. It was determined that RDX was migrating off-site through Brush and Spring Creeks. A follow-on environmental survey completed in August 1984 assessed further the contamination in the Line 1 and Line 800 areas. The endangerment assessment and FS for Lines 1 and 800 were completed in July and August 1989, respectively. A Federal Facilities Compliance Agreement (FFA) between the Army and EPA was signed in April 1988. The RI/FS began in July 1992 to investigate 30 sites, and will be completed in October 1993.

Remedial Design/ Remedial Action (RD/RA)

Closure of the inert landfill Trench 5 was completed in November 1989. Closure of the Line 6 gravel filter bed and the drainage ditch was completed in August 1990. Removal, backfill, and reseeded of the abandoned coal storage yard is planned for 1993.

Jacksonville Naval Air Station

Jacksonville, Florida

(44)

Service: Navy

Size: 3,820 Acres

HRS Score: 32.08

Base Mission: This master anti-submarine warfare base maintains and operates facilities and provides services and materials to support operations of aviation activities and aircraft overhaul. The complex houses a naval aviation depot, a naval supply center, and several air squadrons.

IAG Status: Signed October 1990

Action Dates: PA completed 1985; Placed on NPL December 1989; RI/FS initiated 1989; SI scheduled completion for 1991

Contaminants: Acids and caustics, cyanide, heavy metals, low-level radioactive radium paint wastes, oil, paint, PCBs, pesticides, phenols, radioisotopes, waste solvents

Funding to Date: \$9.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

An Initial Assessment Study (IAS), equivalent to a PA, was completed in March 1983 for 43 sites at Jacksonville Naval Air Station (NAS). Five sites are located on non-contiguous Naval Fuel Depot Jacksonville, which reduces to 38 the number of Jacksonville NAS sites. Eleven sites were recommended for further study. Prior to the Confirmation Study (CS), equivalent to an SI, sites were added and combined to total 40 potentially contaminated sites.

Jacksonville NAS was placed on the National Priorities List (NPL) December 12, 1989 with a score of 31.02 and a Federal Facility Agreement (FFA) was signed on October 23, 1990. As of October 1, 1992, there are 45 IR sites. Reviews of the studies to date and assessment of each site have resulted in Sites 2, 3, 4, 11, 12, 13, 14, 15, 26, 27, 41,

42, and 43 experiencing the RI/FS process. Sites 07, 19, and 33 are being addressed under Florida Administrative Code Section 17-770, the petroleum statutes for the State of Florida. Sites 01, 05, 06, 08-10, 16-18, 20-25, 28-32, 34-40, 44, and 45 are undergoing additional investigation under a current SI.

Remedial Investigation/ Feasibility Study (RI/FS)

Operable Unit 1 consists of Sites 26 and 27. The RI/FS work plan was completed October 1991 and implemented in December 1991. The OU Record of Decision (ROD) is planned for FY 1998. Interim ROD is anticipated for floating free product in FY 1993.

Operable Unit 2 consists of Sites 2, 3, 4, 41, 42, and 43. The RI/FS work plan is scheduled to be finalized January 1993. Operable Unit ROD is scheduled for FY 1998. Interim RODs and removal actions

are planned for Sites 2, 41, and 43 for FY 1993.

Operable Unit 3 consists of Sites 11, 12, 13, 14, and 15. The RI/FS work plan is planned for March 1994. Work plan implementation is anticipated in FY 1994 with OU ROD programmed in FY 1999.

Note: RI/FS and RD/RA projected completion dates are based on funding being available during indicated fiscal years.

Remedial Design/ Remedial Action (RD/RA)

OU1 RD is scheduled for FY 1998 with remedial action being started in FY 1999. Removal of floating free product is planned for August 1993.

OU2 RD is scheduled for starting RD in FY 1997 and commencing RA activities in FY 1998. A removal action for Sites 2, 41, and 43 is planned in August 1993.

OU3 RD is scheduled for FY 2000 with the RA in FY 2001.

Joliet Army Ammunition Plant (LAP Area and Manufacturing Area) Joliet, Illinois

(45)

Service: Army

Size: 36 Square Miles

HRS Score: 35.23 (LAP area)
32.08 (manufacturing area)

Base Mission: Manufacture and load-assemble-pack (LAP) explosives and explosive-filled munitions

IAG Status: Pre-ROD IAG signed June 1989 with EPA and State of Illinois

Action Dates: PA/SI completed 1978; RI/FS initiated 1991; Manufacturing Area placed on NPL 1987; LAP Area placed on NPL 1989

Contaminants: Munitions-related wastes, VOCs, heavy metals

Funding to Date: \$12.1 million

Preliminary Assessment/ Site Inspection (PA/SI)

Joliet Army Ammunition Plant (JAAP), consisting of a Manufacturing Area and a Load-Assemble-Pack (LAP) Area, is a government-owned/contractor-operated (GOCO) facility. Since 1977, the facility has been maintained in standby condition.

The PA/SI identified the potential presence of TNT, DNT, RDX, and tetryl, as well as nitric and sulfuric acids, toluene, and various heavy metals. Past practices may have contaminated ground and surface waters, sediment, and soil.

Remedial Investigation/ Feasibility Study (RI/FS)

Fifty-three sites on JAAP were targeted for RI/FS investigation in 1991, including 18 sites in the MFG Area and 35 sites in the LAP Area. Various contaminants, primarily explosives, have been identified in

soil, sediment, surface and ground water. Field work in 1991 identified contamination in 14 of 18 sites in the MFG Area and 13 of 35 sites in the LAP Area. An RI was initiated in October 1992 in the MFG Area, and a Phase II RI is under development for 14 sites in the LAP Area. A 1991 residential well survey around JAAP identified no occurrences of off-site ground water contamination to offpost wells. A 1993 study of deer herd tissues taken during the shotgun season on JAAP will be used to determine if contaminants are being stored in deer tissue. Currently, the RI Report for both the MFG and LAP Areas, and the Baseline Risk Assessment for the MFG Area are undergoing EPA Region V review. The Ecological Risk Assessment Report is being written by the Army Environmental Hygiene Agency (AEHA) and is due in late February 1993.

Remedial Design/ Remedial Action (RD/RA)

In 1985, more than seven million gallons of explosives-contaminated red water were removed from the Red Water Lagoon and transported offsite for disposal. Explosives-contaminated sludge and the lagoon liner also were removed, and the area was capped with clay.

Two surface impoundments (north and south ashpiles) in the MFG Area from past incineration of explosives will be recapped in 1993.

RD/RA work plans will be initiated for the LAP and MFG Areas following the completion of the FS for each area. The MFG area FS is scheduled for completion in May 1993 and 10 areas within the LAP Area in late 1994.

Keyport Naval Undersea Warfare Center Keyport, Washington

(46)

Service: Navy

Size: 200 Acres

HRS Score: 32.61

Base Mission: Originally, testing of torpedos; expanded to include proving, overhaul, and issue of torpedos

IAG Status: Pre-ROD IAG signed July 1990

Action Dates: PA/SI completed 1984; RI/FS initiated 1985; Placed on NPL October 1989

Contaminants: Heavy metals (mercury, lead, zinc, chromium, nickel, silver, cadmium), petroleum hydrocarbons, chlorinated solvents, otto fuel, pesticides, herbicides

Funding to Date: \$11.1 million

Preliminary Assessment/ Site Inspection (PA/SI)

A PA/SI identified nine sites as potential contaminant migration sources. Six sites were identified for further study. The study found significant concentrations of metals, petroleum hydrocarbons, and undifferentiated halogenated organics in seeps and sediment of the marsh adjacent to the Keyport Landfill. A Landfill Gas Investigation, completed in May 1988, identified concentrations of methane in subsurface soil in the vicinity of the landfill.

The SI also found low concentrations of metals in soil and sediment of the stream and lagoon adjacent to the Keyport Van Meter Road Spill. At Liberty Bay, elevated levels of mercury, lead, and zinc were found in sediment, and elevated levels of chromium, nickel, and zinc were found in shellfish tissue. Chromium levels exceeded food criteria for shellfish consumption.

The SI also recommended performing an Interim Remedial Action for off-shore sediments that involved closure of beaches at the Base to shellfish harvesting and collection of additional shellfish tissue samples. The beaches at Keyport Naval Undersea Warfare Center have been closed to shellfish harvesting.

An SI is currently underway for two additional sites and is expected to be completed in early 1993.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS is currently underway for six sites, and is expected to be completed in 1993. Marine sampling of water, sediment, and shellfish tissue, as well as land-based sampling of soil, soil gas, air, and ground water has been included in the study.

Remedial Design/ Remedial Action (RD/RA)

A removal action was conducted at the Keyport Building 72 Chromate Spill Site in June 1992. An underground trench and several sumps were excavated, and chromium-contaminated soil was removed and replaced with clean fill.

Initiation of RD/RA at other sites is expected to begin in late 1993.

Lake City Army Ammunition Plant (Northwest Lagoon) Independence, Missouri

(47)

Service: Army

Size: 3,955 Acres

HRS Score: 33.62

Base Mission: Manufacture, store, and test small arms ammunition

IAG Status: Pre-ROD IAG signed September 1989

Action Dates: PA/SI completed 1979; Placed on NPL 1987; RI/FS initiated 1987

Contaminants: Oils/greases, heavy metals, solvents, explosives

Funding to Date: \$30.6 million

Preliminary Assessment/ Site Inspection (PA/SI)

Lake City Army Ammunition Plant (LCAAP) has manufactured, stored, and tested small arms ammunition continuously since 1941, except for a 5-year period following World War II. Virtually all waste treatment and disposal has been onsite. LCAAP has relied heavily on lagoons, landfills, and burn pits for waste disposal. Industrial operations have generated large quantities of potentially hazardous waste, including oils/greases, solvents, explosives, and metals.

The Installation Assessment identified numerous waste areas on base, but because of a clay layer in the soil, no testing was recommended. However, a PA/SI identified 73 waste sites containing more than 100 individual units. These units were later consolidated into 35 sites. Field testing was conducted at seven representative areas and ground water contamination (volatile organics, explosives, and heavy

metals) was detected at all seven areas. An RI/FS was recommended for the entire site.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS was initiated in September 1987, and the study confirmed contamination of the ground water above federal and state criteria beneath the entire site. Approximately eight water wells of private residents immediately north of LCAAP have been monitored quarterly since 1987. Low level explosive and volatile organic contamination have been sporadically detected, but levels remain below applicable criteria. Ten additional off-post wells are scheduled to be installed. A Phase 2 RI/FS was initiated in 1989 to determine the extent of ground water contamination and to investigate source locations. A final RI effort is underway to fill in data gaps from the previous efforts. The RI is scheduled to be completed in FY 1994.

Remedial Design/ Remedial Action (RD/RA)

Numerous explosive waste lagoons at LCAAP have been closed since 1986. Air strippers for the drinking water supply wells at the plant were installed in 1990. Permits for air strippers at other production wells were received and all production wells are now operating.

Lakehurst Naval Air Warfare Center

Lakehurst, New Jersey

(48)

Service: Navy

Size: 7,382 Acres

HRS Score: 50.53

Base Mission: Develop and test weapons systems and their components

IAG Status: Pre-ROD IAG signed 1989 with EPA

Action Dates: PA/SI completed 1983; Placed on NPL 1987; RI/FS initiated 1987; RI Phase II completed 1990

Contaminants: Waste oils and fuels, solvents, degreasers, paints, paint residues, photographic chemicals, acids, PCBs, pesticides, herbicides, refrigerants

Funding to Date: \$15.1 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Initial Assessment Study (IAS), equivalent to a PA, and a Confirmation Study (CS), equivalent to an SI, were completed in March 1983 identifying 44 potentially contaminated sites at Lakehurst Naval Air Warfare Center (NAWC). Sites 41 and 43 were closed out as not being contaminated and the remaining 43 sites were recommended for further study. (An additional site, Site 45 BOMARC, was added to the list of potentially contaminated sites for further study. BOMARC was only included in the SI and did not have a PA performed.) The SI was completed in April 1987 and all sites were recommended for further study in the Remedial Investigation/Feasibility Study.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI was completed for 13 sites and 3 RODs were signed in September 1991. All three of these RODs are for a determination of no further action (NFA) at any of these sites.

The installation was placed on the National Priorities List (NPL) in 1987 with a Hazard Ranking System (HRS) Score of 50.53. A Federal Facility Agreement (FFA) was signed by the Department of the Navy on May 25, 1989 and by the Environmental Protection Agency (EPA) on October 4, 1989.

Phase I and II RIs have been completed for Sites 01-04, 06-14, 16, 17, 20, 22, 24, 25, 28, 29, 31-33, 35-39, and 42 on April 1987 and July 1990 respectively. The Phase III RI is currently underway for these sites with a Draft Final submitted in October 1992. These sites are all expected to go to Remedial Design starting in FY 1994.

Remedial Design/ Remedial Action (RD/RA)

RD/RA start and finish dates will be scheduled according to priority, the media being remediated, and the method of remediation.

Two Interim Remedial Actions (IRAs) have been completed at Lakehurst. One for Sites 10, 16, and 17 was completed on June 5, 1991 and a second for Site 32 was completed on May 30, 1992. A future IRA is scheduled for FY 1993 for Sites 28, 35, 12, 14, 18, 26, 29, 33, 37, 42, 44, 09, 13, 15, 36, and 39. All of the IRAs completed or scheduled for the future involve pump and treat ground water remediation.

RA is scheduled in five stages, the first to start in April 1994. Subsequent actions will begin in FY 1995, FY 1996, FY 1997, and FY 1998. Completion dates are anticipated to be FY 1998 or after.

Letterkenny Army Depot (PDO Area and Southeast Area) Franklin County and Chambersburg, Pennsylvania

(49)

Service: Army

Size: 19,511 Acres

HRS Score: 37.51 (PDO Area)
34.21 (SE Area)

Base Mission: Maintain and test tracked vehicles and missiles; Issue chemicals and petroleum; Store, demilitarize, and modify ammunition

IAG Status: Pre-ROD IAG signed February 1989 with EPA and State of Pennsylvania

Action Dates: RI/FS initiated 1982; PA/SI completed 1983; Southeast area placed on NPL 1987; Property Disposal Office Area placed on NPL 1989

Contaminants: Petroleum/oil/lubricants, pesticides, solvents, cleaning agents, metal, lead, mercury, plating wastes, phenolics, VOCs, painting residues and thinners, explosives

Funding to Date: \$20.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

The initial PA/SI included identification of 14 potentially contaminated sites, all targeted for an RI/FS. An additional 46 sites were identified during the RI phase. Significant contamination of ground water by aromatic hydrocarbons and volatile chlorinated hydrocarbons has been found. Elevated levels of contaminants have migrated off-base. An SI was updated for 18 SWMUs during May-July 1990. The SI report was submitted to the EPA and Pennsylvania in March 1991 and is now final. The SI report recommends further investigation of eight sites. This work (SI follow-on) will be underway by May 1993.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS was initiated in June 1982, and confirmed contamination of 11 areas. Organic contaminants have migrated beyond depot boundaries in the southeastern area. Additional field work is currently being conducted to support the RI/FS effort. The Property Disposal Office (PDO) RI is in the draft stage and is due to the regulators early 1993. Two additional OUs have been added to the PDO. The southeastern RI was submitted to regulators in November 1992.

Remedial Design/ Remedial Action (RD/RA)

An alternate water system was provided in September 1987. An ISV system was used to determine the ability of the vacuum system to treat soils. This testing indicated limited potential for the ISV unit

because of the site characteristics. Low-temperature thermal stripping is to be used for soil remediation. Ground water treatment also will be considered at both NPL sites. Ground water treatment at the former IWTP lagoon area was initiated in June 1989. The interim ground water treatment system was expanded to nine extraction wells in December 1990. Closure was completed in November 1992. Approximately 26,800 cubic yards of soil have been treated (low temperature thermal treatment) and removed. A design study will commence in 1993 to address ground water contamination at Rowe Run Springs. The K-Area removal area has been delineated (19,729 tons). RA is planned for July 1993.

Lone Star Army Ammunition Plant Texarkana, Texas

(50)

Service: Army

Size: 15,546 Acres

HRS Score: 31.85

Base Mission: Load-Assemble-Pack, renovate, and demilitarize ammunition and explosives

IAG Status: Pre-ROD IAG signed June 1990

Action Dates: PA/SI completed 1978; Placed on NPL 1987; RI/FS initiated 1987

Contaminants: Munitions-related wastes, heavy metals, petroleum/oil/lubricants

Funding to Date: \$6.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

Lone Star AAP is a GOCO plant that employs approximately 2,000 people. Past disposal practices included burial of drummed and undrummed wastes in landfills, wells, and cisterns; disposal of explosives in a demolition area, black powder dump, and burning ground; and the discharge of wastes to chemical sludge ponds, settling pits, unlined pinkwater lagoons, and neutralization ponds. Potential ground water contaminant migration off post could affect approximately 200 private wells located within two miles of the post and used for potable water purposes.

The PA/SI found nitrobenzenes and heavy metals in manufacturing, disposal, demolition, and lagoon areas and determined the contaminants could migrate beyond plant boundaries through surface and subsurface waters. A follow-on in-depth investigation was recommended to determine if contaminants are migrating off-post.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS was initiated in September 1987. A contamination survey investigated 17 areas of potential contamination. Heavy metals and/or explosives were discovered in the ground and surface water and surface soils at several sites. Small concentrations of sulfates, chlorides and dieldrin were also detected in the ground water. Additional investigations conducted in 1990 and 1991 have discovered the potential for off-site contaminant migration. New studies to include off site investigation were ongoing in 1992 as part of RCRA Facility Investigation (RFI). The Corrective Measures Study (CMS) is scheduled to begin in early 1993.

The pre-ROD IAG was signed in September 1990. Only the NPL site, the Old Demolition Area (ODA), is covered by this agreement. The remaining sites have been listed as SWMUs. There are 145 SWMUs under investigation.

The Federal and state regulators have completed reviewing the RI/FS for the ODA. Additional investigation was recommended. The Phase III RI was submitted to regulators for comment in June of 1992. The Army has received EPA comments and plans to publish the draft final RI in February 1993.

Remedial Design/ Remedial Action (RD/RA)

Both Chromic Acid (North G Area) and O-Line (South O Area) ponds have been closed and are being monitored. Leaking underground fuel tanks at the installation gas station have been drained and fueling operations have been moved to another location. Tank removal and soil remediation were completed in FY 1992. The Army has received permission for several SWMUs to bypass the CMS phase and go directly into the RA phase. Four SWMUs are going directly to the RD/RA phase. Two sites are in CMS.

Longhorn Army Ammunition Plant Karnack, Texas

(51)

Service: Army

Size: 8,493 Acres

HRS Score: 39.83

Base Mission: Load-Assemble-Pack pyrotechnic and illuminating/signal munitions and solid propellant rocket motors

IAG Status: Signed by the Army, EPA, and Texas Water Commission in October 1991

Action Dates: PA/SI completed 1980; Placed on NPL 1990; RI/FS initiation 1991; RFA performed 1988; RCRA permit final 1992

Contaminants: Heavy metals, VOCs, munitions-related wastes, petroleum/oil/lubricants

Funding to Date: \$1.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Longhorn AAP primarily produced 246-TNT flake and acid for munition production during World War II. Flake production ceased and the current mission commenced in 1945.

A PA/SI recommended conducting an environmental survey. A contamination survey and follow-up studies identified contamination of onsite surface and ground water and soils emanating from the Active Burning Ground/Rocket Motor Washout Pond Area, the TNT Production Area, the Flashing Area, the Landfill (old), TNT burial sites, and old Burning Grounds.

An RFA in 1988 identified many of the same sites as SWMUs with a potential for release.

Remedial Investigation/ Feasibility Study (RI/FS)

A preliminary survey confirmed two sources for VOC ground water contamination beneath the Active Burning Ground and identified a third potential source that will require further investigation. The contaminant plume has neither moved significantly in the last 30 years, nor migrated off-post.

The IAG lists 13 areas that will be included in the RI/FS. Investigations at the site will follow CERCLA procedures, but will also incorporate RCRA requirements. The IAG is being amended to add plant-wide sumps as one area based on requirements of the RCRA permit.

Remedial Design/ Remedial Action (RD/RA)

Capping of the Rocket Motor Washout Pond Area was initiated in 1984. The Texas Water Commission certified the pond clean-closed in 1986.

Loring Air Force Base

Limestone, Maine

(52)

Service: Air Force

Size: 9,000 Acres

HRS Score: 34.49

Base Mission: B-52 Stratotankers and KC-135 Stratotankers (Scheduled for closure)

IAG Status: Pre-ROD IAG signed January 1991

Action Dates: PA/SI completed 1984; RI/FS initiated 1986; Scheduled for completion in November 1994; Placed on NPL 1990; Closure scheduled for September 30, 1994

Contaminants: Waste oils, fuels, spent solvents, PCBs, pesticides, heavy metals

Funding to Date: \$14.7 million

Preliminary Assessment/ Site Inspection (PA/SI)

Historically, wastes have been burned or buried in landfills. Surface water less than three miles downstream is used for recreational activities and a fresh water wetland is 500 feet from Landfill 3.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS was initiated in October 1986 disclosed that monitoring wells on-base were contaminated with methylene chloride, TCE, carbon tetrachloride, and barium. The wells are on or downgradient from several widely scattered disposal areas. Two areas are old, adjacent gravel pits that were used for landfill and cover 190 acres. Landfill 2 was used for disposal of hazardous wastes from 1956 to 1974, and Landfill 3 saw similar use from 1974 to the early 1980s. In the 0.5-acre Fire Department Training Area, large quantities of hazardous materials were disposed of through landfilling until 1968. From 1968 to 1974, these

materials were disposed of by burning. The 600-acre flightline area, with its industrial shops and maintenance hangars, was a primary generator of hazardous waste on-base. While some generated wastes were disposed of on the ground or in storm and sewer drains in the area, most wastes were disposed of elsewhere. Soils in the flightline area also contain significant amounts of fuel, oil, and various VOCs. According to the 1986 IRP report, water in the flightline drainage ditch, a 2,500-foot portion of a tributary to Greenlaw Creek, is contaminated with methylene chloride, tetrachloroethylene, 1,1-TCA, TCE, and iron. The ditch receives storm water discharges from several sewers draining the flightline area and the nose dock area, both locations where fuels were handled.

Remedial Design/ Remedial Action (RD/RA)

An RA was initiated in 1989. Remedial actions in 1990 included contaminated soil removal and treatment and UST removals. Remedial Actions for 1993 will involve further contaminated soil treatment and free product removal.

Louisiana Army Ammunition Plant

Doyline, Louisiana

(53)

Service: Army

Size: 14,974 Acres

HRS Score: 30.26

Base Mission: Load-Assemble-Pack operations; Manufacture shell metal parts

IAG Status: Pre-ROD IAG signed 1989

Action Dates: PA/SI completed 1978; RI/FS initiated 1985; Placed on NPL 1989

Contaminants: Oils, grease, degreasers, phosphates, solvents, metal plating sludges, acids, flyash, TNT and RDX explosives

Fund'ng to Date: \$39.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Louisiana Army Ammunition Plant (LAAP) is owned by the government and is operated by the Thiokol Corporation. LAAP currently employs 1,680 people.

The PA/SI concluded that the explosive loading and disposal areas of the plant were heavily contaminated with explosive wastes, primarily TNT, RDX, and tetryl. In addition, sumps and unlined ponds in the metal parts production area were contaminated with waste from plating and fabrication operations. No indication of contaminant migration off the installation through ground or surface waters was found. The high potential for future migration of the explosive contamination, however, resulted in a recommendation for a water quality monitoring program.

Remedial Investigation/ Feasibility Study (RI/FS)

The first stage of the RI/FS work consisted of a preliminary contamination survey completed in 1982. The actual RI/FS began in 1985 with a follow-on RI completed in 1987. The investigations indicated that no off-post migration had occurred. On-post wells, however, were contaminated with explosives, including TNT, RDX, and HMX. The contaminated ground water had reached the southern boundary, so as part of a follow-on RI, four wells were installed off the southern boundary of the installation in 1988. A comprehensive RI and Risk Assessment were completed in 1992, along with a draft FS. Revisions to the FS are underway.

Remedial Design/ Remedial Action (RD/RA)

Incineration of explosives-contaminated soil and treatment of contaminated surface water in Area P began in 1987. The incineration of 102,000 tons of soils and the treatment of 53.6 million gallons of contaminated water was completed in September 1990. Closure activities and revegetation of the site were completed during the fourth quarter of 1990.

A 1989 analysis indicated that the explosives-contaminated ground water had migrated off the southern boundary; however subsequent sampling episodes did not indicate any contamination. To ensure that drinking water sources on and off the installation were free of contaminants, two 6-month drinking water monitoring programs were completed between 1989 and 1991. Monitoring of these 16 drinking water wells will continue.

Luke Air Force Base

Glendale, Arizona

(54)

Service: Air Force

Size: 4,198 Acres

HRS Score: 37.93

Base Mission: Advanced fighter training

IAG Status: Pre-ROD IAG signed September 27, 1990

Action Dates: PA/SI completed 1985; RI/FS initiated 1986; Placed on NPL 1990

Contaminants: Petroleum/oil/lubricants, VOCs

Funding to Date: \$13.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

Luke AFB is located in the Sonoran Desert and rests on a broad alluvium-filled valley within the western portion of the Phoenix Basin. The PA/SI conducted in 1982 identified a number of potentially contaminated areas, including five sites where hazardous wastes were disposed. These five sites were subsequently investigated in 1983 and 1986 as part of the IRP. Additional sites were later identified by the base during a supplemental SI.

Remedial Investigation/ Feasibility Study (RI/FS)

Two old fire training sites in bermed areas were used to simulate aircraft fire by burning POL wastes. Soil borings taken from beneath this site contained levels of oil and grease greater than 100 ppm TPH. These findings prompted a pre-design treatability study to determine the extent of contamination and gather the requisite information for conducting a soil vapor extraction pilot study and the subsequent removal action. Three ground water monitoring wells were installed, one presumed to be upgradient and two downgradient. The water table was measured at 360 feet below ground surface and no significant contaminants were detected. In addition, the Waste Treatment Annex Landfill was discovered eroding from the banks. An inspection of the landfill was conducted and stabilization action was executed in March 1991. 1992 finishes up the major RI work at Luke AFB with the final RI document due November 15, 1992.

Remedial Design/ Remedial Action (RD/RA)

IRAs to date include the removal of contaminated soil and USTs at a JP-4 fuel storage site. The USTs were removed and the area was clay-capped and monitoring wells installed. In addition, the leaking UST at the base service station was removed. Another IRA in progress is a soil vapor extraction for the North Fire Training Area. A treatability study was completed for this site in January 1991. In 1993, a multi-site RD/IRA program will begin the major contamination cleanup process at Luke AFB.

March Air Force Base Riverside, California

(55)

Service: Air Force

Size: 7,123 Acres

HRS Score: 31.94

Base Mission: Aircraft maintenance and repair; Refueling operations; Training activities

IAG Status: Pre-ROD IAG signed September 1990

Action Dates: PA/SI completed 1984; RI/FS initiated 1986; Placed on NPL 1989

Contaminants: VOCs, heavy metals

Funding to Date: \$25.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

Soils on March AFB are contaminated with organics and metals. Primary ground water contaminants are TCE and perchloroethylene (PCE). March is adjacent to light industrial, agricultural, and residential areas and contamination may potentially affect an estimated 60,000 people.

The Air Force investigated 43 potentially contaminated sites. The sites included three fire training areas, seven inactive landfills, underground solvent storage tanks, an engine test cell, and spills. Significant contamination was found at seven of the 43 sites. Three regions of ground water contamination beneath the base have been identified.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS status report, completed in 1991, divided March's sites into three OUs. RI/FS efforts are presently underway at all three OUs. On-base Well No. 1 (OU1) was contaminated with the highest

levels of TCE and trans-1,2-dichloroethylene, which exceed state drinking water standards and was taken out of service. The contamination has migrated to five private drinking water wells and the base began supplying bottled water to the affected residents in 1986. The Air Force then contracted the local water company to extend its water mains to the homes with contaminated wells. Activities will continue in the three OUs according to the basewide work plan developed under the requirements of the Pre-ROD IAG. No Further Remedial Actions Planned RODs for all three OUs are expected by 1995.

Remedial Design/ Remedial Action (RD/RA)

Cleanup began in 1990 with the design of an IRA to extract floating petroleum product from the ground water table at the Panero Hydrant Fueling System. To date, 8,500 gallons of JP-4 has been recycled and sold. In-depth RD/RA activities in 1990 included the removal of the Panero Hydrant Fueling System and the treatment of over 11,000 cubic yards of contaminated soil. The

effort was completed in February 1992.

The construction of the Ground Water Extraction Treatment System (GETS) was initiated in 1990. The GETS is designed to prevent further migration of contaminated ground water off-base by using a carbon absorption system connected to extraction wells along the eastern boundary of the installation. Long-term operation of the system began in 1992.

Planned RD/RA activities for 1993 include further treatment of contaminated soil and removal of petroleum product at Panero, designs and remediations at the Swimming Pool and Engine Test Cell areas and continuation of the long-term Ground Water Monitoring Program.

Mather Air Force Base

Sacramento, California

(56)

Service: Air Force

Size: 5,934 Acres

HRS Score: 28.90

Base Mission: Electronic Warfare Officer Training; Navigator Training (Scheduled for closure)

IAG Status: Pre-ROD IAG signed 1989 with EPA and State of California

Action Dates: PA completed 1982; RI/FS initiated 1984; Placed on NPL 1989; SI completed 1990; Closure scheduled for September 30, 1993

Contaminants: Solvents, cleaners, VOCs, plating wastes

Funding to Date: \$33.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

Water quality analyses of drinking water in wells on and near the base indicate the presence of TCE and other solvents in the shallow ground water system. In 1979, drinking water contamination was first discovered when sampling from the production well at the Aircraft Control and Warning (AC&W) area confirmed the presence of TCE. To date, ground water contamination has been confirmed at the AC&W Site, the 7100 Area (southwestern corner of the base), and the West Ditch (western border of the base). Both the 7100 Area and West Ditch are suspected of causing off-base contamination.

Remedial Investigation/ Feasibility Study (RI/FS)

The IRP at Mather AFB is currently being conducted at the AC&W Sites, the Group 2 Sites and the Group 3 Sites. The RI at the AC&W Sites was completed in March 1991, with the FS completed in July 1991. The FS report recommended ground water remediation at the site. A draft Record of Decision (ROD) for the AC&W Sites is currently in dispute resolution.

The RI and the FS included in the Group 2 Sites is underway, with the draft reports due in late 1992. It is anticipated many of these sites will not require remediation, but extensive ground water contamination in three areas of the base will likely require ground water removal and treatment.

The RI at the Group 3 Sites has begun, with a draft report due in early 1993. The sites consist mainly of oil/water separators and are expected to require limited if any remediation.

Remedial Design/ Remedial Action (RD/RA)

Bottled water was provided to off-base residents in 1986 while construction of a water line could be completed from the base water supply to the affected residents. In 1989, six residences and a 33-unit trailer park were connected to a local municipal water main.

While the level of treatment for the effluent from the pump and treat system for the TCE-contaminated ground water is in dispute, remedial design at the AC&W Site is in progress. Once the ROD is signed, a site remediation schedule will be negotiated and included in the pre-ROD IAG. It is expected that construction at the site will be complete in 1993, with treatment of the ground water continuing for at least seven years.

Remedial actions will be required at several other sites. Schedules for remediation will be negotiated after the RODs are signed.

McChord Air Force Base (Wash Rack/Treatment Area—WTA) (American Lake Garden Tract—ALGT) Tacoma, Washington

(57)

Service: Air Force

Size: 4,616 Acres

HRS Score: WTA - 42.24
ALGT - 31.94

Base Mission: Airlift services to troops, cargo, equipment, passengers, and mail

IAG Status: ALGT signed September 1991; WTA signed September 1992

Action Dates: PA completed 1982; SI completed 1986; ALGT RI/FS completed 1991; WTA RI/FS initiated 1990; Two-party Agreement with State signed July 1991 for 29 non-NPL sites to confirm NFRAP decision

Contaminants: ALGT - Chlorinated solvents; WTA - Fuel constituents; Non-NPL - Fuel, hydraulic fluid, oils, solvents, paints, acids, pesticides, metals

Funding to Date: \$9.4 million

Preliminary Assessment/ Site Inspection (PA/SI)

Almost 500,000 gallons of hazardous substances have been used and disposed of on-base.

The PA identified 62 sites and recommended further action at 34 of them. SIs identified shallow aquifer contamination. The base, and over 10,000 people within three miles of the base, depend upon the aquifers for their drinking water.

The current sites register has grown to 65: 29 Model Toxics Control Act sites, 4 additional NFRAP confirmational sampling sites, a total of 3 IRP sites in the 2 NPL areas, 23 non-NPL NFRAP sites, and 6 NPL NFRAP sites.

The PA/SI for ALGT and WTA was completed in 1986.

Remedial Investigation/ Feasibility Study (RI/FS)

The ALGT RI/FS was initiated in 1987 and completed in 1991. Concentrations ranging from non-detect to 88 ppb of trichloroethylene (MCL 5 ppb) migrated in the shallow aquifer to the north and west into the off-base ALGT.

The WTA RI/FS was initiated in 1990 and completed in 1992. The FS addressed the removal of floating fuel from the shallow water table. A ROD to begin removing the fuel was signed September 1992. Sampling indicates the fuel is not moving.

Remedial Design/ Remedial Action (RD/RA)

The base agreed to extend the Lakewood Water District to ALGT in 1986. The hookups to the potable water system have been contracted out and work will commence in 1993. Since 1986, some private home owners have taken the initiative to hookup themselves. They are being reimbursed as the requests are made. In 1992, extraction wells and pump tests were conducted. Ground water pump and treat activities will begin in 1993.

RD of a 5-year passive fuel skimming system for the WTA will be completed in 1993 with RA to commence thereafter.

McClellan Air Force Base Sacramento, California

(58)

Service: Air Force

Size: 2,950 Acres

HRS Score: 57.93

Base Mission: Logistics for aircraft, missiles, space, and electronics programs

IAG Status: Pre-ROD IAG signed 1990 with EPA and State of California

Action Dates: Initial PA/SI completed 1981; RI/FS initiated 1984; Placed on NPL 1987; Additional on-going

Contaminants: Organic solvents, metal plating wastes, caustic cleaners/degreasers, paints, waste lubricants, photochemicals, phenols, chloroform, spent acids and bases, PCB-contaminated oils

Funding to Date: \$81.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

After a 1979 Air Force study detected ground water contamination, two on-base and three off-base wells were closed. Contamination has since been found in a number of off-base wells, including a municipal well. Approximately 23,000 people in the area depend on the ground water for domestic and agricultural use. A PA/SI conducted in 1981 identified 46 sites. An additional 131 Areas of Concern (AOC) have been identified, bringing the total to 177 sites. A PA/SI for an additional 81 AOCs is being conducted. The soil and ground water contamination at McClellan AFB are primarily the result of chemical releases from disposal of liquid, sludges, and solid wastes; discharges and accidental spills at various industrial activities and storage areas; and leakage from sumps, underground storage tanks, and industrial waste lines.

Remedial Investigation/ Feasibility Study (RI/FS)

As a management solution for the efficient implementation of the RI/FS, the sites were grouped into 11 OUs. A CERCLA work plan was developed to implement the RI/FS at each operable unit. The RI/FS for the entire base is expected to be completed by the year 2002. RI work is underway in OUs A, B, C, and C-1. In addition to soil OUs, basewide ground water has been identified as separate OUs. Ground water contamination is primarily in the shallow aquifer 120 feet below ground surface, but has migrated to 390 feet in depth at some locations. An RI/FS of ground water OUs is underway.

Remedial Design/ Remedial Action (RD/RA)

The Air Force provided approximately 348 residents with hookups to an alternate water source and a carbon filtration system has been installed for Base Well #18. A ground water extraction system has been installed and 11 sites have been capped in OU D. A ground water treatment plant (GWTP) was brought on-line in 1987 to treat the water. An extraction system was installed in OU C and connected to the GWTP. In 1991, an expedited action was completed near the old Building Site 666 to contain a ground water plume and prevent future degradation of a base water supply well located on the southwest edge of the base. An additional ground water extraction system was installed on the southwest edge of the base during 1992. A SVE System was installed in 1992. Several innovative treatability studies have been initiated.

Milan Army Ammunition Plant

Milan, Tennessee

(59)

Service: Army

Size: 22,436 Acres

HRS Score: 58.15

Base Mission: Load-Assemble-Pack, ship, and demilitarize explosive ordnance

IAG Status: Pre-ROD IAG signed 1989

Action Dates: PA/SI completed 1978; Placed on NPL 1987; RI/FS initiated 1987

Contaminants: Munitions-related wastes, heavy metals, organic solvents, paints, thinners, acids

Funding to Date: \$8.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Milan Army Ammunition Plant (MAAP) is a GOCO facility owned by the government and operated by Martin Marietta. MAAP presently employs 1,600 people.

A PA/SI concluded that the demolition areas, wastewater lagoons, burning grounds, draining ditches, and streams were contaminated with explosive wastes in addition to zinc, chromium, iron, sulfates, and phosphates. Of 11 MAAP water supply wells sampled in November 1978, explosive contaminants were found in three wells near the O-Line Lagoon area. These three wells subsequently were taken out of service.

Remedial Investigation/ Feasibility Study (RI/FS)

A two-phase survey completed in 1983 concluded that MAAP ground and surface waters were contaminated with TNT, DNT, and RDX. Contamination was moving toward the plant boundaries; ground and surface waters at the instal-

lation boundaries contained mercury at levels exceeding Federal EPA water quality criteria. Ground and surface waters within MAAP contained lead and chromium, but migration studies were inconclusive. The major sources of contamination identified were the O-Line Lagoons, the explosives-burning ground, the ammunition destruction area, explosive load lines, and drainage ditches associated with these areas. Sampling and analysis of existing wells continue. A formal RI/FS process for the O-Line Lagoons was initiated in 1988. A contract to perform an RI at the O-Line Lagoons, the Open Burning Grounds, and 17 other SWMUs was awarded in April 1989 and completed in July 1991. The RI Report was approved in December 1991. RDX was detected in the Milan City wells in May 1991 at levels below 2 ppb. Follow-on RI work began in May 1992 to determine the source and nature of the ground water contamination related to the northern effluent ditches.

The December 1991 RI Report recommended several sites for no further action. Due to health risks, it also recommended that an FS be

conducted on the O-line Ponds. The O-line Ponds were separated into two OUs. OU1 is the ground water and OU2 is the soils encompassed by the ponds. An interim ROD was signed in September 1992, implementing the use of a pump, treat, and reinjection system incorporating an innovative treatment technology (UV oxidation) for the permanent destruction of explosives contained within ground water. The ROD for OU2 is scheduled for mid-1993.

