



COOPERATIVE MULTI-SITE AGREEMENT

STUDY PROGRAM PILOT PROJECT

FINAL REPORT

A pilot study of selected U.S. Military sites in Pennsylvania that have been previously identified as No-Further Action or Response Complete relating to hazardous sites remediation under the Pennsylvania Cooperative Multi-Site Agreement.

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EXECUTIVE SUMMARY

The Pennsylvania Department of Environmental Protection (DEP), the United States Army, Navy, Air Force and Defense Logistics Agency, in coordination with the Department of Defense (Military) completed the negotiation of a Cooperative Multi-Site Agreement (CMSA) on July 4, 1998 that addresses the hazardous substance assessment and remediation of selected military and former military-owned sites in the Commonwealth by 2010. This Agreement includes a generic site resolution process that will result in liability relief at qualifying sites.

The sites covered under the Agreement have been divided into several categories. The Study Program Sites category lists sites where the Military Components have made a determination that no further action is required or that remediation has been completed, but where DEP has not reviewed the documentation leading to this decision. Under the terms of the Agreement, DEP will implement a Pilot Program to determine if these Study Program Sites were resolved appropriately. The Agreement includes provisions for the determination of Site Resolution (provided in Section 4.08) and the issuance of letters indicating the Department's agreement with the Military Component's determination for the site.

This report is the culmination of the first phase of the Study Program and consists of an evaluation of 66 sites. Based on the results and findings of the Pilot Project, further recommendations and procedures have been developed for addressing the remaining Study Program sites (approximately 590 sites) for site resolution or further evaluation.

The findings, results and conclusions found in this report may be used to accelerate the resolution process of sites under this agreement or recommend that additional site characterization/remediation be conducted at a specific site or category of sites. As appropriate, some categories of the remaining Study Program Sites that have not been extensively evaluated by the Department may be categorically resolved as a result of this Pilot Study Project.

The following is a summary of the results of this Pilot Study Report finding. It should be noted that the total number of sites (69) reviewed under the Pilot Study Project differs from the original number of sites selected (66) due to additional areas of concern identified and evaluated during the site visits to military facilities by DEP personnel. Of the Pilot Study Sites evaluated:

- 57 sites are recommended for resolution under the CMSA.
- 7 sites should be moved to the Deferred List of Sites since they are ineligible for DERA funding or are considered active facilities.
- 5 sites are being recommended for addition to the Scheduled Site List and will require further action/attention by the military component.

The Pilot Study Sites were grouped into one of ten categories in order to identify site trends and, if possible, to attempt to consider similar types of sites that could be resolved as a category. These categories are: Storage Tanks, Flammable Storage, Drum and Waste Storage Areas, Vehicle Maintenance Areas, Fenceline Assessments, Missile Launch Sites, Transformers, Firing Ranges, Miscellaneous Sites and Unlocated Sites.

The following conclusions became apparent during the course of the Pilot Study Project:

- Almost all Underground Storage Tanks (USTs) and all Above Ground Storage Tanks (ASTs) appear to be of little environmental concern and are in compliance with current regulatory requirements.
- All Flammable Storage Areas were recommended for Site Resolution under 4.08 of the CMSA and it would appear to be that these areas are well managed, maintained and present no historical environmental concerns.
- Smaller facilities do not appear to have many concerns relative to the storage of drums and waste materials; larger facilities appear to be most apt to have one or more areas of concern within this category of site.
- Vehicle maintenance areas present the largest area of concern and the greatest challenge for environmental remediation efforts within Pennsylvania and the military components, particularly in the case of the Army.
- Fenceline assessments generally indicate that there is no environmental concerns relative to those specific areas evaluated.
- Indoor firing ranges have not adversely impacted local environmental areas.
- All Missile Launch areas need to be addressed and re-assessed on a case-by-case basis and on a consistent, state-wide approach.
- There were no releases or spills associated with any transformers evaluated in the Pilot Study Project.
- Fire Training Areas require site-specific assessment in all cases.
- Approximately 4% of the Pilot Study Sites were not able to be located and should be resolved due to lack of information indicating that these sites were associated with any known release to the environment.
- Other areas of concern were noted in Section 7.0 of this report which were not part of the Pilot Study but which were identified during the facility site visits by DEP personnel.

Based upon this Pilot Study, about 93% of the sites in the List of Study Program Sites should be classified as No Further Action/Remediation Complete or be transferred to the Deferred List of Sites. Approximately 7% of the Study Program sites (48 of the remaining 590 sites) may require further assessment and/or remediation. The DEP and military components will need to develop a method and a schedule for further evaluating the remaining Study Program sites and integrating them into the active response portion of the CMSA.

Specific findings and recommendations for the Sites covered in this Pilot Study can be found in the individual Site Assessment Reports (SARs) generated by the DEP Regional Field Operations project staff. For the reader's convenience, the reports are enclosed in this report as Appendix C in CD format.

1.0 Overview of the Pilot Study Project.

In July 1998, the Pennsylvania Department of Environmental Protection (PA DEP) entered into an historic Cooperative Multi-Site Agreement (CMSA) with the Departments of the Army, Navy, Air Force and the Defense Logistics Agency to address the assessment, remediation and resolution of contaminated, potentially contaminated and hazardous military (and former military) sites in Pennsylvania. This Agreement recognizes the Military Components' commitment to a nationwide cleanup of which the Commonwealth of Pennsylvania is a part, and the limited resources available to meet the total amount of national cleanup needs. It also recognizes DEP's desire to accelerate cleanups under Pennsylvania's Land Recycling and Environmental Remediation Standards Act- Act 2.