Remedial Design/ Remedial Action (RD/RA)

The O-Line Lagoons were capped and seeded with grass in December 1984. Additional wells to monitor leaching of contaminants into ground water have been installed. Post-closure maintenance of grounds and fences continues. RD for OU1 will be completed in 1993.

Minneapolis-St. Paul Air Reserve Base (60)

(Small Arms Range Landfill)

Minneapolis, Minnesota

Service: Air Force

Size: 280 Acres

HRS Score: 33.70 (1 site only, Small Arms Range Landfill)

Base Mission: Tactical Airlift

IAG Status: Pre-ROD IAG signed by the Air Force and EPA Region V November 6, 1989; Public comment period completed January 1990

Action Dates: PA completed 1983; SI completed April 1986; Placed on NPL 1987; RI completed July 1990; FS completed June 1991

Contaminants: Oil/petroleum/lubricants, spent solvents and cleaners, battery acid, strippers, painting wastes (containing metals such as chromium), PCB-contaminated oils, chlorinated hydrocarbons

Funding to Date: \$2.7 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Small Arms Range Landfill is located on non-contiguous property two miles from the main base, and was the primary solid waste disposal site for the base from 1963 to 1972. The landfill contains primarily general refuse, but industrial waste products may have been buried or burned in this landfill. These products include paint thinners and removers, paint, primers, lacquers, paint filters containing chromium paint residue, and 100 to 200 gallons of leaded fuel sludge. This landfill is approximately three acres, and is located within the 100-year flood plain of the Minnesota River. The Minnesota River last flooded its banks in 1965. The northern boundary of the Minnesota Valley National Wildlife Refuge lies 500 feet from the landfill. Approximately 64,700 people depend on public and private wells

for drinking water within a 3-mile area of the landfill.

The other sites identified on the installation include a landfill, fuel spills, sludge burial pits, a hazardous waste drum storage area, a battery shop leaching pit, a UST, and a ground water plume of AVGAS beneath the Past Fuel Site.

Remedial Investigation/ Feasibility Study (RI/FS)

The Proposed Plan for the Small Arms Range Landfill was completed in August 1991. The public meeting for this site was held on September 5, 1991. Ground water investigation results taken from the 12 monitoring wells around the site detected low concentrations of a few compounds. During the first round of ground water sampling, only TCE was detected above federal MCLs in the upgradient well, which suggests an off-base source. Also detected was the organic com-

pound bis(2-ethylhexyl)phthalate, which was slightly above the Minnesota Recommended Allowable Limit (RAL) in one sample.

Remedial Design/ Remedial Action (RD/RA)

The chosen remedial alternative for the NPL site is natural attenuation with ground water and surface water monitoring, maintenance of the landfill cover, and site access restriction. EPA will be counting the NPL site as "cleaned up" even though the ROD requires two more years of ground water monitoring.

Moffett Naval Air Station

Sunnyvale, California

(61)

Service: Navy

Size: 3,919 Acres

HRS Score: 29.49

Base Mission: Training for air/patrol squadrons and antisubmarine warfare; Headquarters for Commander Patrol Wings of Pacific Fleet (Scheduled for closure)

IAG Status: Pre-ROD IAG signed ~~1989~~; Amended in 1990 with EPA and State of California

Action Dates: PA completed 1984; Placed on NPL 1987; RI/FS initiated 1988; SI completed 1989; RI scheduled for completion 1992

Contaminants: Metal plating wastes, PCBs, waste oil and fuels, painting residues, organic solvents, caustics, coolants, pesticides, asbestos, freon, dyes

Funding to Date: \$34.5 million

Preliminary Assessment/ Site Inspection (PA/SI)

An Initial Assessment Study (equivalent to a PA) was completed in April 1984 for both Moffett Field Naval Air Station and Naval Auxiliary Landing Field Crows Landing. A total of 13 sites were identified during the IAS, 9 of which were located at Moffett Field. Of these nine sites (Sites 01-09), all but the Golf Course Land-fill (Site 02) were recommended for further investigation. In December 1990, the Department of the Navy identified an additional 10 sites (Sites 10-19) at Moffett Field NAS. No PA was conducted; however, sampling data from other sources were available and no PA or SI was deemed necessary. A PA investigation is currently underway at all buildings at the installation that are likely to have generated or handled hazardous wastes.

A PRP site is located just south of, but not on, the Moffett Field NAS installation. The Department of the Navy is not a named PRP or

a signator on the ROD; however, the Navy is bound by the terms of the ROD. The PRP examined two sites at Moffett Field NAS as "inferred sources" of their ground water contamination.

Remedial Investigation/ Feasibility Study (RI/FS)

Nineteen sites currently are being investigated under an RI/FS, including nine identified in the PA/SI and 10 additional sites incorporated as a result of a Cease and Desist Order to Moffett Field by the California Regional Water Quality Control Board. RI/FS work plans were finalized in March and April 1988. The RI has been conducted in two phases. Phase I of the RI started in May 1988 and Phase II began in November 1989. Upon completion of Phase I, sites that have been sufficiently characterized and require no additional Phase II work will be evaluated so that OU RAs can be conducted.

The site has been divided into six operable units to facilitate faster

cleanup. OU4 has since been eliminated.

Remedial Design/ Remedial Action (RD/RA)

A removal action to address leaking tanks and sumps was initiated in 1990. The evaluation and closure of abandoned wells that may be potential conduits for subsurface contamination also were initiated in 1990 and completed in 1992. A pump-and-treat system was completed for Site 14 in December 1992 and is currently in operation. A concrete bioremediation pad will be completed in January 1993 and bioremediation of Site 12 soil will begin shortly thereafter.

Mountain Home Air Force Base

Mountain Home, Idaho

(62)

Service: Air Force

Size: 9 Square Miles

HRS Score: 57.80

Base Mission: Air Combat Command; 366th Wing, with KC-135, F-15C, F-15E, F-16C, EF-111, and B-52 aircraft

IAG Status: Pre-ROD IAG signed January 1992

Action Dates: RI/FS initiated 1985; Placed on NPL 1990; PA/SI completed 1986

Contaminants: VOCs, petroleum/oil/lubricants, heavy metals

Funding to Date: \$4.2 million

Preliminary Assessment/ Site Inspection (PA/SI)

Hazardous materials and wastes have been used and generated at Mountain Home for aircraft maintenance and industrial operations. Prior to 1969, base wastes were disposed of by several then-accepted methods, including incineration and landfilling of solid wastes, discharge of liquid wastes to sanitary sewers, and the use of waste oil for road oiling. The area around the base is primarily agricultural, and wells supporting 6,000 people and land irrigation are three miles from hazardous substances on base.

During the PA/SI, the Air Force identified potentially contaminated areas where POL products, solvents, and pesticides were disposed. These sites subsequently were investigated in 1985 and a supplemental SI was conducted in 1988 as part of the IRP.

Remedial Investigation/ Feasibility Study (RI/FS)

RI field studies were conducted in 1985 and 1988. The lagoon landfill, where general refuse and POL products were disposed of between 1952 and 1956, is currently the site for the base wastewater lagoon. Monitoring wells installed near the center of the landfill detected lead and cadmium (below MCLs) in the ground water. In 1988, soil, surface, and ground water samples were collected and analyzed for metals, volatile and semi-volatile organics, and total petroleum hydrocarbons. Any compounds detected within these media were within MCLs for drinking water. To determine whether any contaminants have reached the interlayers between the lagoon and the water table, monitoring wells have been installed and sampled.

Waste oils, fly ash, solvents, jet fuel, tank cleaning sludge, and possibly 20 drums of DDT were placed in trenches within the landfill and burned or covered with fill. Soil and ground water samples were analyzed for metals, organics, and

petroleum hydrocarbons. Organics and petroleum hydrocarbons were detected in shallow soil samples, but no vertical migration was evident in soils or ground water. Additional efforts have been made to locate and sample additional disposal trenches, including the DDT drums. An FS to evaluate remedial action alternatives for the fire training area will be finalized in 1993. The USGS is conducting a ground water study in support of the RI/FS to assist with the characterization of the complex ground water system.

Remedial Design/ Remedial Action (RD/RA)

The removal action at the low-level radioactive waste disposal site was initiated in 1992 to reduce the threat of contaminant migration.

New London Submarine Base Groton, Connecticut

(63)

Service: Navy

Size: 547 Acres

HRS Score: 36.53

Base Mission: Homeporting submarines; Submarine intermediate maintenance and repairs; Submarine training; Submarine medical research

IAG Status: Initiated and expected to be signed in 1992

Action Dates: IAS completed 1983; RI/FS field plan completed 1990; Placed on NFL August 1990

Contaminants: Pesticides, fuel oil, construction rubble, spent acids, incinerator ash, solvents, paints, PCBs

Funding to Date: \$2.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Initial Assessment Study (IAS) was completed in 1982. Of the 16 potentially contaminated sites studied, 3 sites (2, 3, and 6) were recommended for further investigation. A Verification Study (VS) was completed in December 1984 for Sites 2, 3, and 6. Additional characterization was recommended for all three sites. An SI was completed on seven sites (1, 4, 7, 8, 14, 15, and 18) in August 1992. An extended SI was recommended for Sites 1 and 14 and corrective action for Site 18 under the UST program. No further action is expected for Sites 1 and 14. Three additional sites (13B, 13C, and 13D) were discovered and added to the program. The SI work plan for Sites 13B, 13C, and 13D has been completed and the field work is expected to begin in 1993. Potential contaminant migration represents a threat to the Thames River, a fishing source and recreational area.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI was conducted on four sites (2, 3, 6, and 13) and the final RI report was completed in August 1992. A draft RI work plan to perform an extended RI at these sites and an initial RI at Sites 4, 7, 8, and 15 is under review. The FS for the eight sites is expected to be completed in 1996. The RI/FS for the three new sites (Sites 13B, 13C, and 13D) is expected to be completed in 1997.

A Technical Review Committee (TRC) was formed in 1989 and meetings are held periodically.

Remedial Design/ Remedial Action (RD/RA)

RD/RA work will begin upon completion of the RI/FS and is expected to continue over the next several years.

A removal action was completed in 1991 for Site 8 and consisted of disposing of 19 gas cylinders.

Newport Naval Education & Training Center

Newport, Rhode Island

(64)

Service: Navy

Size: 1,400 Acres

HRS Score: 32.25

Base Mission: Logistics support; Training center

IAG Status: Pre-ROD IAG signed in March 23, 1992; effective date July 8, 1992

Action Dates: PA/SI completed 1984; RI/FS initiated 1988; Placed on NPL November 1989; RI Phase I completed 1992

Contaminants: Paints, oils, spent acids, solvents, PCB-contaminated soil

Funding to Date: \$3.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

Migration of contaminants pose a potential threat to the underlying aquifer. Surface drainage and ground water from potentially contaminated sites flow directly into the Narragansett Bay. Such potential contamination could adversely affect shellfish harvested for human consumption.

A PA/SI identified 18 potentially contaminated sites. Nine sites exhibited sufficient evidence to warrant further studies.

In November 1989, Newport NETC was listed on the National Priorities List (NPL) with a score of 32.25.

Remedial Investigation/ Feasibility Study (RI/FS)

Twenty-two TRC meetings have been held since April 1988. In July 1990, the community relations plan was issued for Newport NETC. Field work for the RI/FS Phase I work plan was completed in November 1990. The draft RI report was completed in November 1991 and is undergoing TRC review.

The three party (Navy, EPA, and RIDEM) Federal Facilities Agreement (FFA) was signed March 23, 1992 and became effective after public review on July 8, 1992. The FFA determined that 10 sites were under the Navy's IR program and 8 sites belong under FUDS program. Currently, four sites are included in the RI Phase II work plan, six are included in the SASE work plan per the FFA, and one of the FUDS (Melville North Landfill) is undergoing RI Phase II work plan finalization. The Navy is continuing with its lead agency role at Melville North Landfill. Draft SASE work

plan completed July 1992. Draft RI Phase II work plan completed October 1992. Draft Phase II RI work plan for Melville North Landfill completed October 1992.

Remedial Design/ Remedial Action (RD/RA)

Final Record of Decision (ROD) for an Interim Remedial Action (IRA) at Tanks 53 and 56 at Tank Farm Five, Newport NETC, RI was completed and signed on September 29, 1992. Remedial Design was negotiated and design began in November 1992. Oily soil piles Removal Action (RA) at Melville North Landfill is expected to begin January 1992.

Norton Air Force Base

San Bernardino, California

(65)

Service: Air Force

Size: 2,003 Acres

HRS Score: 39.65

Base Mission: C-141 Airlift (Scheduled for closure)

IAG Status: Pre-ROD IAG signed 1989

Action Dates: PA/SI completed 1982; RI/FS initiated 1986; Scheduled for completion November 1993; Placed on NPL 1987; Closure scheduled for March 1994

Contaminants: Waste oils and fuels, solvents, paint strippers and residues, refrigerants, acidic plating solutions, metal plating residues

Funding to Date: \$25.8 million

Preliminary Assessment/ Site Inspection (PA/SI)

A PA/SI identified several sites of potential contaminant migration. Sites targeted for an RI/FS included two landfills, six discharge areas, four chemical pits, a fire training area, a fuel spill area, a PCB spill area, a chemical spill area, two waste storage areas, an UST area, and a low-level radioactive waste burial site. After additional study, two more sites were identified in 1987.

Remedial Investigation/ Feasibility Study (RI/FS)

Initial investigations found that soils at several sites were contaminated with solvents, fuel derivatives, and metals. An IAG between the installation and the regulatory community was signed as required by CERCLA. Deadlines for meeting critical milestones toward final remediation have been established and coordinated with EPA and the state. An RI/FS effort is underway to characterize all sites, with completion scheduled for December 1993. In addition, a comprehensive RI/FS work plan (strategy plan) has been developed. A draft RI/FS work plan was submitted to EPA and the state for review prior to finalization in 1990. A comprehensive ground water plan also was provided.

Remedial Design/ Remedial Action (RD/RA)

Installation of a ground water pump-and-treat system is planned to remediate TCE contamination in the central portion of Norton AFB and prevent further TCE migration. In 1989, a total of 26 USTs were removed. Removal of underground storage tanks and surrounding contaminated soils continues.

Ogden Defense Depot

Ogden, Utah

(66)

Service: Defense Logistics Agency

Size: 1,139 Acres

HRS Score: 45.10

Base Mission: Electronic equipment, industrial construction equipment, textiles, package petroleum, and industrial/commercial chemicals distribution

IAG Status: Pre-ROD IAG signed 1989

Action Dates: PA/SI completed 1980; Placed on NPL 1987; RI/FS completed 1991; ROD OU #2 signed 1990; ROD OU #1, #3, #4 signed 1992; RA pump/treat/air strip started 1992; RD OU #1, #3, #4 initiated 1992

Contaminants: Solvents, paint/paint residues, petroleum/oil/lubricants, insecticides, chemical warfare agents (mustard and phosgene gas training kits), methyl bromide, metal plating wastes/sludges, PCB-transformer oils, degreasers, acids and bases, sand-blast residues

Funding to Date: \$11.2 million

Preliminary Assessment/ Site Inspection (PA/SI)

A PA/SI identified 44 sites as potential contaminant migration sources. The PA/SI has been completed for all 44 sites. Twenty-two were studied further under the RI/FS. These 22 sites were divided into four Operable Units (OUs) and nine contamination study areas.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS was initiated in September 1987 when ground water monitoring wells were installed and soil borings were taken at 17 locations. Sampling of soil and ground water has confirmed concentrations of benzene, TCE, vinyl chloride, trans-1,2-DCE, cis-1,2-DCE, methylene chloride, chlordane, zinc, cadmium, barium, toluene, tetrachloroethene, and chromium above the established federal MCLs. Ground water contamination has been limited to the shallow aquifer because of the current geological conditions at the site. The FFA identifies four OUs. RI/FS reports were completed for all OUs during 1991 and contamination site study areas. All 22 sites have completed the RI/FS phase. All RODs have been approved during 1992. Five private wells of nearby land owners were tested for contamination during

1992. All wells meet national drinking water standards. A public health assessment completed in 1992 concluded that Ogden poses no apparent public health hazard.

Remedial Design/ Remedial Action (RD/RA)

Vials of mustard agents and irritant grenades were removed from disposal pits in June 1988. During 1992, contaminated soil at OU2 was removed to ground water level and incinerated. RA action pump, treat, and air strip began at OU2 during 1992. RDs are expected to be completed by June 1993 for the other OUs. RA construction is expected to be ongoing by September 1993.

Otis Air National Guard Base/ Camp Edwards Falmouth, Massachusetts

(67)

Service: Air Force

Size: 22,000 Acres

HRS Score: 45.92

Base Mission: Provide Army and Air National Guard training, East Coast Air Defense, and Coast Guard Air/Sea Rescue

IAG Status: Pre-ROD IAG signed July 1991

Action Dates: Placed on NPL 1989

Contaminants: Waste solvents, emulsifiers, penetrants, photographic chemicals, VOCs

Funding to Date: \$23.5 million

Preliminary Assessment/ Site Inspection (PA/SI)

A PA completed in December 1986 by the Air National Guard (ANG) identified 73 areas of concern (AOCs). Nineteen AOCs have been determined to require no further action and have had Decision Documents issued. Four AOCs are undergoing additional investigation. Since the conclusion of the PA, four additional AOCs have been identified and are in various stages of the investigative process.

Remedial Investigation/ Feasibility Study (RI/FS)

In 1992, 14 RI/FSs were underway. One area of concern is the southeast region where four ground water plumes of contamination emanate from the base. Some private wells showed contamination and have since been placed on town water. This area is just upgradient from two recreational ponds. Due to public concerns over the safety of the ponds, the NGB has been samp-

ling the two ponds since July 1991. All sampling results to date have demonstrated that the water is safe for swimming. Fish sampling conducted in May 1992 by the Massachusetts Department of Environmental Protection showed no contamination. Sediment sampling conducted by the NGB has also showed no contamination. The first phase of the comprehensive testing of both ponds begins in October 1992 with fish sampling. In addition to the work to be conducted in the ponds, full delineation of the ground water plumes in that area is set to begin in November 1992.

Recent investigations to identify and evaluate sump structures have been accomplished. Over 200 sump structures were characterized during late 1991 and the first two quarters of 1992. Several are likely candidates for future remediation.

Remedial Design/ Remedial Action (RD/RA)

The National Guard Base (NGB) conducted a "time-critical" removal action of four sump structures in 1990. Contaminated liquids and sediments were removed and sealed in metal drums for eventual disposition through the Defense Reutilization and Marketing Office.

An additional cleanup project involves pumping and treating contaminated ground water from a ground water plume which is presently located in the Crane Wildlife Management area of Falmouth. This project will protect downgradient public and private water supplies. The ground water treatment is scheduled for five years while an upgradient plume is fully identified and a decision is made on remediating that plume. The CS-4 plume containment project was the first federal facility ROD between DoD and EPA Region I.

Pearl Harbor Naval Complex

Pearl Harbor, Hawaii

(68)

Service: Navy

Size: 6,300 Acres

HRS Score: 70.82

Base Mission: Serve as area commander in coordinating resources to provide facilities, services, and materials in support of the U.S. Pacific Fleet

IAG Status: IAG not yet initiated

Action Dates: PA completed 1983; RI/FS initiated 1991; Listed on the NPL **October 1992**

Contaminants: Waste oils, pesticides, heavy metals, PCBs, solvents

Funding to Date: \$19.2 million

Preliminary Assessment/ Site Inspection (PA/SI)

A PA conducted in 1983 identified 31 potential sources of hazardous substances. Since then, additional sources have been identified. The Complex currently has 22 sites requiring further action. Most sites are located close to Pearl Harbor shoreline waters. Some sites are located near drinking water wells and wetlands. The potential exists for migration of contaminants to receptors or resources of concern.

Remedial Investigation/ Feasibility Study (RI/FS)

The proposed listing of Pearl Harbor Naval Complex on the NPL was based on the aggregate scoring of six sites within the area: Pearl City Peninsula Landfill, Former Gyro Shop, PCB Disposal Storm Drain at Building 68, Pickling Shop Waste Disposal, Makalapa Pesticide Rinseate Pit, and A... Laundry Shop. All sites are not contiguous. The activities affected by the proposed NPL action include Shipyard

Pearl Harbor, Public Works Center Pearl Harbor, Submarine Base Pearl Harbor, Naval Station Pearl Harbor, Naval Supply Center Pearl Harbor, and Inactive Ships Detachment Pearl Harbor.

A RI/FS was initiated in September 1991 at some of the higher priority sites. Other sites will be investigated as funds become available and requirements are negotiated with EPA and the State. Integration of RCRA and underground storage tank requirements with the NPL action is anticipated. Operable units will probably be established to manage the investigation and cleanups. A Technical Review Committee has been established and convened to review actions at the sites. A regional community relations plan has been completed. The Navy anticipates that an FFA will be initiated in 1992. More details concerning the implications of the NPL action will be established during FFA negotiations.

Remedial Design/ Remedial Action (RD/RA)

While the RI/FS is in progress, removal actions will be undertaken when appropriate to expedite the cleanups. In 1992, two removal actions were implemented. Approximately 954 cubic yards of PCB contaminated soils were excavated and disposed of at an open storage area. Approximately 250 gallons of free-floating fuel product were recovered from the ground water in a 45-day period pilot study. Plans and specifications for another removal action were completed in 1992 and will be awarded in early FY 93. This removal action will include the excavation and disposal of solvent-contaminated soil. Initiation of RD/RA at some sites is expected in 1994.

Pease Air Force Base

Portsmouth/Newington, New Hampshire

(69)

Service: Air Force

Size: 4,365 Acres

HRS Score: 39.42

Base Mission: Aircraft maintenance (scheduled for closure)

IAG Status: Pre-ROD IAG signed 1991

Action Dates: PA/SI completed 1986; RI/FS initiated 1987; Scheduled for completion September 1993; Placed on NPL April 1991; Closed March 31, 1991

Contaminants: Organic solvents, pesticides, paint strippers, petroleum products

Funding to Date: \$52.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

The area around Pease AFB is commercial/residential. The base abuts a tidal estuary called Great Bay that leads to Little Bay three miles downstream. This is used for both shellfishing and recreational activities. Both coastal and fresh water wetlands are along surface water migration pathways from the base. An estimated 9,000 people obtain drinking water from public and private wells within three miles of the base.

A PA conducted in 1986 identified 18 potentially contaminated sites including 7 landfills, 2 fire training areas, and 9 liquid waste disposal areas. A second PA, conducted in 1990 to satisfy IAG requirements, identified 13 additional potentially contaminated sites out of 14 studied. One of these sites, Landfill 3, showed no evidence of contamination. Currently, there is a total of 42 potentially contaminated sites identified.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS was initiated in September 1987. Traces of heptachlor and lindane were found in surface waters that drain one of the landfills. Lead and zinc were found in sediments of three major drainage ditches.

Additional RI/FS work is currently underway. The RI/FS for all sites will be completed by the end of 1993.

Remedial Design/ Remedial Action (RD/RA)

In 1984, an aeration system was installed to remove TCE from the base water supply. The system had been discontinued since TCE is no longer detectable.

Removal of EOD items such as spout flares and starter cartridges was completed in 1991. Soil removal actions were accomplished at three sites including the fire training pit. A drum removal was accomplished at another site.

Three pilot ground water treatment plants have been placed on the base to recover and treat known contaminated ground water. The first plant began operations in August 1990. A second plant became operational in February 1991 and a third plant was put into operation in March 1992.

Pensacola Naval Air Station

Pensacola, Florida

(70)

Service: Navy

Size: 5,874 Acres

HRS Score: 42.40

Base Mission: Flight training (Fixed-wing and rotary) (NADEP, formerly NARF)

IAG Status: Pre-ROD IAG signed October 1990

Action Dates: PA completed 1983; RI/FS initiated 1988; Placed on NPL 1990; SI scheduled for completion 1992

Contaminants: Ammonia, asbestos, cyanide, heavy metals (cadmium, chromium, lead, mercury, nickel, silver, zinc), paints, PCBs, pesticides, phenols, plating wastes, solvents (chlorinated and non-chlorinated)

Funding to Date: \$11.7 million

Preliminary Assessment/ Site Inspection (PA/SI)

An Initial Assessment Study (IAS), equivalent to a PA, for Naval Air Station Pensacola (NAS Pensacola) was completed in June 1983 for 29 sites. Sites 01, 11, 17, 21, 22, 27, and 29 were recommended for further study. A State/Department of the Navy meeting on 17 November 1983 added Sites 30-34 and recommended additional study at Sites 01, 02, 03, 09, 11, 15, 17, 19, 21-23, 26, 27, and 30-33. A Verification Study (phase of the Confirmation Study (CS)) was completed for Sites 01, 02, 03, 09, 11, 15, 17, 19, 22, 23, 26, 27, and 30-34 on 26 July 1984. The Verification Study proposed work at Sites 01, 11, 15, 26, 27, and 31-34. A subsequent Characterization (Phase III) Study was completed on 16 December 1985 which studied Sites 01, 11, 15, 19, 26, 27, and 31-34.

NAS Pensacola entered the National Priorities List (NPL) on 31 December 1989 with a score of 42.4. The Federal Facility Agree-

ment (FFA) was signed on 23 October 1990 and addresses additional sites which have been added to the list of potentially contaminated areas at this installation. The FFA includes Sites 01-18, 22, 24-36, and 38-42. An independent SI is currently being performed for Sites 40, 41, and 42, Bayou Grande Area, NASP Wetlands Area, and the Pensacola Bay Area. Sites 19-21, 23, and 37 are slated for future screening under the UST program. All other sites are expected to be in Record of Decision (ROD) status between July 1995 and September 1996.

Remedial Investigation/ Feasibility Study (RI/FS)

Sites 01-18, 22, 24-36, and 39-42 are currently in the RI/FS Phase which began in December 1988 and is expected to be complete in the FY 93/FY 94 timeframe. Remediation is expected to be recommended for most of these sites. Due to the existing hydrogeology, the area

appears to be conducive for contaminant migration through the soil and overland during periods of high rainfall. Migration of contaminants could impact shellfishing waters, and the benthic and intertidal areas.

A Technical Review Committee (TRC) was established and met in July 1991 to discuss the interim data reports on the first 10 sites. A TRC meeting was held in January 1992 to discuss the remaining Phase I draft work plans. Another TRC Meeting was held in September 1992 to discuss progress and the scoping of the three water sites.

Remedial Design/ Remedial Action (RD/RA)

An Interim ROD is expected in the near future for Sites 32, 33, and 35 to continue the pump and treat action that began in January 1987 for ground water contamination.

Plattsburgh Air Force Base

Plattsburgh, New York

(71)

Service: Air Force

Size: 4,795 Acres (3,440 acres are federally owned, and 1,430 acres are registered as easement tracks)

HRS Score: 30.34

Base Mission: The 380 ARW provides worldwide air refueling with KD-135A/Q aircraft and serves as host to tanker task force operations. The wing supports rapid force deployment to regional conflicts, and participates in multiservice special operations. It provides mobility support for contingency plans and supports the Single Integrated Operational Plan

IAG Status: Pre-ROD signed July 1991

Action Dates: Original PA/SI completed 1986; Supplemental PA initiated in 1992; SI for original PA was completed in 1989; RI/FS initiated in 1987 for 4 sites, RI/FS for remaining sites to begin in 1993; Placed on NPL 1990

Contaminants: Organic solvents, pesticides, fuel, Polychlorinated Biphenols (PCBs)

Funding to Date: \$17.4 million

Preliminary Assessment/ Site Inspection (PA/SI)

PA activities were initiated in April 1984. An IRP Phase I Records Search identified potential disposal/spill areas at Plattsburgh AFB. An SI was initiated in 1987 for 13 sites determined to require further action. The results of this study were published in the 1989 SI report. Through discoveries during the SI and various other sources, all of Plattsburgh's 25 sites were identified by 1990.

As a condition of the pre-ROD IAG, a Supplemental PA was accomplished in 1992. No other sites that would require investigation were identified. The Supplemental PA report will be finalized in 1993.

Remedial Investigation/ Feasibility Study (RI/FS)

RI/FS activities, initiated in 1991, are progressing at 14 sites. RIs for six sites will be initiated in 1993.

Remedial Design/ Remedial Action (RD/RA)

RD/RA activities for 1992 included the design and award of two landfill closure projects. RODs for the landfill projects were signed September 1992 by Plattsburgh AFB and EPA. Removal action projects have been designed in-house and awarded for 2 tank closures, a solvent-contaminated soil cleanup, and an old small arms range lead-contaminated soil cleanup. In addition, construction for the Fire Training Area free-product recovery facility is in progress.

Riverbank Army Ammunition Plant

Riverbank, California

(72)

Service: Army

Size: 172 Acres

HRS Score: 63.94

Base Mission: Grenade and projectile steel cartridge casings manufacture

IAG Status: Pre-ROD IAG signed April 1990

Action Dates: PA/SI completed 1980; RI/FS initiated 1981; Placed on NPL 1990

Contaminants: Cyanide, zinc, chromium wastes

Funding to Date: \$12.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Riverbank Army Ammunition Plant (RBAAP) is a GOCO facility currently employing approximately 150 persons. Past operations have contaminated the ground water beneath the plant with cyanide and chromium wastes and the off-post potable water supply used by approximately 70 residents.

A PA/SI identified potentially contaminated sites, including the IWTP, an abandoned landfill, and four evaporation/percolation (E/P) ponds located 1.5 miles north of the plant near the Stanislaus River.

Remedial Investigation/ Feasibility Study (RI/FS)

Chromium contamination has been traced to past operation of the IWTP. The abandoned landfill is the source of cyanide contaminants. Both chromium and cyanide have entered the ground water aquifers beneath the plant. Their migration off-post affects the potable domestic water supply. Sampling domestic supply wells off-post is conducted quarterly. The E/P ponds contain

zinc concentrations above California limits for surface impoundments. The RI report was conditionally approved in August 1991 pending completion of additional sampling at the landfill and IWTP off-load area. The additional sampling was conducted during August and September 1991 and documented in an RI Report addendum in January 1992 that was approved in February 1992. FS efforts were initiated in November 1991 and are currently entering the dispute resolution process. California Regional Water Quality Control Board is disputing a no action alternative at the former landfill proposed by the Army based on data which show the landfill spills no longer pose a threat to human health or the environment.

Remedial Design/ Remedial Action (RD/RA)

In response to finding chromium contamination above state limits, off-post domestic supply wells at five residences were replaced with deeper wells. Construction of an interim ground water treatment system was completed in December 1990 and was placed under 24-hour

operation in September 1991. The system is achieving a 99 percent removal of hexavalent chromium and cyanide.

Remedial measures initially scheduled for 1991 to reduce the zinc concentrations in the E/P ponds have been delayed. The recommended alternative use of the zinc-rich sediments as an agricultural soil amendment was determined to be nonexecutable because the sediments would have to be regulated as a hazardous waste. Other alternatives are being evaluated for implementation in 1993. An Action Memorandum for installation of a waterline to off-post residences was approved in September 1991. Waterline installation was completed in October 1992 providing residents with a permanent source of safe drinking water.

Robins Air Force Base (Landfill #4/Sludge Lagoon) Houston County, Georgia

(73)

Service: Air Force

Size: 8,855 Acres

HRS Score: 51.66

Base Mission: Aircraft logistics

IAG Status: Pre-ROD IAG signed July 1989

Action Dates: PA/SI completed 1982; RI/FS initiated 1986; Placed on NPL 1987

Contaminants: VOCs, paint strippers and thinners, paints, solvents, phosphoric and chromic acids, oils, cyanide, carbon remover

Funding to Date: \$22.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

Robins AFB is located in the Coastal Plain of Georgia and includes a 1,200-acre wetland. Units of the highly permeable Cretaceous Aquifer lie beneath the base. Although the water supplies for the Base and City of Warner Robins are derived from this aquifer, the ground water flow and contaminant migration appear to be in an easterly direction, away from all wells and the city. Trichloroethylene and tetrachloroethylene have been detected in ground water. Thirty-three sites on base may contain hazardous waste from past disposal activities.

Ground water contamination with a high potential for contaminant migration was detected at three sites. Two areas covering 465 acres comprise the NPL site: Landfill #4, and an adjacent sludge lagoon, which contains phenols and metal plating wastes. Additional sites have been added since 1986 through identification by the Base and the

Georgia EPD during survey work for the Part B Permit.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS was initiated in September 1986. The sites have been grouped into eight zones. In Zone 1, contamination of ground and surface water and sediments by organic solvents and metals was confirmed. In Zone 2, ground and surface water contamination was detected. In Zone 3, high levels of petroleum products, TOX, and BTEX were found. In Zone 4, ground water contamination by TOX and BTEX was detected. In Zone 5, solvents were found. No significant contamination was detected in Zone 6. In Zone 7, TCE, petroleum hydrocarbons, and lead were found. Zone 8 had one soil sample test positive for PCBs.

Another RI/FS began in 1988 to address sites which include construction debris landfills, ground water contamination areas, and several disposal areas. No con-

tamination was detected at three sites. Further investigation of the sources of chlorinated VOC contamination in the ground water and soil needs to be addressed.

Remedial Design/ Remedial Action (RD/RA)

Several USTs were removed and water supply wells were replaced in 1987. Removal of pesticide contaminated soil in Zone 2 was accomplished in 1992. The remedial designs for Zones 3 and 5 are being accomplished with corrective actions scheduled to begin in 1993. The RD for the NPL site Zone 1 began in June 1991. A total of 18 sites were closed during 1991.

An IRP master plan was approved for Robins AFB for 1988 through 1992. The plan is a work document to consider contaminant sources, migration, and the development of remedial alternatives. The Management Action Plan (MAP) was initiated in 1992 and is expected to be completed by December 30, 1992.

Rocky Mountain Arsenal

Adams County, Colorado

(74)

Service: Army

Size: 17,228 Acres

HRS Score: 58.15

Base Mission: Decontamination and cleanup of real estate, facilities, and equipment

IAG Status: Pre-ROD IAG Federal Facilities Agreement established 1989

Action Dates: RI/FS initiated 1984; PA/SI completed 1985; Placed on NPL 1987

Contaminants: Pesticides; breakdown products from mustard gas and nerve agents; mercury; lead; arsenic; organic and inorganic chlorides; hydroxides and fluorides; diisopropylmethylphosphonate dichloropentadiene; dibromochloropropane; solvents; acids; methyl isobutylketone; sulfur bearing organic and inorganic compounds

Funding to Date: \$510.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Army completed a material contamination survey in August 1973 and an installation assessment in March 1977. These studies identified 19 areas potentially contaminated with heavy metals, chemical agents, incendiaries, and industrial wastes.

Remedial Investigation/ Feasibility Study (RI/FS)

The cleanup program at Rocky Mountain Arsenal (RMA) is divided into two operable units (OUs), on-post and off-post. In FY 1992, the Final on-post OU RI Summary Report was completed (November 1992). The FS for the On-post Operable Unit is underway and scheduled for completion in 1993. The first component of the on-post FS, the Development and Screening of Alternatives, was published in August 1992.

The Final RI for off-post OU was finalized in 1989 with an addendum completed in January 1992.

Remedial Design/ Remedial Action (RD/RA)

Twenty-six Interim Response Actions (IRA) have been initiated at RMA to contain and/or treat contamination sources, reduce the extent of contaminant migration and decrease the cost of the final remediation. Completed actions include the removal of approximately 10.5 million gallons of liquid and 500,000 cubic yards of contaminated soil from the Basin F area of RMA with the liquids being placed in three tanks and a pond, and the soil being placed in a wastepile; improvements to the North and Northwest Boundary Ground Water Treatment Systems; and two new ground water intercept and treatment systems located north of the former Basin F site and in the Basin A Neck area. Over one bil-

lion gallons of contaminated ground water are treated annually by the ground water treatment systems on RMA.

In FY 1992, work on a new ground water intercept and treatment system located north of RMA was initiated and is on schedule for start up in late 1992. The modification of the Irondale intercept and treatment system to capture contaminated ground water at the Rail Yard and Motor Pool areas was completed. The IRA for Basin F liquid also progressed rapidly, with the final design and construction of the Submerged Quench Incinerator completed in October 1992 and start up operations scheduled to begin by January 1993. The CERCLA wastewater treatment facility was completed in July 1992, and has commenced system start up and check out. Finally, demolition of the Hydrazine Blending and Storage Facility was also complete.

In 1992, legislation was passed which will convert RMA into a wildlife refuge after cleanup.

Sabana Seca Naval Security Group Activity Sabana Seca, Puerto Rico

(75)

Service: Navy

Size: 2,252 Acres

HRS Score: 34.28

Base Mission: Operation of High Frequency Direction Finding Facility

IAG Status: Signed March 19, 1992

Action Dates: PA/SI completed 1988 for Sites 4, 6 and 7; PA/SI initiated 1991 for sites 1, 2 and 3; RI/FS initiated 1988 for sites 4, 6 and 7; Placed on NPL 1990

Contaminants: Pesticides, herbicides, paints, oils, solvents, PCBs

Funding to Date: \$1.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

Past disposal methods in landfills created the potential for soil and ground water contamination. Ground water is the potable water supply for the base. Spillage of herbicides and pesticides, and the rinsing of application equipment, have contaminated the areas adjacent to the pesticide shop.

A PA identified seven potentially contaminated sites. Originally, only two sites, the former pesticide shop (Site 6) and the leachate ponding area (Site 7), were recommended for an SI. The source of the leachate at Site 7 is the municipal landfill adjacent to the Station boundary. The pistol range disposal area's (Site 4) proximity to Site 7, and recent information on Bunker 607 disposal area (Site 2) mandated that an SI be conducted at these two areas. As a precautionary measure, SIs shall be conducted at the South and North Stone Road Disposal Areas (Sites 1 and 3). Since Wenger Road Disposal Area (Site

5) was cleaned up in 1984, no further studies will be required. The PA/SI has been completed for Sites 4, 6, and 7. The PA/SI for Sites 1, 2 and 3 is expected to be completed in 1994.

Remedial Investigation/ Feasibility Study (RI/FS)

Sample analyses indicate that soils are contaminated at Site 6, the Former Pest Control Shop, but no ground water contamination has been detected at this site. Analyses also indicate that soils and ground water are contaminated at Site 7. The leachate contamination at Site 7 originates at an offsite source (the municipal landfill). However, its inclusion in the scope of the RI/FS is a precautionary measure to protect the base water supply and base personnel. The Navy will continue to pursue legal avenues with regard to the migration of contamination onto the Station. An FS is currently being prepared for Site 7 and IRAs are being considered. Additional rounds of sampling for Sites 4, 6,

and 7 are expected to be conducted during 1991-2 to complete the RI and begin the FS. Depending upon the results from the SI at Sites 1, 2 and 3, any one or all sites may be recommended for RI/FS work efforts.

A TRC held its first meeting in January 1989. Several meetings were held during 1990 when the documentation for Site 6 had been completed. Several meetings will be held throughout the life of this project.

Remedial Design/ Remedial Action (RD/RA)

In 1988, the Navy installed a fence around the Former Pest Control Shop (Site 6) and covered the site with 6 inches of soil to prevent human exposure to spilled pesticides. RD/RA work will begin after completion of RI/FS activities. An interim RA is planned for Site 7.

Sacramento Army Depot Sacramento, California

(76)

Service: Army

Size: 485 Acres

HRS Score: 44.46

Base Mission: Depot for electronics materials; Manufacture parts (Scheduled for closure)

IAG Status: Pre-ROD IAG signed 1988 with EPA and State of California

Action Dates: PA/SI completed 1979; OU/RI/FS initiated 1984; Placed on NPL 1987

Contaminants: Waste oil and grease, solvents; metal plating wastes; wastewaters containing caustics, cyanide, metals

Funding to Date: \$27.4 million

Preliminary Assessment/ Site Inspection (PA/SI)

The 1979 PA/SI identified several industrial areas and spill/disposal sites as potential sources of contaminant migration. A follow-on investigation conducted under the operable unit (OU) RI/FS addressed these potential sources of contamination.

An enhanced PA was subsequently conducted to determine all environmental issues that need to be addressed for Base Realignment and Closure (BRAC) 1991. The assessment included records reviews, evaluation of ongoing environmental studies, and a site visit.

Remedial Investigation/ Feasibility Study (RI/FS)

Several OUs at SAAD have been identified that may require response actions. Four of the OUs were recommended for Feasibility Studies with the other OUs to be addressed in an overall site FS. The on-going ground water monitoring program has detected contamination both on and off site, primarily low

levels of TCE. Metals have also been found in the Old Morrison Creek sediments near the Oxidation Lagoons. Sampling and analysis of soil under a 1,000-gallon UST, known as Tank 2 OU, indicate that VOCs, PAHs and pesticides exist in the area. There are also several areas that were identified in the original PA/SI that do not warrant further action. A No-Action ROD for these areas will be included in the site-wide ROD expected to be drafted in FY 93.

Remedial Design/ Remedial Action (RD/RA)

The SAAD ROD for the south post ground water contamination was signed in September 1989. SAAD constructed a ground water well extraction system and an ultraviolet light hydrogen peroxide (UV/Peroxidation) treatment plant which began operations in November 1989. The action is intended to prevent ground water contamination from migrating beyond SAAD boundaries and to treat organic solvent contaminated ground water under the former burn pits. The

plant has successfully treated over 110 million gallons to date.

The ROD addressing soil contamination for the Tank 2 OU was signed by the Army in October 1991 and by EPA IX and California in December 1991. SAAD has awarded a contract to design and construct a soil vapor extraction treatment system equipped with air pollution controls to remediate organic solvent soil contamination.

A remedial action contract was awarded September 1991 to design and construct a treatment system to remove heavy metals contamination from the former oxidation lagoons. SAAD has awarded a soil washing treatment system to extract the inorganics from the soils. A ROD for the oxidation lagoon operable unit was signed in September 1992. A ROD for the Burn Pits Operable Unit has been prepared. The remediation of this site includes soil ventilation and solidification.

Savanna Army Depot Activity

Savanna, Illinois

(77)

Service: Army

Size: 13,062 Acres

HRS Score: 42.20

Base Mission: Depot for munitions and explosives; Manufacture and store chemicals

IAG Status: Pre-ROD IAG signed 1989 with EPA and State of Illinois

Action Dates: PA/SI completed 1979; RI/FS initiated 1980; Placed on NPL 1989

Contaminants: Munitions-related wastes

Funding to Date: \$16.6 million

Preliminary Assessment/ Site Inspection (PA/SI)

Three potable water sources near Savanna Army Depot and the shallow aquifer five meters below may be contaminated. Lagoons adjacent to the Mississippi River also could contaminate these drinking water sources. Surface contamination could affect the large wintering population of bald eagles. The PA/SI initially identified 59 potentially contaminated sites and these sites later were consolidated into 45 sites. Local munitions-related contamination was detected in sediments of the TNT washout-area leaching-pond, and in ground water on base.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS, initiated in September 1980, identified and confirmed the extent and concentration of ground water and soil contamination in the lagoon sediment. The lagoons leached TNT and other chemicals to the ground water. Sampling of selected ground and surface water sites in 1988 determined the extent of contaminant migration. The IAG-mandated RI commenced in October 1989. The May 1990 site characterization summary increased the number of potentially contaminated sites to 72. Environmental sampling at 26 sites recommended by EPA and Illinois EPA commenced in 1990.

Additional investigatory effort was required under the RI in 1991 by the regulatory agencies. Sampling was conducted at the majority of sites during March through September 1992. Sampling at the remaining sites will commence in the Spring of 1993.

Remedial Design/ Remedial Action (RD/RA)

A ROD for incineration of TNT-contaminated lagoon soils was approved in March 1992. An incineration trial burn was successfully completed in October 1992. Incineration of contaminated soils was initiated in November 1992 and is scheduled for completion in February 1993.

Schofield Barracks

Oahu, Hawaii

(78)

Service: Army

Size: 17,725 Acres

HRS Score: 28.90

Base Mission: Home for Army's Oahu Island mobile defense

IAG Status: Pre-ROD IAG signed in September 1991 with EPA and Hawaii

Action Dates: PA/SI completed 1984; Placed on NPL 1990

Contaminants: Organic solvents

Funding to Date: \$2.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

A PA was conducted in 1984. Pesticide storage, burning ground, washrack activities, and paint filter disposal activities were cited as possible sources that could contaminate the municipal landfill. No evidence of ground water contamination was found at the time of the PA.

In April 1985, the Army informed the Hawaii Department of Health that high levels (30 ppb) of TCE contaminated wells supplying drinking water to 25,000 people at Schofield Barracks. The federal MCL for TCE is 5 ppb.

A PA/SI and initial RI scoping effort was initiated during June 1991-March 1992 for OU1, OU2, and OU4 to detail efforts required to locate the TCE source and to gather data needed to support remedial actions at the installation.

A PA was initiated for OU3 sites in 1992 to screen out areas requiring no further investigation and to scope follow-on investigations at those sites which were considered potential problem areas.

Remedial Investigation/ Feasibility Study (RI/FS)

In September 1986, the Army began removing TCE from contaminated wells on base to ensure safe drinking water. This interim response action will be modified as required, based upon findings of the upcoming RI/FS.

An FFA was negotiated among the Army, EPA, and Hawaii in 1991, with Army and EPA signature in September 1991. Hawaii signature should be obtained by the end of 1992.

RI/FS planning efforts were conducted in 1992, including preparation of the RI/FS Work Plan (approved November 1992) and Sampling and Analysis Plans for OU1, OU2, OU3, and OU4. Field work is scheduled to begin in January 1993.

Remedial Design/ Remedial Action (RD/RA)

RD/RA work will begin after completion of RI/FS activities.

Currently, ground water treatment is performed in place with granulated activated carbon (GAC) for removal of TCE from ground water for the drinking water supply at Schofield Barracks.

Army initiatives include expedited remediation at OU3 sites through an "investigation-by-excitation" approach to place emphasis on remediation rather than on investigation.

The Army has also proposed to focus OU2 investigations on collection of data to support a point-of-use treatment alternative which would ensure investigations are streamlined to support remedial action.

Seneca Army Depot

Romulus, New York

(79)

Service: Army

Size: 10,587 Acres

HRS Score: 35.52

Base Mission: Receive, store, distribute, maintain, and demilitarize conventional ammunition, explosives, and special weapons

IAG Status: Initiated and expected to be signed in 1993

Action Dates: PA/SI completed 1989; RI/FS scoping initiated 1990; Placed on NPL 1990

Contaminants: Chlorinated organic solvents, heavy metals

Funding to Date: \$4.1 million

Preliminary Assessment/ Site Inspection (PA/SI)

The PA/SI at Seneca Army Depot identified the potential for ground water contamination in the area of the ash landfill and for soil contamination at the open burning/open detonation (OB/OD) ground. Chlorinated organic solvents from the landfill have been detected in ground water on-post and in seasonal surface seeps off-post. Occupants of a farmhouse near the field where the seeps occur may be receptors. No private wells are affected.

An additional assessment was conducted at 71 SWMUs. Of these, 27 sites require additional investigation and are scheduled for investigation in 1992 and 1993.

Remedial Investigation/ Feasibility Study (RI/FS)

RI/FS scoping activities began in 1990 for the landfills and for the OB ground. The work plans for both projects were approved in October 1991 and field work was completed in January 1992. The Preliminary Site Characterization Summary Reports are undergoing regulatory review. The second phase of the investigation will include additional field work.

The IAG has been signed by the Army and is awaiting regulatory signature. The first Technical Review Committee meeting was held in July 1992.

Remedial Design/ Remedial Action (RD/RA)

RD/RA is anticipated to begin in 1993. Actual initiation is dependant upon regulatory and public considerations throughout the process.

Sharpe Site, Defense Distribution Region West (formerly Sharpe Army Depot) Lathrop, California

(80)

Service: Defense Logistics Agency

Size: 720 Acres

HRS Score: 42.24

Base Mission: Depot for general supplies

IAG Status: Pre-ROD IAG signed 1989 with EPA and State of California

Action Dates: PA completed 1980; SI completed 1983; RI/FS initiated 1984; Placed on NPL 1987; Signed FFA agreement March 1989; Ground water RI/FS completed 1991; Ground water proposed remedial action plan (GRAP) completed January 1992; Draft ground water ROD completed April 1992

Contaminants: VOCs

Funding to Date: \$17.2 million

Preliminary Assessment/ Site Inspection (PA/SI)

The PA indicated existence of contamination from past practices. The primary ground water contaminant in some areas is trichloroethylene (TCE), and in other areas, tetrachloroethene. Contamination was identified in the north and south areas encircled by a railroad turnaround and called balloon areas. Solvent waste, mostly TCE-contaminated soil and ground water, was found in the area. The PA recommended that a preliminary survey be conducted of north and south balloon areas, and along the western boundary of the installation.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS was initiated in July 1984. The primary contaminant in ground water and soil is trichloroethene. Approximately 24,000 cubic yards of TCE-contaminated soil are present. TCE levels of up to 20,000 ug/L have been detected. The State of California and Federal maximum contaminant level (MCL) for TCE is 5 ug/L. The RI indicates the TCE plume has migrated off the facility. Other contaminants, found to a lesser extent and mostly only in the soil, were lead, pesticides, PCBs, and petroleum hydrocarbons.

As of October 1992, as part of PA/SI and RI/FS, Sharpe has installed 211 monitoring wells on and off the installation. Four of these wells have been permanently closed with the approval of the regulatory agencies. The remaining are sampled and tested at least once per quarter for volatile organics.

Remedial Design/ Remedial Action (RD/RA)

Two interim ground water treatment systems (air stripping technology) have been installed to prevent the migration of TCE. The first system went into full operation in March 1987, and the second in October 1990.

Between 1985 and 1991, 51 abandoned underground storage tanks were removed to eradicate the source of potential discharge into the environment.

To date, approximately 775 cubic yards of contaminated soils were removed and several pilot tests and treatability studies have been conducted.

Removal of nine more USTs and the remediation of sites contaminated by USTs are expected to begin in 1993. DDRW is expecting to have a draft final ROD in place by April 1994.

Tinker Air Force Base

Oklahoma City, Oklahoma

(81)

Service: Air Force

Size: 5,001 Acres

HRS Score: 42.24

Base Mission: Worldwide repair depot for aircraft, weapons, and engines

IAG Status: Pre-ROD IAG signed 1988

Action Dates: Original PA/SI completed 1982; RI/FS initiated 1983; Placed on NPL 1987

Contaminants: Organic solvents, heavy metals

Funding to Date: \$54.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

The base is within the North Canadian River Drainage Basin and drains into Soldier, Crutchko and Kuhlman Creeks. It overlays the Garber-Wellington Aquifer. Soldier Creek and Building 3001 make up the NPL site. Two Soldier Creek tributaries carry storm and treated industrial wastes from Building 3001. The main contaminants are organic solvents TCE and 1,2-Dichloroethene previously used for degreasing and aircraft maintenance, and heavy metals (hexavalent chromium) previously used in plating operations.

To date, three drinking water wells and Pit Q-51 within or adjacent to Building 3001 have been taken out of service and plugged. The contamination plume covers 220 acres (all within the base boundary) under Building 3001 and the upper aquifer zones (which are not used for drinking water production). The base and 75,000 people in Midwest City draw water from the lower aquifer.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS phase commenced in September 1983 and has been completed on three wells, Landfill 3, North Fuel Tank Area (NPL site), Pit Q-51 (NPL site), abandoned pits at the Industrial Waste Treatment Plant (IWTP), Fire Training Area 2, and Building 3001. Field investigations have been completed at Landfills 1-4, Landfill 6, Fire Training Area 1, Supernatant Pond, and Industrial Waste Pit 2, Building 3001, and two radioactive waste dump sites. Investigations are underway at the IWTP, Industrial Waste Pit 1, Southwest Tank Area, Area A Refueling Station, 3700 Fuel Yard, four fuel sites, three radioactive waste dump sites, Crutchko Creek, Kuhlman Creek, and the Soldier Creek NPL site.

No off-base contaminant migration has been confirmed to date. A pre-ROD IAG covering the NPL site was signed December 1988.

Remedial Design/ Remedial Action (RD/RA)

The ROD for Building 3001, North Tank Area operable unit, and Pit Q-51 operable unit was signed in 1990. Pit Q-51 was cleaned and plugged in September 1990. The design efforts for the recommended B3001 ground water recovery and treatment system was completed in August 1991.

Landfills 1 and 5 have been capped and the Landfill 6 cap was repaired. Landfill 3 is presently near completion on the capping action.

Documentation recommending no further action has been completed for three wells, Pit Q-51, Fire Training Areas 2 and 4, Facility 1123, three of the five radioactive waste disposal sites, and the industrial waste pits.

Future RA work will include the removal of radioactive waste and the use of innovative solidification/stabilization techniques at the supernatant pond.

Tobyhanna Army Depot

Tobyhanna, Pennsylvania

(82)

Service: Army

Size: 1,293 Acres

HRS Score: 37.93

Base Mission: Logistics for communications/electronics equipment; Largest communications/electronics overhaul facility in Army

IAG Status: Pre-ROD IAG signed September 1990

Action Dates: PA/SI completed 1980; RI/FS initiated 1987; Placed on NPL 1990

Contaminants: VOCs, heavy metals

Funding to Date: \$6.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

The PA/SI was completed in 1980 and updated in 1988. These initial studies confirmed that there was VOC contamination of both on-post and off-post wells.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS, initiated in July 1987, addressed VOC contamination in the southeast corner of the depot. Two source areas have been confirmed with one only a few hundred feet from affected off-post wells. The preferred response measures under the FS are passive volatilization for contaminated soils (tilling soils within a specially constructed building); pumping and treating ground water; and providing an alternate water source to affected residents.

As a result of the IAG, a Phase I RI is being performed at 11 additional sites. The field investigation was performed in the 4th quarter FY 1992. The Phase I RI is scheduled to be completed in December 1993.

Remedial Design/ Remedial Action (RD/RA)

The Army provided bottled water for 26 residences and one business from March 1987 through June 1991 at which time a waterline extension from the Depot to the affected residents was completed.

A treatability study has been conducted for the passive soil volatilization technology. The study concluded that soil treatment could be conducted more effectively inside an engineered bubble rather than tilling the soils inside a building. Remedial design for soil cleanup is expected to start in the fall of 1993.

Tooele Army Depot (North Area)

Tooele County, Utah

(83)

Service: Army

Size: 44,087 Acres

HRS Score: 53.95

Base Mission: Store and supply **ammunition and equipment**; Build and repair locomotives, wheeled vehicles, and transport cars

IAG Status: Pre-ROD IAG signed **September 1991**

Action Dates: PA/SI completed 1980; Placed on NPL 1990; RI/FS initiated 1987

Contaminants: Heavy metals, petroleum/oil/lubricants, PCBs, paint primers, cleaning, plating and explosive wastes

Funding to Date: \$44.5 million

Preliminary Assessment/ Site Inspection (PA/SI)

Historic disposal practices consisted of discharging wastes to evaporation or percolation ponds, detonation and burning, and burial at the demilitarization range. Consequently, ground water was threatened by contaminant migration from the waste sites; plant and animal life in the area also could be affected.

The December 1988 PA/SI identified potential ground water contaminant migration. Five sites presented a significant threat to public health and the environment, including explosives found in the ground water beneath the TNT Washout Pond. Ground water is contaminated with volatiles at the Industrial Waste Lagoon (IWL).

Remedial Investigation/ Feasibility Study (RI/FS)

An environmental survey in 1982 indicated that TCE from the IWL was migrating to the northern boundary on-post. An RI addendum report in 1989 concluded that a plume of ground water contamination containing TCE from the IWL extends off-post approximately 2,500 feet. A site-wide RI/FS was initiated in September 1987. Additional ground water contamination was detected at the Sanitary Landfill and the TNT Washout Pond. These results were published in December 1990.

A Corrective Action Permit was issued by the state in January 1991 and addressed 29 SWMUs. RFI investigative studies have been conducted at 20 SWMUs and studies on the additional 9 are scheduled for early 1993. The first RFI report is scheduled to be available in early 1993. An FFA between the Army, State, and EPA was signed in September 1991. An RI/FS addressing 17 sites was initiated in late 1991. Field investigations were completed in 1992

and the draft RI report is scheduled to be submitted to the regulators in March 1993.

Remedial Design/ Remedial Action (RD/RA)

The IWL was granted interim status under RCRA in 1985. This required installation of monitoring wells, but the previously documented evidence of ground water contamination caused TEAD to enter into a Consent Decree with the State of Utah. As a result, a ground water quality assessment was conducted. The Consent Decree also required TEAD to cease discharging wastewater into the IWL and to close the lagoon. Closure (capping) of the lagoon was completed in 1989 and construction of a ground water pump and treat system (air stripping) was initiated in 1991. The system is scheduled for operation in December 1993.

Tracy Site, Defense Distribution Region West (formerly Tracy Defense Depot) Tracy, California

(84)

Service: Defense Logistics Agency

Size: 448 Acres

HRS Score: 37.16

Base Mission: Store and distribute food, medical, electronic, and industrial/construction equipment; and textiles for Armed Forces in the western U.S. and Pacific

IAG Status: Signed 1991

Action Dates: PA/SI completed 1982; RI/FS initiated 1986; Placed on NPL 1990

Contaminants: Heavy metals, petroleum/oil/lubricants, VOCs, TCE, PCE

Funding to Date: \$15.1 million

Preliminary Assessment/ Site Inspection (PA/SI)

A PA/SI identified 32 sites of contamination on-depot with strong contamination migration potential. All 32 sites will be included in the RI/FS investigations. The upper ground water aquifer, both on- and off-depot, is contaminated with both TCE and PCE beyond federal safety standard limits.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS began in September 1986 on 32 sites. In addition to the contaminated upper aquifer, the soil on depot is likewise contaminated. Following the signing of a Federal Facility Agreement in 1991, a second RI/FS was initiated. The first RI/FS has been redefined as OU1 and focuses on the ground water contamination emanating from the northern half of the depot.

The second RI/FS has been designated the Comprehensive Site-Wide RI/FS and will focus on contamination throughout the depot to include an additional 33 solid waste management units (SWMUs), information from 113 monitoring wells, 100+ soil borings, and more than 200 soil vapor probes. These SWMUs have been combined into three additional sites bringing the total to 35.

Remedial Design/ Remedial Action (RD/RA)

An IRA contract, awarded in September 1989, led to the construction of an air stripper to remove volatile organic compound (VOC) contaminants in the ground water. The stripper was installed during the third quarter of 1991. Five extraction wells, three injection wells, and 10 additional monitoring wells were installed as part of this project.

Bottled drinking water is being provided to two off-depot residences, whose domestic wells have been contaminated by VOCs. This action was taken in the first quarter of 1992 when laboratory tests revealed trichloroethene, carbon tetrachloride, and trace amounts of chloroform in the wells.

Two on-depot improperly abandoned water supply wells were located, investigated, and properly abandoned. During the location effort, one undocumented underground gasoline storage tank was located, inspected, and properly removed and disposed of. This effort took place during the third and fourth quarters of 1992.

A removal action involving 49 buried drums and 450 cubic yards of contaminated soil took place during 1992. All drums were inspected and properly disposed of. Contaminated soil receiving further evaluation is expected to be appropriately disposed of prior to second quarter 1993.

Travis Air Force Base

Solano County, California

(85)

Service: Air Force

Size: 5,025 Acres

HRS Score: 29.49

Base Mission: Gateway to the Pacific, providing strategic airlift services for troops, cargo, and equipment: west coast terminals for aeromedical evacuation

IAG Status: Pre-ROD IAG signed September 1990

Action Dates: PA/SI completed 1985; RI/FS initiated 1986; Placed on NPL 1990

Contaminants: Volatile Organic Compounds (VOCs), heavy metals, Polynuclear Aromatic Hydrocarbons (PAH)

Funding to Date: \$16.1 million

Preliminary Assessment/ Site Inspection (PA/SI)

The area around Travis AFB is primarily agricultural. Industrial operations on base include aircraft and automotive servicing, above and below ground fuel storage and distribution, and facility maintenance and repair.

A PA/SI identified several sites potentially contributing to contamination due to past operations and disposal practices. These sites include old landfills, a closed sewage treatment plant, fire fighting training areas, disposal pits, spill areas, and the storm drainage system. VOCs present in the storm sewer system, particularly TCE, could possibly reach Union Creek. Up to 29 additional areas of concern investigated in 1992 may be added to the Travis IRP, among these is the Point Arena Air Force Station.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS is underway to determine the type and extent of contamination and to identify alternatives for remedial action. Two additional sites were added to the investigation in 1991: the Cyanide Disposal Pit, where approximately 250 pounds of cyanide were buried, probably in 1967; and the Grazing Management Units, where a swelling affliction has been observed in horses. Preliminary analysis indicates that fine-grained alluvial sediments of very low permeability exist beneath the base. Localized buried sand and gravel channels represent likely pathways for contaminant migration. The ground water at Travis AFB contains naturally elevated concentrations of several metals and common anions. The contaminants detected in the ground water include VOCs and metals. Metals and PAHs were detected in the surface water, sediments of the storm sewers, and Union Creek. RI/FS activities in 1992 determined the extent of con-

tamination at 18 sites and identified 7 distinct TCE plumes. In addition, in-depth studies were conducted at over 120 buildings on base to determine if past operations had contributed to base wide contamination. Completion of the RI/FS is expected in 1993.

Remedial Design/ Remedial Action (RD/RA)

Twenty-seven underground storage tanks were removed from various IRP sites at Travis AFB in 1986. The design of an IRA was initiated in 1991 to investigate, intercept and clean up floating fuel products in the ground water table from two BX gas stations. The engineer evaluation/cost analysis for the project was completed in 1992. Additional RD/RA activities will be determined by a ROD anticipated for early 1994.

Treasure Island Naval Station— Hunters Point Annex San Francisco, California

(86)

Service: Department of the Navy

Size: 965 Acres

HRS Score: 48.77

Base Mission: Support Pacific Fleet (Scheduled for closure)

IAG Status: Pre-ROD IAG signed 1990

Action Dates: RI/FS initiated 1987; Placed on NPL 1989

Contaminants: Paints, solvents, fuels, acids, bases, heavy metals, PCBs, asbestos, phenols, polyaromatic hydrocarbons, VOCs

Funding to Date: \$42.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

Formerly the Hunters Point Naval Shipyard, Hunters Point Annex was established in 1869 as the first dry dock on the Pacific Coast. The Navy purchased the installation in 1939 and leased it to Bethlehem Steel Company. The Navy operated Hunters Point Annex as a shipbuilding and repair facility from 1941 until 1976. Triple A Machine Shop then leased the facility from 1976 to 1986 and sub-leased numerous buildings to private tenants. Testing in 1987 detected benzene, PCBs, toluene, and phenols in onsite ground water. A bottling company draws ground water from a spring approximately one mile from Hunters Point Annex. Offshore sediments contain elevated levels of heavy metals and PAHs. Area surface waters are used for recreational activities, commercial navigation, and fishing.

To date, the RI/FS has included 26 sites. Site inspection will be conducted for an additional 38 sites. Four removal actions are planned for 1993, including site treatment, decontamination, and waste removal.

Remedial Investigation/ Feasibility Study (RI/FS)

A TRC was formed in 1988 and members include representatives from COMNAVBASE San Francisco; Treasure Island Naval Station; Western Division, Naval Facilities Engineering Command; California Department of Toxic Substances Control, California Regional Water Quality Control Board; Bay Area Air Quality Management District; EPA Region IX; the City and County of San Francisco; NOAA; Department of Interior, and a public representative appointed by the Mayor of San Francisco.

Future RI/FS at Hunters Point will be conducted by geographic panels. Interim Remedial Actions will be implemented for the existing Operable Units. Completion of RI/FS work for all sites is expected in 1996.

Remedial Design/ Remedial Action (RD/RA)

A removal action was implemented in 1986 to clean up PCBs. Removal of asbestos was undertaken and completed in 1990. RD/RA work will begin after completion of RI/FS activities.

Twin Cities Army Ammunition Plant New Brighton, Minnesota

(87)

Service: Army

Size: 2,560 Acres

HRS Score: 59.16

Base Mission: Small arms and projectile casing manufacture

IAG Status: Pre-ROD IAG signed 1987 with EPA and State of Minnesota

Action Dates: PA/SI completed 1988; RI completed 1991; FS initiated 1991; Placed on NPL 1982

Contaminants: VOCs, heavy metals, solvents, acids and caustics, fuels, cleaners, paints, explosives

Funding to Date: \$39.6 million

Preliminary Assessment/ Site Inspection (PA/SI)

Sources located on the Twin Cities Army Ammunition Plant (TCAAP) have contaminated ground water primarily with VOCs. The contamination affects water supplies for the cities of New Brighton and St. Anthony, located 2.5 and 4.5 miles downgradient, respectively. The PA/SI verified the presence of 14 potentially contaminated sites. Concurrent field investigations conducted since 1981 verified three major sources of regional ground water contamination. Site D is a former series of earthen impoundments used for industrial waste disposal. Site G is a former landfill used for building and industrial waste disposal. Site I (Building 502) is the area where industrial operations introduced VOCs to the ground water system. Two other sites have contributed to perched ground water contamination. These sites consist of Site A, a former disposal area for industrial waste, and Site K (Building 103), where industrial operations intro-

duced VOCs to the ground water system. The remaining 14 sites have not contributed significantly to ground water contamination at TCAAP.

Remedial Investigation/ Feasibility Study (RI/FS)

Alliant Tech Systems, Inc., formerly Honeywell, Inc., an industrial tenant of TCAAP, and the Department of the Army have installed approximately 300 monitoring wells both on and off the plant to define the magnitude and extent of ground water contamination. The FFA requires the DA to complete an RI on TCAAP and requires EPA to conduct an investigation of off-plant areas. These efforts were completed in 1991. The FS was initiated by the Army in August 1991. The FS is divided into three operable units: off-TCAAP north plume (OU1), on-TCAAP ground water and several areas (OU2), and off-TCAAP south plume (OU3). A ROD for the OU3 final remedy was signed in September 1992.

Remedial Design/ Remedial Action (RD/RA)

A regional ground water treatment system has been installed to extract and treat ground water, prevent contaminant migration beyond plant boundaries, and contain highly contaminated ground water within the plant interior.

Additional efforts to preclude ground water contamination include installation of two ISV systems at Sites D and G, ground water treatment at Site I, incineration of contaminated soils, and provision of contaminated soil storage facilities. Efforts also are being conducted at Sites A and K to prevent contamination from migrating within the perched ground water system.

To address contamination beyond the plant boundaries, the Army provided granular activated carbon municipal water treatment facilities to the cities of New Brighton and St. Anthony.

Approximately 3.7 billion gallons of contaminated ground water have been treated and over 100 tons of contaminants removed.

Umatilla Army Depot

Hermiston, Oregon

(88)

Service: Army

Size: 19,729 Acres

HRS Score: 31.31

Base Mission: Ammunition storage

IAG Status: Pre-ROD IAG signed October 1989

Action Dates: PA/SI completed 1980; Placed on NPL 1987; RI/FS initiated 1989

Contaminants: Metals, red fuming nitric acid, pesticides, RDX, nitrates, TNT, TNB, HMX, DNT isomers

Funding to Date: \$20.7 million

Preliminary Assessment/ Site Inspection (PA/SI)

The PA/SI identified and targeted several major contaminant sources for RI/FS work. These areas contained explosive wastes and UXO. Ground water under the washout lagoons was contaminated with cyclonite (RDX), nitrates, TNT, TNB, HMX, and DNT. An enhanced PA in support of base closure activities was prepared concurrently with the RI/FS work plan under the IAG. The enhanced PA was submitted in April 1990.

Remedial Investigation/ Feasibility Study (RI/FS)

A Phase I RI determined the washout lagoons had contaminated the alluvial aquifer with TNT, RDX, HMX, TNB, DNT, and nitrates. In addition, the shallow basalt aquifer contained very trace quantities (approximately 1 ppb) of explosives. Several SWMUs, including the deactivation furnace, active and inactive landfills, the ammunition demolition area, and several septic tanks, showed various industrial and explosive contaminants. A Phase II RI was initiated in August 1989. Work being conducted under the IAG covers 55 sites; 22 in the ammunition demolition area. RI field work was initiated in May 1990 and the RI was completed in August 1992. Feasibility studies for four operable units are ongoing. Field work for asbestos and radon assessments in support of the base closure mission was initiated in 1990.

A supplemental RI/FS contract addressing remaining sites was awarded in September 1991. The need for a contract modification

delayed the field work, which was well underway in September 1992. Another contract modification, to further investigate the complex ground water contamination, was awarded in September 1992. No Action proposed plans for the landfills operable units were finalized in FY 1992.

Remedial Design/ Remedial Action (RD/RA)

An expedited RI/FS was conducted for the washout lagoons leading to a ROD in September 1992 that selected the innovative technology of composting. Stabilization of lead-contaminated soil at the deactivation furnace is the subject of a draft ROD prepared in FY 1992.

Warminster Naval Air Warfare Center Aircraft Division Warminster Township, Pennsylvania

(89)

Service: Navy

Size: 921 Acres

HRS Score: 57.93

Base Mission: Research and development for naval aircraft systems, antisubmarine warfare systems, and software

IAG Status: Pre-ROD IAG signed 1990

Action Dates: PA/SI completed 1981; Proposed for NPL 1986; RI/FS initiated 1988

Contaminants: VOCs, metal plating wastes, painting residues, PCB-contaminated waste oils, fuels, solvents, asphalt, coolants

Funding to Date: \$1.5 million

Preliminary Assessment/ Site Inspection (PA/SI)

An Initial Assessment Study (IAS), equivalent to a PA, and a Confirmation Study (CS), equivalent to an SI, for Warminster Naval Air Warfare Center (NAWC) were completed in June 1985, identifying nine sites as potentially contaminated. After the CS, Site 09 was closed out as not being contaminated. The other eight sites were recommended for further study under a Remedial Investigation/Feasibility Study (RI/FS). Contamination from heavy metals and solvents of local drinking water wells and ground water was the primary concern for these sites.

A Technical Review Committee was formed in April 1988. Meetings are held every six to eight weeks or as necessary to attend to the current business. An administrative record was established at the same time. The Community Relations Plan was completed in FY

1990 and is updated on an "as required" basis.

Remedial Investigation/ Feasibility Study (RI/FS)

Phase I RI was completed in January 1991. Phase II RI began in October 1991 for Sites 01-08 and is expected to be completed in FY 1993. All eight sites are being assessed under an FS concurrently with the RI Phase II. The FS should be completed also in FY 1993. At this time, it is expected that Site 07 may be closed out and Sites 04 and 08 may only be recommended for long-term monitoring (LTM).

The installation was proposed for the National Priorities List (NPL) in 1986 with a Hazard Ranking System (HRS) Score of 57.93. A Pre-Record of Decision (ROD) was signed on October 4, 1989. A Federal Facility Agreement (FFA) was signed between the Department of the Navy and Environmental Protection Agency (EPA) on September 20, 1990.

Remedial Design/ Remedial Action (RD/RA)

RD should start in FY 1993 for Sites 01-03, 05, and 06 with an expected completion date of FY 1994. The RA will follow in FY 1995 with an anticipated completion in FY 1996. LTM will probably be recommended for these sites pushing the site closeout into FY 1998 and after.

Whidbey Island Naval Air Station

(Ault Field & Sea Plane Base)

Whidbey Island, Washington

(90)

Service: Navy

Size: 7,000 Acres

HRS Score: 47.58 (Ault Field)
39.64 (Sea Plane Base)

Base Mission: Training and operations center for bomber squads; Center for USN and USMC Reserve training in the Pacific Northwest

IAG Status: Pre-ROD IAG signed September 1990

Action Dates: PA/SI completed 1984; Placed on NPL 1990; RI/FS initiated 1988

Contaminants: VOCs, petroleum/oil/lubricants

Funding to Date: \$17.4 million

Preliminary Assessment/ Site Inspection (PA/SI)

Whidbey Island Naval Air Station occupies four separate areas on Whidbey Island: Ault Field north of Oak Harbor; Seaplane Base east of Oak Harbor; the Outlying Field near Coupeville; and Lake Hancock Target Range.

An Initial Assessment Study (equivalent to a PA) completed in September 1984 identified 51 spill and/or disposal sites. Of the 51 total sites, 35 were recommended for further study or mitigating actions, and 16 were recommended for no further action. The sites recommended for further action potentially involve soil, ground water, sediment, and shellfish contamination. The 16 sites were recommended for no further action because no migration or exposure pathways were found or insignificant contaminant concentrations were detected.

Remedial Investigation/ Feasibility Study (RI/FS)

In February 1990, Whidbey Island Naval Air Station was listed on the National Priorities List. The Federal Facility Agreement for areas including Seaplane Base and Ault Field was signed by the Department of the Navy on October 17, 1990. The FFA grouped individual areas as sites into four operable units. In addition, the FFA also specified that a number of areas undergo more extensive sampling programs, as extended SIs, for potential inclusion in a RI/FS.

All of the RI/FS effort for OUs 1-4 are expected to be completed in 1993. The RI/FS for OU1 is anticipated to recommend capping of the landfill. The recommendations for OU2 and OU3 are yet not known. The RI/FS for OU4 is anticipated to recommend fencing combined with long-term monitoring.

Remedial Design/ Remedial Action (RD/RA)

On April 28, 1992, the Department of the Navy signed an Interim ROD with EPA Region X and the State of Washington for an Interim Remedial Action (IRA) at OU1. The IRA will address the primary risk posed to the public by controlling the spread of a contaminated plume of ground water. The IRA will extract and treat ground water using air stripping to halt advancement of the plume. Treated water will be reinjected into the aquifer from which it was drawn. The IRA is expected to be completed in late 1993.

Efforts are underway to address contamination of public water supplies by connecting 13 private residences or systems to either the City of Oak Harbor's or the Navy's water main. To date, two residences and a mobile home park have been connected to the public water supply.

Williams Air Force Base

Chandler, Arizona

(91)

Service: Air Force

Size: 4,127 Acres

HRS Score: 37.93

Base Mission: Pilot training; Aircraft and ground equipment maintenance (Scheduled for closure)

IAG Status: Pre-ROD IAG signed 1990

Action Dates: PA/SI completed 1984; RI/FS initiated 1986; Scheduled for completion December 1994; Placed on NPL November 1989; Scheduled for closure September 1993

Contaminants: Waste solvents, fuels and lubricants, heavy metals

Funding to Date: \$13.0 million

Preliminary Assessment/ Site Inspection (PA/SI)

Irrigated farmland and desert surround Williams AFB. Past disposal practices have contaminated soils with heavy metals and ground water with petroleum products. The Air Force has completed an initial assessment and the potentially contaminated areas include a past fire protection training area, drainage systems, and landfill and spill areas.

Remedial Investigation/ Feasibility Study (RI/FS)

A work plan has been developed for an RI/FS to determine the type and extent of contamination and to identify alternatives for remedial action. Field investigations are underway.

Remedial Design/ Remedial Action (RD/RA)

The Southwest Draining System was remediated in 1988 by installing a soil cement and concrete cap on the upper 350 feet of the ditch. This action was agreed to by State of Arizona regulatory officials.

Monitoring wells approximately 350 feet deep have been installed at the liquid fuels storage area to determine the extent of vertical migration of leaked fuel. Shallow wells approximately 250 feet deep have been installed to plot the extent of this plume. Pump tests have been conducted to gather data needed for remedial design of a proposed pump and treat facility. Continuous fuel recovery has been started.

A storage tank was removed during 1991 from the electroplating shop. Removal of drums was also completed during that year at the pesticide burial area.

Two operable units (OU) have been established. OU2 is the former liquid fuel storage area and is the first to be considered. OU1 is the final remedy for the remediation of all sites. Two Proposed Plans and two RODs will be prepared.

A draft of the ROD for OU2 was issued July 1992 and for OU1 by September 1993. The RD for OU2 is expected April of 1994 and RA April 1995. RD for OU1 expected November 1994 and RA November 1995.

The Draft Remedial Investigation Report for OU2 was published in 1991. The Draft Feasibility Study and the Draft Proposed Plan have been submitted for regulatory review. A pilot study/demonstration project is underway at OU2. Two horizontal wells and a large diameter well will be compared to determine the efficiency of jet fuel removal from the shallow water table.

Wright-Patterson Air Force Base Dayton, Ohio

(92)

Service: Air Force

Size: 8,511 Acres

HRS Score: 57.85

Base Mission: Headquarters to Air Force Materiel Command, Aeronautical Systems Center and Air Force Institute of Technology; Medical Center

IAG Status: Pre-ROD IAG signed March 1991

Action Dates: RI/FS initiated 1989; Placed on NPL 1989

Contaminants: Waste oil and fuels, acids, plating wastes, solvents, pesticides, batteries, radioactive wastes

Funding to Date: \$94.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

Past Air Force activities in support of operational missions have created 63 unlined waste disposal areas throughout the base, including landfills, spill sites, fire training areas, and coal storage piles. As a result, contamination of Dayton and the base for drinking water has occurred.