Section 4.07 of the Cooperative Multi-Site Agreement (CMSA) of 1998 requires the Department of Environmental Protection (DEP) to address a representative sample of the 659 Study Program Sites contained in the Inventory of Sites. Study Program Sites are sites, which the Military Components have deemed completed, but which DEP may not have reviewed. The military no-further action determination for selected Pilot Study sites preceded the provisions of the CMSA and Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2). The Military Components were tasked with providing DEP with information and data from their existing files and databases on all of the Pilot Study Sites and the rationale for their previous determinations.

The DEP agreed to complete this Pilot Study to determine if those sites selected from the 659 Study Program Sites were resolved appropriately. A minimum of 10 per cent Study Program Sites were to be selected and evaluated to determine if they met the criteria for Site Resolution under Act 2, Section 4.08 of the CMSA, or other agreed-upon remediation criteria. **It should be noted that the Pilot Study Sites were designated as specific "areas of interest" at each facility by the military components and did not necessarily address all sites at the entire installation.** The Military Components were to assist DEP in their efforts through access to files, information and providing site access. DEP's completion of the Review of Pilot Study Sites will be part of the Master Plan and is a deliverable to the Military Components under the CMSA.

Resolution letters are provided for in Section 4.08 of the CMSA. These letters are provided in lieu of regulatory relief of liability because the response action (assessment/remedy) preceded the law. It is not the goal of this agreement to reopen site cleanups where protectiveness has previously been determined and subsequently confirmed via this study and its conclusions.

Based on the findings of the Pilot Study, the Parties may agree to a procedure for reviewing the remaining Study Program Sites (approximately 600 sites) for Site Resolution approval. If DEP and the Military Components agree on the findings of this report, the remaining Study Program Sites should be integrated into the Master Plan and the Annual Plan as appropriate throughout the remainder of the Agreement or be categorically resolved consistent with the recommendations of this report. Necessary follow-up work on the Pilot Study Sites will also be integrated into the Master and Annual Plans.

The results of the Pilot Study are expected to produce three conclusions:

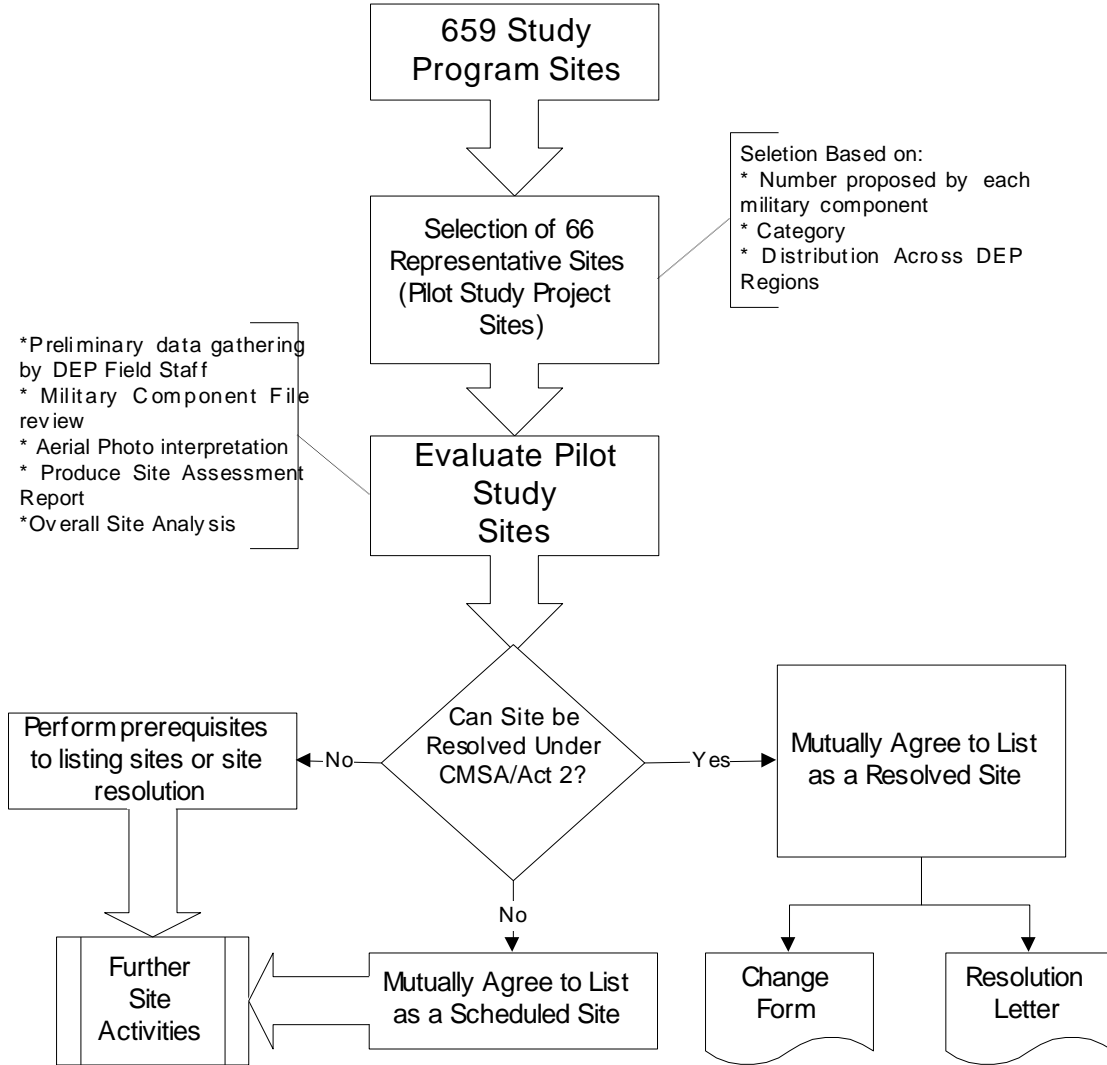
1. Determine which of the Pilot Study Sites are eligible for site resolution under Section 4.08 of the Agreement;
2. Recommend those sites, which in DEP's opinion, cannot be Resolved without further investigation, information or remediation;
3. Make recommendations, based upon the experience of this two-year study, to identify procedures for addressing the resolution of the remaining Study Program sites, including the identification of any trends for evaluating and addressing certain categories of sites.