Known sites were rated in 1982 during the first phase of the IRP. Twenty-four sites located on the base contained hazardous material.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS contract was awarded in November 1989. The RI/FS for all sites is currently scheduled to be completed in 1998. Landfills 8 and 10 have been the highest concern due to their proximity to the Woodland Hills residential area. Both landfills were a trench and cover operation for disposal of general refuse and chemical wastes. Ground water in the vicinity of Landfill 8 is

contaminated with benzene and trichloroethylene (TCE). Landfill 10 is contaminated with volatile organic compounds (VOCs). However, complications have arisen with landfill subsidence, gas generation and venting, and seepage of leachate. The RI/FS for these sites is scheduled for completion by April 1993. A focused RI/FS for Source Control was initiated in January 1992. The base began four additional RI/FS projects at the next highest priority operable units in 1992. Also in 1992 a Basewide Monitoring Program was initiated. In June 1987, a hydrogeological assessment of the strata underlying the base was initiated to gain an understanding of ground water movement and the direction of contaminant migration. The completed study provides a technical foundation for future base-wide IRP activities. Regional ground water flows in a southwesterly direction toward the City of Dayton's drinking water well fields. The existence of permeable soils in the area exacerbates this concern. The IAG with the USEPA Region V was signed

on March 21, 1991. The base is under an Administrative Order of Consent (February 1988) which specifies site RI and cleanup processes.

Remedial Design/ Remedial Action (RD/RA)

Drinking water from base wells is being treated for VOC contamination. In 1991, the base initiated a Removal Action along the base boundary to intercept and treat ground water found to be contaminated with TCE flowing in the direction of the City of Dayton's well fields. The permanent system became fully operational in 1992. Phase I to investigate/design the removal of the source of fuel contamination in the area of Spill Sites 2 and 3 was initiated in May 1992. The construction of a dual pump product recovery and ground water treatment system will follow in early 1993.

Yorktown Naval Weapons Station

Yorktown, Virginia

(93)

Service:	Department of the Navy
Size:	10,624 Acres
HRS Score:	50.00
Base Mission:	To provide logistic, technical, and material support to the Fleet; maintain and operate an explosive ordnance outloading facility and provide homeport services
IAG Status:	FFA initiated and expected to be signed 1993
Action Dates:	PA completed 1984; SI finalized 1991; RI/FS initiated 1991; Placed on NPL 1992
Contaminants:	Asbestos, waste oil, batteries, paint thinners, degreasers/varnishes, solvents, explosives, PCBs, acids, heavy metals
Funding to Date:	\$3.3 million

Preliminary Assessment/ Site Inspection (PA/SI)

All of the Installation Restoration sites being investigated are located adjacent to, or hydrologically connected to, surface water bodies that are tributaries to the York River. This estuarine system is commercially and environmentally significant for fisheries production. As a result, the environmental studies at the Yorktown Naval Weapons Station are designed to define the impacts to this ecosystem, and to define the risks to human health associated with contact with the water bodies and consumption of aquatic life supported by these waters.

An Initial Assessment Study or PA was completed in July 1984. A total of 19 potentially contaminated sites was identified. Fifteen of these sites were the subject of an SI conducted from 1989 to 1991.

Additional RI efforts were recommended for 14 of the 15 sites under confirmation studies. A new site, Site 21, was discovered in November 1990 which contained

batteries and drums. This site was recommended for inclusion in the RI/FS. During the summer of 1992, EPIC photograph interpretation and site explorations revealed several additional previously unknown sites. Future SIs are planned for these sites if warranted.

Remedial Investigation/ Feasibility Study (RI/FS)

In anticipation of NPL status, the Navy began a proactive community relations program in July 1991. Documents prepared for public affair's use were a Community Relations Plan, color information brochures, a slide show, and photo albums for the Navy, the regulators, and for the information repositories. The Yorktown Naval Weapons Station's Public Affairs Officer has established an outstanding report with the community and has experienced very little public concern.

The RI field work for 16 sites began in April 1992. The sixteen sites consisted of the 14 sites originally recommended for additional studies, one additional site that,

after further review, required additional studies, plus the new Site 21. Upon completion of round one of the RI, sites will either be separated into operable units (OUs) for additional RI effort, moved into the FS phase, or recommended for no further action.

Remedial Design/ Remedial Action (RD/RA)

Documents are being prepared in 1992 for a removal action at three sites. This action will rid the sites of surficial contamination, thus mitigating the migration of additional contaminants into the environment. The removal action will be conducted in 1993. Two other removal action work plans are scheduled to be started in 1993. For the OUs, RD/RA work will begin after completion of the RI/FS.

Yuma Marine Corps Air Station

Yuma, Arizona

(94)

Service: Navy

Size: 3,000 Acres

HRS Score: 32.24

Base Mission: Tactical aircrew combat training

IAG Status: Pre-ROD IAG signed 1992

Action Dates: PA completed 1985; SI completed December 1990; RI/FS initiated 1990; Placed on NPL 1990

Contaminants: VOCs, waste fuels, oils, degreasers, solvents, paints, PCBs, pesticides, herbicides, photographic chemicals

Funding to Date: \$2.9 million

Preliminary Assessment/ Site Inspection (PA/SI)

Ground water is a potable water source for Yuma Marine Corps Air Station (MCAS), the City of Yuma, and for industrial and agricultural purposes. Past disposal practices contaminated soils and ground water. A PA/SI identified 12 potentially contaminated sites, and recommended that two sites be studied further to confirm contamination.

The confirmation study for these two sites was completed in early 1988. In response to a State of Arizona request made in July 1988, 11 of the original 12 IAS sites and two additional sites were investigated further as a part of an SI completed in December 1990. To date, 18 sites have been identified.

Remedial Investigation/ Feasibility Study (RI/FS)

A TRC has been formed and the first meeting was held in April 1990. Members include representatives from the City of Yuma; the Arizona Department of Environmental Quality; EPA Region IX; Yuma MCAS; Southwest Division, Naval Facilities Engineering Command; and the public. Development of the RI/FS work plan began in November 1990.

Yuma MCAS was listed on the NPL in February 1990. Subsequently, EPA assigned a separate remedial project manager for the base. FFA negotiations with EPA and the State of Arizona were initiated and completed in 1990. The FFA was signed by all parties in January 1992.

Remedial Design/ Remedial Action (RD/RA)

Although no RD/RA activities were conducted in 1992, removal actions will be considered if an imminent threat is identified during the RI/FS. RD/RA activities are planned for four sites in 1993.

Appendix C

Status of IRP Installations

This Appendix to the Annual Report includes three tables that summarize the status of activities at all DoD installations included in the IRP by the end of FY 1991.

Table C-1 summarizes IRP site status by state, DoD component (Army, Navy, Air Force, and Defense Logistics Agency), and installation. Table C-2 provides a status summary by DoD component.

The status abbreviations used in this Appendix are as follows:

- C** – Number of sites for which a particular study or action has been completed
- U** – Number of sites with a particular study or action underway
- F** – Number of sites scheduled to have a study or action performed in the future
- IRA** – Number of sites with an interim remedial action complete or underway; numbers of actions are given in parenthesis
- RC** – Number of sites where IRP actions are deemed complete and the site is not a threat to health or the environment.
- RIP** – Number of sites where the final RA is functioning properly and performing as designed.
- SC** – Number of sites where the response is complete and if required, concurrence has been received from regulatory agencies.

Installation status is designated as follows:

- Italicized* – The installation is listed on the NPL
- – The installation has a signed IAG
- ◆ – The installation is proposed for listing on the NPL.
- – The installation is scheduled for closure.

It should be noted that the installation site counts in Appendix C will not necessarily sum to equal the total number of sites in the first column on the left of the table. This is due to the fact that, at larger, more complex installations, various sites on the installation can be in different phases of the program at the same time.

Table C-1

**Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992**

Total # of Sites	Number of Sites																				Total										
	PA					SI					RI/FS					IRA					RA			Total							
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC				
	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0
AFRC Birmingham																															
	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0
AFRC Cullman																															
	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0
AFRC Gadsden																															
Alabama AAP ● ■	36	36	0	0	0	36	0	0	0	5	31	0	0	9(9)	1(1)	4	3	29	4	0	32	2	0	0	2	0	0	0	2	0	0
Anniston Army Depot ●	44	44	0	0	0	29	15	0	0	0	29	1	0	7(12)	0	7	0	7	0	0	12	0	0	0	0	0	0	0	0	0	
Coosa River Storage Annex (Anniston) ■	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fort McClellan	60	60	0	0	43	0	17	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	0	
Fort Rucker	105	105	0	0	105	0	0	67	26	13	0	13	0	0	0	0	12	13	0	0	26	0	0	0	0	0	0	80	80	0	
Phosphate Dev Works	27	27	0	0	0	26	0	0	26	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	26	26	0	
Redstone Arsenal	158	158	0	0	158	0	0	68	0	23	67	0	0	0	0	0	10	0	0	0	10	0	0	0	0	0	0	68	68	0	
USARC Abbeville	4	4	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	
USARC Anniston	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	
USARC Bellline	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	
USARC Birmingham 01	14	14	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	14	0	
USARC Birmingham 02	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	
USARC Cropwell (ASF 155)	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	0	
USARC Dothan	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

	Number of Sites																												
	PA				SI				RIFS				IRA				RD				RA				Total				
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC		
ALABAMA (Continued)																													
ARMY (Continued)																													
USARC Eiba	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Enterprise	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Foley	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Fort Rucker (ASF 157)	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
USARC Fort Rucker (ECS 143)	10	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
USARC Gadsden	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
USARC Holt	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Huntsville (Patten Rd)	11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
USARC Jasper	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Lincoln (Talladega)	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
USARC Marion, AL	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Mobile (Wright)	12	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12
USARC Montgomery (Moniac)	10	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
USARC Montgomery (Screws)	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Opelika	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2

(Continued)

Table C-1
Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total								
		PA				SI				RI/FS				IRA				RA		Total						
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC		
ALABAMA (Continued)																										
ARMY (Continued)																										
USARC OPP	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
USARC Sheffield	5	5	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Troy	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
USARC Tuscaloosa	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9
USARC Tuskegee	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
ARMY TOTALS	581	0	0	191	355	32	2	161	33	96	75	13	16(21)	1(1)	11	26	49	4	0	81	2	0	367	364		
AIR FORCE																										
Birmingham MAPT	13	13	0	0	7	6	0	0	1	1	4	0	0	0	0	1	4	0	0	1	4	0	0	0	8	8
Dannelly Field ANGB	9	9	0	0	0	9	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gunter AFB	7	7	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0
Hall AGS	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Marin Gadsden	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maxwell AFB	28	28	0	0	0	22	1	0	0	15	1	1	5	0	0	6	2	2	6	3	1	4	0	9	9	
Montgomery AGS	2	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	63	61	2	0	8	41	3	0	1	16	7	2	5	0	7	6	3	6	5	6	4	0	18	17		
ALABAMA TOTALS	644	2	0	199	396	35	2	162	49	103	77	18	16(21)	1(1)	18	32	52	10	5	87	6	0	365	381		

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																				Total							
	PA					SI					R/V/S					IRA					RD					RA		
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC	
28	0	0	0	0	27	1	0	0	0	0	0	13	0	1(2)	0	0	0	1	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	33	1	0	0	0	3	27	0	3(4)	0	1	0	0	1	3	0	0	0	1	3	0	0	0	0
58	0	0	14	22	20	1	4	1	3	12	0	17(20)	2(2)	3	0	0	10	2	0	7	0	25	0	0	0	0	0	
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
125	0	0	14	67	22	1	4	1	6	52	0	21(26)	2(2)	4	0	1	10	3	3	7	0	25	0	0	0	0	0	

ALASKA

ARMY

Fort Greely	28	0	0	0	27	1	0	0	0	0	0	13	0	1(2)	0	0	0	1	0	0	0	0	0	0	0	0	0
Fort Richardson	34	0	0	0	33	1	0	0	0	3	27	0	3(4)	0	1	0	0	1	3	0	0	0	0	0	0	0	0
Fort Wainwright ●	58	0	0	14	22	20	1	4	1	3	12	0	17(20)	2(2)	3	0	0	10	2	0	7	0	25	0	0	0	0
Geniste River Test Site	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARMY TOTALS	125	0	0	14	67	22	1	4	1	6	52	0	21(26)	2(2)	4	0	1	10	3	3	7	0	25	0	0	0	

DEPARTMENT OF NAVY

FLTSURSPTCMD DET 1 Anchitka	5	4	0	1	0	0	0	4	0	0	0	5	0	4(4)	0	0	0	4	0	0	5	0	0	0	0	0	0
Near Point Barrow	13	13	0	0	5	8	0	0	2	0	6	0	0	1(1)	0	0	0	6	0	0	6	0	0	7	0	0	7
NAS Adak	69	69	0	0	10	23	7	1	13	0	8	7	0	4(5)	6(6)	0	0	14	2	0	19	2	0	25	0	0	0
NOSC Special Areas - Cape Pt. Wales	3	3	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0
NOSC Special Areas - St. Lawrence	4	4	0	0	0	4	0	0	0	0	0	4	0	3(3)	0	0	0	4	0	0	4	0	0	0	0	0	0
NOSC Special Areas - Tin City	1	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
DEPARTMENT OF NAVY TOTALS	95	94	0	1	15	35	11	5	15	0	14	20	0	12(13)	6(6)	0	0	32	2	0	36	2	0	32	0	7	

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total											
		PA				SI				RIFS				IRA				RA											
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC					
ALASKA (Continued)																													
AIR FORCE (Continued)																													
Smugglers Cove RRS	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Sparrevohn AFS	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tatalina LRRS	13	13	0	0	0	13	0	0	11	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
Tin City LRRS	12	12	0	0	0	12	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Unalakleet RRS	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
West Nome Tank Farm	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	442	411	32	5	6	382	48	3	68	120	134	12	19	14(14)	4(4)	11	20	43	14	15	43	7	0	101	64				
DEFENSE LOGISTICS AGENCY																													
DFSP Anchorage	2	2	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0
DFSP Fairbanks	2	2	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0
DFSP Whittier	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DEFENSE LOGISTICS AGENCY TOTALS	4	4	0	0	0	4	0	0	0	0	4	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0
ALASKA TOTALS	666	634	32	6	35	508	81	9	87	121	158	84	19	47(53)	12(12)	15	20	80	26	18	88	16	0	158	71				

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																				Total											
	PA					SI					RI/FS					IRA					RD					RA			Total			
	C	U	F	RC	C	C	U	F	RC	C	C	U	F	RC	C	C	U	F	RC	C	C	U	F	RC	C	U	F	RC	RIP	RC	SC	
ARIZONA																																
ARMY																																
Fort Huachuca	56	0	0	0	56	0	0	0	27	6	22	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	27	
Navajo Army Depot	55	0	0	0	55	0	0	11	0	1	40	0	0	1(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
USARC Douglas	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
USARC Phoenix	13	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13	
USARC Phoenix 02	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
USARC Tucson	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	
Yuma Proving Ground	41	41	0	0	40	1	0	32	0	3	2	0	0	1(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	
ARMY TOTALS	171	171	0	0	19	151	1	0	70	6	26	43	0	2(3)	0	6	20	2	1	28	2	0	0	0	0	0	0	0	91	91		
DEPARTMENT OF NAVY																																
MCAS Yuma	19	19	0	0	0	14	0	0	0	0	18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Naval Observatory Station Flagstaff	2	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NCCOSC Sentinel	4	4	0	0	0	0	4	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
DEPARTMENT OF NAVY TOTALS	25	25	0	0	0	14	4	1	0	0	16	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR FORCE																																
Air Force Plant 44	13	13	0	0	0	13	0	0	0	4	6	0	0	1(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																								Total	
	PA				SI				RIFS				IRA				RD				RA					
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		
ARIZONA (Continued)																										
AIR FORCE (Continued)																										
AJO AFS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alcoa AGS	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Davis Monthan AFB	46	44	0	2	1	43	0	2	23	13	1	4	0	0	0	12	1	3	5	8	4	5	0	29	29	
Goldwater Range	41	41	0	0	21	0	0	10	0	0	0	10	0	0	0	0	0	0	10	0	0	0	0	21	21	
Luke AFB ●	31	32	0	0	4	24	0	1	3	3	2	8	0	0	1(1)	2	0	12	2	2	9	1	0	8	0	
Phoenix/Humboldt Radar Site	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sky Harbor AGS	6	6	0	0	0	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tucson IAPT	8	2	0	6	0	2	0	0	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	
Williams AFB ●■	13	13	0	0	0	13	0	0	1	7	4	0	4	3(3)	0	0	1	0	0	2	0	0	0	5	0	
AIR FORCE TOTALS	161	152	0	8	27	95	6	13	27	29	18	2	4	3(3)	1(1)	16	2	25	8	14	23	6	2	64	50	
ARIZONA TOTALS	357	348	0	8	46	260	11	14	97	35	62	;	4	3(3)	3(4)	16	8	67	10	15	74	8	2	155	141	

ARKANSAS

ARMY

AFRC North Little Rock (Pike)	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Fort Chaffee	40	40	0	0	0	40	0	0	18	6	0	3	5	0	4(4)	0	0	1	8	0	2	8	0	31	19	
Pine Bluff Arsenal	72	72	0	0	18	51	0	0	17	31	0	0	1	0	0	30	0	0	35	0	1	35	0	71	71	

(Continued)

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Department of Defense Environmental Restoration Program
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Total # of Sites	Number of Sites																Total										
	PA			SI			RIFS			IRA			RD			RA			RC	SC							
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F									
ARKANSAS (Continued)																											
ARMY (Continued)																											
USARC Arkadelphia	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
USARC Blytheville	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Camden	10	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
USARC Conway	10	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
USARC El Dorado (02)	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC El Dorado (Garrett)	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
USARC Fayetteville	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
USARC Fort Chaffee (1368)	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Fort Chaffee (241)	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Fort Chaffee (2465)	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Fort Chaffee (ECS 15)	13	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
USARC Fort Chaffee (NCO Academy)	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
USARC Fort Smith	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Harrison	9	9	0	0	8	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
USARC Hot Springs	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
USARC Jonesboro	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
USARC Little Rock (ASF 19)	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4

(Continued)

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**Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992**

Total # of Sites	Number of Sites																Total							
	PA			SI			R/FS			IRA			RD			RA			RC	RIP	SC			
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F						
ARKANSAS (Continued)																								
ARMY (Continued)																								
5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5		
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
228	228	0	0	133	91	0	1	35	37	0	3	6	0	4(4)	30	0	1	43	0	3	43	0	217	205
ARMY TOTALS																								
AIR FORCE																								
12	12	0	0	0	10	0	0	1	2	8	0	0	0	0	0	1	8	0	0	8	0	1	1	
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
25	25	0	0	0	25	0	0	4	3	0	0	0	0	0	1	0	0	1	0	0	1	0	5	5
38	38	0	0	1	35	0	0	5	5	8	0	2	0	0	1	1	8	1	0	8	1	0	7	6
266	266	0	0	134	126	0	1	40	42	8	3	6	0	4(4)	31	1	9	44	0	11	44	0	224	211
ARKANSAS TOTALS																								

(Continued)

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	Total # of Sites	Number of Sites																					
		PA				SI				R/FS				IRA				Total					
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		RA	RC	RIP	RC	SC
CALIFORNIA (Continued)																							
ARMY (Continued)																							
USARC Bakersfield	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC Bell (AMSA 15)	22	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
USARC Camp Pendleton	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
USARC Chico	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Clovis	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC El Monte	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Fort Ord (AMSA 14)	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
USARC Fresno (AMSA 14-G)	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
USARC Long Beach	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Los Alamitos (ECS 16)	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
USARC Los Angeles 01	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Los Angeles 02	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Modesto	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Mountain View	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
USARC Norco	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Pasadena, CA	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC San Bernardino (AMSA 19G)	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9

(Continued)

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Total # of Sites	Number of Sites																									
	PA			SI			RIFS			IRA			RD			RA			Total							
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	RC	RIP	RC	SC	
CALIFORNIA (Continued)																										
ARMY (Continued)																										
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
12	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
487	487	0	0	194	286	0	6	36	14	122	79	0	7(9)	3(4)	8	5	63	4	5	70	2	1	232	216		
DEPARTMENT OF NAVY																										
25	25	0	0	3	7	13	0	5	0	1	13	0	2(2)	2(7)	0	1	14	1	0	15	1	0	9	9	9	9
1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1

(Continued)

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	Number of Sites																	Total						
	PA			SI			RIFS			IRA			RD			RA								
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U		F	RC	RIP	RC	SC	
CALIFORNIA (Continued)																								
DEPARTMENT OF NAVY (Continued)																								
NSC Oakland, Fuel Depot, Richmond	4	3	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NSC San Diego	8	7	0	1	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NSGA Skaggs Island	8	5	2	1	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NSY Long Beach	8	8	0	0	0	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NSY Mare Island	26	25	0	1	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MTC San Diego	4	3	0	1	1	2	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
NTTC San Francisco	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NUMES SOCIAL DET San Diego	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NWS Concord ♦	31	30	1	0	7	12	10	0	1	7	0	16	0	0	0	7	0	15	0	0	23	0	0	0
NWS Seal Beach	71	70	1	0	0	4	38	1	0	0	0	43	0	0	0	0	0	43	0	0	43	0	0	0
NWS Seal Beach Coronet Detachment	1	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0
NWS Seal Beach Fallbrook Annex	10	10	0	0	0	1	5	4	0	0	0	9	0	0	0	0	0	9	0	0	9	0	0	0
OLF Imperial Beach	7	7	0	0	0	0	4	0	0	0	0	5	0	0	0	0	0	4	0	0	5	0	0	0
PWC San Diego	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
PWC San Francisco	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
Salton Sea Test Range	24	0	23	1	0	0	0	0	24	0	0	0	0	0	0	0	0	24	0	0	24	0	0	0

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Total # of Sites	Number of Sites																Total								
	PA			SI			R/V/S			IRA			RD			RA									
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C		U	F						
CALIFORNIA (Continued)																									
DEPARTMENT OF NAVY (Continued)																									
SIMA San Diego	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Singer Education Div., Imperial Beach	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
SNI - NAWES Point Mugu	7	7	0	0	0	0	5	0	0	0	0	5	0	0	0	0	5	0	0	5	0	0	0		
DEPARTMENT OF NAVY TOTALS	830	768	41	21	71	251	187	46	24	17	244	369	0	40(53)	22(32)	6	1	589	7	4	634	5	0	100	90
AIR FORCE																									
Air Force Plant 19	6	6	0	0	0	6	0	0	1	5	0	0	0	0	0	5	0	0	5	0	0	5	0	6	6
Air Force Plant 42	27	27	0	0	0	27	0	0	0	26	1	0	24	0	0	0	0	0	0	0	0	0	0	24	24
Air Force Plant 70	12	1	11	0	0	1	11	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beale AFB	24	25	0	0	0	24	0	0	4	1	1	18	1	0	0	0	3	16	0	2	17	0	0	5	5
Castle AFB	34	33	0	1	0	8	0	0	0	7	25	1	6	0	2(2)	0	1	26	0	0	27	0	0	6	0
Costa Mesa Station	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Crescent City Radar Site	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Edwards AFB	48	40	0	0	0	20	20	0	0	5	20	0	0	6(6)	2(2)	0	0	0	4	0	0	0	0	0	0
Fresno ANGB	5	5	0	0	0	1	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
George AFB	65	65	0	0	0	65	0	0	0	5	0	0	0	4(4)	0	4	0	0	4	0	0	0	0	0	0
Hayward ANGS	2	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Total # of Sites	Number of Sites												Total											
	PA			SI			RIFS			IRA			RD			RA								
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	RC	RIP	SC			
CALIFORNIA (Continued)																								
AIR FORCE (Continued)																								
Key Largo Beacon Annex	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
Los Angeles AFB	38	0	0	0	37	0	0	0	0	22	2	2	0	0	2(2)	19	0	0	6	11	0	0	0	
March AFB ●	43	43	0	0	41	0	0	0	4	4	32	0	3	4(4)	0	0	0	28	0	1	28	0	1	
Martha AFB ● ■	69	69	0	0	63	0	0	0	0	26	5	0	7	1(1)	0	1	0	0	2	0	0	0	7	
McClellan AFB ●	177	177	0	0	174	3	0	10	20	143	0	1	9(9)	0	13	4	0	13	3	0	12	8	23	
Mill Valley Radar Site	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mt. Disappointment Radio Relay Station	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mt. Laguna AFS	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
North Highlands ANGB	2	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Norton AFB ● ■	22	22	0	0	22	0	0	0	1	2	3	0	0	1(1)	0	0	0	0	0	0	0	0	1	
Orizuka AFB	5	5	0	0	5	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5	
Ortiano IAP	1	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
Paso Robles Radar Site	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Point Arena AFS	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
San Pedro Hill Radar Site	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sequoyeda ANGB	2	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Travis AFB ●	27	28	0	0	1	27	0	0	2	0	4	0	0	2(2)	0	0	0	0	0	0	0	0	3	

(Continued)

Table C-1
 Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total								
	PA				SI				RIFS				IRA				RA			Total					
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F		RC	RIP	RC	SC	
CALIFORNIA (Continued)																									
AIR FORCE (Continued)																									
Vandenberg AFB	59	54	5	0	0	52	5	0	2	2	39	5	2	0	1(1)	0	0	1	0	0	3	0	0	4	4
AIR FORCE TOTALS	669	643	23	3	1	578	51	0	29	126	281	24	44	25(25)	9(9)	42	8	72	36	18	76	17	9	91	48
DEFENSE LOGISTICS AGENCY																									
DOTC Tracy ●	62	61	1	0	2	59	1	0	27	3	55	3	0	2(2)	0	2	1	55	2	1	55	1	0	30	0
DFSP Estero Bay	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0
DFSP Norwalk	2	2	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0
DFSP Ozol	2	2	0	0	0	2	0	0	0	2	0	0	0	0	0	1	1	0	1	0	1	0	1	0	1
DFSP San Pedro	2	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0
Sharpe Army Depot ●	125	125	0	0	0	124	0	0	59	8	57	0	0	8(8)	0	3	6	56	1	0	7	0	1	60	0
DEFENSE LOGISTICS AGENCY TOTALS	194	193	1	0	2	190	1	0	86	15	115	3	0	10(10)	0	6	8	116	4	2	67	2	1	91	0
CALIFORNIA TOTALS	2190	2101	65	24	268	1315	219	54	175	172	762	475	44	82(97)	34(45)	64	22	839	51	29	847	26	11	514	354

COLORADO

ARMY

AFRC Boulder	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
AFRC Fort Carson	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total			
		PA		SI		RIFS		IRA		RD		RA		RC		RIP		RC	SC		
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC	
COLORADO (Continued)																					
ARMY (Continued)																					
Bennett AFMAG Training Site	9	9	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fitzsimmons Army Medical Center	25	25	0	0	0	25	0	0	0	0	0	25	0	0	0	0	0	0	0	0	
Fort Carson	57	57	0	0	0	57	0	0	21	6	11	17	1	5(5)	5(5)	5	0	1	4	1	
Pueblo Depot Activity	56	56	0	0	0	24	0	0	0	0	56	0	0	0	0	0	56	0	0	0	
Rocky Mountain Arsenal ●	209	209	0	0	0	209	0	0	0	0	209	0	0	15(17)	9(9)	0	0	141	0	0	
USARC Aurora 01	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
USARC Aurora 02	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
USARC Commerce City (AMSA 22)	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
USARC Denver	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
USARC Fort Carson (ECS 42)	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	
USARC Fort Collins (AMSA 21G)	11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	
USARC Pueblo	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
ARMY TOTALS	395	395	0	0	39	324	0	0	21	6	285	42	1	20(22)	14(14)	5	0	198	1	4	

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total									
	PA			SI			RIFS			IRA			RD			RA			RC	RIP	SC					
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F				RC	RIP	SC		
COLORADO (Continued)																										
DEPARTMENT OF NAVY																										
NAVPETRES Amw Points Facility	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		
DEPARTMENT OF NAVY TOTALS	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		
AIR FORCE																										
Air Force Plant P.MKS	44	44	0	0	0	44	0	0	4	40	0	0	9	12(12)	1(1)	5	2	4	5	2	3	4	0	17	0	
Buckley ANGB	9	9	0	0	0	9	0	0	0	9	0	0	0	0	0	7	2	0	0	0	2	0	0	0	0	
Cheyenne Mountain AFB	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
Greely AGS	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lowry AFB	16	16	0	0	0	15	0	0	0	10	0	0	3	0	0	0	1	0	1	0	0	1	0	4	4	
Peterson AFB	9	9	0	0	2	7	0	0	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	9	9
USAF Academy	12	12	0	0	2	10	0	0	3	2	5	0	1	0	0	0	0	0	0	0	0	0	0	0	6	6
AIR FORCE TOTALS	92	91	1	0	5	85	0	0	7	68	5	0	20	12(12)	1(1)	12	5	4	6	2	5	5	0	37	20	
COLORADO TOTALS	488	487	1	0	45	409	0	0	28	74	290	42	21	32(34)	15(15)	17	5	202	7	6	147	6	0	100	83	

(Continued)

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Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																	
	PA		SI		FIFS		IRA		RD		RA		Total					
	C	U	C	U	C	U	C	U	C	U	C	U	F	RC	RIP	RC	SC	
CONNECTICUT																		
ARMY																		
3	3	0	0	3	0	0	0	3	0	0	3	0	0	0	0	0	0	3
Family Housing Manchester, CT 25																		
2	2	0	0	2	0	0	0	2	0	0	0	1(1)	0	0	0	2	0	2
Family Housing Milford, CT 17																		
2	2	0	0	2	0	0	0	2	0	0	2	0	0	0	0	0	0	2
Family Housing New Britain, CT 57																		
3	3	0	0	3	0	0	0	3	0	0	3	0	0	0	1	0	0	2
Family Housing Portland, CT 36																		
6	6	0	0	6	0	0	0	6	0	0	5	2(2)	0	0	0	1	0	6
Family Housing Shelton, CT 74																		
3	3	0	0	3	0	0	0	3	0	0	3	0	0	0	0	0	0	3
Family Housing Westport, CT 73																		
3	3	0	0	3	0	0	0	3	0	0	3	0	0	0	2	0	0	3
Housing Area Ansonia, CT 04																		
2	2	0	0	2	0	0	0	2	0	0	2	0	0	0	0	0	0	2
Housing Area East Windsor, CT 08																		
2	2	0	0	2	0	0	0	2	0	0	2	0	0	0	1	0	0	2
Housing Area Fairfield, CT 65																		
3	3	0	0	3	0	0	0	3	0	0	3	0	0	0	0	0	0	3
Housing Area Middletown, CT 48																		
3	3	0	0	3	0	0	0	3	0	0	2	0	0	0	1	0	0	3
Housing Area Orange, CT 15																		
2	2	0	0	2	0	0	0	2	0	0	2	0	0	0	0	0	0	2
Housing Area Plainville, CT 67																		

(Continued)

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Department of Defense Environmental Restoration Program
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Total # of Sites	Number of Sites																								
	PA				SI				RIFS				IRA				Total								
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		U	F	RC	U	F	RC		
CONNECTICUT (Continued)																									
ARMY (Continued)																									
	9	9	0	0	0	9	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	
Straford Army Engine Plant																									
	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	
USARC Bridgeport																								9	
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
USARC Danbury																								1	
	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	
USARC East Windsor																								9	
	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	
USARC Fairfield																								4	
	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	
USARC Hartford																								4	
	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	
USARC Middletown																								5	
	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	
USARC Milford																								9	
	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7	
USARC New Haven																								7	
	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	
USARC Waterbury																								4	
	11	11	0	0	8	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
USARC Windsor Locks (ANSA 72G)																								8	
ARMY TOTALS	106	106	0	0	60	43	0	3	0	34	9	0	26	3(3)	0	0	0	8	0	0	7	0	93	93	
DEPARTMENT OF NAVY																									
	26	24	1	1	0	10	3	5	0	2	11	10	0	1(1)	0	0	0	19	1	2	22	1	0	1	0
NSB New London																								0	1
	1	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
MUSC East Lyme																								1	1
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
MUSC New London																								1	1

(Continued)

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Total # of Sites	Number of Sites																Total							
	PA		SI		RIFS		IRA		RD		RA		RC		SC		RC	RIP	RC	SC				
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC	
CONNECTICUT (Continued)																								
NAVY (Continued)																								
NWIRP Bloomfield	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DEPARTMENT OF NAVY TOTALS	35	33	1	1	11	10	5	1	2	11	17	0	1(1)	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE																								
Bradley ANG	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orange AGS	2	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	3	2	1	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CONNECTICUT TOTALS	144	141	2	1	61	56	10	8	1	36	22	17	26	4(4)	0	0	0	0	0	0	0	0	0	0
DELAWARE																								
ARMY																								
USARFC Dover	5	5	0	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARFC Lewis	5	5	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARFC Seaford	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARFC Wilmington, DE	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
ARMY TOTALS	16	16	0	0	13	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13

(Continued)

Table C-1
 Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

	Total # of Sites		Number of Sites														Total			
	PA		SI		RIFS		IRA		RD		RA		Total		Total					
	C	U	C	U	C	U	C	U	C	U	C	U	C	U	F	RC	RIP	RC	SC	
DELAWARE (Continued)																				
DEPARTMENT OF NAVY																				
NAVFAC Lowes	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
DEPARTMENT OF NAVY TOTALS	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
AIR FORCE																				
Dover AFB ●	58	58	0	0	58	0	0	23	5	6	0	0	2(2)	4(4)	5	0	0	6	0	29
Greater Wilmington APT (DE ANG)	6	6	0	0	5	0	0	0	1	4	0	0	0	0	1	0	0	0	0	1
AIR FORCE TOTALS	64	64	0	0	63	0	23	6	10	0	0	2(2)	4(4)	6	0	0	6	1	0	30
DELAWARE TOTALS	81	81	0	0	63	0	23	6	10	0	0	2(2)	4(4)	6	0	0	6	1	0	44
DISTRICT OF COLUMBIA																				
ARMY																				
Fort McNair	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Reed Army Medical Center	3	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
ARMY TOTALS	10	10	0	0	7	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
DEPARTMENT OF NAVY																				
COMNAVST Washington	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

(Continued)

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State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total		
	PA			SI			RIFS			RD			RA			RC	RIP	RC	SC
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F				
DISTRICT OF COLUMBIA (Continued)																			
DEPARTMENT OF NAVY (Continued)																			
NAVSECSTA Washington DC	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRL Washington	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
NS Anacostia	4	3	1	0	0	1	2	0	0	1	0	2	0	1(1)	0	0	0	0	0
DEPARTMENT OF NAVY TOTALS	7	6	1	0	2	2	2	0	0	1	0	2	0	2(2)	0	0	0	0	2
AIR FORCE																			
Bolling AFB	6	6	0	0	0	5	1	0	0	1	5	0	0	1(1)	0	0	0	0	0
AIR FORCE TOTALS	6	6	0	0	0	5	1	0	0	1	5	0	0	1(1)	0	0	0	0	0
DISTRICT OF COLUMBIA TOTALS	23	22	1	0	2	14	3	3	0	2	5	9	0	3(3)	1	0	3	1	1

FLORIDA

ARMY

AFRC Daytona Beach	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aviation Supply Facility, 49-A	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cape St. George	2	2	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
USAPC Coral Gables	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued)

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Department of Defense Environmental Restoration Program
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	Total # of Sites	Number of Sites																Total																			
		PA			SI			RIFS			IRA			RD			RA			RC	SC																
		C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F																		
FLORIDA (Continued)																																					
ARMY (Continued)																																					
USARC Palatka (AMSA 55W)	6	6	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC Panama City	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC Pensacola	3	3	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC Perry	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC Port Charlotte	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC St. Petersburg (AMSA 51M)	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC St. Petersburg	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC Taft	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC Tallahassee	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC Tampa	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC West Palm Beach (Babcock)	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC West Palm Beach (Gun Club)	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARMY TOTALS	134	134	0	0	127	2	0	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	129	129	129

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 State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total										
		PA				SI				R/IFS				IRA				RA	RC	SC								
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC											
FLORIDA (Continued)																												
DEPARTMENT OF NAVY																												
CSC Panama City	15	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	0
NAS Cecil Field ●	27	20	5	2	6	13	0	0	0	6	15	0	0	0	0	0	0	13	0	0	21	0	0	0	0	6	6	0
NAS Jacksonville ●	54	45	8	1	0	14	31	0	1	0	10	43	0	2(2)	0	0	0	44	1	2	53	0	0	0	0	1	0	0
NAS Key West	21	10	10	1	1	9	0	0	1	7	1	11	1	0	0	0	0	7	0	0	18	0	0	0	0	3	3	0
NAS Pensacola ●	61	45	14	2	0	34	1	0	0	0	35	22	0	3(3)	2	0	38	0	1	53	0	0	0	0	0	0	0	0
NAS Richmond	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
NAS Whiting Field	27	23	4	0	1	17	0	0	0	1	17	5	0	1(1)	0	0	18	0	0	22	0	0	0	0	0	1	1	0
NRL UWS REF Det Orlando	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
NS Mayport	30	18	7	5	0	0	0	0	0	18	11	0	0	0	0	0	0	0	0	30	0	0	0	0	0	0	0	0
NSC Jacksonville	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
NSC Pensacola	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
HSGA Homestead	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
NSWC DET Ft. Lauderdale	1	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NTC Orlando	14	11	1	2	4	6	0	0	2	1	0	7	1	1(1)	0	0	4	1	0	7	1	0	7	1	0	7	7	0
MTTC Pensacola	4	4	0	0	0	0	0	0	3	0	1	3	0	0	1(1)	0	4	0	0	4	0	0	0	0	0	0	0	0
NUSC Ft. Lauderdale	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
NUSC West Palm Beach	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0

(Continued)

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Total # of Sites	Number of Sites																							
	PA		SI		RIFS		IRA		RD		RA		Total											
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC					
	11	10	0	1	0	2	0	0	7	2	0	0	0	0	0	9	0	0	0	0	0	0	0	0
DEPARTMENT OF NAVY TOTALS	272	207	50	15	22	96	32	5	9	95	131	1	3(3)	5(5)	0	138	1	1	230	1	0	29	22	
FLORIDA (Continued)																								
DEPARTMENT OF NAVY (Continued)																								
Outlying Landing Field Barin	11	10	0	1	0	2	0	2	0	7	2	0	0	0	0	9	0	0	0	0	0	0	0	0
DEPARTMENT OF NAVY TOTALS	272	207	50	15	22	96	32	5	9	95	131	1	3(3)	5(5)	0	138	1	1	230	1	0	29	22	
AIR FORCE																								
Avon Park Air Force Range	20	12	1	7	5	6	1	7	1	3	0	8	2	0	0	0	0	0	0	0	6	0	0	8
Cape Canaveral AFS	10	10	0	0	0	10	0	0	0	9	0	0	4(4)	0	0	0	0	0	0	0	0	0	0	0
Cross City Radar Site	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cudjoe Key AFS	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eglin AFB	39	39	0	0	6	21	18	0	3	4	18	0	3(3)	0	0	0	0	0	0	0	0	0	3	9
FL Lonesome Beacon Annex	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Homestead AFB	26	26	0	0	0	25	0	0	6	0	7	0	1(1)	0	2	5	1	0	5	0	1	0	0	0
Hurlburt AFB	11	11	0	0	0	11	0	0	0	11	0	0	0	0	0	11	0	0	11	0	0	0	0	0
Jacksonville CAMM FAC ANIX	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jacksonville IAPT	10	10	0	0	0	10	0	0	0	8	0	0	0	0	0	8	0	1	8	0	0	0	0	0
MacDill AFB	44	36	3	6	6	30	3	6	0	13	2	10	6	1(1)	0	6	2	1	9	0	2	14	14	
Patrick AFB	20	16	4	0	0	16	4	0	1	3	13	0	2(2)	1(1)	0	0	1	0	0	0	0	0	4	4
Richmond AFS	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued)

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Total # of Sites	Number of Sites																Total							
	PA			SI			RIFS			IRA			RD			RA			RC	RIP	SC			
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F						
FLORIDA (Continued)																								
AIR FORCE (Continued)																								
Tyndall AFB	36	35	1	0	5	30	1	0	17	1	9	0	0	0	0	0	1	4	0	1	4	0	0	22
Whitcomb Radar Site	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	222	199	9	13	22	163	27	13	22	30	70	25	12	11(11)	1(1)	5	1	40	4	4	44	1	4	57
DEFENSE LOGISTICS AGENCY																								
DFSP Lynn Haven	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0
DFSP Tampa	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0
DEFENSE LOGISTICS AGENCY TOTALS	2	2	0	0	0	2	0	0	0	1	1	0	1	0	0	0	0	2	0	0	2	0	0	1
FLORIDA TOTALS	638	542	59	28	171	263	59	23	29	40	166	156	13	14(14)	6(6)	5	1	180	5	5	279	2	4	215
GEORGIA																								
ARMY																								
AFRC Waycross	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Fort Benning	39	39	0	0	0	36	0	3	8	18	6	5	18	2(2)	0	0	1	1	0	0	3	0	0	26
Fort Gillem	10	10	0	0	0	10	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0
Fort Gordon	32	32	0	0	0	32	0	2	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	2
Fort McPherson	9	9	0	0	0	8	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3

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Total # of Sites	Number of Sites																Total						
	PA				SI				RIFS				IRA					RA					
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		C	U	F	RC	RC	SC
6	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
270	270	0	0	0	86	102	2	71	15	19	8	39	18	2(2)	0	0	1	1	0	0	3	0	119
ARMY (Continued)																							
USARC Tifton																							
28	28	0	0	0	9	0	0	0	3	2	22	0	1(1)	0	0	2	22	1	0	24	1	0	1
NAVY																							
NAVYMARCOESCEN Atlanta																							
2	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0
NAVYSCOL Athens																							
3	3	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	0	0
NSB Kings Bay																							
17	17	0	0	12	4	0	12	0	0	17	0	0	0	0	0	0	16	0	0	17	0	0	12
DEPARTMENT OF NAVY TOTALS																							
50	50	0	0	12	13	0	12	0	3	7	39	0	1(1)	0	0	2	38	1	0	46	1	1	13
AIR FORCE																							
Air Force Plant 6																							
15	15	0	0	0	14	1	0	6	1	4	0	0	7(7)	0	0	1	0	0	0	0	0	7	6
Dobbins AFB																							
7	7	0	0	0	7	0	0	3	0	1	0	0	0	0	0	0	2	0	0	2	0	0	3
Moody AFB																							
22	22	0	0	0	20	0	0	8	2	0	1	0	1(1)	0	2	0	2	0	1	0	0	8	8
Robins AFB																							
33	33	0	0	0	33	0	0	7	14	7	0	8	1(1)	1(1)	7	3	1	4	3	0	1	2	16
Savannah IAPT																							
11	11	0	0	2	0	9	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	2
AIR FORCE TOTALS																							
86	86	0	0	2	74	10	0	24	17	12	1	8	9(9)	1(1)	9	4	5	6	4	3	1	9	35
GEORGIA TOTALS																							
408	408	0	0	100	189	12	83	39	39	27	79	26	12(12)	1(1)	9	7	44	7	4	52	2	9	167

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Total # of Sites	Number of Sites																Total							
	PA			SI			RIFS			IRA			RD			RA			RC	RC	SC			
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F						
GUAM																								
DEPARTMENT OF NAVY																								
NAS Agana	2	0	0	2	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0
NAVCAMS WESTPAC Guam	11	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	0	7
NAVMAJ Guam	6	5	1	0	3	0	2	0	0	0	0	0	3	0	0	0	0	0	2	0	0	3	0	3
NAVREGENCEN Guam	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
NAVSHIPREFFAC Guam	5	5	0	0	3	2	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	2	0	3
NPPSO Guam	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
NS Guam	18	18	0	0	12	6	0	0	2	0	4	1	0	0	0	0	0	0	5	0	0	5	0	14
NSD Guam	4	4	0	0	2	2	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	1	0	3
PWC Guam	5	5	0	0	1	2	0	0	0	0	3	0	0	0	1(2)	0	0	0	2	0	1	3	0	1
DEPARTMENT OF NAVY TOTALS	53	49	1	3	28	13	2	2	3	0	10	7	0	1(2)	0	0	0	15	0	1	21	0	31	
AIR FORCE																								
Andersen AFB ♦	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
GUAM TOTALS	103	49	1	3	28	13	2	2	3	0	10	7	0	1(2)	0	0	0	15	0	1	21	0	31	

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Total # of Sites	Number of Sites																										
	PA				SI				RIFS				IRA				RD				RA				Total		
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RC	SC	
HAWAII																											
ARMY																											
Altamano Military Reservation	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fort Kamehameha	11	11	0	0	0	1	0	10	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fort Shafter	33	32	0	1	16	6	10	1	1	1	4	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	17
Kapalana Military Reservation	22	22	0	0	3	19	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
Kilauea Military Reservation	16	16	0	0	0	16	0	0	13	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Kapea Ammo Storage Sites	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mabua Military Reservation	4	4	0	0	0	4	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Pohakuloa Training Area	16	16	0	0	0	16	0	0	12	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
Schofield Barracks	56	1	55	0	0	0	12	0	0	0	12	0	0	1(1)	0	1	0	12	0	0	12	0	0	12	0	0	0
Tripler Army Medical Center	6	6	0	0	0	6	0	0	0	0	3	2	0	0	2(2)	0	0	0	0	0	0	0	0	0	0	0	0
ARMY TOTALS	167	111	55	1	19	71	22	11	48	1	27	6	0	1(1)	2(2)	2	0	12	0	1	12	0	1	12	0	67	
DEPARTMENT OF NAVY																											
Camp H.M. Smith, Oahu	3	3	0	0	1	2	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	2	0	0	1	
COMNAVBASE Pearl Harbor	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	
DRMO Hawaii	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
DRMO Pearl City Junction	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	

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**Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992**

Total # of Sites	Number of Sites																Total RC SC													
	PA				SI				R/FS				IRA					RA												
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		C	U	F	RC	C	U	F	RC					
HAWAII (Continued)																														
DEPARTMENT OF NAVY (Continued)																														
FLTRNGGRA Pearl Harbor	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1			
INACTSHIPDET Pearl Harbor ♦	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		
Kahoolawe Projects	17	0	17	0	0	0	0	17	0	0	0	17	0	0	0	0	0	0	0	0	17	0	0	17	0	0	0	0		
MCAS Kaneohe Bay	21	0	0	0	14	5	1	0	3	0	0	2	0	0	0	0	0	0	0	0	2	0	0	2	0	0	3	0		
NAS Barbers Point	10	9	0	1	6	3	0	0	2	0	1	1	0	1(1)	0	0	0	1	0	0	1	0	0	2	0	0	8	8		
NAVENPNTMEDU No. 6 Pearl Harbor	2	2	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	
NAVMAG Lualualei	7	7	0	0	3	3	1	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	
NCTAMS EASTPAC	18	17	0	1	10	6	0	0	2	0	4	1	0	1(1)	0	0	0	4	0	0	4	0	0	4	0	0	5	0	12	12
NS Pearl Harbor ♦	10	9	1	0	1	4	1	0	1	0	1	4	0	1(1)	0	0	0	4	1	0	4	1	0	7	1	0	3	0	0	
NSB Pearl Harbor ♦	7	7	0	0	1	1	0	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	
NSC Pearl Harbor ♦	12	12	0	1	5	5	1	0	3	0	3	1	0	0	0	0	0	3	0	0	3	0	0	4	0	0	0	8	0	
NSY Pearl Harbor ♦	19	19	0	0	7	5	0	0	3	0	9	0	0	1(1)	0	0	0	2	0	0	2	0	0	9	0	0	10	0	0	
PMPF Barking Sands	3	3	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	3	0	0	3	0	0	3	0	0	0	0	0	
PWC Pearl Harbor ♦	13	13	0	0	0	2	1	0	0	0	10	0	0	1(1)	0	0	0	2	1	0	10	0	0	2	1	0	0	0	0	
Waiawa Shaft Pearl City	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	

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	Total # of Sites	Number of Sites														Total									
		PA			SI			RIFS			IRA			RA			Total RC	SC							
		C	U	F	C	U	F	C	U	F	C	U	F	C	U	F									
ILLINOIS (Continued)																									
ARMY (Continued)																									
AFRC Waukegan	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6				
Charles Melvin Price Support Center	31	31	0	0	0	31	0	0	0	0	0	31	0	0	0	0	0	0	0	0	0	0			
Fort Sheridan ■	26	26	0	0	0	24	0	1	0	0	18	0	0	0	0	1	17	0	0	1	0	0			
Housing Area Addison, IL	4	4	0	0	0	4	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	4	4		
Housing Area Worth, IL	5	5	0	0	0	5	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	5	5	
Joliet AAP ●	53	53	0	0	0	53	0	0	0	0	53	0	0	3(3)	0	3	0	23	0	0	26	0	0		
Rock Island Arsenal	31	31	0	0	0	30	0	0	25	0	3	1	0	0	0	0	1	1	1	1	1	0	26	26	
Savanna Depot Activity ●	72	72	0	0	0	70	0	0	9	0	40	0	0	0	0	2	55	1	2	55	1	0	33	33	
USARC Arlington Heights	6	6	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Aurora (Sullivan Rd)	5	5	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Belleville	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Bloomington	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
USARC Canton, IL	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9
USARC Centralia	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Chicago (Byn Mawr Ave.)	6	6	0	0	6	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
USARC Chicago (Gibson)	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Chicago (Kedzie Ave.)	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

(Continued)

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Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total										
		PA			SI			RIFS			IRA			RD			RA			RC	SC							
		C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F									
ILLINOIS (Continued)																												
ARMY (Continued)																												
USARC Chicago (O'Hare Field)	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
USARC Chicago (Pulaski)	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
USARC Danville	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Decatur	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
USARC East St. Louis	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
USARC Fairfield, IL	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Fort Sheridan (B2)	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Fort Sheridan (AMSA 47)	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
USARC Fort Sheridan (N. Shore)	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Galesburg	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Glenview (ASF 26)	16	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	16
USARC Harvey	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
USARC Homewood	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Joliet (Railroad)	4	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Kankakee	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9
USARC Marion, IL	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
USARC Maywood (AMSA 46)	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total								
	PA				SI				RIFS				IRA				RA			Total RC	Total SC				
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F			RC			
ILLINOIS (Continued)																									
NAVY (Continued)																									
	9	8	0	0	0	9	0	0	3	0	0	6	0	0	0	0	0	0	6	0	0	3	3		
NAS Glenview																									
	14	14	0	0	8	6	0	8	0	8	0	6	0	0	0	0	0	0	6	0	0	6	8		
NTC Great Lakes																									
	1	1	0	0	0	0	0	0	0	0	0	0	0	1(1)	0	0	0	1	0	0	1	0	1	0	
PWC Great Lakes																									
DEPARTMENT OF NAVY TOTALS	32	32	0	0	24	6	0	11	0	7	12	0	2(2)	0	0	0	19	1	0	19	1	0	12	11	
AIR FORCE																									
	2	2	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	
Capital MAPT																									
	32	32	0	0	30	0	0	3	16	10	0	8	0	0	4	0	0	4	0	0	4	0	15	15	
Charute AFB ■																									
	6	6	0	0	2	4	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	3	3	
Greater Peoria APT																									
	14	14	0	0	14	0	0	10	2	0	0	0	0	0	0	0	2	2	0	2	0	2	12	12	
O'Hare Air Force Reserve																									
	8	8	0	0	8	0	0	0	7	0	0	0	0	0	1	6	0	1	6	1	1	0	1	1	
Scott AFB																									
AIR FORCE TOTALS	62	62	0	0	2	56	2	0	13	26	12	0	9	0	5	6	0	7	8	1	7	0	31	31	
ILLINOIS TOTALS	576	576	0	0	249	297	8	14	58	35	133	44	18	5(5)	0	8	9	115	10	11	103	10	0	335	334
INDIANA																									
ARMY																									
	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	
AFRC Bloomington																									

(Continued)

Table C-1
 Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																							
	PA				SI				RIFS				IRA				Total							
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		RA						
INDIANA (Continued)																								
DEFENSE LOGISTICS AGENCY																								
DNSC Newhaven	1	1	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	1	0	1	0	1	0	
DEFENSE LOGISTICS AGENCY TOTALS	1	1	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	1	0	1	0	1	0	
INDIANA TOTALS	411	411	0	0	127	213	7	8	86	23	99	21	4	1(1)	0	2	0	50	3	2	17	2	0	219
IOWA																								
ARMY																								
AFRC Dubuque	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
AFRC Waterloo	5	5	0	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Fort Des Moines	11	11	0	0	0	1	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Iowa Army Ammunition Plant</i> ●	40	40	0	0	0	40	0	0	7	1	32	0	0	2(2)	0	0	2	31	0	0	33	0	0	7
USARC Ames	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
USARC Cedar Rapids	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Cherokee	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
USARC Creston	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Davenport	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Decorah	7	7	0	0	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total							
	PA				SI				RMFS				IRA				RA							
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC	
	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
USARC Des Moines (6364/139)																								
USARC Des Moines (ASF 60)	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
USARC Des Moines (Bldg. 100)	12	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12
USARC Fort Dodge	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
USARC Garner, IA	6	6	0	0	5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
USARC Iowa City	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Middletown	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
USARC Mt. Pleasant	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Muscatine	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Ottumwa	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
USARC Pocahontas	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
USARC Sac City	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Sioux City	13	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
USARC Washington (AMSA 30)	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
USARC Washington, IA	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
ARMY TOTALS	177	177	0	0	120	51	0	6	7	1	43	0	0	2(2)	0	0	2	31	0	0	0	0	127	120

(Continued)

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Total # of Sites	Number of Sites																Total					
	PA			SI			RIFS			IRA			RD			RA						
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C		U	F	RC	RIP	SC
IOWA (Continued)																						
AIR FORCE																						
5	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	4	0	0	0	0	0
4	4	0	0	0	1	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
9	9	0	0	0	6	3	0	0	4	3	0	0	0	0	0	0	4	0	0	0	0	0
186	186	0	0	120	57	3	6	7	5	46	0	0	2(2)	0	0	6	31	0	6	33	0	127
KANSAS																						
ARMY																						
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
58	58	0	0	20	32	0	1	17	0	7	1	0	7(7)	4(4)	2	1	1	7	1	1	6	43
48	41	7	0	0	28	20	0	7	0	6	28	0	1(1)	0	3	0	4	3	0	4	3	10
38	38	0	0	0	35	0	0	7	0	31	0	0	1(1)	0	0	0	0	0	0	0	0	7
50	50	0	0	0	50	0	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total RC SC												
		PA				SI				RIFS				IRA																
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		C	U	F	RC	C	U	F	RC				
KANSAS (Continued)																														
ARMY (Continued)																														
USARC Parsons	6	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC Pittsburg	6	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC Salina	5	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Scott City	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Sunflower Outdoor Training	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Topeka (AMSA 38)	10	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
USARC Wellington	3	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Wichita (Wallace)	8	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
ARMY TOTALS	312	305	7	0	137	145	20	2	31	0	74	29	0	6(6)	5(5)	5	10	1	5	9	0	177	164							
AIR FORCE																														
Forbes Field ANGB	11	11	0	0	0	3	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	10
McConnell AFB	27	25	2	0	0	25	2	0	8	3	2	6	3	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	11
Smoky Hill ANGB	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	43	41	2	0	3	32	2	0	8	10	2	6	10	0	0	0	0	2	0	2	0	1	2	0	0	0	0	0	0	21

(Continued)

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Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																											
	PA				SI				RI/FS				IRA				RD				RA				Total			
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC	
	KENTUCKY (Continued)																											
	ARMY (Continued)																											
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	12	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12
	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9
	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
ARMY TOTALS	255	253	2	0	85	135	31	4	53	7	63	42	7	0	1(1)	0	31	0	31	0	0	31	0	0	0	145	145	

(Continued)

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Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

	PA		SI		R/IFS		IRA		RD		RA		Total									
	C U		C U		C U		C(ACT) U(ACT)		C U		C U		RC RIP RC SC									
	C	U	C	U	C	U	C	U	C	U	C	U	F	RIP	RC	SC						
DEPARTMENT OF NAVY																						
NOS Louisville	6	6	0	0	3	3	0	0	2	0	0	1	0	0	0	0	0	0	5	5		
DEPARTMENT OF NAVY TOTALS	6	6	0	0	3	3	0	0	2	0	0	1	0	0	0	0	0	0	5	5		
AIR FORCE																						
Standiford Field ANGB	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0		
AIR FORCE TOTALS	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0		
KENTUCKY TOTALS	262	260	2	0	88	138	32	4	55	7	64	43	7	0	1(1)	0	0	32	0	0	150	150

KENTUCKY (Continued)

LOUISIANA

ARMY

Fort Polk	20	20	0	0	0	0	13	1	3	3	0	1(1)	0	0	0	3	0	0	0	0	13	13
Louisiana AAP ●	7	7	0	0	0	0	0	0	7	0	0	1(3)	0	0	0	7	0	0	2	0	0	0
Military Ocean Terminal, New Orleans ■	12	12	0	0	1	0	0	1	0	0	10	0	0	0	0	5	0	0	4	0	0	1
Peason Ridge	4	4	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
USARC Alexandria, LA	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Baton Rouge (North)	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Baton Rouge (Roberts)	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites														Total					
	PA				SI				RI/FS				IRA				RD	RA	Total	
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC				RC
LOUISIANA (Continued)																				
ARMY (Continued)																				
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
112	112	0	0	70	31	0	1	13	1	20	7	0	2(4)	0	0	0	15	0	0	83

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total							
	PA			SI			RIFS			IRA			RA			RC	RIP	SC						
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F									
LOUISIANA (Continued)																								
DEPARTMENT OF NAVY																								
NAS New Orleans	17	15	2	0	4	11	0	0	4	0	7	2	0	0	0	0	0	7	0	0	9	0	0	8
NSA New Orleans	9	6	3	0	1	2	0	0	1	0	4	3	0	0	0	0	0	4	0	1	7	0	0	2
DEPARTMENT OF NAVY TOTALS	26	21	5	0	5	13	0	0	5	0	11	5	0	0	0	0	11	0	1	16	0	0	10	
AIR FORCE																								
Barksdale AFB	33	33	0	0	0	32	0	0	0	20	4	9	20	0	0	0	12	0	0	12	0	0	20	
England AFB	43	42	1	0	15	26	1	0	20	2	2	2	1	0	0	0	3	0	0	2	0	0	36	
Hammond AFS	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Jackson Barracks	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lake Charles AFS	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sidell BCN	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR FORCE TOTALS	80	77	3	0	15	60	1	0	20	22	6	11	21	0	0	0	15	0	0	14	0	0	56	
DEFENSE LOGISTICS AGENCY																								
DNHC Baton Rouge	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	
DEFENSE LOGISTICS AGENCY TOTALS	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	
LOUISIANA TOTALS	218	211	8	0	90	105	1	1	38	23	38	23	21	2(4)	0	0	42	0	1	30	0	0	140	

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																										
	PA				SI				RIFS				IRA				RD				RA				Total		
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC
MAINE (Continued)																											
DEFENSE LOGISTICS AGENCY (Continued)																											
Loring AFB ●	42	42	0	0	0	33	9	0	7	9	8	17	6	0	3(3)	0	5	21	0	0	26	0	0	13	0		
South Portland	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
AIR FORCE TOTALS	46	46	0	0	1	34	11	0	7	9	10	17	6	3(3)	0	5	21	0	0	26	0	0	14	0			
DEFENSE LOGISTICS AGENCY																											
DFSP Casco Bay	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0		
DFSP Searsport	2	2	0	0	2	0	0	1	0	1	0	1	0	0	0	1	0	1	1	0	1	1	0	1	1		
DEFENSE LOGISTICS AGENCY TOTALS	3	3	0	0	3	0	0	1	1	1	1	1	0	0	0	1	0	2	1	0	2	1	0	1			
MAINE TOTALS	120	118	2	0	35	53	16	1	9	21	14	36	6	4(4)	0	1	14	31	2	1	60	2	0	52	35		
MARYLAND																											
ARMY																											
Aberteen Proving Ground ●	79	79	0	0	0	79	0	0	0	1	29	48	1	11(13)	8(9)	0	2	17	1	5	13	0	0	1	0		
Blossom Point Field Test Activity	26	26	0	0	0	15	0	0	0	26	0	0	26	0	0	0	0	0	0	0	0	0	0	26	26		
Fort Detrick	41	41	0	0	0	41	0	0	32	0	0	7	0	0	0	0	0	0	0	0	0	0	0	32	32		
Fort George G. Meade	73	73	0	0	0	73	0	0	3	0	27	41	0	0	0	0	0	0	0	0	0	0	0	3	0		

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total										
	PA				SI				RIFS				IRA				RD			RA							
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	C	U	F	RC	RIP	SC		
MARYLAND (Continued)																											
ARMY (Continued)																											
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
USARC Hagerstown (Tagg-Zink)																											
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Riverdale																											
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
USARC Westminster																											
7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
374	374	0	0	81	279	0	3	95	33	56	96	30	12(14)	8(9)	8	4	17	3	11	13	2	0	208	196	106		
ARMY TOTALS																											
DEPARTMENT OF NAVY																											
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Bloodsworth Archipelago																											
2	1	0	0	0	1	0	0	1	0	1	0	1	0	1(1)	0	0	0	1	0	0	1	0	0	0	0	0	0
CHESD/NFEC (NSF Thurmont)																											
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
DTRESCEN Annapolis																											
1	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
DTRESCEN Annapolis Bay Head Annex																											
9	9	0	0	0	0	0	0	0	0	0	0	0	1(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DTRESCEN Bethesda																											
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
NAF Washington																											
34	32	2	0	0	29	0	1	20	0	11	3	0	3(3)	1(1)	0	0	10	1	0	13	1	0	21	0	21	21	
NAS Patuxent River																											
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
NAVCOMNAVJ Cheltenham																											
9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9
NAVECO/TECHCEN Indian Head																											
7	7	0	0	1	5	0	0	0	0	0	5	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	1
NAVMEDCOM NATCAPREG Bethesda																											

(Continued)

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Department of Defense Environmental Restoration Program
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	Total # of Sites	Number of Sites																						
		PA		SI		RIFS		IRA		RD		RA		Total										
		C	U	C	U	C	U	C	U	C	U	C	U	F	RC	RIP	RC	SC						
MARYLAND (Continued)																								
DEPARTMENT OF NAVY (Continued)																								
NAVRECCEN Solomons	3	3	0	0	0	3	0	0	1	0	0	2	0	0	0	0	0	1	0	0	1	1		
NESEA St. Inigoes	2	2	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
NRL Chesapeake Bay Detachment	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
NRL Wallops	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	
NRL Washington, Pomomkey Test Range	1	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
NRTF Annapolis	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	
NS Annapolis	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	
NSWC Indian Head	47	47	0	0	28	4	15	0	1	1	0	15	0	0	15(15)	0	0	16	0	0	16	0	29	27
NSWC White Oak	15	15	0	0	7	7	0	0	0	0	7	0	0	1(1)	0	0	0	7	0	0	7	0	0	7
MTC Bainbridge	2	2	0	0	0	2	0	0	0	1	1	0	0	0	0	0	0	2	0	0	2	0	0	0
MTC Suitland	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
U.S. Naval Academy	6	6	0	0	3	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	3	0	3
NAVY TOTALS	154	152	2	0	61	56	25	1	26	4	20	39	0	6(6)	16(16)	0	0	54	1	0	60	1	0	60
AIR FORCE																								
Andrews AFB	19	19	0	0	0	18	0	0	0	0	13	1	0	0	0	1(1)	0	12	1	1	14	1	0	1

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total											
	PA		SI		RIFS		IRA		RD		RA		Total															
	C	U	C	U	C	U	C	U	C	U	C	U	C	U	RC	SC												
MARYLAND (Continued)																												
AIR FORCE (Continued)																												
Martin State ANG	15	13	2	0	3	10	2	0	0	0	10	1	0	0	0	0	0	0	0	1	0	0	1	0	0	3	3	
AIR FORCE TOTALS	34	32	2	0	3	28	2	0	0	13	11	1	0	0	1(1)	0	12	2	1	14	2	1	0	1	0	4	4	
DEFENSE LOGISTICS AGENCY																												
DNSC Curtis Bay	1	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0
DEFENSE LOGISTICS AGENCY TOTALS	1	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0
MARYLAND TOTALS	563	559	4	0	145	364	27	4	121	50	87	137	30	19(20)	25(26)	6	17	73	5	25	76	4	0	300	296	0	300	296

MASSACHUSETTS

ARMY

AFRC Chicopee	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
Family Housing Hull, MA 36	3	3	0	0	0	3	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
Family Housing Nantant, MA 17	2	2	0	0	0	2	0	0	0	2	J	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Fort Devens ●	69	69	0	0	2	4	31	32	0	0	7	47	0	1(1)	0	0	0	52	0	0	52	0	0	0	0	0	2	0
Fort Devens/Sudbury Annex ●	69	69	0	0	0	4	41	23	0	0	5	64	0	20(22)	0	0	0	69	0	0	69	0	0	0	0	0	0	0
Hingham Annex	9	9	0	0	1	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	

(Continued)

Table C-1
 Department of Defense Environmental Restoration Program
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	Total # of Sites	Number of Sites																Total RC							
		PA		SI		RIFS		IRA		RD		RA		Total											
		C	U	C	U	C	U	C	U	C	U	C	U	F	RC	RIP	RC		SC						
MASSACHUSETTS (Continued)																									
ARMY (Continued)																									
Housing Area Bedford, MA 85	2	2	0	0	0	2	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	2	2	
Housing Area Beverly, MA 15	2	2	0	0	0	2	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2
Housing Area Burlington, MA 84	2	2	0	0	0	2	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2
Housing Area Randolph, MA 55	2	2	0	0	0	2	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2
Housing Area Swansea, MA 29	3	3	0	0	0	3	0	0	0	3	0	0	1	0	0	0	0	2	0	0	2	0	0	3	3
Housing Area Topsfield, MA 05	4	4	0	0	0	4	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4	4
Housing Area Wakefield, MA 03	1	1	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
Natick R&D & ENGR Center	10	7	0	3	0	4	0	1	2	0	2	1	0	1(1)	0	0	0	2	0	2	0	2	0	4	0
US Army Materials Technology Lab III	25	25	0	0	0	17	0	0	0	0	25	0	0	0	0	0	17	0	0	0	0	0	0	0	0
USARC Attleboro	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9
USARC Brockton (AMSA 66)	11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
USARC Pittsfield	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
USARC Rosindale	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
USARC Taunton	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6

(Continued)

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State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total		
		PA		SI		RIFS		IRA		RD		RA		RC		RC		RC	RIP	SC
		C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U			
MASSACHUSETTS (Continued)																				
ARMY (Continued)																				
USARC Worcester	8	8	0	0	5	0	0	3	0	0	0	0	0	0	0	0	0	0	0	5
ARMY TOTALS	258	255	0	3	55	50	80	59	2	21	39	112	19	22(24)	9(6)	0	138	4	0	80
DEPARTMENT OF NAVY																				
NAS South Weymouth	8	8	0	0	8	0	0	0	0	0	6	2	0	0	0	8	0	0	0	0
NRIOP Pittsfield	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
NRC Quincy	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
NSV Boston	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
NWIRP Bedford	2	2	0	0	0	0	0	0	0	0	2	0	0	2(2)	0	2	0	0	0	0
DEPARTMENT OF NAVY TOTALS	13	12	1	0	2	8	0	0	0	0	8	3	0	0	2(2)	0	10	0	0	2
AIR FORCE																				
AFP No. 28 Everett	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AFP No. 29 Lynn*	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barnes Municipal Airport	7	7	0	0	1	6	0	0	0	0	6	0	0	0	0	0	0	0	0	1
Hanscomb AFB	22	22	0	0	20	2	0	0	15	2	0	7	0	0	5	1	0	6	2	11
North Truro AFS	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other ANG	77	77	0	0	20	55	0	0	7	4	36	0	0	0	4	7	29	2	29	0

*These installations were transferred to the FUDS Program and will not be carried as Air Force installations in future reports.

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Total # of Sites	Number of Sites																Total RC SC			
	PA		SI		RIFS		IRA		RD		RA		RC		SC					
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC	
MASSACHUSETTS (Continued)																				
AIR FORCE (Continued)																				
Wellesly ANG	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Weslover AFR	20	19	1	0	4	15	1	0	3	5	5	1	2	0	1(1)	1	0	3	1	4
Worcester ANGB	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	131	129	2	0	28	97	4	0	10	24	49	1	9	0	1(1)	10	8	32	9	8
MASSACHUSETTS TOTALS																				
	402	396	3	3	85	155	84	59	12	45	96	116	28	22(24)	11(11)	10	8	180	13	8
MICHIGAN																				
ARMY																				
AFRC Sagnaw	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Custer RFTA	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detroit Arsenal and Detroit Tank Plant	15	15	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0	0
Keweenaw Field Station	5	5	0	0	0	5	0	0	0	0	0	5	0	0	0	0	0	0	0	0
Pontiac Storage Activity	10	10	0	0	0	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0
Tank-Automotive Support Activity-Sellridge	7	7	0	0	0	7	0	0	5	1	0	1	1	0	0	0	0	0	0	6
USARC Ann Arbor	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Bad Axe	5	5	0	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total				
	PA		SI		R/FS		IRA		RD		RA		RC		SC						
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	RIP	RC	SC
MICHIGAN (Continued)																					
AIR FORCE																					
Calumet AFS	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Empire Radar Site	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K.I. Sawyer AFB	24	24	0	0	0	19	0	5	3	6	6	8	1	0	0	1	4	14	1	0	18
Phelps Collins Airport	17	17	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0
Port Austin Radar Site	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Selkridge ANGB	14	14	0	0	2	12	0	0	0	0	12	0	0	0	0	0	0	8	0	1	7
WK Kellogg Regional ANGB	6	6	0	0	3	3	0	0	0	0	3	0	0	0	0	0	0	3	0	0	3
Wurtsmith AFB ■	36	37	0	0	0	34	0	0	0	8	1	0	0	0	1	0	1	1	0	1	0
AIR FORCE TOTALS	100	100	0	0	5	82	0	5	3	14	30	8	1	0	0	2	4	34	2	1	37
DEFENSE LOGISTICS AGENCY																					
DFSP Escanaba	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
DEFENSE LOGISTICS AGENCY TOTALS	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
MICHIGAN TOTALS	238	238	0	0	98	121	0	11	6	25	31	29	2	0	0	2	4	35	11	3	38

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total								
	PA			SI			RIFS			IRA			RD			RA			RC	RIP	SC				
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F							
MINNESOTA																									
ARMY																									
9	9	0	0	7	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
AFRC Rochester																									
3	3	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
AFRC St. Cloud																									
19	19	0	0	19	0	0	0	0	1	18	0	0	7(10)	1(1)	2	6	1	1	0	8	0	1	0	0	
Twin Cities AAP																									
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Brainerd																									
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC Buffalo																									
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Cambridge																									
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Cannon Falls																									
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Duluth																									
8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
USARC Faribault (Beebe)																									
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC Fergus Falls																									
35	35	0	0	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
USARC Fort Snelling (AMSA 22)																									
2	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC LeSueur																									
11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
USARC Mankato																									
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Marshall																									
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC New Prague																									
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Paynesville																									
9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
USARC South International Falls																									

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																							
	PA				SI				R/F/S				IRA				RA				Total			
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC				
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	2	0	1	11	2	0	4	4	1	2	0	0	0	0	1	2	3	2	2	2	0	7	7	
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	43	2	0	7	32	5	0	9	8	6	2	3	1(1)	1(1)	0	1	2	3	4	2	2	0	21	21
230	228	2	0	160	53	5	8	9	9	27	4	3	11(16)	2(2)	2	7	8	4	7	12	2	4	174	173

MINNESOTA (Continued)

AIR FORCE (Continued)

Minn/St. Paul IAPT	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minneapolis St. Paul	13	2	0	1	11	2	0	4	4	1	2	0	0	0	1	2	3	2	2	2	0	7	7		
Nashauk AFS	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR FORCE TOTALS	45	43	2	0	7	32	5	0	9	8	6	2	3	1(1)	1(1)	0	1	2	3	4	2	2	0	21	21
MINNESOTA TOTALS	230	228	2	0	160	53	5	8	9	9	27	4	3	11(16)	2(2)	2	7	8	4	7	12	2	4	174	173

MISSISSIPPI

ARMY

AFRC Jackson	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
Mississippi AAP	44	46	0	0	0	4	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
USARC Brookhaven	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Greenville, MS	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
USARC Greenwood (AMSA 144)13	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
USARC Gulfport (Hickey)	4	4	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Hattiesburg	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Jackson (Scott)	11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
USARC Jackson (Terry Road)	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

(Continued)

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Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites												Total								
	PA			SI			RIVFS			IRA			RA								
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F			
MISSISSIPPI (Continued)																					
ARMY (Continued)																					
USARC Laurel	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	0
USARC Lyon (Clarksdale)	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	0
USARC Meridian	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0
USARC Natchez	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0
USARC Pascagoula 02	3	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	1
USARC Starville	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
USARC Tupelo	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	0
USARC Vicksburg 01	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
USARC Vicksburg 03	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	0
USARC Vicksburg 04	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
ARMY TOTALS	135	0	0	87	0	4	44	0	0	0	0	0	0	0	0	0	0	0	67	0	67
DEPARTMENT OF NAVY																					
CBC Gulfport	10	10	0	0	1	8	0	0	0	1	0	7	0	0	0	1(1)	0	0	7	1	0
NAS Meridian	5	5	0	0	0	5	0	0	0	0	0	4	0	0	0	0	0	0	3	0	0
DEPARTMENT OF NAVY TOTALS	15	15	0	1	8	5	0	1	0	7	4	0	1(1)	0	0	10	1	0	3	0	3

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																						
	PA		SI		RIFS		IRA		RD		RA		Total										
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC				
5	5	0	0	0	4	1	0	2	0	1	2	0	0	0	0	0	0	0	0	2	2		
27	27	0	0	0	27	0	0	10	13	1	0	4	3(3)	0	1	0	0	8	1	2	8	22	
3	3	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	
22	15	7	0	0	15	7	0	1	10	3	1	0	0	0	0	0	0	0	0	8	0	1	
10	10	0	0	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	
67	60	7	0	0	46	21	0	13	23	18	3	4	3(3)	0	1	0	14	8	1	13	8	25	
217	210	7	0	0	68	54	30	44	14	23	25	7	4	4(4)	0	1	0	24	9	1	23	9	115

MISSISSIPPI (Continued)

AIR FORCE

Allen C. Thompson	5	5	0	0	0	4	1	0	2	0	1	2	0	0	0	0	0	0	0	0	0	2
Columbus AFB	27	27	0	0	0	27	0	0	10	13	1	0	4	3(3)	0	1	0	0	8	1	2	8
Gulport MPT ANG PER	3	3	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
Keesler AFB	22	15	7	0	0	15	7	0	1	10	3	1	0	0	0	0	0	0	0	8	0	1
Key Field ANG8	10	10	0	0	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	67	60	7	0	0	46	21	0	13	23	18	3	4	3(3)	0	1	0	14	8	1	13	8
MISSISSIPPI TOTALS	217	210	7	0	0	68	54	30	44	14	23	25	7	4	4(4)	0	1	0	24	9	1	23

MISSOURI

ARMY

Fort Leonard Wood	53	53	0	0	0	49	0	0	38	0	2	0	0	3(3)	0	0	0	1	5	1	7	4
Gateway AAP	10	10	0	0	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0
Housing Area St. Louis SPT CTR, MO	4	4	0	0	0	4	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0
Lake Cay AAP	35	35	0	0	0	35	0	0	0	0	35	0	0	7(7)	0	0	0	35	0	0	35	0
St. Louis AAP	7	7	0	0	0	2	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0
St. Louis Ordnance Plant	17	17	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USAPC Bethany	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total			
		PA		SI		FIFS		IRA		RD		RA		RC		SC		RC	RIP	SC	
		C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U				
MISSOURI (Continued)																					
ARMY (Continued)																					
USARC St. Louis (AMSA 55)	19	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	
USARC St. Louis (Hampton)	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
USARC St. Joseph	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
USARC St. Louis 03	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
USARC Washington	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
ARMY TOTALS	230	0	0	104	117	0	5	49	4	37	2	4	10(10)	0	0	0	36	5	1	42	
NPRO St. Louis	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
DEPARTMENT OF NAVY TOTALS	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
AIR FORCE																					
Jefferson ANGB	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lambert IAPT	3	0	0	0	2	1	0	2	0	1	0	0	0	0	0	0	0	0	0	2	
Richards Gebaur AFR III	9	0	0	0	9	0	0	3	5	0	0	2	3(3)	0	0	1	0	2	1	0	7
Rosecrans Memorial Airport	4	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	4	0	0	0	
Whiteman AFB	25	0	0	0	25	0	0	4	6	5	9	5	0	1(1)	1	0	12	1	1	10	10
AIR FORCE TOTALS	43	0	0	0	42	1	0	9	15	6	9	7	3(3)	1(1)	1	1	16	3	3	19	
MISSOURI TOTALS	274	0	0	105	159	1	5	58	19	43	11	11	13(13)	1(1)	1	1	52	6	4	56	