“Resolution Letters” will be issued to each military component when it is agreed that a site has meet the requirements for site resolution under Section 4.08 of the CMSA. This correspondence is issued in lieu of statutory, regulatory relief of liability because the assessment or remedial action preceded the law. It is also one of the primary goals of this project is to resolve those sites that have demonstrated attainment of environmental standards or protectiveness through this Pilot Study Project and its conclusions.

2.0 Pilot Study Project Process

The overall CMSA process for the Study Program consists of two separate phases: The Pilot Project and the further evaluation of the remaining Study Program sites. This report serves as the completion of the first phase of the of the Study Program, the Pilot Study Project. Listed below is a flow diagram illustrating the process used in the Pilot Study Project

2.1 Pilot Study Project



2.2 Review of Remaining Study Program Sites

An analysis of the remaining Study Program Sites will be completed to determine if broad-based decisions can be made and applied to the remaining sites. Categories of sites may be resolved without additional site-specific evaluations if the results of the Pilot Study can be used as reasonably conclusive evidence that a No Further Action determination can be supported.

Sites in the Pilot Study were divided into the following general categories:

1. **Storage Tanks** - including Underground Storage Tanks (UST) and Above Ground Storage Tanks (AST).
2. **Flammable Storage** - including flammable liquids, paint, solvents, and the associated containers, cabinets and storage areas and Solvent Storage Sites).
3. **Drum and Waste Storage Areas** - including drums and waste storage areas.
4. **Vehicle Maintenance Areas** - This category includes all activities associated with or related to vehicle maintenance activities, including grease racks, grease pits, brake changing areas, parts washers, petroleum-oil-lubricants (POL), batteries, wash racks, and oil / water separators.
5. **Fenceline Assessments.**
6. **Missile Launch Sites** – including all associated missile launch areas, radar facilities and personnel support/habitation areas.
7. **Transformers.**
8. **Firing Ranges** – including both indoor and outdoor small arms ranges.
9. **Miscellaneous Sites** - includes those sites that were unique or could not easily be grouped into a specific category, such as fire training area, septic tank leach field wastewater treatment plant, communications sites, etc.
10. **Unlocated Sites** - includes sites which could not be located or had no useful information available on their existence.

3.0 Site Selection Process

The following methodology was developed and used to select 66 draft sites for evaluation under the Pilot Study Program.

The military components were to categorize all 659 Study Program Sites based upon site type. This analysis resulted in 501 sites, which could be grouped into site types. The remaining 158 sites were not placed into a site type due to the military's determination that they did not meet the site type criteria.

The 158 Sites that could not be placed into a specific category were divided into two groups:

- Sites where no remediation was required
- Sites at which remediation is considered complete

Additionally, the 158 site list (without site types identified) were selected based on the following criteria:

- Choose 11 sites (FUDS) from the group of sites where, according to the military, no remediation was required. The number of sites was weighted by their relative frequency in the database. These sites are listed in the first table of Appendix A.
- Include 4 Navy sites that were listed as No Hazard (NH) in the Study Program List of Sites. These sites were not known to be associated with any specific release and were placed on the Study Program list for tracking purposes only.
- There were 7 non-PRP sites that the Military Components claim were not used, controlled or operated by the military. These sites were initially considered but were not included in the pilot study.

Select 55 sites from the list of 501 sites where the military components claim that remediation has been completed, based on the following criteria:

- Chose a representative number of sites from each site type based upon the number of sites of each site type compared to the total number of sites. The goal is to represent 10% of each site type in the Inventory of Sites.
- Balance the sites across the DEP regions.
- Balance the sites across each military component.
- Randomly select sites from the list of 501 sites based on the above-described criteria.

These sites are listed in the second table of Appendix A.

After the final 66 sites were selected, they were further evaluated by DEP regional coordinators for technical consistency with the selected criteria and for practicality. A list of the initially selected Pilot Study Sites and a breakdown of the applied selection criteria is contained in Appendix A.

4.0 Site Evaluation

A break down of the individual Pilot Study sites is presented in sections 4.2 through 4.11. Summaries of the conclusions are presented only for those sites that are recommended for further action or where no determination could be made. It should be noted that these site evaluations are not PA/SI level site assessments but rather an evaluation of the conditions of the site with respect to completed actions or No Further Action determinations made by the military components. Detailed, specific site evaluation report information is contained in Appendix C to this report.

4.1 Evaluation Tasks and Activities

The following list of activities were completed under the Phase 1 evaluation process:

- | | |
|---|--|
| 1. Form DEP Task team | 10. Site sampling (where necessary) |
| 2. Develop Project work plan | 11. Complete Site Assessment Reports (SARs) |
| 3. Confirm site location, maps | 12. Trend Analysis |
| 4. DEP file search | 13. Draft Pilot Study Report |
| 5. Military component file searches | 14. Comments from regions/ military components |
| 6. Aerial photo interpretation | 15. Final pilot Study Report |
| 7. Initial site visits (DEP Regional personnel) | 16. Draft Site resolution letters |
| 8. Report template developed | |
| 9. Complete site investigation | |

A list of the Final 66 Pilot Study Sites is listed in Appendix B to this report.

4.2 Storage Tanks

A total of thirteen storage tank sites were evaluated by the regional offices in this category; nine of these were USTs and four were ASTs. Six of the UST sites evaluated were Army sites, 3 were FUDS. None of the UST sites evaluated belonged to the Air Force or Marine Corps. Three of the four AST sites were Army sites and the remaining AST was a FUDS that is currently owned by another federal agency (FAA). There were 5 tank sites in the Northeast Region, 2 in Northcentral, none in the Northwest, 3 in the Southeast, 1 in Southcentral and 1 in the Southwest Region. The following is a break down of the sites evaluated:

Site Name	Type	Component	Region	Status
Cross and Hearthstone Mountain Site	UST	FUDS	Southcentral	Resolve
Naval Reserve Center	UST	FUDS	Northeast	Resolve
Hays AAP	UST	FUDS	Southwest	Resolve
USARC – Lewisburg	UST	Army	Northcentral	Resolve
AFRC Philadelphia	UST	Army	Southeast	Resolve
AFRC Philadelphia	UST	Army	Southeast	Resolve
AFRC Philadelphia	UST	Army	Southeast	Resolve
USARC Greencastle (AMSA 113)	UST	Army	Southcentral	Deferred
USARC State College	UST	Army	Northcentral	Resolve
Scranton Army Ammunition Plant	AST	Army	Northeast	Deferred

SCAAP 15				
Scranton Army Ammunition Plant SCAAP 5	AST	Army	Northeast	Resolve
Scranton Army Ammunition Plant SCAAP 12	AST	Army	Northeast	Resolve
Joliett Gap Filler Annex	AST	FUDS	Northeast	Resolve

USARC Greencastle – This is an active facility and is not eligible for DERA funding. Under the terms of the CMSA, it should not be listed on the List of Study Program Sites and should be moved to the Deferred List of Sites. Additionally, site resolution can not be considered for this site until several matters can be resolved. UST records are poor and contradictory for the installation. It is the conclusion of this study that the report upon which the Site 6 designation is based is flawed. In particular, it is difficult to provide an accurate description of Site 6.

Scranton Army Ammunition Plant (SCAAP 15) - The Scranton Army Ammunition Plant has been an active industrial site since the mid-1840's. This report focuses on the ASTs that were located in the tank farm area. DEP and the Military signed a record of change during June and July of 1999 to move SCAAP- 15 to the Scheduled Site List because potentially affected media (soils) are being characterized under the Act 2 program. However, since this site is not eligible for DERA funds in accordance with the CMSA, it should be moved to the Deferred List of Sites.

Note: Hays AAP – a resolution letter was written and this site has already been moved to the Resolved List of Sites. No SAR was written by the region for the Pilot Study Project.

4.3 Flammable Storage

The DEP regional offices evaluated a total of 9 Flammable Storage sites; 6 sites were flammable storage areas, two involved paint storage and one was a solvent storage area. All of the 9 sites reviewed were Army sites; none of the Flammable Materials Storage sites evaluated belonged to the FUDS Program, Air Force, or the Navy. These sites were fairly evenly distributed among the six DEP Regions: 1- Southeast Region, 2- Northeast Region, 1- Southcentral Region, 1 – Northcentral Region, 2 – Southwest Region and 2 – Northwest Region. The following is a break down of the sites evaluated:

Site Name	Type	Component	Region	Status
USARC Schuylkill Haven	Flammable Storage	Army	Northeast	Resolve
USARC Wilkes Barre	Flammable Storage	Army	Northeast	Resolve
USARC Bloomsburg	Flammable Storage	Army	Northcentral	Resolve
USARC St. Mary's	Flammable Storage	Army	Northwest	Resolve
USARC Butler	Flammable Storage	Army	Northwest	Resolve
USARC Huntingdon	Flammable Storage	Army	Southcentral	Resolve
USARC Germantown	Paint Storage	Army	Southeast	Resolve
USARC Johnstown	Paint Storage	Army	Southwest	Resolve
USARC Pittsburgh	Solvent Storage	Army	Southwest	Resolve

PADEP supported the NFA conclusion on all of the Flammable Materials Storage sites evaluated under the CMSA Pilot Study Project. In all cases, the former areas of flammable materials storage were properly closed and adequately addressed and the new storage areas consisted of metal structures with proper spill prevention and containment measures implemented. The condition of

the original location or the original facility for Flammable Materials Storage facilities was reviewed during a site inspection and in each case, have been replaced by newer facilities with spill containment and pollution prevention incorporated. Each region has recommended a resolution letter for the Pilot Study Sites in this category in their regions. This appears to be an area in which the military (specifically the Army) has placed a great deal of attention and due diligence and *their efforts to enhance environmental protection should be commended*.

Petroleum, oil, and lubrication (POL) storage was classified as part of the Vehicle Maintenance Category.

4.4 Drum and Waste Storage Areas

The regional offices evaluated a total of 6 sites, 4 were drum storage areas and 2 were waste storage areas. Three of the sites were Army, one FUDS and two Air Force (Air National Guard). Three sites were located within the Southcentral region, one of which required further action. One Site which was located in the Northeast region and one other site in the Southwest Region. The following is a break down of the sites evaluated:

Site Name	Type	Component	Region	Status
USARC Stockerton	Drum Storage	FUDS	Northeast	Resolve
USARC Johnstown	Drum Storage	Army	Southwest	Resolve
USARC New Cumberland	Drum Storage	Army*	Southcentral	Further Action
Pittsburgh Municipal Airport SS002	Drum Storage	Air Force	Southwest	Resolve
Fort Indiantown Gap FTIG –005	Waste Storage	Army	Southcentral	Deferred
Fort Indiantown Gap SS002	Waste Storage	Air Force	Southcentral	Resolve

USARC New Cumberland: * The Army is a tenant command to the Defense Logistics Agency (DLA) and the site has since been de-activated and the Army has constructed a new site. This site is DERA eligible. Soil borings are needed to confirm that soil has not been affected prior to site resolution. The Defense Logistics Agency (DLA) has agreed to perform a site assessment and it has been formally moved to the Scheduled Site List for further evaluation and possible remediation, if warranted.