(Continued)

Table C-1

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State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total							
		PA				SI				RIFS				IRA				RA							
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RC	RIP	SC	
NEBRASKA																									
ARMY																									
Comhusker AAP ●	65	65	0	0	0	65	0	0	0	31	34	0	0	59(17)	59(58)	1	58	5	0	0	7	0	0	0	0
USARC Columbus	2	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Fairbury	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Fremont	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Grand Island	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Hastings	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Kearney	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Lincoln	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC McCook	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Meade (WET)	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC North Platte	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC North Platte (AMSA 36)	11	11	0	0	10	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
USARC Omaha (Fl Omaha)	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Omaha (Woodworth St.)	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
USARC Plattsmouth	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Syracuse	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

(Continued)

Table C-1
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 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total			
	PA		SI		RIFS		IRA		RD		RA		RC		RIP		SC			
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC	
NEBRASKA (Continued)																				
ARMY (Continued)																				
USARC Wymore	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
ARMY TOTALS	115	115	6	0	48	65	0	2	0	31	34	0	0	59(117)	59(56)	1	58	5	0	48
DEPARTMENT OF NAVY																				
NMRC Omaha	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
NRC Lincoln	2	2	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2	0	0	0
DEPARTMENT OF NAVY TOTALS	3	3	0	0	1	0	2	0	0	0	0	2	0	0	0	0	2	0	0	1
AIR FORCE																				
Lincoln ANG	13	13	0	0	0	8	1	0	0	0	1	6	0	0	0	0	6	0	0	0
Offutt AFB	22	22	0	0	0	22	0	0	0	2	5	2	0	0	1	0	5	0	2	3
AIR FORCE TOTALS	35	35	0	0	0	30	1	0	0	2	6	8	0	0	1	0	11	0	2	9
NEBRASKA TOTALS	153	153	0	0	49	95	3	2	0	33	40	10	0	59(117)	59(56)	2	58	16	0	49
NEVADA																				
ARMY																				
AFRC Las Vegas	11	11	0	0	9	0	0	2	0	0	0	0	0	0	0	0	0	0	0	9

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																		Total					
		PA			SI			RIFS			IRA			RD			RA			RC	SC				
		C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F						
NEVADA (Continued)																									
ARMY (Continued)																									
	119	0	0	0	78	0	41	0	0	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARMY TOTALS	130	0	0	0	78	0	43	0	0	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DEPARTMENT OF NAVY																									
NAS Fallon	29	27	0	2	0	27	0	0	6	6	21	0	0	2(2)	0	0	0	0	21	0	1	21	0	0	6
DEPARTMENT OF NAVY TOTALS	29	27	0	2	0	27	0	0	6	6	21	0	0	2(2)	0	0	0	0	21	0	1	21	0	0	6
AIR FORCE																									
Indian Springs	13	7	6	0	0	6	6	0	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	6
Nellis AFB	44	44	0	0	34	0	8	21	5	1	0	2	1(1)	2(2)	0	1	11	0	2	1	0	0	0	0	23
Reno Cannon IAPT	14	11	0	3	4	7	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Tonopah TTR	17	3	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
AIR FORCE TOTALS	88	65	6	3	4	50	6	8	27	9	1	0	5	1(1)	2(2)	0	1	11	0	2	1	0	0	0	36
NEVADA TOTALS	247	222	6	5	13	155	6	51	33	9	22	78	5	3(3)	2(2)	0	1	32	0	3	22	0	0	0	51

(Continued)

Table C-1
 Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total								
	PA			SI			RIFS			IRA			RA			RC	RIP	SC							
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F										
NEW HAMPSHIRE																									
ARMY																									
Cold Regions Research and Eng Lab	18	18	0	0	0	0	18	0	0	0	0	10	8	0	0	0	1(1)	0	0	1	0	0	0	0	0
USARC Keene	8	8	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
USARC Londonderry	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Manchester	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Rochester	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
ARMY TOTALS	39	39	0	0	21	18	0	0	0	10	8	0	0	0	0	1(1)	0	0	1	0	0	0	0	0	21
AIR FORCE																									
New Boston AFB	12	12	0	0	4	8	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
Pease AFB	32	32	0	0	0	30	0	0	0	8	3	0	1	1(1)	0	1	0	0	1	0	0	0	4	1	0
AIR FORCE TOTALS	44	44	0	0	4	38	0	0	7	8	3	0	1	1(1)	0	1	0	0	1	0	0	4	12	11	
DEFENSE LOGISTICS AGENCY																									
DFSP Newington	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
DEFENSE LOGISTICS AGENCY TOTALS	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	
NEW HAMPSHIRE TOTALS	64	64	0	0	25	57	0	0	7	19	11	0	1	1(1)	1	0	2	1	0	2	0	4	33	32	

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																										
	PA				SI				R/FS				IRA				RD				RA						
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	SC	
NEW JERSEY (Continued)																											
ARMY (Continued)																											
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
309	309	0	0	49	246	0	13	24	28	182	12	14	1(1)	5(5)	2	8	100	7	1	108	5	0	92	87			
DEPARTMENT OF NAVY																											
45	43	0	1	0	43	0	0	4	11	31	2	6	8(8)	0	0	0	35	2	0	38	2	4	12	0			
11	11	0	0	0	9	0	0	0	1	9	1	0	0	0	0	0	9	0	1	10	0	0	0	0			
53	46	7	0	0	10	15	1	0	0	11	23	0	3(3)	7(7)	0	0	27	1	1	34	1	0	1	0			
110	102	7	1	0	62	15	1	4	12	51	26	6	11(11)	7(7)	0	0	71	3	2	82	3	4	13	0			
AIR FORCE																											
6	6	0	0	2	4	0	0	0	0	4	0	0	0	0	0	0	4	0	0	4	0	0	2	2			
1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0			
23	23	0	0	0	23	0	0	6	1	0	0	1	0	1(1)	0	0	0	0	3	4	0	0	7	7			
32	30	2	0	2	28	0	0	6	1	4	0	1	0	1(1)	0	0	4	0	4	8	0	0	9	9			

(Continued)

Table C-1
Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites												Total											
	PA			SI			RIFS			IRA			RD	RA			Total RC	SC						
	C	U	F	C	U	F	C	U	F	C	U	F		C	U	F								
NEW MEXICO (Continued)																								
AIR FORCE																								
Air Force Plant 83*	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
Cannon AFB	31	25	0	6	2	22	0	6	6	9	0	7	0	0	0	1	2	9	1	2	8	0	8	8
Holloman AFB	58	56	1	1	3	44	1	6	14	3	28	2	0	0	3(3)	2	0	31	1	1	29	0	17	17
Kirtland AFB	55	55	0	0	0	52	1	1	0	0	0	1	0	0	1(1)	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	145	137	1	7	6	118	2	13	20	12	28	10	0	0	4(4)	3	2	40	2	3	37	0	26	25
NEW MEXICO TOTALS	250	242	1	7	29	199	2	14	36	12	63	29	0	2(2)	4(4)	3	2	40	2	3	37	0	65	64

NEW YORK

ARMY

AFRC Albany	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9		
AFRC Ft. Wadsworth	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6		
AFRC Horseheads	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6		
Fort Drum	43	40	2	1	0	37	2	2	16	6	12	2	3	2(2)	1(1)	5	2	5	3	0	9	2	0	21	18	
Fort Hamilton	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	
Fort Tilden	3	3	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	
Fort Totten	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	
Housing Area Dryhill, NY	4	4	0	0	0	4	0	0	0	4	0	0	3	0	0	0	0	0	0	1	0	0	1	0	4	4
Housing Area Manhattan Beach, NY	3	3	0	0	0	3	0	0	0	3	0	0	2	0	0	0	0	0	1	0	0	1	0	3	3	

*This installation was transferred to the FUDS Program and will not be carried as an Air Force installation in future reports.

(Continued)

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**Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992**

	Total # of Sites	Number of Sites																		
		PA		SI		R/FS		IRA		RD		RA		Total						
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC
NEW YORK (Continued)																				
ARMY (Continued)																				
Housing Area Rocky Point, NY	4	4	0	0	0	4	0	0	0	4	0	0	4	0	0	0	0	0	0	4
Housing Area Spring Valley, NY	4	4	0	0	4	0	0	4	0	0	3	0	0	0	0	1	0	0	1	4
Housing Area Tappan, NY	4	4	0	0	4	0	0	4	0	0	4	0	0	0	0	0	0	0	0	4
NMRC Fort Schuyler	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Roosevelt USARC, Hempstead	2	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Seneca AD	57	36	19	2	22	3	10	19	0	0	3	1	0	0	0	0	0	3	0	22
Stewart Army Sub Post (USMAWP)	8	8	0	0	0	8	0	0	6	0	0	0	0	1(1)	2(2)	1	0	0	0	6
USA Bellmore Maintenance Facility	7	7	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0
USARC Amherst	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
USARC Amityville	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC AMSA 9	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Batavia	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Bronx (Patterson)	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Bronx (Yonkers)	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Bullville	11	11	0	0	10	0	0	1	0	0	0	0	0	0	0	0	0	0	0	10
USARC Canandaigua	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC Canton	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																													
	PA						SI						R/FS						IRA						Total					
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC			
NEW YORK (Continued)																														
ARMY (Continued)																														
USARC Corning	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5		
USARC Elizabethtown	10	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10		
USARC Gerry	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5		
USARC Glen Falls	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1		
USARC Horseheads (AMSA 2C) 15	15	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15		
USARC Ithaca	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1		
USARC Kingston	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8		
USARC Little Falls	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1		
USARC Liverpool	10	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10		
USARC Malone	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7		
USARC Massena	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4		
USARC Massena (ECS-1 Subshop A)	10	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10		
USARC Newark	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1		
USARC Newburgh (ASF 10)	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5		
USARC Newburgh (Dupont)	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1		
USARC Newburgh (Stewart Field) 5	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5		
USARC Niagara Falls (AMSA 5) 25	25	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	25		
USARC Ogdensburg	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4		

(Continued)

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Total # of Sites	Number of Sites																Total						
	PA			SI			RIFS			IRA			RD			RA			RC	RIP	SC		
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F					
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
18	18	0	0	17	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	17
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
7	7	0	0	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
7	7	0	0	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
12	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12
13	13	0	0	13	0	0	7	0	0	2	0	0	0	0	0	0	0	0	0	0	0	7	7
24	23	0	0	23	0	0	6	0	0	15	0	0	0	0	2	0	0	0	0	0	0	6	6

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total							
	PA		SI		RIFS		IRA		RD		RA		Total		RC	RIP	SC							
	C	U	C	U	C	U	C	U	C	U	C	U	F	F										
NEW YORK (Continued)																								
AIR FORCE (Continued)																								
Griffis AFB ●	52	0	1	0	51	0	1	22	18	10	11	0	2(2)	1	4	31	1	3	34	0	0	12	0	
Hancock Field MCC 10	15	0	0	7	7	1	0	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	14	14
Lockport Comm Facility Annex	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Niagara Falls ANGB	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Niagara Falls IAPT	14	12	1	0	12	1	0	2	4	5	0	1	0	0	1	0	2	1	3	2	1	0	4	4
Pittsburgh AFB ●	25	25	0	0	21	3	1	4	1	14	6	0	0	1(1)	1	0	20	1	3	16	1	0	5	0
Riverhead City Radar Site	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Roslyn ANGB	4	0	4	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Schenectady Airport	4	4	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stewart IAPT	2	2	0	0	2	0	0	0	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0
Utica Radar Site	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	146	133	5	4	7	113	13	2	23	31	48	16	12	3(3)	3	6	53	3	11	54	2	3	44	27
DEFENSE LOGISTICS AGENCY																								
DFSP Verona	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0
DNSC Scotia	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0
DEFENSE LOGISTICS AGENCY TOTALS	2	2	0	0	2	0	0	0	0	2	0	0	0	0	0	2	0	0	2	0	0	0	0	0
NEW YORK TOTALS	671	631	29	7	347	235	27	37	61	56	83	33	31	7(7)	9	10	72	9	11	65	7	3	446	403

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total			
		PA		SI		RIFS		IRA		RD		RA		Total							
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		RIP	RC	SC
NORTH CAROLINA (Continued)																					
ARMY (Continued)																					
USARC High Point	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
USARC Kinston	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
USARC Lumberton	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
USARC Morehead City	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
USARC Raleigh 01	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
USARC Rocky Mount	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
USARC Salisbury	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
USARC Wilmington	4	4	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	
USARC Wilmington (AMSA 126-G)	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
USARC Winston-Salem (Krog)	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
USARC Winston-Salem 01	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
ARMY TOTALS	163	163	0	0	78	64	0	1	40	2	21	16	0	0	2	0	2	1	2	120	
DEPARTMENT OF NAVY																					
MCAS Cherry Point	65	65	0	0	1	11	0	0	0	4	31	2	0	1(1)	0	0	0	10	0	0	1
MCB Camp Lejeune ●	106	88	7	11	49	0	10	7	0	0	12	35	0	2(2)	0	0	0	28	0	3	49
NADEP Cherry Point	5	5	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	5	0	0	0
DEPARTMENT OF NAVY TOTALS	176	158	7	11	50	11	10	7	0	4	48	37	0	3(3)	0	0	43	0	3	88	

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total						
	PA				SI				RI/FS				IRA				RA						
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Finley AFS Z 29																							
6	7	0	0	0	7	0	0	0	2	2	1	1	1(1)	0	0	0	3	0	1	3	0	0	1
Grand Forks AFB																							
11	11	0	0	6	1	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	6
Hector Field ANGB																							
11	11	0	0	0	9	0	0	2	7	0	0	1	0	0	5	2	1	3	2	3	3	0	6
Minor AFB																							
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waitford City Radar Site																							
30	30	0	0	6	18	4	0	2	9	6	1	2	1(1)	0	5	2	4	3	3	6	3	0	13
AIR FORCE TOTALS																							

NORTH DAKOTA (Continued)

AIR FORCE

1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	7	0	0	0	7	0	0	0	2	2	1	1	1(1)	0	0	0	3	0	1	3	0	0	1
11	11	0	0	6	1	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	6
11	11	0	0	0	9	0	0	2	7	0	0	1	0	0	5	2	1	3	2	3	3	0	6
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	30	0	0	6	18	4	0	2	9	6	1	2	1(1)	0	5	2	4	3	3	6	3	0	13

DEFENSE LOGISTICS AGENCY

1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0
DFSP Grand Forks																							
1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0
DEFENSE LOGISTICS AGENCY TOTALS																							
63	63	0	0	36	20	4	1	2	9	7	1	2	1(1)	0	5	2	5	5	3	7	3	0	43
NORTH DAKOTA TOTALS																							

OHIO

ARMY

16	16	0	0	0	16	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0
Lima Army Tank Plant																							
31	31	0	0	0	31	0	0	9	0	0	19	0	0	0	0	0	0	2	1	0	2	0	11
Ravenna AAP																							
9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
USARC Akron (Schaffner)																							
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC Akron (Woodford)																							

(Continued)

Table C-1
 Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total RC SC						
		PA				SI				RIFS				IRA										
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		C	U	F	RC		
OHIO (Continued)																								
ARMY (Continued)																								
USARC Belleaire	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
USARC Bryan (AMSA 72G SUB 1)	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
USARC Cadiz	8	8	0	0	7	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
USARC Canton 01	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Cincinnati (Morrow)	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Columbus (300)	4	4	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Columbus (AMSA 56)	11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
USARC Columbus (ASF 33)	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Columbus (Whitehall)	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Dayton	9	9	0	0	6	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC Dayton (DESC)	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Delaware	7	7	0	0	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Fremont, OH	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Jamestown	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Kenton	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Kings Mills (AMSA 59)	11	11	0	0	7	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
USARC Lima (AMSA 58 SUB 1)	11	11	0	0	10	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10

(Continued)

Table C-1
 Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total RC SC									
		PA				SI				RIFS				IRA					RA								
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		C	U	F	RC					
OHIO (Continued)																											
DEPARTMENT OF NAVY																											
NWIRP Toledo	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
DEPARTMENT OF NAVY TOTALS	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
AIR FORCE																											
Air Force Plant 36	33	33	0	0	0	31	2	0	3	6	19	0	0	0	0	0	0	4	0	0	4	0	0	0	4	0	7
Air Force Plant 85	9	9	0	0	0	9	0	0	4	1	4	0	0	0	0	0	0	1	3	0	1	1	0	1	0	5	5
Blue Ash ANG	2	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camp Perry ANG	2	2	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mansfield Lahm Airport	8	8	0	0	0	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Newark AFB	10	10	0	0	1	9	0	0	8	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	9	9
Rickenbacker ANGB	33	33	0	0	5	12	16	0	6	1	16	0	0	0	0	0	0	1	0	0	1	0	0	0	0	11	11
Springfield-Beckley ANGB	6	6	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Toledo Express Airport	9	9	0	0	0	2	7	0	2	0	6	1	0	0	0	0	0	0	0	0	1	0	1	0	0	2	2
Wright-Patterson AFB	65	65	0	0	8	54	8	0	17	4	34	0	1	4(4)	0	2	1	0	2	1	0	2	1	0	0	26	0
Youngstown Municipal	5	5	0	0	0	5	0	0	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Zanesville AGS	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
AIR FORCE TOTALS	183	181	2	0	15	123	50	0	42	13	97	1	1	4(4)	0	6	1	7	7	0	5	1	7	0	1	63	36

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total									
	PA			SI			R/FS			IRA			RD			RA			RC	RIP	SC					
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F								
	25	24	0	1	0	24	0	1	18	5	0	1	0	0	0	3	2	1	3	1	2	2	2	0	20	20
DCSC Columbus	6	6	0	0	6	0	0	5	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	5	3
DESC Dayton	1	1	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
DFSP Cincinnati	32	31	0	1	0	31	0	1	24	6	0	1	0	0	0	2	3	1	3	1	3	2	2	0	26	24
DEFENSE LOGISTICS AGENCY TOTALS	484	481	2	1	222	201	50	16	75	19	97	37	1	4(4)	1	0	11	7	2	12	9	3	9	1	307	277
OHIO TOTALS																										

OHIO (Continued)

DEFENSE LOGISTICS AGENCY

OKLAHOMA

ARMY

AFRC Broken Arrow (AMISA 20)	10	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
AFRC Midwest City	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
Fort Sill	44	44	0	0	43	1	0	28	0	0	16	0	0	0	0	0	0	0	13	0	0	0	13	0	28	28
McAlester AAP	43	43	0	0	43	0	0	34	0	0	9	0	0	0	0	0	0	0	9	0	0	0	9	0	34	34
USARC Ada	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Antlers	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
USARC Ardmore	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Chickasha	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Clinton	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
USARC Duncan	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total								
	PA				SI				RIIFS				IRA				RD			RA					
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC		
OKLAHOMA (Continued)																									
ARMY (Continued)																									
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2

(Continued)

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State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total				
	PA			SI			R/FS			IRA			RD			RA			RC	SC	
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F			
OKLAHOMA (Continued)																					
ARMY (Continued)																					
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
192	192	0	0	105	86	1	0	62	0	0	25	0	0	0	0	0	0	22	0	0	167
AIR FORCE																					
14	14	0	0	0	13	1	0	0	6	7	0	0	0	0	0	0	0	0	0	0	0
11	11	0	0	0	10	1	0	0	2	8	0	2	0	0	0	0	7	0	0	0	2
36	36	0	0	3	33	0	0	3	8	17	0	3	4(4)	2(2)	1	1	0	3	1	0	1
1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	19	2	0	0	19	2	0	1	9	1	0	5	0	1(1)	0	0	0	4	0	0	10
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
84	82	2	0	4	76	4	0	4	25	33	0	10	4(4)	3(3)	1	1	7	7	1	10	23
276	274	2	0	109	162	5	0	66	25	33	25	10	4(4)	3(3)	1	1	29	7	1	32	190
OREGON																					
ARMY																					
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total RC SC												
		PA				SI				R/FS				IRA					RA											
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		C	U	F	RC								
OREGON (Continued)																														
ARMY (Continued)																														
AFRC Warrenton	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Umatilla Army Depot Activity	116	116	0	0	0	116	0	0	0	39	0	76	0	0	0	0	0	0	0	0	0	0	0	76	0	0	0	0	39	0
USARC Bend	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
USARC Corvallis	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
USARC Eugene	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
USARC Medford	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
USARC Portland (Airport)	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
USARC Portland (South)	11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	
USARC Portland (West)	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	
USARC Salem	2	2	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
ARMY TOTALS	152	152	0	0	35	116	0	1	39	0	76	0	0	0	0	0	0	0	0	0	0	0	76	0	0	0	74	35		
AIR FORCE																														
Keno AFS	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Kingsley Field ANGB	14	14	0	0	6	7	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	
Mount Hebo AFB	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
North Bend AGS	8	8	0	0	3	5	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	
Portland JAPT	11	11	0	0	2	8	1	0	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total							
	PA			SI			RIFS			IRA			RD			RA			RC	RC	SC			
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F						
1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	36	0	0	11	23	1	0	7	6	4	0	0	0	0	0	1	0	2	0	0	0	0	0	18
OREGON TOTALS	198	0	0	46	139	1	1	46	6	90	0	0	0	0	0	77	0	2	76	0	0	0	0	92

OREGON (Continued)

AIR FORCE (Continued)

Salem Radar Site	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	36	0	0	11	23	1	0	7	6	4	0	0	0	0	0	1	0	2	0	0	0	0	0	18
OREGON TOTALS	198	0	0	46	139	1	1	46	6	90	0	0	0	0	0	77	0	2	76	0	0	0	0	92

PENNSYLVANIA

ARMY

AFRC Beaver Falls	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
AFRC Bellefonte	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
AFRC Erie	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
AFRC Folsom	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
AFRC Philadelphia 06	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
C.E. Kelly Support Facility	5	5	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Carlisle Barracks	4	4	0	0	4	0	0	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
Family Housing Pittsburgh 43	1	1	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Fort Indiantown Gap	6	6	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	5
Hays AAP	5	5	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	2	0	1	2	0	0	4
Housing Area Coraopolis PI-71, PA	2	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																				Total																			
	PA					SI					RIFS					IRA					RD					RA														
	C	U	F	RC	SC	C	U	F	RC	SC	C	U	F	RC	SC	C	U	F	RC	SC	C	U	F	RC	SC	C	U	F	RC	SC	C	U	F	RC	SC					
PENNSYLVANIA (Continued)																																								
ARMY (Continued)																																								
	2	2	0	0	0	2	0	0	0	0	2	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	2
Housing Area Coraopolis PI-72, PA																																								
	3	3	0	0	0	3	0	0	0	0	3	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	3
Housing Area Dorseyville PI-03, PA																																								
	3	3	0	0	0	3	0	0	0	0	3	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	3
Housing Area Elizabeth PI-42, PA																																								
	2	2	0	0	0	2	0	0	0	0	2	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	2
Housing Area Finleyville, PA 52																																								
	2	2	0	0	0	2	0	0	0	0	2	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	2
Housing Area Hermine PI-37, PA																																								
	1	1	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1
Housing Area Irwin PA-36, PA																																								
	2	2	0	0	0	2	0	0	0	0	2	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	2
Housing Area Monroeville PI-25, PA																																								
	3	3	0	0	0	3	0	0	0	0	3	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	3
Housing Area Rural Ridge, PA																																								
	78	78	0	0	1	68	5	2	12	14	40	8	7	1(1)	0	3	2	41	3	0	43	2	0	22	10															
Letterkenny Army Depot ●																																								
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1
Maror Launch Site																																								
	14	14	0	0	4	10	0	0	10	0	0	0	0	1(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	14	0	0	14
Scranton Army Ammunition Plant																																								
	13	13	0	0	0	13	0	0	0	0	0	0	0	0	0	13	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tacony Warehouse ■																																								
	65	65	0	0	0	64	1	0	0	0	0	27	36	0	1(1)	2(3)	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tobyhanna AD ●																																								

(Continued)

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Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

	Number of Sites																		
	PA		SI		RIFS		IRA		RD		RA		Total						
Total # of Sites	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC
PENNSYLVANIA (Continued)																			
ARMY (Continued)																			
USARC Albona	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC Ashley	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
USARC Belle Vernon	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Bethlehem	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Bloomsburg	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
USARC Bristol	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
USARC Brookville	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Brownsville, PA	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC Butler	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Center Square	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
USARC Chambersburg	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
USARC Chester	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Clarion	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Clearfield	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC Downingtown	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Du Bois	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Edgemont	17	17	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	17

(Continued)

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Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites															
		PA		SI		RIFS		IRA		RD		RA		Total			
		C	U	C	U	C	U	C	U	C	U	C	U	C	U	RC	SC
PENNSYLVANIA (Continued)																	
ARMY (Continued)																	
USARC Kare	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
USARC Kitanring	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
USARC Lancaster	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6
USARC Lewisburg	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	7
USARC Lewistown	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	8
USARC Lock Haven	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	9
USARC Marcus Hook	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5
USARC Meadville	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC New Castle (AMSA 110)	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	7
USARC New Cumberland	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5
USARC New Kensington	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
USARC Norrisown	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6
USARC North Park	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
USARC Northeast Philadelphia	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
USARC OH City	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
USARC Pittsburgh 01	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
USARC Pittsburgh 02	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total								
	PA			SI			RIFS			IRA			RD			RA			RC	SC					
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F							
4	4	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	
7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
14	14	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	14
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
6	6	0	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
18	18	0	0	17	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	17
17	17	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	17
6	6	0	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4

PENNSYLVANIA (Continued)

ARMY (Continued)

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total						
	PA			SI			RIFS			IRA			RD			RA			Total				
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F		RC	RIP	SC	
PENNSYLVANIA (Continued)																							
ARMY (Continued)																							
1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
19	0	0	18	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
645	0	0	436	182	6	16	25	35	80	46	28	3(3)	2(3)	3	2	56	6	0	48	5	0	494	464
DEPARTMENT OF NAVY																							
2	0	2	0	0	0	2	0	0	0	2	0	0	0	0	0	2	0	0	2	0	0	0	0
10	10	0	0	9	0	0	1	0	8	0	0	0	0	0	0	8	0	0	9	0	0	1	0
11	11	0	0	10	0	0	5	0	4	0	0	1(1)	0	0	0	5	1	0	4	0	0	5	5
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
17	15	1	1	3	12	0	0	4	8	1	0	1(1)	0	0	0	8	0	4	9	0	0	3	3
11	11	0	0	1	8	1	0	4	0	3	1	0	1(3)	0	0	2	3	0	0	5	0	5	5
53	49	3	1	6	39	1	2	10	4	23	4	0	3(5)	0	0	2	26	1	4	29	0	16	15

(Continued)

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Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total RC SC		
	PA		SI		RIFS		IRA		RD		RA		Total						
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC
PENNSYLVANIA (Continued)																			
AIR FORCE																			
Fort Indiantown Gap ANGB	3	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Greater Pittsburgh ANGB	6	6	0	0	0	5	0	0	3	1	0	0	0	1(1)	0	1	0	0	0
Olmsted Field	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pittsburgh IAPT	6	6	0	0	0	6	0	0	4	0	1	0	0	0	0	0	0	1	0
State College ANG	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Willow Grove AFR	7	7	1	0	0	5	1	0	3	3	0	0	2	0	0	1	0	0	2
Willow Grove ANG	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	26	20	6	0	1	16	6	0	10	4	1	0	2	1(1)	0	2	0	0	13
DEFENSE LOGISTICS AGENCY																			
DDRE New Cumberland	45	45	0	0	0	45	0	0	0	9	11	25	0	35(36)	1(1)	5	0	39	6
DPSC Philadelphia	16	16	0	0	0	16	0	0	14	0	2	0	0	2(2)	0	0	0	2	0
DEFENSE LOGISTICS AGENCY TOTALS	61	61	0	0	0	61	0	0	14	9	13	25	0	37(38)	1(1)	5	0	41	6
PENNSYLVANIA TOTALS	785	775	9	1	443	288	13	18	59	52	117	75	30	44(47)	3(4)	10	4	123	11
PUERTO RICO																			
ARMY																			
Camp Santiago	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total					
	PA			SI			RIFS			IRA			RD			RA			RC	RIP	SC	
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F				
RHODE ISLAND																						
ARMY																						
AFRC Providence (Hopkins)	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Housing Area Davisville, RI	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1
Housing Area Smithfield, RI	3	3	0	0	0	3	0	0	0	3	0	0	2	0	0	0	0	1	0	0	1	3
USARC Bristol, RI	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Cranston	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Fort Nathaniel Greene	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Lincoln (AMSA 68G)	13	13	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC Providence (Harwood)	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Warwick	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
ARMY TOTALS	37	37	0	0	20	4	13	0	0	4	0	2	0	0	0	2	0	0	2	0	24	24
DEPARTMENT OF NAVY																						
AFRC Providence	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
CBC Davisville	17	16	1	0	0	14	0	0	0	7	7	0	0	2(2)	1(1)	0	0	13	0	0	14	0
NAS Charlestown	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
NAS Quonset Point	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total									
	PA			SI			R/FS			IRA			RD			RA			RC	RIP	SC					
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F								
20	18	2	0	0	6	0	0	0	0	11	9	0	0	0	0	0	0	0	18	0	0	20	0	0	0	
40	37	3	0	3	20	0	0	0	7	18	9	0	2(2)	1(1)	0	0	31	0	34	0	0	34	0	0	3	
DEPARTMENT OF NAVY TOTALS																										
AIR FORCE																										
1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
DEFENSE LOGISTICS AGENCY																										
2	2	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0	0	2	0	0	0	0
2	2	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0	0	2	0	0	0	0
82	74	5	0	24	26	13	0	0	11	18	11	2	2(2)	1(1)	0	0	33	2	36	2	0	36	2	0	28	27

SOUTH CAROLINA

ARMY

Fort Jackson	37	35	1	1	4	14	16	3	7	0	6	6	0	0	0	0	4	0	4	0	0	4	0	0	0	11
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(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total							
		PA			SI			RIFS			IRA			RD			RA			RC	SC				
		C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F						
SOUTH CAROLINA (Continued)																									
ARMY (Continued)																									
USARC Aiken	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Anderson	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
USARC Charleston	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC Clemson	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Columbia (Forest Drive)	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
USARC Columbia 02	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Florence	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Fort Jackson (ECS 124-G)	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Fort Jackson (Lee Rd.)	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Fort Jackson (McWhorter)	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Greenville 01 (Malton)	12	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
USARC Greenville 02 (Kukowski)	12	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
USARC Myrtle Beach	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Orangeburg	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Rock Hill	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total												
		PA				SI				RIFS				IRA					RA											
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		C	U	F	RC	RIP	RC	SC					
SOUTH CAROLINA (Continued)																														
DEPARTMENT OF ARMY (Continued)																														
USARC Spartanburg	3	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
USARC York, SC	10	10	0	0	0	0	8	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
ARMY TOTALS	132	130	1	1	97	14	16	5	7	0	6	8	0	0	0	0	0	4	0	0	4	0	0	0	0	0	104	0	103	
DEPARTMENT OF NAVY																														
FLEMINWARTRACEN Charleston	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
MCAS Beaufort	46	41	0	5	10	13	0	0	0	0	3	16	0	0	0	0	0	0	0	0	0	0	11	0	0	0	10			
MCRD Parris Island	24	24	0	0	10	8	1	0	1	0	2	9	0	1(1)	0	0	0	0	0	0	0	0	6	1	0	12	12			
NAVBASE Charleston	36	36	0	0	9	0	0	0	0	0	18	9	0	4(4)	0	0	0	0	0	0	0	0	0	0	0	27	9			
NAVRESCEN Charleston	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
NSC Charleston	9	0	9	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0			
NWS Charleston	57	37	17	3	0	2	0	0	0	0	13	15	0	0	0	0	0	0	0	0	0	0	0	0	0	28	0			
DEPARTMENT OF NAVY TOTALS	174	138	28	8	29	23	1	0	1	0	36	60	0	5(5)	0	0	0	17	1	0	95	1	0	31	31					
AIR FORCE																														
Charleston AFB	41	41	0	0	0	0	0	0	0	0	3	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3			
Jebburg Radar Site	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

(Continued)

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State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																							
	PA		SI		RIFS		IRA		RD		RA		Total											
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC					
	11	0	0	5	6	0	0	4	2	0	0	0	0	2	0	0	0	2	0	0	2	9	9	
AIR FORCE TOTALS	34	33	0	1	5	24	0	1	4	9	3	1	0	0	7	0	5	4	3	5	0	2	9	9
SOUTH DAKOTA TOTALS	50	49	0	1	21	24	0	1	4	9	3	1	0	0	7	0	5	6	1	5	0	2	25	25

SOUTH DAKOTA (Continued)

AIR FORCE (Continued)

Joe Foss Field ANGB	11	0	0	5	6	0	0	4	2	0	0	0	0	0	2	0	0	0	2	0	0	2	9	9
AIR FORCE TOTALS	34	33	0	1	5	24	0	1	4	9	3	1	0	0	7	0	5	4	3	5	0	2	9	9
SOUTH DAKOTA TOTALS	50	49	0	1	21	24	0	1	4	9	3	1	0	0	7	0	5	6	1	5	0	2	25	25

TENNESSEE

ARMY

AFRC Johnson City	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
Hobson AAP	30	30	0	0	3	27	0	0	0	1	1	25	1	1(1)	0	0	1	0	0	1	0	0	4	0
<i>Man Army Ammunition Plant</i> ●	22	22	0	0	0	22	0	0	0	2	20	0	0	1(1)	0	2	18	0	0	19	0	0	0	0
USARC Chattanooga	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Chattanooga (Guery)	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Greeneville	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
USARC Knoxville	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
USARC Lyell (AFRC)	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Memphis 01	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
USARC Memphis 02	3	3	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

(Continued)

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State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total							
	PA			SI			R/FS			IRA			RD			RA			RC	RIP	SC			
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F						
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
17	17	0	0	10	7	0	6	0	4	0	0	0	0	0	0	4	0	4	0	0	4	0	0	6
111	111	0	0	43	59	7	2	6	3	25	25	1	2(2)	2(2)	0	2	23	0	0	0	24	0	50	46

TENNESSEE (Continued)

ARMY (Continued)

USARC Nashville	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
USARC Oak Ridge	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
Volunteer AAP	17	17	0	0	10	7	0	6	0	4	0	0	0	0	0	0	4	0	4	0	0	4	0	6	6
ARMY TOTALS	111	111	0	0	43	59	7	2	6	3	25	25	1	2(2)	2(2)	0	2	23	0	0	0	24	0	50	46

DEPARTMENT OF NAVY

NAS Memphis	67	35	26	6	21	0	0	0	0	0	0	46	0	0	0	0	0	0	0	0	0	0	0	21	21
NAVMARCOESCEN Knoxville	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0
NWIRP Bristol	9	9	0	0	4	0	5	0	0	0	0	5	0	0	0	0	0	0	5	0	0	5	0	4	4
DEPARTMENT OF NAVY TOTALS	77	45	26	6	25	0	5	0	0	0	1	51	0	0	0	0	0	0	6	0	0	51	0	25	25

AIR FORCE

Arnold AFB	24	24	0	0	0	23	1	0	0	4	19	0	3	3(3)	2(2)	0	3	0	0	1	0	0	0	3	3
Lovell Field	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
McGhee Tyson Airport	13	10	3	0	1	2	10	0	0	0	7	3	0	0	0	0	0	3	0	0	3	0	0	1	1
Memphis IPT	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued)

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State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites												Total									
	PA			SI			RIFS			IRA			RD			RA						
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	RC	RIP	SC	
TENNESSEE (Continued)																						
AIR FORCE (Continued)																						
Nashville ANGB	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	40	36	4	0	1	26	12	0	0	4	27	3	3	3(3)	2(2)	0	3	3	0	1	3	0
DEFENSE LOGISTICS AGENCY																						
DDMT Memphis ♦	75	75	0	0	0	75	0	0	0	6	0	75	0	0	2(2)	1(1)	0	0	74	0	0	74
DEFENSE LOGISTICS AGENCY TOTALS	75	75	0	0	0	75	0	0	0	6	0	75	0	0	2(2)	1(1)	0	0	74	0	0	74
TENNESSEE TOTALS	303	267	30	6	69	160	24	2	12	7	128	79	4	7(7)	5(5)	0	5	106	0	1	152	0

TEXAS

ARMY																						
AFRC Austin (Camp Mabry)	15	15	0	0	12	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	12
AFRC Corpus Christi (AMSA 7)	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
AFRC Mesquite	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
AFRC Midland	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Camp Bullis	7	7	0	0	0	6	0	1	4	0	1	2	0	0	0	0	0	0	0	0	0	4
Canyon Lake Recreation Area	1	1	0	0	1	0	0	0	0	0	0	0	0	1(1)	0	0	0	0	0	0	0	1
Fort Bliss	44	44	0	0	44	0	0	23	5	7	8	5	0	0	0	0	0	6	0	0	7	28
Fort Hood	66	66	0	0	66	0	0	42	0	0	24	0	1(1)	0	0	0	1	1	0	0	0	42

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Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total											
	PA				SI				RI/FS				IRA					RD				RA						
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC		C	U	F	RC	C	U	F	RC	C	U	F
TEXAS (Continued)																												
ARMY (Continued)																												
7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11

(Continued)

Table C-1
 Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total						
	PA			SI			RIFS			IRA			RD			RA			RC	RIP	SC		
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F					
TEXAS (Continued)																							
ARMY (Continued)																							
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
12	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
4	4	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

	Total # of Sites		Number of Sites																Total							
			PA				SI				RIFS				IRA						RA					
			C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC			C	U	F	RC	RIP	RC
TEXAS (Continued)																										
ARMY (Continued)																										
USARC San Marcos	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
USARC Seagoville	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
USARC Simton	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Tarrantina (AMSA 5 SUB 4)	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
USARC Tyler	4	4	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Victoria	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
USARC Waco	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9
USARC Waco (AMSA 8)	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9
USARC Wichita Falls	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
USARC Yoakum	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
ARMY TOTALS	568	568	0	0	310	247	0	9	114	17	6	49	9	9(10)	6(6)	6	1	51	4	1	50	3	0	436	373	
DEPARTMENT OF NAVY																										
NAS Chase Field	6	6	0	0	0	0	0	6	0	0	0	0	6	0	0	0	0	0	0	0	6	0	0	0	0	0
NAS Corpus Christi	21	15	0	6	12	0	3	0	0	0	0	9	0	0	0	0	0	3	0	0	9	0	0	0	12	12
NAS Dallas	72	59	0	13	4	0	0	0	0	0	0	68	0	0	0	0	7	0	0	20	0	0	0	4	4	
NAS Kingsville	36	27	6	3	1	6	5	0	0	0	14	21	0	0	0	0	11	0	0	35	0	0	0	1	1	

(Continued)

Table C-1

**Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992**

Total # of Sites	Number of Sites																					
	PA				SI				RI/FS				IRA				RA				Total	
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC
TEXAS (Continued)																						
DEPARTMENT OF NAVY (Continued)																						
NAVMARCOESCEN Lubbock	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NWIRP Dallas	7	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
NWIRP McGregor	33	1	0	0	2	0	0	0	0	9	0	0	1(1)	0	0	0	0	0	0	0	0	0
DEPARTMENT OF NAVY TOTALS	176	147	7	22	17	8	14	0	0	24	111	0	1(1)	0	0	0	35	0	1	86	0	17
AIR FORCE																						
Air Force Plant 4 ●	30	29	1	0	0	29	1	0	4	23	1	0	1	1(1)	0	0	5	17	0	4	10	0
Bergstrom AFB ■	30	30	0	0	0	28	0	1	18	2	9	0	0	0	0	0	1	0	5	0	1	5
Brooks AFB	11	11	0	0	0	10	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0
Carswell AFB ■	18	17	0	1	0	9	0	0	5	9	0	4	1	0	0	0	5	0	7	3	0	8
Dyess AFB	43	41	2	0	0	40	2	0	0	22	15	2	5	0	0	0	1	16	15	1	0	30
Ellington ANGB	4	4	0	0	2	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Garland ANGB	2	1	1	0	0	1	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0
Goodfellow AFB	5	5	0	0	0	5	0	0	0	4	1	0	4	1(1)	0	0	0	0	0	0	0	0
Kelly AFB	51	51	0	0	0	50	0	0	1	9	5	0	2	2(2)	6(6)	1	0	0	3	1	0	7
La Porte ANGB	2	0	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0
Lackland AFB	24	24	0	0	0	24	0	0	1	20	0	0	16	0	0	0	2	0	0	3	3	1

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																													
	PA				SI				R/F/S				IRA				RD				RA				Total					
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	SC				
	13	0	0	0	13	0	0	2	11	0	0	9	0	0	0	0	0	1	0	0	2	0	0	2	0	0	2	0	13	13
Laughlin AFB	1	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Nederland AGS	21	0	0	0	20	0	0	7	11	1	0	8	2(2)	0	3	0	0	3	0	0	2	1	1	0	0	0	0	0	15	15
Randolph AFB	13	0	0	0	13	0	0	2	10	0	0	4	0	0	4	0	0	4	0	0	4	1	0	4	1	0	4	2	10	10
Reese AFB	18	0	0	0	18	0	0	7	9	0	0	5	0	0	3	0	0	3	0	0	4	1	0	4	0	0	4	0	16	16
Sheppard AFB	296	278	7	1	2	262	7	1	48	140	36	6	63	6(6)	27	33	27	26	22	45	19	11	132	123						
AIR FORCE TOTALS	1030	983	14	23	329	517	21	10	162	157	124	166	72	16(17)	33	34	113	30	24	181	22	11	585	513						
TEXAS TOTALS																														

TEXAS (Continued)

AIR FORCE (Continued)

UTAH

ARMY

Dugway Proving Ground	169	169	0	0	0	26	140	3	0	4	21	143	4	38(38)	0	0	0	0	164	0	0	162	0	0	4	4
Fort Douglas	7	7	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0
Green River Test Site	12	12	0	0	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12
Tooele AD, North Area	46	46	0	0	0	46	0	0	1	1	44	0	0	0	1	0	44	0	1	44	0	0	0	0	1	0
Tooele AD, South Area	28	28	0	0	0	28	0	0	0	0	28	0	0	1(1)	0	0	0	0	17	0	0	21	0	0	0	0
USARC Logan	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
USARC Ogden	9	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9

(Continued)

Table C-1
 Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total							
	PA			SI			RIFS			IRA			RD			RA			RC	RIP	SC			
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F						
UTAH (Continued)																								
ARMY (Continued)																								
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
323	323	0	0	61	112	140	3	13	5	100	143	4	39(39)	0	1	0	232	0	1	227	0	0	0	78
DEPARTMENT OF NAVY																								
7	6	0	1	0	1	0	0	0	0	6	1	0	0	0	0	0	0	0	0	0	1	0	0	0
7	6	0	1	0	1	0	0	0	0	6	1	0	0	0	0	0	0	0	0	0	1	0	0	0
AIR FORCE																								
12	12	0	0	12	0	0	5	7	0	0	0	5	0	0	2	0	0	2	0	0	2	0	0	12
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
63	61	2	0	2	50	10	0	11	8	12	0	0	1(1)	2(2)	6	3	0	4	5	0	3	2	16	8

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total							
	PA			SI			RIF/S			IRA			RD			RA			RC	RC	SC			
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F						
7	7	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	61	2	0	3	62	17	0	16	15	0	5	1(1)	2(2)	8	3	0	6	5	0	5	0	2	29	20
DEFENSE LOGISTICS AGENCY																								
44	44	0	0	0	44	0	0	21	22	0	1	6	2(2)	0	6	4	7	3	2	12	3	1	30	29
44	44	0	0	0	44	0	0	21	22	0	1	6	2(2)	0	6	4	7	3	2	12	3	1	30	29
457	454	2	1	64	219	157	3	50	42	125	145	15	42(42)	2(2)	15	7	239	9	8	240	6	3	137	126

UTAH (Continued)

AIR FORCE (Continued)

Salt Lake City IAPT	7	0	0	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	63	61	2	0	3	62	17	0	16	15	0	5	1(1)	2(2)	8	3	0	6	5	0	5	2	29	20

DEFENSE LOGISTICS AGENCY

DDOU Ogden	44	44	0	0	44	0	0	21	22	0	1	6	2(2)	0	6	4	7	3	2	12	3	1	30	29
DEFENSE LOGISTICS AGENCY TOTALS	44	44	0	0	44	0	0	21	22	0	1	6	2(2)	0	6	4	7	3	2	12	3	1	30	29
UTAH TOTALS	457	454	2	1	64	219	157	3	50	42	125	145	42(42)	2(2)	15	7	239	9	8	240	6	3	137	126

VERMONT

ARMY

Ethan Allen Firing Range	11	11	0	0	8	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
USARC Chester, VT	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Montpelier	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
USARC Rutland (Courcelle)	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
USARC Winoski	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
ARMY TOTALS	28	28	0	0	25	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	28

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																														
		PA				SI				RIFS				IRA				RD				RA				Total						
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC				
AIR FORCE	2	2	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	2	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VERMONT TOTALS	30	30	0	0	25	5	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	28	28

VERMONT (Continued)

AIR FORCE

Burlington IAPT	2	2	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	2	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VERMONT TOTALS	30	30	0	0	25	5	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	28	28

VIRGINIA

ARMY

AFRC Lynchburg	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Arlington Hall Station	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cameron Station	8	8	0	0	8	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Defense Mapping Agency - Herndon	3	3	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fort A.P. Hill	19	19	0	0	5	14	0	0	6	1	1	3	0	5(8)	0	3	0	0	3	0	0	3	1	0	3	0	3	0	14	13	13	13
Fort Belvoir	59	59	0	0	0	17	0	42	0	1	0	16	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Fort Eustis	23	23	0	0	1	22	0	0	9	4	4	5	0	0	0	1	2	3	0	0	6	0	0	0	0	0	0	0	10	10	10	10
Fort Lee	31	31	0	0	10	11	0	10	5	0	1	6	0	2(2)	0	0	0	0	0	0	10	1	0	10	1	0	16	15	15	15	15	
Fort Monroe	3	3	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fort Myer	6	6	0	0	1	3	2	0	1	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fort Story	11	10	0	1	0	10	0	1	2	1	0	5	0	0	0	2	0	2	0	1	1	0	0	0	0	0	0	0	2	1	1	1
Housing Area Manassas, VA	2	2	0	0	0	2	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1

(Continued)

Table C-1
 Department of Defense Environmental Restoration Program
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	Total # of Sites	Number of Sites																												
		PA				SI				RIFS				IRA				RA												
		C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC									
VIRGINIA (Continued)																														
ARMY (Continued)																														
USARC Hampton (Marcella Road)	7	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
USARC Martinsville	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Norfolk	4	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
USARC Radford (New River)	3	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
USARC Richmond (Derrishian)	7	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
USARC Richmond 01 (Monteth)	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Richmond, VA	7	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
USARC Salem, VA	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
USARC Springfield (AMSA 81)	8	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
USARC Warsaw	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
USARC Waynesboro	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Vint Hill Farms Station	4	4	0	0	0	4	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Woodbridge Research Facility	13	13	0	0	0	4	9	0	0	8	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	12
ARMY TOTALS	327	326	0	1	121	146	3	57	31	22	50	39	2	7(10)	0	7	8	60	7	8	63	7	0	161	158					
DEPARTMENT OF NAVY																														
AFETA Camp Peary, Williamsburg	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites												Total												
	PA			SI			R/FS			IRA			RA												
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	RC	RIP	RC	SC						
VIRGINIA (Continued)																									
DEPARTMENT OF NAVY (Continued)																									
Arlington Service Center	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
COMNAVBASE Norfolk	46	33	7	6	0	19	0	6	11	9	4	17	0	1(2)	6(6)	1	0	13	2	3	30	2	0	13	13
COMNAVFACENGCOM Alexandria	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
FCFC Dam Neck	6	6	0	0	0	6	0	0	0	0	2	0	0	0	2(2)	0	0	2	0	0	2	0	0	0	0
Headquarters Battalion, Arlington	1	1	0	0	0	0	0	0	0	0	0	0	0	1(1)	0	0	0	0	1	0	0	0	1	0	1
LANTNAVFACENGCOM Norfolk	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MCCDC Quantico	22	22	0	0	11	7	2	0	0	0	7	2	0	3(3)	0	0	0	9	1	0	9	1	0	9	12
NADEP Norfolk	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
NAS Norfolk	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NAS Oceana	37	35	2	0	2	0	0	0	0	9	0	24	4	0	2(2)	0	0	0	0	0	12	0	0	6	6
NAVHOSP Portsmouth	2	2	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1
NAVPHIBASE Little Creek	22	19	3	0	6	9	2	0	3	2	7	4	0	0	0	0	8	0	0	13	0	0	9	9	
NAVRADSTA Driver	8	8	0	0	5	3	0	0	0	0	3	0	0	0	1(3)	0	0	3	0	0	3	0	0	5	5
NFD/NSC Craney Island	16	15	1	0	5	5	0	0	0	2	4	2	1	0	0	0	6	0	0	11	0	0	6	6	
NMCRIC Focstone	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
NS Norfolk	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
NSC Chesham Annex Williamsburg	12	12	0	0	0	9	3	0	8	1	0	3	0	0	0	0	3	0	0	3	0	0	0	8	8

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total										
	PA			SI			R/FS			IRA			RD			RA			RC	RIP	SC						
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F									
VIRGINIA (Continued)																											
DEPARTMENT OF NAVY (Continued)																											
NSC Yorktown Fuels Division	21	0	0	0	19	0	0	18	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	18	
NSGA Inwest Chesapeake	5	1	0	4	1	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
NSWC Dahlgren ♦	38	0	0	27	6	0	0	0	0	10	0	0	0	2(2)	0	0	8	0	0	10	0	0	0	0	27	27	
NSY (Norfolk) Portsmouth	24	2	0	11	8	0	0	1	2	7	2	0	2(2)	2(2)	0	0	7	0	0	11	0	0	0	0	12	12	
NWS St. Julian's Creek Annex, Norfolk	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
PWC Norfolk	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WPNSTA Yorktown ♦	20	20	0	0	3	17	0	0	0	16	1	0	0	0	0	0	17	0	0	17	0	0	0	0	3	3	
DEPARTMENT OF NAVY TOTALS	290	265	15	10	78	110	7	6	42	26	6	60	5	7(8)	15(17)	1	0	78	4	3	129	4	0	129	129		
AIR FORCE																											
Byrd ANGB	6	6	0	0	0	2	0	3	0	0	0	3	0	0	0	0	3	0	1	2	0	0	0	0	0	0	
Langley AFB	47	43	0	4	0	35	0	5	6	9	1	10	1	5(5)	0	7	0	9	7	1	9	0	0	0	7	7	
AIR FORCE TOTALS	53	49	0	4	0	37	0	8	6	9	1	13	1	5(5)	0	7	0	12	7	2	11	0	0	7	7		

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total							
	PA			SI			RIFS			IRA			RD			RA			RC	RIP	SC			
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F						
28	28	0	0	0	0	0	1	13	10	4	8	4(5)	0	3	0	7	5	0	6	3	0	12	12	
28	28	0	0	0	0	0	1	13	10	4	8	4(5)	0	3	0	7	5	0	6	3	0	12	12	
698	668	15	15	199	321	10	71	90	70	122	116	16	23(28)	15(17)	18	8	157	23	11	209	14	0	309	306

VIRGINIA (Continued)

DEFENSE LOGISTICS AGENCY

DGSC Richmond ●	28	28	0	0	0	0	0	1	13	10	4	8	4(5)	0	3	0	7	5	0	6	3	0	12	12	
DEFENSE LOGISTICS AGENCY TOTALS	28	28	0	0	0	0	0	1	13	10	4	8	4(5)	0	3	0	7	5	0	6	3	0	12	12	
VIRGINIA TOTALS	698	668	15	15	199	321	10	71	90	70	122	116	16	23(28)	15(17)	18	8	157	23	11	209	14	0	309	306

WAKE ISLAND

ARMY	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wake Island Airfield	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WAKE ISLAND TOTALS	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

WASHINGTON

ARMY	7	7	0	0	6	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
AFRC Bellingham	7	7	0	0	6	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
AFRC Bellingham (Stevens)	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
AFRC Ellensburg	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
AFRC Port Orchard	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

(Continued)

Table C-1
 Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

	Total # of Sites	Number of Sites																Total									
		PA			SI			R/FS			IRA			RD			RA			RC	RIP	SC					
		C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F								
WASHINGTON (Continued)																											
ARMY (Continued)																											
AFRC Tacoma	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
AFRC Yakima	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Camp Bonneville	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fort Lewis ●	47	47	0	0	30	9	0	7	0	2	6	1	1	2(3)	0	0	4	2	1	4	0	1	0	0	0	32	0
Housing Area Midway, VA	3	3	0	0	3	0	0	3	0	0	0	0	2	0	0	0	0	0	1	0	0	1	0	0	0	3	3
Housing Area Youngs Lake, WA	3	3	0	0	3	0	0	3	0	0	0	0	2	0	0	0	0	0	1	0	0	1	0	0	0	3	3
Ruston Way Property	5	5	0	0	0	5	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USARC Bothell	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Clarkston	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Everett	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
USARC Fort Lawton (AMSA 7)	13	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
USARC Kennewick	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
USARC Longview	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
USARC Moses Lake	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Pasco	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Redmond	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USARC Spokane	12	12	0	0	9	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9

(Continued)

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**Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992**

Total # of Sites	Number of Sites																Total					
	PA		SI		R/FS		IRA		RD		RA		RC		SC		RC	RIP	RC	SC		
	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U						
8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
8	8	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
50	50	0	0	25	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	25	
204	204	0	0	142	20	25	15	0	8	6	6	5	2(3)	0	0	4	2	3	4	0	3	150

WASHINGTON (Continued)

ARMY (Continued)

USARC Trentwood (AMSA 8)	8	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
USARC Tumwater	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
USARC Walla Walla	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
USARC Wenatchee	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
USARC Yakima (Pendleton)	8	8	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4	
Vancouver Barracks	1	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	
Yakima Firing Center	50	50	0	0	25	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	25	
ARMY TOTALS	204	204	0	0	142	20	25	15	0	8	6	6	5	2(3)	0	0	4	2	3	4	0	150

DEPARTMENT OF NAVY

Jackson Park Housing, Bremerton	4	4	0	0	0	1	1	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0
NAS Whidbey Island	55	54	1	0	0	40	0	0	0	0	15	25	0	0	3(4)	0	0	38	1	1	40	0
NAVHOSP Bremerton	1	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0
NAVRADSTAT/Jim Creek	9	9	0	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
NS Puget Sound	11	9	0	2	0	1	7	0	1	0	1	5	0	0	0	0	0	8	0	0	8	1
NSB Bangor	39	30	0	0	14	21	0	0	3	1	20	1	0	2(2)	1(1)	0	1	20	0	1	21	0
NSC Puget Sound Bremerton	2	2	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0

(Continued)

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Total # of Sites	Number of Sites																							
	PA		SI		RI/FS		IRA		RD		RA		Total											
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC					
3	3	0	0	0	2	0	0	1	1	1	0	0	0	1	0	0	1	1	0	0	1	1		
1	1	0	0	0	1	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0		
15	14	1	0	3	10	0	0	0	10	0	0	0	0	0	0	10	0	0	11	0	0	3		
13	13	0	0	3	8	2	0	3	1	2	3	0	1(1)	0	1	0	4	1	0	7	1	0	7	
11	10	1	0	2	5	2	0	0	1	6	2	0	3(3)	0	0	0	8	0	1	8	0	0	2	
164	159	3	2	31	90	13	0	8	4	59	40	0	6(6)	5(6)	2	1	95	2	5	102	1	0	40	21

WASHINGTON (Continued)

DEPARTMENT OF NAVY (Continued)

NSC Puget Sound Manchester	3	3	0	0	0	2	0	0	1	1	0	0	0	0	1	0	0	1	1	0	0	1	1		
NSY Everett	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0		
NSY Puget Sound	15	14	1	0	3	10	0	0	0	10	0	0	0	0	0	0	10	0	0	11	0	0	3		
NUJMES Indian Island Detachment	13	13	0	0	3	8	2	0	3	1	2	3	0	1(1)	0	1	0	4	1	0	7	1	0	7	
NUJMES Keyport	11	10	1	0	2	5	2	0	0	1	6	2	0	3(3)	0	0	0	8	0	1	8	0	0	2	
DEPARTMENT OF NAVY TOTALS	164	159	3	2	31	90	13	0	8	4	59	40	0	6(6)	5(6)	2	1	95	2	5	102	1	0	40	21

AIR FORCE

Bellingham MAPT	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camp Murray	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Fairchild AFB ●	30	30	0	0	0	21	0	0	5	2	8	2	0	2(2)	0	0	0	1	1	0	0	1	5	0
Four Lakes ANGB	4	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malah AFS	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
McCord AFB	65	65	0	0	0	51	0	13	28	1	0	0	1(1)	0	0	0	0	3	0	0	0	0	28	23
Mica Peak Radar Site	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Paine ANGB	2	0	2	0	0	0	2	0	0	0	0	2	0	0	0	0	2	0	0	2	0	0	0	0

(Continued)

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State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																		Total					
	PA			SI			RIFS			IRA			RD			RA			RC	SC				
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F						
2	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
2	2	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0
AIR FORCE TOTALS	109	9	0	1	76	9	13	33	3	10	6	0	3(3)	2(2)	0	0	6	1	5	6	0	1	34	23

WASHINGTON (Continued)

AIR FORCE (Continued)

Seattle ANGB	2	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spokane ANGB	2	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0
AIR FORCE TOTALS	109	9	0	1	76	9	13	33	3	10	6	0	3(3)	2(2)	0	0	6	1	5	6	0	1	34	23

DEFENSE LOGISTICS AGENCY

DFSP Majetteu	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
DEFENSE LOGISTICS AGENCY TOTALS	2	2	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WASHINGTON TOTALS	479	465	12	2	174	188	47	28	41	15	77	52	5	11(12)	7(8)	2	5	105	6	14	110	4	1	224	162

WEST VIRGINIA

ARMY

AFRC Morgantown	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	
AFRC South Charleston	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
AFRC South Charleston (AMSA 107)	7	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
USARC Beaver	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
USARC Bluefield	5	5	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
USARC Clarksburg	3	3	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total								
	PA				SI				R/F/S				IRA				RA			RC	RIP	SC			
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F				RC		
WEST VIRGINIA (Continued)																									
ARMY (Continued)																									
4	4	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
3	3	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
5	5	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
3	3	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2

(Continued)

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Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total			
	PA		SI		RI/FS		IRA		RD		RA		Total							
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	RC	SC	
WEST VIRGINIA (Continued)																				
ARMY (Continued)																				
USARC Wheeling	3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
ARMY TOTALS	87	87	0	80	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	80
DEPARTMENT OF NAVY																				
ABL Mineral County	12	12	0	2	7	0	0	0	6	4	0	0	0	0	0	0	0	0	0	2
NAVRADSTAR/ Sugar Grove	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
DEPARTMENT OF NAVY TOTALS	13	13	0	3	7	0	0	0	6	4	0	0	0	0	0	0	0	0	0	3
AIR FORCE																				
EWVRA Shepherd Field ANGB	4	4	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
Yeager ANGB	5	4	1	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	9	8	1	0	2	5	1	0	0	0	1	0	0	0	0	0	0	0	0	2
WEST VIRGINIA TOTALS	109	108	1	0	85	12	1	7	0	6	5	0	0	0	0	0	0	0	0	85
WISCONSIN																				
ARMY																				
Badger Army Ammunition Plant	28	28	0	0	15	13	0	0	1	0	12	0	0	0	0	0	0	0	0	16

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																				Total					
	PA					SI					RI/FS					IRA					RA			Total	RC	SC
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	C	U	F				
WISCONSIN (Continued)																										
ARMY (Continued)																										
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
8	8	0	0	7	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7	
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	
11	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	
16	16	0	0	13	0	0	2	0	0	1	0	0	1(2)	0	0	1	0	0	0	0	0	0	0	13	13	
6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	
12	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12	
2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
3	3	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
14	14	0	0	9	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
State by State Installation Status Listing As of September 30, 1992

Total # of Sites	PA		SI		RIFS						IRA			RD		RA		Total					
	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	C	U	F	RC	RIP	SC	
	Number of Sites																						
WISCONSIN (Continued)																							
ARMY (Continued)																							
USARC Wausau	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
ARMY TOTALS	218	218	0	169	25	0	17	1	2	23	0	1	2(3)	1(1)	0	1	4	0	0	5	0	0	171
AIR FORCE																							
General Mitchell AFB	4	4	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
General Mitchell ANGB	8	8	0	0	7	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Hardwood Range*	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Truxax Field ANGB	7	7	0	0	3	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	3
Volk Field ANGB	17	17	0	0	13	2	2	0	2	2	0	1	0	0	0	0	0	0	0	0	0	0	14
AIR FORCE TOTALS	37	37	0	24	11	2	2	0	5	2	6	0	0	0	0	0	0	0	0	0	0	0	30
WISCONSIN TOTALS	255	255	0	193	36	2	17	6	4	29	0	2	2(3)	1(1)	0	1	4	0	0	5	0	0	201

WYOMING

ARMY

AFCR Sheridan	5	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
USARC Cheyenne	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
ARMY TOTALS	7	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7

*This is a satellite facility at Volk Field, WI, and will be included in the Volk Field site status in future reports.

(Continued)

Table C-1

Department of Defense Environmental Restoration Program
 State by State Installation Status Listing As of September 30, 1992

Total # of Sites	Number of Sites																Total							
	PA			SI			R/FS			IRA			RD			RA			RC	RIP	SC			
	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F	C	U	F						
6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

WYOMING (Continued)

AIR FORCE

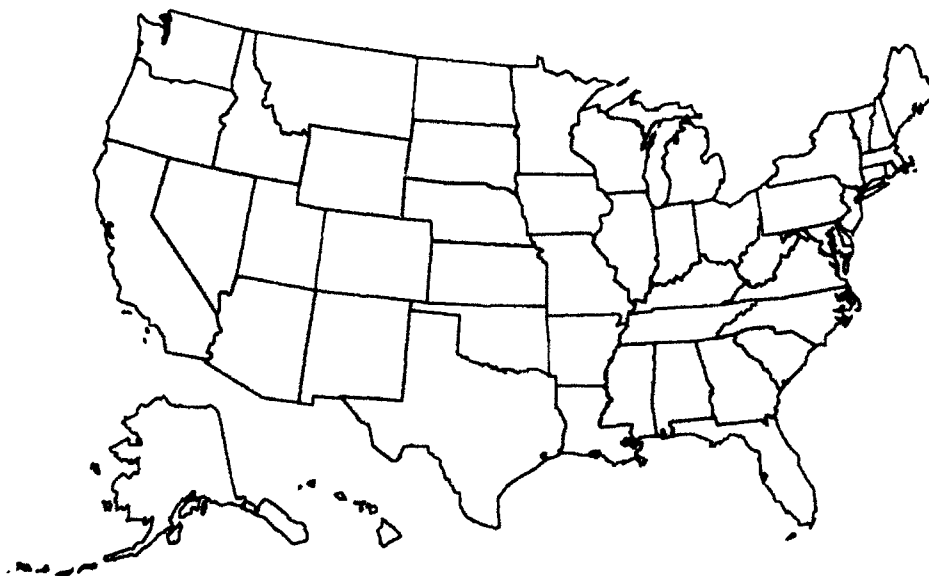
Cheyenne MAPT	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Francis E. Warren AFB ●	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR FORCE TOTALS	26	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WYOMING TOTALS	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix D

State Status

This Appendix to the Annual Report provides state-by-state information regarding NPL, DSMOA, and IAG status. For the states, the following information is given:

- Number of installations and sites in the IRP
- IRP site status
- DSMOA and CA status
- Number of NPL-listed DoD installations
- Number of NPL installations covered by a signed IAG
- Number of installations covered by a DSMOA (for states with a signed DSMOA)
- FY 1992 funding provided to the state under the DSMOA.



States with signed DSMOAs

Table D-1

Defense and State Memorandum of Agreement and Cooperative Agreement Status as of September 30, 1992

State	Notice & Info Sent	Draft DSMOA & Forms Sent	State Response	Comments from State	Final DSMOA	DoD Signature	State Signature	CA Application Received	Comments Given	Final CA Submitted	CA Awarded
Alabama											
Alaska											
Arizona											
Arkansas											
California											
Colorado											
Connecticut											
Delaware											
Florida											
Georgia											
Hawaii											
Idaho											
Illinois											
Indiana											
Iowa*											
Kansas											
Kentucky											
Louisiana											
Maine											
Maryland											
Massachusetts											
Michigan											
Minnesota											
Mississippi											
Missouri											
Montana											
Nebraska											
Nevada											

*State has not pursued DSMOA.
CA = Cooperative Agreement.

Table D-1

Defense and State Memorandum of Agreement and Cooperative Agreement Status as of September 30, 1992

State	Notice & Info Sent	Draft DSMOA & Forms Sent	State Response	Comments from State	Final DSMOA	DoD Signature	State Signature	CA Application Received	Comments Given	Final CA Submitted	CA Awarded
New Hampshire											
New Jersey											
New Mexico											
New York											
North Carolina											
North Dakota*											
Ohio											
Oklahoma											
Oregon											
Pennsylvania											
Rhode Island											
South Carolina											
South Dakota											
Tennessee											
Texas											
Utah*											
Vermont											
Virginia											
Washington											
West Virginia											
Wisconsin											
Wyoming											
Washington, DC											
Puerto Rico											
Amer. Samoa											
Guam											
Virgin Islands*											
Marianas											

*State has not pursued DSMOA.
CA = Cooperative Agreement

Table D-2

Installation Restoration Program, National Priorities List, and Defense and State Memoranda of Agreement Status by State

State	IRP Installations	NPL Installations		DSMOA Status	
		Total	Covered by a Signed IAG	Installations covered by a DSMOA	\$(K) Awarded during FY 1992
Alabama	44	2	2	11	—
Alaska	54	3	3	**98	1,827
Arizona	20	3	3	13	—
Arkansas	31	0	0	—	—
California	151	19	18	101	9,290
Colorado	22	2	1	—	—
Connecticut	29	1	0	—	—
Delaware	7	1	1	2	206
District of Columbia	7	0	0	—	—
Florida	70	4	4	15	900
Georgia	32	2	2	13	—
Guam	11	1	0	9	—
Hawaii	42	2 *	1	26	134
Idaho	8	1	1	2	—
Illinois	56	2	2	**16	83
Indiana	28	0	0	8	799
Iowa	27	1	1	—	—
Kansas	39	1	1	5	167
Kentucky	28	0	0	6	—
Louisiana	31	1	1	10	521
Maine	16	2	2	5	70
Maryland	50	1	1	14	—
Massachusetts	35	3	3	10	1,433
Michigan	32	0	0	12	373
Midway Island	1	0	0	—	—
Minnesota	32	3	3	4	—
Mississippi	26	0	0	10	176
Missouri	36	1	1	**8	—

*Includes Pearl Harbor Naval Complex proposed for the NPL

**Includes Formerly Used Defense Sites (FUDS)

Table D-2**Installation Restoration Program, National Priorities List, and Defense and State Memoranda of Agreement Status by State**

State	IRP Installations	NPL Installations		DSMOA Status	
		Total	Covered by a Signed IAG	Installations covered by a DSMOA	\$(K) Awarded during FY 1992
Montana	13	0	0	—	—
Nebraska	21	1	1	4	146
Nevada	7	0	0	5	503
New Hampshire	8	1	1	—	—
New Jersey	28	4	4	8	1,139
New Mexico	13	0	0	8	399
New York	90	3	2	18	—
North Carolina	37	1	1	1	—
North Dakota	10	0	0	—	—
Ohio	54	1	1	—	—
Oklahoma	36	1	1	—	—
Oregon	18	1	1	—	—
Pennsylvania	110	3	3	—	—
Puerto Rico	10	1	0	2	—
Rhode Island	19	2	2	7	—
South Carolina	31	0	0	11	—
South Dakota	4	1	0	2	327
Tennessee	22	2	1	—	—
Texas	88	3	3	26	—
Utah	19	3	3	—	—
Vermont	6	0	0	1	84
Virginia	69	3	1	26	—
Wake Island	1	0	0	—	—
Washington	51	6	6	—	—
West Virginia	27	0	0	3	295
Wisconsin	39	0	0	3	—
Wyoming	4	1	1	2	174
TOTAL	1,800	94	85	525	19,046

Appendix E

Formerly Used Defense Sites on the NPL

This Appendix to the Annual Report provides summary information for each FUDS listed on the NPL as of the end of FY 1992. Key data are provided in Table E-1.

Table E-1
FUDS on the NPL

Site	State	HRS Score
1. Fisher-Calo, LaPorte	IN	52.05
2. Hastings Ground Water Contamination, Hastings	NE	42.24
3. Malta Rocket Fuel Area, Malta	NY	33.62
4. Marathon Battery Corporation, Cold Spring	NY	30.27
5. National Presto Industries, Eau Claire	WI	43.7
6. Nebraska Ordnance Plant (Former), Mead	NE	31.94
7. New Hanover County Airport Burn Pit, Wilmington	NC	39.39
8. Olmstead Air Force Base, Middletown	PA	45.00
9. Ordnance Works Disposal Areas, Morgantown	WV	35.62
10. Phoenix-Goodyear Airport, Goodyear	AZ	45.91
11. Sangamo Electric Dump/Crab Orchard National Wildlife Refuge (DOI), Cartersville	IL	43.70
12. Weldon Spring Ordnance Works, St. Charles County,	MO	12(a) 30.26 12(b) 58.60
13. West Virginia Ordnance Works, Point Pleasant	WV	35.72

Fisher-Calo LaPorte, Indiana

(1)

Service: Department of War

Size: 443 Acres

HRS Score: 52.05

Base Mission: Ordnance plant

IAG Status: Not Applicable

Action Dates: Placed on NPL September 1983; RI completed May 1989;
FS completed April 1990; ROD signed August 1990

Contaminants: Organic solvents, PCBs, inorganics, polynuclear aromatic hydrocarbons

DOD Funding to Date: \$316,385

Preliminary Assessment/ Site Inspection (PA/SI)

The former Kingsbury Ordnance Plant (KOP), constructed for DoD, was used for explosives manufacturing and loading operations, and storage and demilitarization of explosives. Later, it was managed by the U.S. Rubber Company, then purchased by the Kingsbury Industrial Development Management Corp. and the State of Indiana Department of Parks and Recreation (Fish and Wildlife Division) from the General Services Administration.

The contamination is believed to stem from the activities of the Fisher-Calo Chemical and Solvents Corp. (FCC), which was involved in the packaging, storage, and distribution of industrial chemicals as well as the reclamation of waste paint and metal finishing solvents.

The primary exposure pathway is through the ground water. Water wells in the vicinity are at risk due to the migration of the contaminant plumes.

DoD received notices from EPA in regard to the Fisher-Calo Super-

fund Site. The initial concern was based on the asbestos siding used to construct the buildings. Participation in negotiations with the PRPs will be dictated by the results of the PRP consultant's expanded sampling/analysis and quality assurance of the explosives results from splits taken by USACE, Omaha District.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI was completed in May 1989, and an FS was completed in April 1990, both performed by EPA contractors.

Surface soils are contaminated with solvents, inorganics, and PCBs, while ground water contamination include VOCs. Surface water samples show the presence of inorganics, and sediment samples contain primarily PCBs.

Remedial Design/ Remedial Action (RD/RA)

The ROD was signed on August 7, 1990. The ROD includes excavation and incineration of soils con-

taining semi-volatiles and PCBs, and soil flushing or soil vapor extraction for VOC contaminated soils. Incinerator ash testing is to be performed to determine the disposal location of the ash. Ground water extraction, treatment, reinjection, and monitoring, as well as development of an asbestos handling program, are planned. Removal of drums, tanks, and containers also will be performed.

The PRPs have submitted a work plan for RD which is currently under review by EPA. The approved work plan will establish the schedule for activities. There has not been any conclusive information showing significant DoD contaminant contribution. Additional investigative work is planned, which will include: soil and ground water sampling, archive literature search, interviews, and chemical engineering review of the expected wastes from the plant processes. Settlement negotiations are pending completion of site history and operations investigation.

Hastings Ground Water Contamination (2)

Hastings, Nebraska

Service: Navy

Size: 2,600 Acres

HRS Score: 42.24

Base Mission: Ammunition production, loading, and storage

IAG Status: Not Applicable

Action Dates: Placed on NPL 1986; ROD signed 1990

Contaminants: Explosive compounds, VOCs and metals in ground water and soils, semi-volatiles (PAHs) in soils

DOD Funding to Date: \$16.4 million

Preliminary Assessment/ Site Inspection (PA/SI)

The 48,753-acre Blaine Naval Ammunition Depot (NAD) was placed on the NPL in 1986 as one of seven subsites of the Hastings Ground Water Contamination Site. The facility was decommissioned between 1958 and 1966 and portions of the property transferred to the Nebraska National Guard, the Department of Agriculture and the Air Force or sold to private parties. The northwest portion of the former NAD, contains a community college and the Hastings East Industrial Park subsite (HEIP). The HEIP subsite contains much of the area where munitions production occurred. Other subsites have been identified at the former NAD and are under investigation. They are the former Bomb & Mine Complex, the Naval Yard Dump, the Explosives Disposal Area (Burn Pits), and the Southeast Detonation area. A PA/SI was not conducted at this site. However, EPA divided the former NAD into townships and contracted for PAs for each township under the Alternative Remedial

Contract Strategy (ARCS) program. Those PAs involved little sampling and, under the terms of an IAG expected to be executed in the near future, the USACE Kansas City District will revisit the question of whether contamination exists at those areas. The USACE Huntsville Division conducted ordnance PAs and some clearance operations for explosive ordnance contamination and UXO in 1990 and 1991.

Remedial Investigation/ Feasibility Study (RI/FS)

During the HEIP RI, two phases of field work were conducted which involved the installation and sampling of monitoring wells, surface water, soils, sanitary sewers, and catch basins, borehole geophysical surveys, soil borings, and an ambient air quality survey. The RI data were used to prepare a baseline risk assessment, which concluded that "an unacceptable level of risk may be associated with human activities at this site." Soil and ground water are contaminated with explosive compounds, metals and semi-volatile organic compounds.

Five Operable Units (OU) have been designated by EPA at the former NAD. Three OUs are associated with the HEIP subsite and are: surface soil (OU4), ground water (OU14) and vadose zone (OU8). Another OU covers three subsites located in the southeast portion of the former NAD (OU16), and one OU covers the rest of the former NAD (OU15). An RI/FS was completed for OU4 in August 1990. RI/FS reports are in progress for OUs 8, 14 and 16. A ROD was signed for OU4 in September 1990.

Remedial Design/ Remedial Action (RD/RA)

RD for OU4 is in progress and is scheduled for completion in 1993. The estimated cost of OU4 is \$20 million. Based on the results of the OU16 RI/FS, contaminated surface soils from other areas of the former NAD may be included in the HEIP RA project. A RA was completed in late 1990 at the Naval Yard Dump which is included in OU16. This RA project targeted surface debris and exposed drums.

Malta Rocket Fuel Area

Malta, New York

(3)

Service: Army and Air Force

Size: 196.36 Acres

HRS Score: 33.62

Base Mission: Research and Development

IAG Status: Participation Agreement signed 1990

Action Dates: Placed on NPL 1987; PA/SI completed 1989

Contaminants: Carbon tetrachloride, chloroform, PCBs, trichloroethylene, boron

DOD Funding to Date: \$791,052

Preliminary Assessment/ Site Inspection (PA/SI)

The Malta Rocket Fuel Area was established by the Army in 1945 and used for rocket engine and exotic rocket fuels testing. This site was a GOCO facility. General Electric was the contractor that operated the facility from 1945 to 1964 for the federal government. At that time, the property was conveyed to the New York State Atomic and Space Development Authority. Hazardous substances were found in drinking water, surface water, septic tank liquid, and sludge, and in containers located on-site. An Early Warning Monitoring System has been installed upgradient from several public wells, which are located downgradient from the site.

Remedial Investigation/ Feasibility Study (RI/FS)

EPA has issued a unilateral order to all non-federal PRPs for the purpose of conducting an RI/FS. EPA has approved the RI work plan. Field work began in October 1991 and was completed in June 1992. A draft RI report was submitted for PRP review in October 1992.

USACE, on behalf of DoD, successfully negotiated a sidebar agreement with the other PRPs, obligating DoD to 37 percent of the cost of the RI/FS.

Remedial Design/ Remedial Action (RD/RA)

Not identified yet.

Marathon Battery Corporation

Cold Spring, New York

(4)

Service: Army

Size: 820 Acres

HRS Score: 30.27

Base Mission: Production of Nickel-Cadmium Batteries

IAG Status: Not Applicable

Action Dates: Placed on NPL 1981; Area I ROD signed September 1986; Area II ROD signed September 1988; Area III ROD signed September 1989

Contaminants: Cadmium, nickel, cobalt, pesticides, VOCs, base/neutral extractable compounds

DOD Funding to Date: \$6.412 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Marathon Battery site was constructed in 1952 for the U.S. Army Signal Corps for the production of nickel-cadmium batteries. In November 1980, Merchandise Dynamics, Inc. purchased the facility for a book storage and distribution facility. Marathon Battery Co.; Gould, Inc.; and Merchandise Dynamics, Inc. have been named as PRPs along with the Army. The area where high concentrations of metals were found in the soils is used by local residents for fishing, crabbing, boating, and nature observation.