Fort Indiantown Gap: Site records are insufficient to draw conclusions regarding FTIG-005. However, investigating soils outside Building 4-25 under the Pilot Study Sites Project is unnecessary because the Pennsylvania Department of Military and Veterans Affairs and the U.S. National Guard Bureau will soon conduct a site investigation. This site has been active since before 1986 and is not eligible for DERA funding and should be transferred to the Deferred List of Sites.

4.5 Vehicle Maintenance Areas (VMAs)

A total of 15 sites were evaluated by the regional offices including: 2 Battery Acid/Storage areas, 2 Grease racks/pits, 2 parts washers, 1 brake changing area, 4 vehicle wash racks, 5 oil/water separator units, 1 solvent storage area and 1 POL storage area. All were grouped into this category since they resulted from vehicular maintenance activities. Seventeen VMAs were Army sites; one was Air Force (Air National Guard). Analysis of these sites, by region, yielded the following breakdown: Southeast Region – 4; Northeast Region – 2; Southcentral Region - 2;

Northcentral Region – 3; Southwest Region – 1; Northwest region – 6. The following is a break down of the sites evaluated:

Site Name	Type	Component	Region	Status
USARC Farrell	Battery Acid	Army	Northwest	Further Act.
USARC Germantown	Battery Storage	Army	Southeast	Resolve
USARC Wilkes Barre	Grease Pit	Army	Northeast	Resolve
USARC Edgemont	Grease Racks	Army	Southeast	Resolve
USARC Horsham	Parts Washer	Army	Southeast	Resolve
USARC Punxsutawney	Parts Washer	Army	Northwest	Resolve
USARC New Castle	Brake Change	Army	Northwest	Resolve
AMSA 112 Lock Haven	Wash Rack Oil/Water Sep.	Army	Northcentral	Resolve
AMSA 29 Reading	Wash Rack Oil/Water Sep.	Army	Southcentral	Deferred
AFRC Erie	Wash Rack	Army	Northwest	Resolve
USARC Brookville	Wash Rack Oil/Water Sep.	Army	Northwest	Resolve
USARC Marcus Hook	Oil/Water Sep.	Army	Southeast	Resolve
USARC Uniontown	Oil/Water Sep.	Army	Southwest	Further Act.
State College – AirNationalGuard	Solvent Area	Air Force	Northcentral	Resolve
USARC Bethlehem	POL Storage	Army	Northeast	Resolve

USARC Farrell - The specific "site" which was evaluated at the Farrell installation was listed as Site 3: Battery Acid Neutralization Sump. This site was added to the Defense Sites Environmental Restoration Tracking System database (DSERTS) after 1989. The April 29, 1998 Memorandum for Record ("Weston Scrub") does not include this site as "Response Complete", "Requiring Further Evaluation", or "Facility On Active Army Reserve Installation." There was no documentation to indicate that sampling was conducted. The site is eligible for DERA funding. It is recommended that soil sampling be conducted at this site in order to make an official determination. It is recommended that this be listed on the military CMSA "List of Scheduled Sites".

AMSA 29 Reading - The AMSA (Army Maintenance Support Activity) facility's primary function is the repair and maintenance of wheeled military vehicles. The Vehicle Wash Rack and Oil/Water Separator were the areas of concern for this site. The previous site location has been replaced by the current facility and is an active facility not subject to DERA funding. Additionally, most of the areas of concern noted during the site visit centered around current compliance issues (e.g. retention basin discharge, spills and small releases during routine operational activities, etc.). Although this site should be moved to the Deferred List, it is strongly recommended that a site investigation program be initiated to determine the nature and extent of past or present releases of environmental contaminants.

USARC Uniontown - The main focus of the inspection, the oil/water separator, may need further evaluation. Little information was provided. There is no information available concerning the condition of the separator, especially if it was properly decommissioned. There is some question concerning the existence of an oil collection tank connected to the separator. The Department has determined that those types of tanks would be regulated and should be closed according to the

Underground Storage Tank Act. Further evaluation of the oil/water separator is needed. Soil and/or groundwater sampling may be necessary to determine if contamination is migrating off-site.

4.6 Fenceline Assessments:

The Northcentral and Southeast Regional offices evaluated a total of 3 sites. It is important to note that the “Fenceline” Category means perimeter of the fenceline encompassing the entire facility being evaluated. All three fenceline sites evaluated were Army sites. The following is a break down of the sites evaluated:

Site Name	Type	Component	Region	Status
USARC Lewisburg	Fenceline	Army	Northcentral	Resolve
North Penn USARC	Fenceline	Army	Southeast	Resolve
USARC Germantown	Fenceline	Army	Southeast	Resolve

The DEP Southeast regional office staff evaluated one site, USARC North Penn for possible further action and samples were taken by a contractor in response to a work assignment issued by the Department. A total of twenty soil samples were taken at discreet locations along the fenceline and analyzed for PADEP Diesel Fuel Short List parameters (benzene, toluene, ethylbenzene, cumene, and naphthalene), fluorene, phenanthrene, PCBs, pesticides and herbicides. Phenanthrene was detected in one sample above laboratory MDL but below Act 2 standards. Two additional samples indicated detection of isomers of DDT but both were below Act 2 statewide standards for direct and Soil-to-Groundwater medium specific standards. No VOC’s, herbicides or PCB were detected in any of the samples.

4.7 Missile Launch Sites:

The Southwest Regional Office in Pittsburgh evaluated a total of 2 missile launch sites. Both missile launch sites evaluated were FUDS. Although there were additional Missile Launch Sites in the eastern area of the state, only two sites from the western region were evaluated in the Pilot Study Project. The following is a break down of the sites evaluated:

Site Name	Type	Component	Region	Status
Missile Launch Site PI-92 Plum	Missile launch	FUDS	Southwest	Further Act.
Missile Launch Site Battery PI-25	Missile launch	FUDS	Southwest	Further Act.

Missile Launch Site PI-25 - is comprised of three areas: the launch area, control area, and housing areas. Each area has its own individual environmental concerns. Due to the significant changes at two of the locations, very few concerns were identified during the site visit. A review of site documentation indicates some environmental concerns may still exist at this facility. The final disposition of USTs on the installation is not known. There is an assumption that all USTs not being used by the respective property owners have been removed. However, no documentation exists to substantiate it. It is the Department’s recommendation that the locations of the former USTs be identified and an evaluation of each location be conducted. The third missile vault was closed without any documentation on its condition. The possibility exists that waste material may be present in the vault. The potential for groundwater contamination by leakage from the vault should be considered. It is the Department’s recommendation that an evaluation of the missile vault be conducted.

Missile Launch Site PI-92 - The Allegheny County Fire and Police Training Facility occupy the previous launch site area. The Control Site is occupied by an Army Reserve Center. The launch site has undergone significant improvements since the installation was turned over to the County in 1970. A review of the very limited documentation provided by the Army Corp of Engineers does not indicate a comprehensive evaluation of the site prior to the transferring the property to Allegheny County. A site survey report completed in 1984 did not identify an impact to the environment. However a subsurface investigation was recommended to determine if an impact to soil and groundwater exists. As with all Missile Launch Sites, the potential for an environmental impact has not been fully investigated by the military. A more comprehensive site investigation of subsurface impacts is warranted.

4.8 Transformers:

A total of 5 sites were evaluated by the regional offices. One additional site was not evaluated under this Pilot Study because it was part of an NPL site and will be covered under that program. Two sites were FUDS and two were Navy sites. One site was located in the Northeast Region, one in the Southeast Region and two in the Southcentral Region. None of the Transformer Sites that were included in the CMSA Study Program belonged to the Air Force. The following is a break down of the sites evaluated:

Site Name	Type	Component	Region	Status
Cross and Hearthstone Mountain	Transformers	FUDS	Southcentral	Resolve
Naval Reserve Center	Transformers	FUDS	Northeast	Resolve
N&MCRC Harrisburg *	Transformer	Navy	Southcentral	Resolve
Philadelphia NSWCSSES	Transformer	Navy	Southeast	Resolve
MG Wurts USARC	Transformer	Army	Southeast	Deferred

No significant areas of concern were identified in any of the four transformer sites evaluated under this Pilot Study Project. The fifth site was moved to the Deferred List pending site investigation work under CERCLA. * **Note:** The N&MCRC is actually a tenant command under the administrative control of the Army Reserve facility at this site.

4.9 Indoor Firing Ranges:

A total of 2 sites were evaluated by the regional offices. There was one Army Site and one Marine Corps (Navy) facility evaluated by two regional offices, Northcentral and Southeast respectively. The following is a break down of the sites evaluated:

Site Name	Type	Component	Region	Status
USARC Williamsport	Indoor Range	Army	Northcentral	Resolve
MCRC Folsom	Indoor Range	Navy (USMC)	Southcentral	Resolve

Note: - Sampling and testing for possible effects of building 1 demolition for lead on surrounding soils was implemented by a Department technical assistance contractor at MCRC Folsom. Fourteen (14) soil samples were collected using Geoprobe Macrocore 4-foot samplers from ten (10) borings. The soil sample analytical results were compared to PA Act 2 direct numeric values in surface soil and soil-to-groundwater medium specific concentrations (MSCs). Lead was detected in seven (7) of the 15 soil samples at concentrations exceeding the laboratory method

detection limit (MDL) but below the PADEP Act 2 standard of 450 ppm. The total lead concentrations in these samples ranged from 16 ppm to 25 ppm. These soil samples were collected within two feet of the ground surface in accordance with PA Act 2 non-residential (direct contact) and soil-to-groundwater pathway procedures. No other samples collected contained lead at concentrations exceeding laboratory MDLs. There was no sampling performed at USARC Williamsport although a previous site inspection and review of historical records failed to indicate any releases at this installation.

4.10 Miscellaneous Sites:

The Regional Field staff evaluated a total of 10 sites in this category. Six Miscellaneous sites evaluated were FUDS, three were Army sites and one was an Air Force site. At least one miscellaneous site was evaluated in each DEP Region with 2 sites evaluated in the Southwest, Northwest, Southeast and Northeast Regions. The following is a break down of the sites evaluated:

Site Name	Type	Component	Region	Status
Erie Howitzer Annex	Parts Manf.	FUDS	Northwest	Resolve
Fort Indiantown Gap FTIG004	Fire Training Area	Army	Southcentral	Deferred
Edgemont USARC	Wastewater Treatment	Army	Southeast	Resolve
Ulysses GFA Z-30	Communications	FUDS	Northcentral	Resolve
Titusville Gun Plant	Gun & Barrel Manf	FUDS	Northwest	Resolve
Joliet Gap Filler Annex	Communications	FUDS	Northeast	Resolve
USARC Greensburg	Septic Leach Field	Army	Southwest	Deferred
Boyd Proving Ground	Weapons Testing	FUDS	Southeast	Resolve
Bethlehem Steel	Unknown	FUDS	Northeast	Resolve
Pittsburgh Municipal Airport PL007	Fuel Hydrant Area	Air Force	Southwest	Resolve