Between November 1972 and July 1973, dredging was conducted in East Foundry Cove. The dredge spoils were de-watered and buried in a clay-lined underground vault on the plant property. Studies conducted from 1976 to 1980 by New York State Department of Environmental Conservation (NYSDEC), EPA, and New York University indicated, however, that

East Foundry Cove was still contaminated.

Remedial Investigation/ Feasibility Study (RI/FS)

The site consists of three distinct areas. The State of New York and the EPA, with input from the PRPs, have conducted an RI/FS for all areas and issued RODs. EPA issued an Administrative Order to the PRPs on March 26, 1989 for the building decontamination, consisting of power washing and vacuuming for cadmium, dust removal, book cleaning, and disposal.

Remedial Design/ Remedial Action (RD/RA)

The selected remedy for Areas I and III is hydraulic dredging, sediment thickening, fixation, and off-site disposal. The no action (monitoring) alternative was selected for Constitution Marsh.

The selected remedy for Area II consists of building decontamination/soil excavation/fixation/enhanced volatilization/off-site dis-

posal for the soils and building dust component. The vault cleanup include sediment excavation/chemical fixation/off-site disposal. The no action alternative selected for the ground water requires no active cleanup effort, but does require monitoring, public education, and maintenance.

Building decontamination is being implemented by Marathon under an Administrative Order. The remedial action for Areas I, II and III will be implemented by Gould under the final Consent Decree currently under review by DoD. A final settlement has been negotiated by Omaha District with EPA, DOS, and the other PRPs. The final consent decree covers final liability of the DoD at the site. The Army and Marathon Battery have signed a partial Consent Decree for Area II. Gould Inc. did not.

National Presto Industries (NPI) (Ordnance Plant No. 2) Eau Claire, Wisconsin

(5)

Service: Army

Size: 320 Acres

HRS Score: 43.7

Base Mission: Ordnance Manufacture

IAG Status: Consent Decree Order Signed 1986

Action Dates: RI/FS and RD/RA by NPI are still in progress; ROD from EPA may be issued by end of FY 1993. USACE awarded PRP support contract in September 1992

Contaminants: Trichloroethylene, tetrachloroethylene and other contaminants

DOD Funding to Date: \$5.56 million

Preliminary Assessment/ Site Inspection (PA/SI)

EPA and Wisconsin Department of Natural Resources conducted ground water studies in 1981 to 1985 in the general area west of the NPI site, extending into the NPI site area. Contamination was discovered. The NPI site was placed on the NPL in May 1986. Wastes from NPI activities were disposed of in pits and lagoons on the site; it is alleged that during the period of U.S. ownership, wastes were disposed of in the sanitary sewer and dry wells on the site.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS conducted by NPI under a 1986 consent order with EPA is not yet complete. The work so far has identified five source areas and four plumes of ground water contamination. EPA ordered an on-site ground water treatment system for part of plumes and the air stripper is under construction. No action has yet been taken on source areas.

Remedial Design/ Remedial Action (RD/RA)

In March 1991, EPA issued a unilateral order to construct a drinking water system in an affected area of the Town of Hallie, and in July 1992, EPA ordered the construction of a ground water treatment system.

Construction of the drinking water supply system has been completed and it is nearly ready to be turned over to the Town of Hallie. In September 1992, the Omaha District awarded a PRP investigation contract to research historical activities and site technical information to assist in the evaluation of DoD liability.

Nebraska Ordnance Plant (Former) Mead, Nebraska

(6)

Service: Army

Size: 17,214 Acres

HRS Score: 31.94

Base Mission: The former Ordnance Plant produced 100- to 12,000-pound aerial bombs during World War II and the Korean Conflict; Currently used as an Agricultural Research Station for University of Nebraska

IAG Status: Signed September 1991

Action Dates: Placed on NPL 1990; RI/FS initiated 1989

Contaminants: Explosives, volatiles, PCBs

DOD Funding to Date: \$9.44 million

Preliminary Assessment/ Site Inspection (PA/SI)

The DoD property was transferred to various groups and individuals in 1962. The major owners are currently the University of Nebraska and the Nebraska National Guard. The major portions of the former Nebraska Ordnance Site investigated included four bomb loading lines, a demolition area, a burning ground, a crystallizing plant, a bomb booster area, and various support buildings. Explosive residues were found in the soils adjacent to three bomb load lines and two explosives compounds were identified in a ground water sample taken near load line No. 2. TCE was found in three ground water monitoring wells. A treatment system was provided to two families in the vicinity due to contamination found in their private wells.

Remedial Investigation/ Feasibility Study (RI/FS)

Additional soil and ground water samples have been taken to determine the extent of contamination. Initial sampling results have indicated that two major plumes of contamination exist. Additional exploration will be conducted to clearly define the plume boundaries. A TRC has been formed and includes representatives from the EPA, Nebraska Department of Environmental Control, Nebraska Department of Health, Lincoln Water System, Natural Resource District, University of Nebraska, and USACE.

Remedial Design/ Remedial Action (RD/RA)

Preliminary activities on RD/RA have begun; however, the major portion will be conducted after the completion of the RI/FS activities.

New Hanover County Airport Burn Pit (7) Wilmington, North Carolina

Service: Army and Air Force
Size: 4 Acres
HRS Score: 39.39
Base Mission: World War II Bomber Command and Vietnam Era Aerospace Defense Command Airfield
IAG Status: PRP agreement signed 1990 (removal action)
Action Dates: Placed on NPL 1989; PA/SI completed 1987
Contaminants: Heavy metals, semi-volatiles, VOCs
DOD Funding to Date: \$158,445

Preliminary Assessment/ Site Inspection (PA/SI)

The site had several fire training stations, which consisted of a main burn pit, an above-ground fuel storage tank, a fire smoke house, one railroad tanker car, and a number of old automobiles used for fire training. The PA/SI was conducted by the State of North Carolina. Contaminated fuels were found in the 10,000-gallon above ground fuel storage tank, which is connected to the various fire training stations. DoD, New Hanover County, Cape Fear Technical Institute Foundation (Community College), and the city of Wilmington, North Carolina have been identified as PRPs. Past practices involved placing crude oil recovered from spills and storage tank waste bottoms into the burn pit, igniting the contents, then extinguishing the fire. DoD conveyed the property to New Hanover County in 1977.

Remedial Investigation/ Feasibility Study (RI/FS)

EPA completed the RI in August 1991 and provided a copy of the draft RI report to the PRPs for comments. EPA finalized the RI/FS in 1992, culminating in a ROD signed September 29, 1992.

The non-federal PRPs have signed a Consent Order issued by EPA for the removal of surface contamination in and around the main burn pit, which poses a threat to human health and the environment. This removal action was completed in November 1990. USACE successfully negotiated a sidebar agreement with the other PRPs to provide 25 percent of the cost for the removal action.

Remedial Design/ Remedial Action (RD/RA)

EPA has indicated that PRPs will have the opportunity to conduct the RD/RA if the PRPs can agree on a negotiated percentage of responsibility. EPA is scheduled to send RD/RA special notice letters to the PRPs in early 1993.

Olmsted Air Force Base

Middletown, Dauphin County, Pennsylvania

(8)

Service: Air Force

Size: 1,034 Acres

HRS Score: 45.00

Base Mission: Basic training, airfield, ordnance storage depot, aircraft repair and testing facility

IAG Status: Not Applicable

Action Dates: Drinking water well study in September 1983; Hydrogeologic study in May 1984; Placed on the NPL June 1, 1988; Interim ROD dated December 30, 1987 and construction of a water treatment facility; PRP search in 1988; RI completed in August 1990; Interim ROD prepared December 1980; ESD prepared 1992.

Contaminants: Organic solvents, inorganics, polynuclear aromatic hydrocarbons (PAH), and heavy metals

DOD Funding to Date: \$24.32 million

Preliminary Assessment/ Site Inspection (PA/SI)

From 1898 through 1966, the United States Government as an Army and Air Force facility used the site as a basic training facility, an airfield, an ordnance storage depot, and aircraft repair and testing facility. The current owners are: the Pennsylvania Department of Transportation (PENNDOT) as the Harrisburg International Airport, Terex Trailer Corp., Harry Myhre, Inc., Dauphin County Industrial Development Agency, Donald and Carol Dell, Pennsylvania Railroad Company, Bethlehem Steel Corp., and the Borough of Middletown.

The contamination is believed to stem from site activities from 1898 through the present. The Army and Air Force as the past owners may have been major contributors to the site contamination as well as PENNDOT and the other current owners.

Remedial Investigation/ Feasibility Study (RI/FS)

In 1988, EPA issued a contract for an extensive study of the site as well as a PRP search. The RI/FS was completed in August 1990, both performed by EPA contractors. During the RI/FS, the site was separated into five Operable Units (OUs): 1) Middletown Area - ground water contaminated with VOCs, 2) Industrial Area - soils contaminated with VOCs and metals, 3) Fire Training Pit Area - soils contaminated with PAHs and lead, 4) North Base Landfill Area - ground water contaminated with PAHs and metals, and 5) Meade Heights Area - surface water contaminated with PAHs, VOCs, and metals.

Remedial Design/ Remedial Action (RD/RA)

After the discovery of VOCs in drinking water, EPA ordered the shutdown of six to ten wells and the installation of an air stripping system. This remedy, which was funded by the Air Force, was documented in a 1987 interim ROD.

A second Interim ROD was signed in December 1990 requiring 1) continued operation of the drinking water treatment system, 2) a hydrogeologic investigation, 3) monitoring of wells, and 4) restrictions on permitting of new wells.

The project is currently in the Remedial Design (RD) phase to remediate 15 underground storage tanks, 1 aboveground storage tank, approximately 11,200 linear feet of underground liquid fueling lines, 15 transformers, and 4 oil-filled switches.

Ordnance Works Disposal Areas Morgantown, West Virginia

(9)

Service:	Department of War
Size:	825 Acres
HRS Score:	35.62
Base Mission:	Ordnance Plant
IAG Status:	Not Applicable
Action Dates:	Placed on NPL June 6, 1986; RI/FS for OU 1 was completed January 1988; Second (revised) ROD for OU 1 was signed September 29, 1989; the RI/FS for OU 2 was started in August 1990
Contaminants:	PCBs, inorganics, carcinogenic polynuclear aromatic hydrocarbons, arsenic, mercury
DOD Funding to Date:	\$273,000

Preliminary Assessment/ Site Inspection (PA/SI)

The ordnance plant was built by DuPont in 1940 to produce hexamine from ammonia and methanol using coal as a raw material. The plant expanded throughout World War II producing coke, crude tar, ammonia, formaldehyde, light oils, higher alcohols, and heavy water. The plant is separated into two OUs. OU1 consists of an old landfill, a scraped area which was a shallow disposal area, two former lagoons (which have been excavated), and a former drum staging area. OU2 covers the remainder of the plant with emphasis on the process areas.

The site was sold to Morgantown Community Association and ownership was subsequently transferred to Morgantown Ordnance Works, Inc. in 1962. Prior to the sale of the plant, DoD had leased the plant to several operators.

EPA has issued Consent Orders on OU1 and OU2. DoD was not named in the orders, but has offered

a percentage proposal to the other PRPs. The proposal is based on DoD's investigation of the site history. The funding for the RI/FS being performed by Radian Corporation on OU2 was negotiated among the active PRPs, with DoD contributing 30.24 percent of the RI/FS cost. Du Pont, also at 30.24 percent, will act as the lead. In addition to financial participation, the Army, through the Corps of Engineers, provides technical support to the technical committee which consists of Du Pont, Olin, Tenneco, and the Army.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI/FS for OU2 is underway. Work plans have been submitted to EPA and are awaiting comments. The RI/FS for OU1 was contracted by EPA and was completed in January 1988.

The RI/FS for OU1 developed risk-based cleanup levels for arsenic, PAHs, PCBs, and mercury. All test pits located in the landfill

area showed arsenic and PAHs above cleanup levels, with higher concentrations in the upper portions of the landfill. Mercury was detected in a water-filled trench in the open alley way splitting the main process building. This is part of the processing area of OU2. The OU2 RI work plan will be submitted to EPA in December 1992. Field work is expected to begin in the spring of 1993. To reduce cost, field studies for OU2 will be coordinated with General Electric's RCRA studies.

Remedial Design/ Remedial Action (RD/RA)

The second (revised) ROD for OU1 prescribes bioremediation and stabilization with containment. Inorganic hot spots will be excavated and stabilized and the organic soils will be excavated and treated in a bioremediation bed. An alternate remedy of soil washing is provided in the amended ROD in case bioremediation is not feasible.

Phoenix-Goodyear Airport (formerly Litchfield Park NAF) Goodyear, Arizona

(10)

Service: Navy

Size: 750 Acres

HRS Score: 45.91

Base Mission: Acceptance, modification, preservation, de preservation, and storage of Naval aircraft

IAG Status: Not Applicable

Action Dates: Placed on NPL 1983; OU RI/FS and ROD completed 1987; RI/FS and ROD for the Final Remedy completed 1989

Contaminants: Trichloroethylene

DOD Funding to Date: \$8.891 million

Preliminary Assessment/ Site Inspection (PA/SI)

The southern portion of the site includes the Loral facility (formerly Goodyear Aerospace) and the Phoenix-Goodyear Municipal Airport (formerly Litchfield Park Naval Air Field). From 1941 to 1987, Goodyear owned and operated an industrial manufacturing/assembly facility for manufacturing parts and modifying and assembling aircraft. Maintenance operations included vapor degreasing operations using TCE, plane washing, application of spraylat, and installation of kits. Goodyear, Loral, the city of Phoenix, and DoD have all been identified as PRPs.

Remedial Investigation/ Feasibility Study (RI/FS)

EPA completed RI/FS work in 1989. Contaminants found in soil and ground water include organic compounds.

Ground water is found at depths of 50 to 60 feet below the surface, with the shallowest water-bearing sediment defined as Subunit A. This aquifer is separated by a clay rich unit, Subunit B, from a deeper aquifer, Subunit C. Subunit C is a primary source for drinking water. Subunit A is contaminated by a 7,000-foot long plume extending southwestward from the developed portion of the site. This plume is estimated to contain 6,500 pounds of TCE. Subunit C has TCE contamination also. Soil contamination has been found in borings drilled on both former Goodyear and former Navy property. Contamination may largely be the result of waste generated at the Goodyear facility and disposed in storm sewers that ultimately drain to the former Navy property.

Remedial Design/ Remedial Action (RD/RA)

A ROD was approved in September 1987 for the Section 16 OU which addressed VOC-contaminated ground water in Subunit A. EPA selected extraction, air stripping, and reinjection as the preferred remedy. Phase I of the OU is currently operating.

A second phase will address the highest concentration portion of the Subunit A plume. Phase II pump and treat system is constructed. Operations for the entire OU are anticipated by January 1993.

A ROD completed in September 1989 for the final remedy addresses the vadose zone and Subunits B/C ground water contamination for the entire site. The remedy consists of soil vapor extraction.

DoD has fulfilled its financial obligation with a payment of \$6.1 million in FY 1992.

Sangamo Electric Dump/Crab Orchard (11) National Wildlife Refuge (DOI) Carterville, Illinois

Service: Department of War

Size: 43,000 Acres

HRS Score: 43.70

Base Mission: Ordnance manufacturing and loading

IAG Status: Not Applicable

Action Dates: Placed on NPL 1987; RODs signed for OU1 and OU2 1990;
RI/FS initiated 1990 for OU3; PRPs investigation initiated September 1990

Contaminants: Organic solvents, inorganics, polynuclear aromatic hydrocarbons, munition residues, heavy metals, PCBs

DOD Funding to Date: \$2.20 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Illinois Ordnance Plant (IOP) located on the eastern portion of the U.S. Department of Interior's (DOI) Crab Orchard National Wildlife Refuge (CONWR) was operational from 1942 to 1945. The IOP served as a manufacturing/loading site for high-explosive shells, bombs, and other components. The site was proposed for inclusion to the NPL in 1984, and listed in 1987. Thirty-three areas have been identified for site investigation and have been divided into four OUs.

The PA at the Refuge was completed by USACE in 1988 and limited to areas formerly associated with the IOP. The SI, which focused on 14 sites, was completed in April 1988. Results did not indicate widespread contamination.

Remedial Investigation/ Feasibility Study (RI/FS)

An RI/FS has been completed for both the Metals OU and the PCB OU and RODs for both OUs have been issued. USACE awarded an RI contract to study the presence and magnitude of contamination at OU3. Field work performed in April and May 1991 included installation of monitoring wells, soil borings, sediment sampling, and excavation of magnetic anomalies.

Additional remedial work may be required for all or part of the fourth OU.

Remedial Design/ Remedial Action (RD/RA)

The Omaha District awarded a contract on behalf of the DOI for a treatability study/remedial design for the Metals OU. This study is scheduled for completion in 1992. Work is proceeding with the RD/RA for the PCB OU. Further action for the Explosives/ Munitions OU and the Miscellaneous OU are pending completion of remaining RI/FS activities. The USACE Chicago District awarded two contracts in FY 1992 for the demolition of surface munition bunkers. The bunkers were demolished in FY 1992 and an additional contract for the demolition of more unsafe buildings is scheduled for 1993.

Weldon Spring Chemical Plant

St. Charles County, Missouri

(12a)

Service: Army

Size: 230 acres

HRS Score: 58.60

Base Mission: Formerly used in support of the Ordnance Works Production Area, then transferred to AEC for processing uranium and thorium

IAG Status: Pre-ROD IAG signed 1992

Action Dates: PA/SI completed 1975; RI/FS-EIS began 1989; Quarry listed on NPL 1987; Chemical plant listed on NPL 1989; Entire site listed on NPL February 1990; RI/FS-EIS schedule completion May 1993

Contaminants: TNT, DNT, lead, thorium, uranium, PCB, asbestos

Funding to Date: \$52.4 million

Preliminary Assessment/ Site Inspection (PA/SI)

The chemical plant is located on an area that was originally part of several TNT production lines. The National Lead Company of Ohio was contracted by the Atomic Energy Commission (AEC) to perform environmental monitoring and maintenance of the raffinate pits and the quarry. In 1981, Bechtel National, Inc., assumed management responsibility from National Lead Company of Ohio under contract to DOE. In 1984, DOE was directed by the Office of Management and Budget to assume custody and accountability for the chemical plant from the Army; and a Memorandum of Understanding (MOU) between the Army and DOE for remedial action costs was reached in 1985. The site is currently under the control of DOE.

Remedial Investigation/ Feasibility Study (RI/FS)

In 1987, DOE issued a draft environmental impact statement (EIS) to assess alternatives for long-term management of contaminated materials associated with remedial action at the site.

The Weldon Spring chemical plant has been divided into four separate OUs: quarry bulk waste, chemical plant/raffinate pits, quarry follow-on (residuals), and site ground water. The ROD quarry bulk waste removal was signed by EPA and DOE in 1990 and 1991, respectively. The FS is underway for the chemical plant/raffinate pits. Upon completing the FS, the preferred alternative will be selected. The ROD for waste disposal and long-term cleanup is scheduled for May 1993.

Remedial investigations for the quarry follow-on began in 1992.

Remedial Design/ Remedial Action (RD/RA)

The following removal actions were initiated in 1992. Various actions have been conducted for the project to mitigate actual or potential releases of radioactive or chemical contaminants into the environment and to eliminate health and safety threats to on-site personnel. A number of small-scope expedited response actions have been documented in focused engineering evaluation/cost analysis (EE/CA) reports.

Several actions are underway in support of the quarry bulk waste removal effort including the relocation of Highway 94, the construction of the quarry haul road, the erection of the elevated water tower, the construction of the quarry temporary storage area (TSA), and the design of the quarry bulk waste removal action.

Quarry bulk waste removal is scheduled to begin in 1993.

Weldon Spring Ordnance Works

St. Charles County, Missouri

(12b)

Service: Army

Size: Ordnance Works: 15,577 Acres; Training Area: 1,655 Acres

HRS Score: 30.26

Base Mission: Formerly used in support of the Ordnance Works Production Area (Bunkers, Mechanical Shop, and Housing)

IAG Status: Pre-ROD IAG signed 1990; Effective August 1991

Action Dates: PA/SI completed 1977; Listed on NPL 1990; RI/FS for Training Area completed 1990; RI for Ordnance Works completed 1991

Contaminants: TNT, DNT, lead

DOD Funding to Date: \$9.4 million

Preliminary Assessment/ Site Inspection (PA/SI)

The Weldon Spring Ordnance Works is composed of two major components: the active portion, Weldon Spring Training Area (WSTA), and the inactive portion, Weldon Spring Ordnance Works (WSOW). Initial field investigations were conducted to determine the nature and extent of contamination at WSOW and WSTA. The U.S. Toxic and Hazardous Materials Agency (USATHAMA) conducted an environment assessment of WSTA. It was determined that the underground wastewater pipelines and several surficial locations remained contaminated from explosives manufacturing. Data collected indicated that the potential hazards at the WSTA included contamination from explosives, radioactive materials, asbestos, DDT, sulfur, and sodium compounds. An area containing radiological material in WSTA was identified, marked, and fenced. USATHAMA identified several hazards on-site including partially destroyed buildings, aban-

doned cisterns, underground water-filled tanks and refuse from TNT manufacturing and military training exercises. No explosives contamination was found in the sediment or surface water samples.

Remedial Investigation/ Feasibility Study (RI/FS)

During the RI on the active portion of the site, over 5,000 soil samples were analyzed for TNT.

Nitroaromatics and volatile organics were detected in the ground water, nitroaromatics and lead were detected in the surface soil, and nitroaromatics were detected in the wooden pipeline. The draft RI Report was completed in June 1989. A draft FS was submitted in July 1990. A draft Risk Assessment was submitted October 1990. The RI Report was finalized along with the Risk Assessment for both sites in 1992. The FS report for both sites will be finalized by Summer 1993.

Remedial Design/ Remedial Action (RD/RA)

RD/RA activities will begin after the RODs are signed for the site OUs. It is anticipated that design procurement will begin no later than 1995.

West Virginia Ordnance Works

Point Pleasant, West Virginia

(13)

Service:	Army
Size:	8,323 Acres
HRS Score:	35.72
Base Mission:	Established in 1942 and produced TNT from toluene for the World War II war effort; Deactivated in 1946
IAG Status:	First OU IAG signed 1987; Second OU IAG signed 1989
Action Dates:	PA/SI completed 1982; Placed on NPL 1984; RI/FS initiated 1984. ROD for OU1 signed 1987; ROD for OU2 signed 1988; Omaha District assigned RD for Second OU cleanup in November 1989; Transition to FUDS Program October 1991
Contaminants:	Nitroaromatic residues
Funding to Date:	\$19.54 million

Preliminary Assessment/ Site Inspection (PA/SI)

The West Virginia Ordnance Works (WVOW) was a TNT manufacturing plant until production closeout in 1946. In 1949, 3,408 acres were deeded to the West Virginia State Conservation Commission and became the McClintic State Wildlife Station (MSWS). In May 1981, red water seepage was observed adjacent to Pond 13 in MSWS. The pond was located near the former TNT wastewater trunk sewerlines and pumping station. Studies by the West Virginia Department of Natural Resources and EPA contractors in 1981 and 1982 showed 2,4-TNT, 2,6-TNT, 2,4,6-TNT, and phenol present in the ground water. A 1984 archives search of WVOW concluded that, based upon contaminant sources and the hydrogeologic setting of WVOW, the potential existed for contamination migration through surface and ground water pathways.

Remedial Investigation/ Feasibility Study (RI/FS)

The RI, completed in 1985, determined that major contaminant source areas were soils in the TNT manufacturing area, underground process lines, and soils in a burning grounds area. The deep aquifer under the manufacturing area and the ground water in the burning grounds area were not contaminated. Activities were divided into two OUs. OU1 includes the manufacturing area, burning grounds area, and industrial sewer lines. OU2 includes the acids area/yellow water reservoir, red water reservoirs, and Pond 13/Wet Well site. An FS for OU1 was completed in 1986 and for OU2 in 1988. The ROD for OU2 called for capping two red water ponds, Pond 13, and the yellow water reservoir, and building two ponds on the MSWS, pumping and treating related ground water, and purchasing an industrial park at the acids area/yellow water reservoir for incorporation into MSWS.

Remedial Design/ Remedial Action (RD/RA)

Field work for OU1 was conducted in 1988 and consisted of excavation and flaming of industrial sewerlines and flaming the surface of the burning ground. A 2-foot soil cap was then placed over contaminated soils at the TNT manufacturing and burning grounds area.

Construction for capping the two red water ponds began in 1991. The borrow area from which capping material was removed will be converted to an 11.5-acre wetlands. The RCRA caps for the red and yellow water ponds are completed with long-term ground water monitoring yet to be implemented. Design of the ground water pump and treat system for OU2 will be completed in June 1993.

Negotiations with the State of West Virginia to replace wetland acreage at the former Pond 16 are ongoing.

Appendix F

Base Closures

This Appendix to the Annual Report provides a list of military installations included in the Base Realignment and Closures Program (BRAC). Under this program, a total of 120 installations were identified for closure through two rounds of assessments, BRAC 88 and BRAC 91. BRAC 88 covered 86 installations while BRAC 91 covered 34 installations. The information presented in this Appendix was obtained from two documents: *Base Realignments and Closures, Report of the Defense Secretary's Commission* (December 1988), and *Defense Base Closure and Realignment Commission, Report to the President* (1991).

Base Closures

BRAC 88	BRAC 91
Department of the Army	
<p>Fort Douglas, UT Cameron Station, VA Presidio of San Francisco, CA Coosa River Annex, AL Navajo Depot Activity, AZ Fort Wingate, NM Nike Site Aberdeen Proving Ground, MD Lexington Depot, KY Pontiac Storage Facility, MI <i>Alabama Ammunition Plant, AL</i> New Orleans Military Ocean Terminal, LA Fort Sheridan, IL Army Material Technology Laboratory, MA Tacony Warehouse, PA Hamilton Army Airfield, CA Jefferson Proving Ground, IN Nike Philadelphia, NJ Nike Kansas City, MO Cape St. George, FL Kapalama Military Reservation, HI Stand-Alone Housing Installations (52 sites) Miscellaneous Properties (4 sites) Total: 76</p>	<p>Fort Benjamin Harrison, IN <i>Fort Devens, MA</i> <i>Fort Ord, CA</i> <i>Sacramento Army Depot, CA</i> Harry Diamond Lab Woodbridge Research Facility, VA Total: 5</p>
Department of the Navy	
<p>Naval Station New York, NY Naval Hospital Philadelphia, PA Naval Station Galveston, TX Naval Station San Francisco (Hunters Point), CA Naval Station Lake Charles, LA Total: 5</p>	<p><i>Construction Battalion Center, Davisville, RI</i> <i>Hunters Point Annex to Naval Station</i> <i>Treasure Island, CA</i> Integrated Combat Systems Test Facility San Diego, CA Marine Corps Air Station Tustin, CA Naval Air Station Chase Field, TX <i>Naval Air Station Moffett Field, CA</i> Naval Station Long Beach, CA Naval Station Philadelphia, PA Naval Station Puget Sound, Sand Point, WA Naval Electronic Systems Engineering Center San Diego, CA Naval Electronic Systems Engineering Center Vallejo, CA NMWEA Yorktown, VA Naval Ocean Systems Center Det Kaneohe, HI Naval Space Systems Activity Los Angeles, CA NWEF Albuquerque, NM Philadelphia Naval Shipyard, PA Total: 16</p>

NPL Installations are listed in italics.

Base Closures

BRAC 88	BRAC 91
<i>Department of the Air Force</i>	
Chanute Air Force Base, IL <i>George Air Force Base, CA</i> <i>Mather Air Force Base, CA</i> <i>Norton Air Force Base, CA</i> <i>Pease Air Force Base, NH</i> Total: 5	Bergstrom Air Force Base, TX Carswell Air Force Base, TX <i>Castle Air Force Base, CA</i> Eaker Air Force Base, AR England Air Force Base, LA Grissom Air Force Base, IN <i>Loring Air Force Base, ME</i> Lowry Air Force Base, CO Myrtle Beach Air Force Base, SC Richards-Gebaur Air Reserve Station, MO Rickenbacker Air Guard Base, OH <i>Williams Air Force Base, AZ</i> Wurtsmith Air Force Base, MI Total: 13

NPL Installations are listed in italics.

AAP	Army Ammunition Plant
ABL	Allegheny Ballistics Lab
AD	Army Depot
ADA	Army Depot Activity
AEC	Atomic Energy Commission
AEDC	Arnold Engineering Development Center
AFB	Air Force Base
AFCESA	Air Force Civil Engineering Support Agency
AFDW	Air Force District of Washington
AFIT	Air Force Institute of Technology
AFRB	Air Force Reserve Base
AFRC	Air Force Reserve Center
AFRTA	Armed Forces Reserve Training Area
AFS	Air Force Station
AGS	Aerospace Generation Squadron
AIMD	Aircraft Intermediate Maintenance Department
AMSA	Army Maintenance Support Activity
ANG	Air National Guard
AOC	Area of Concern
ARDEC	Armament Research, Development, and Engineering Center
ASF	Aviation Support Facility
ASTROGRPDET	Astronautics Group Detachment
ATSDR	Agency for Toxic Substance and Disease Registry
AWQC	Ambient Water Quality Criteria
BDDR	Building Demolition and Debris Removal
BRAC	Base Closure and Realignment Acts
CA	Cooperative Agreement
CB	Construction Battalion
CBC	Construction Battalion Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERE	Center for Environmental Restoration Education
CFC	Chlorofluorocarbon
CHESDIVNFEC	Chesapeake Division, Naval Facilities Engineering Command
CHESNAVFACENGCOM	Chesapeake Division, Naval Facilities Engineering Command
COE	United States Army Corps of Engineers
COMNAVDIST	Headquarters Naval District
CONUS	Continental United States
DA	Department of the Army
DCE	Dichloroethylene
DDRE	Defense Depot Region East
DDTC	Defense Depot Tracy California (now known as Defense Depot Region West-Tracy)
DER	Department of Environmental Resources
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program
DEWLINE	Defense Early Warning Line
DFSP	Defense Fuel Supply Point
DGSC	Defense General Supply Center
DIPEF	Defense Industrial Plant Equipment Facility
DLA	Defense Logistics Agency
DNCS	Defense National Stockpile Center

DoD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
DPM	Defense Priority Model
DRMO	Defense Reutilization and Marketing Office
DSMOA	Defense and State Memorandum of Agreement
DTRESCEN	David Taylor Research Center
ECS	Equipment Concentration Site
EE/CA	Engineering Evaluation/Cost Analysis
E/P	Evaporation/percolation
EOD	Explosives Ordnance Disposal
EPA	Environmental Protection Agency
ERADCOM	Electronics Research and Development Command
FASOTRAGRUPACDET	Fleet Aviation Specialized Operational Training Group
FASWTC	Fleet Antisubmarine Warfare Training Center
FCTC	Fleet Combat Training Center
FFA	Federal Facilities Agreement
FFS	Focused Feasibility Study
FLTRGGRA	Fleet Training Group
FLTSURSPTCMD DET	Fleet Surveillance Support Command Detachment
FOST	Finding of Suitability to Transfer
FS	Feasibility Study
FUDS	Formerly Used Defense Sites
FY	Fiscal Year
GAC	Granulated Activated Carbon
GOCO	Government Owned/Contractor Operator
GPM	Gallons per Minute
GWTP	Ground Water Treatment Plant
HAZMIN	Hazardous Waste Minimization
HRS	Hazard Ranking System
HRS2	Revised Hazard Ranking System
HSWWA	Hazardous and Solid Waste Amendments
HTRW	Hazardous, Toxic or Radioactive Waste
HTW	Hazardous or Toxic Waste
IAG	Interagency Agreement
IAP	International Airport
IAS	Installation Assessment Study
INACTSHIPDET	Inactive Ship Maintenance Facility Detachment
IQ	Indefinite Quantity
IRA	Interim Remedial Action
IRM	Interim Remedial Measure
IRP	Installation Restoration Program
IRTCG	Installation Restoration Technology Coordinating Group
ISV	In-situ Volatilization
IVD	Ion Vapor Deposited
JMT	Joint Management Team
LBAD	Lexington-Bluegrass Army Depot
MAP	Municipal Airport
MCAGCC	Marine Corps Air-Ground Combat Center
MCAS	Marine Corps Air Station

MCB	Marine Corps Base
MCCDC	Marine Corps Combat Development Center
MCL	Maximum Contaminant Level
MCLB	Marine Corps Logistic Base
MCMWTC	Marine Corps Mountain Warfare Training Center
MCRTC	Marine Corps Reserve Training Center
MEK	Methyl Ethyl Ketone
MEP	Master Environmental Plan
MOU	Memorandum of Understanding
MPCA	Minnesota Pollution Control Agency
NAC	Naval Avionics Center
NADC	Naval Air Development Center
NADEP	Naval Aviation Depot
NAEC	Naval Air Engineering Center
NAF	Naval Air Facility
NALF	Naval Auxiliary Landing Field
NAPC	Naval Air Propulsion Center
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
NAV CAMS	Naval Communication Area Master Station
NAVENPVNTMEDU	Navy Environmental and Preventive Medicine Unit
NAVEODTECHCEN	Naval Explosive Ordnance Disposal Technology Center
NAVFAC	Naval Facilities
NAVHOSP	Naval Hospital
NAVMAG	Naval Magazine
NAVMARCORESCEN	Navy and Marine Corps Reserve Center
NAVMEDCOMNWREG	Naval Medical Command, Northwest Region
NAV PETOFF	Navy Petroleum Office
NAV PETRES	Naval Petroleum Reserve
NAVPHIBASE	Naval Amphibious Base
NAVRADSTA	Navy Radio Station
NAVRECCEN	Naval Recreation Center
NAVREGDENCEN	Naval Regional Dental Center
NAVRESFAC	Naval Reserve Facility
NAVRESMAINTRAFAC	Naval Reserve Maintenance Training Facility
NAVSCSCOL	Navy Supply Corps School
NAVSECSTA	Naval Security Station
NAVSHIPREPFAC	Naval Ship Repair Facility
NCO	Non-Commissioned Officer
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NCS	Naval Communication Station
NCTAMS	Naval Computer and Telecommunication Area Master Station
NESEC	Naval Electronic Systems Engineering Center
NETC	Naval Education & Training Center
NFD	Navy Fuel Depot
NFRAP	No Further Response Action is Planned
NG	National Guard
NGB	National Guard Bureau
NIROP	Navai Industrial Reserve Ordnance Plant
NMCRC	Navy and Marine Corps Reserve Center

NMED	New Mexico Environment Department
NOAA	National Oceanic & Atmospheric Administration
NOS	Naval Ordnance Station
NOSC	Naval Ocean Systems Center
NPDES	National Pollutant Discharge Elimination System
NPGS	Naval Post Graduate School
NPL	National Priorities List
NPPS	Navy Publishing and Printing Service
NPPSO	Navy Publishing and Printing Service Office
NPRO	Naval Plant Representative Office
NRC	Naval Reserve Center
NRL	Naval Research Laboratory
NRL UWS REF DET	Naval Research Lab Underwater Sound Reference Detachment
NRTF	Naval Radio Transmitting Facility
NS	Naval Station
NSA	Naval Support Activity
NSB	Naval Submarine Base
NSC	Naval Supply Center
NSD	Naval Supply Depot
NSGA	Naval Security Group Activity
NSWC	Naval Surface Warfare Center
NSY	Naval Shipyard
NTC	Naval Training Center
NTIC	Naval Technical Intelligence Center
NUWES	Naval Undersea Warfare Engineering Station
NUSC	Naval Underwater Systems Center
NWC	Naval Weapons Center
NWS	Naval Weapons Station
NWIRP	Naval Weapons Industrial Reserve Plant
OBS	Observatory
OEW	Ordnance and Explosive Waste
OLF	Outlying Landing Field
OHW	Other Hazardous Waste
OMB	Office of Management and Budget
OMS	Organizational Maintenance Squadron
OU	Operable Unit
PA	Preliminary Assessment
PACAF	Pacific Air Force
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PCE	Perchloroethylene
PDO	Property Disposal Office
PHI	Preliminary Hydrogeological Investigation
PMRF	Pacific Missile Range Facility
PMTC	Pacific Missile Test Center
POL	Petroleum, Oil, and Lubricants
PPB	Parts per Billion
PPM	Parts per Million
PRP	Potentially Responsible Party
PSE	Preliminary Source Evaluation
PWC	Public Works Center

RA	Remedial Action
RADAR	Ground Penetrating Radar Ordnance Locator System
RADC	Radioactive Disposal Committee
RC	Response Complete
RCRA	Resource Conservation and Recovery Act of 1976
RD	Remedial Design
RD&D	Research, Development and Demonstration
RES TRNG	Reserve Training
RFA	RCRA Facility Assessment
RFI	Remedial Feasibility Investigation (RCRA Facility Investigation)
RI	Remedial Investigation
RIAC	Roswell Industrial Air Center
RIP	Remedy in Place
RMIS	Restoration Management Information System
ROD	Record of Decision
RPM	Remedial Project Manager
RR	Rapid Response
RRS	Radar Remote Site
SAC	Strategic Air Command
SACM	Superfund Accelerated Cleanup Model
SARA	Superfund Amendments and Reauthorization Act
SAT COM	Satellite Communication
SC	Site Close-out
SDWA	Safe Drinking Water Act
SFG RSL	Safeguard Remote Sprint Launch
SI	Site Inspection
SIMA	Shore Intermediate Maintenance Activity
SPCC	Ships Parts Control Center
STB	Super Tropical Bleach
STOLS	Surface-Towed Ordnance Locator System
SUPSHIP	Supervisor of Shipbuilding Conversion and Repair
SWMU	Solid Waste Management Unit
SWNAVFACENCOM	Southwest Division, Naval Facilities Engineering Command
TCA	Trichloroethane
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TNT	Trinitrotoluene
TRC	Technical Review Committee
UMDA	Umatilla Army Depot Activity
UNDEX	Underwater Explosion
USACE	United States Army Corps of Engineers
USARC	United States Army Reserve Center
USATHAMA	United States Army Toxic and Hazardous Materials Agency
USGS	U.S. Geological Survey
USMAWP	United States Military Academy, West Point
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound
WGA	Western Governors' Association
WR	Warner-Robbins
WR-ALC	Warner-Robbins Air Logistics Center