Ft. Indiantown Gap: The *Final Data Report*, (including soil sample results), clearly indicates that a release has occurred at FTIG-004, and that it has not been adequately addressed. In terms of the quality of available data, many shortcomings were noted for FTIG-004. The report did not include laboratory analytical report forms and did not provide unknown peak identification, reporting limits, or EPA Methods used. In addition, the pre-1982 pit location may have been outside the area of investigation. Finally, no information was found concerning field activities at the time of closure. It is likely that the release has affected surface water and groundwater, as well as soils. Since this site is part of an active installation, this site has been moved to the Deferred List of Sites for addressing under the appropriate regulatory program.

USARC Greensburg - The main focus of this inspection was the leach field. Although no apparent malfunctions have occurred and the system is still operating, the discharge of petroleum based lubricants and fuels may have occurred without the benefit of an oil/water separator. Since vehicle maintenance and washing have ceased, the likelihood of a release of petroleum contaminants is less likely. This is an active facility, not subject to DERA funding and the leach field is still being utilized for current operations. This site should be moved to the Deferred List of Sites to be addressed outside of the CMSA.

Notes:

- Joliett Gap Filler Annex – The current owner is beneficially re-using this site making it very difficult to determine if current site conditions were the results of the period during military use or its current owner. The U.S. Army Corps of Engineers FUDS Program does not allow the Corps to address these facilities. However, no records or physical traces of previous contamination were noted or known to exist.
- Boyd Proving Ground – “Categorically Resolved – No Records Available”
- Titusville Gun Plant – Could not differentiate between military impacts and second party (current owner) impacts. See Joliett above.
- Bethlehem Steel – This site was not under military ownership or control and activities of this site are subject to routine regulation by DEP.

4.11 Unlocated Sites:

The Regional Field Staff evaluated a total of 4 sites that could not be located. Either these sites could not be sighted visually or had little-to-no information available on their existence. All the unlocated sites evaluated were FUDS sites with one each located in Northcentral, Southeast and 2 in Southwest regions. The following is a break down of the sites evaluated:

Site Name	Type	Component	Region	Status
N&MCRC Pittsburgh	Unknown	Navy	Southwest	Resolve
Penn Test Annex	Unknown	FUDS	Northcentral	Resolve
Elizabeth	Missile Launch Site	FUDS	Southwest	Resolve
USARC Outdoor Training Site	Training Site	FUDS	Southcentral	Resolve

Elizabeth – This is believed to be an old Missile Launch Site but has not been located by the Army Corps of Engineers so no assessment was conducted. The lat/long for "ELIZABETH" is 40.275 (lat) and 79.8917 (long). The lat/long for the Scheduled site NIKE BATTERY PI-42 (ELIZABETH) is 40.255 (lat) and 79.8569 (long). With the help of GIS, both sites were plotted on a GIS screen. The lat/long would put "ELIZABETH" in either Elizabeth Boro or West Elizabeth Boro (about 2.1 miles northwest of NIKE BATTERY PI-42 which is in Elizabeth Township). Given the fact that many of the lat/long coordinates originally supplied for the universe of sites were incorrect, the proximity of "ELIZABETH" to the NIKE BATTERY PI-42 (ELIZABETH) Scheduled site, and the fact that no one seems to have any knowledge of "ELIZABETH" or its location, it is strongly suspect that "ELIZABETH" is a duplicate of the Scheduled NIKE site.

USARC Outdoor Training Site – no records appear to exist concerning this site and no further information is available concerning why this site was listed on the Pilot Study Project site list.

Penn Test Annex – DEP and the Army Corps of Engineers could not find any records or documentation of this site.

N&MCRC Pittsburgh – Although this installation was located and a site visit performed, no known site, spill, release or discharge was known to have existed at this location.

5.0 Additional FUDS Project

The Department, in an effort to evaluate additional FUDS that were not part of the Pilot Study Project, has identified an additional 25 Formerly Used Defense Sites (FUDS) in conjunction with the Military Cooperative Multi-Site Agreement (CMSA) Site Study Program. One of the Department's technical assistance contractors has been assigned to evaluate these sites and prepare a report on its findings. Results from the Additional FUDS project are expected to be available by mid-year of 2001.

The overall objectives of these additional FUDS assessment reports are:

- to document the reasonably identifiable or likely environmental contamination conditions of the site through record reviews, and
- to determine the classification of the site, into one of two categories listed below:
 - the military's "No Further Action" determination is reasonable.
 - further action at the site is warranted and inclusion of the site on the CMSA "Scheduled Site" list..

6.0 Conclusions and Recommendations

6.1 Preliminary Findings/General Observations

The following are general conclusions and findings discovered as part of the Pilot Study Program:

- **Difficulty of Task:** Originally, it was felt that this project would be fairly straight forward and that the necessary data would be readily accessible from each of the military components. However, the data was not as readily available as first thought and that the military components themselves, at the local level, did not have the amount and detail of information expected. Some records were difficult to locate or even non-existent. Tasking a contractor with this entire assignment would not have been a cost-effective undertaking.
- **Variability of Sites:** The size and complexity of these sites vary considerably. Sites selected for the Pilot Study project vary from those that never existed or were not able to be located, to multiple remedial activities on a very large military installation. Site ownership also varied considerably from active military installations, to formerly used military sites, to sites without current military ownership or responsibility.
- **Listing of Sites:** Some sites appeared to be listed which had no suspected or known releases to the environment. This was a result of listing military facilities as an “inventory” of sites rather than for a specific environmental concern or suspected release. In some cases, this was merely a listing on the DSERTS database.
- **Accuracy of Study Program Site List:** As a direct result of the Pilot Study Project, it became evident that a certain number of sites were misplaced on the Study Program Site List. Since these sites are either at active facilities or are not eligible for funding under DERA, they cannot be moved to the Scheduled List under the CMSA and should have been placed on the Deferred List of Sites.
- **Military Contacts/Communications:** Initial contact and communications with the various military components was sometimes problematic with an appreciable learning curve; however, largely due to the Cooperative Multi-Site Agreement and specifically as a result of this Pilot Study Project, communications and coordination with the various military components has dramatically improved and is a definite asset of the Pennsylvania/military Cooperative Multi-site Agreement.
- **Responsiveness to Requests for Data:** Responses to requests for data, reports and site access varied at each site for a variety of reasons. DEP regional officials initially experienced some resistance by the Army Reserve Command in their efforts to collect data and gain site access. This was eventually ameliorated in accordance with the terms of the Cooperative Multi-site Agreement. Site access to FUDS, particularly those no longer under military control, presented problems due to the perceived liability by the current owner. Other roadblocks to the collection of data for verifying the Pilot Study Project involved installation personnel that were unfamiliar with historical site conditions and at times a complex and confusing chain of command structure.

- **New Site List Category:** Some sites are being recommended in this Pilot Study Project for transfer to the Deferred List of Sites because they do not qualify for DERA funding. These sites are addressed outside the scope of this agreement and may reach resolution status through other funds and programs. However, it is strongly recommended that the Cooperative Multi-site Agreement be amended to include a new category of sites that can be tracked for accomplishments as a result of their identification by the Pilot Study Project. Although not formerly part of the Agreement, they are nonetheless accomplishments directly resulting from the Cooperative Multi-site Agreement.
- **FUDS** represent a unique and special challenge due to the different framework under which these sites are administered. Program evaluation of FUDS may be necessary on a separate basis due to the inherent inconsistencies these sites present. A separate study project evaluating additional FUDS on the Program Study List of Sites is underway at the writing of this report and, when available, will greatly add to the evaluation of these sites for state-wide evaluation.

6.2 Categorical Recommendations and Conclusions:

The following recommendations would apply to all Study Program sites in addition to those involved in the Pilot Study Project, that can be classified into one of the below listed categories. All conclusions and recommendations are based upon the sites that were selected and reviewed in the Pilot Study project. It should be noted however, that nothing in this report should be used to justify a No Further Action (NOFA) determination at a specific site where either DEP or the military component has reason to suspect a release or a potential impact to the environment has occurred or is likely to occur.

6.2.1 Storage Tanks:

- All storage tanks closed out under DEP Storage Tank regulations or which could meet the closure requirements of the Storage Tank regulations should be moved to the Resolved list of Sites without any further action by the military or DEP. Closure letters or a closure report is evidence that the tank has been closed out under the applicable regulatory requirements.
- Based upon the results of this Pilot Study, only two of the USTs and none of the ASTs evaluated appeared to present any environmental threat or release to the environment. It is recommended that all Study Program ASTs and USTs that were previously approved for closure be resolved under Section 4.08 c. or d. of the CMSA, subject to DEP regional field staff opportunity for input or concurrence on a site-by-site basis. All tanks not previously approved for closure would be moved to the Scheduled List of Sites subject to a closure report by the military component.

6.2.2 Flammable Storage Areas:

- The Pilot Study Project indicated that there was no evidence to suggest any contamination or releases to the environment involving any Army flammable storage areas based upon visual inspections, discussions with site personnel and historical records reviewed. All remaining Study Program Sites of this class which are under the purview of any of the other services should be resolved under Section 4.08 c. or d., as appropriate, unless specific site information dictates otherwise.

6.2.3 Drum and Waste Storage Areas:

- Smaller facilities and installations (such as reserve centers) seem to have little or no concerns associated with these categories of sites. It is recommended that all reserve centers and small facilities be resolved for this category of sites, based upon a visual inspection of those specific facilities.
- Larger installations are the most apt for environmental impacts in this category of sites. It is recommended that these facilities conduct an installation-wide evaluation for drum and waste storage areas and request a site-by-site request for resolution to the appropriate DEP regional office. Resolution letters should be issued upon concurrence by both military facility personnel and the assigned regional DEP personnel.

6.2.4 Vehicle Maintenance Areas (VMAs):

VMAs are the areas most likely to require further action within the categories of sites addressed in the Pilot Study Project. These sites incorporate grease racks and pits, brake changing areas and parts washers, petroleum, oil and lubrication (POL), batteries, wash racks and oil/water separators.

- Oil/water separators are consistently viewed as areas of environmental concern at all facilities. It is recommended that all oil/water separator units be evaluated both individually and from a program perspective. A concern discovered through the pilot Study Project indicated that oil/water separators should be examined for compliance with NPDES discharge requirements.
- Some wash racks did not have oil/water separators associated with their operations. Additionally, discharges from wash racks and oil/water separators are not always known. Lack of discharge information on wash racks and oil/water separators is of concern statewide. These should be individually evaluated for discharge potentials to surface water and groundwater receptors.
- Holding tanks for waste oil were a concern statewide with no consistent military policy to manage or remediate them. These need to be evaluated not only from a

contaminant release perspective but also from a waste management compliance perspective.

- Historically, parts washers using common organic solvents reviewed in the Pilot Study Project indicate potential compliance issues. Stained soils and detection of solvents were commonly noted at these sites.
- Most current parts washers have now been converted to using non-hazardous, water-soluble and environmentally-friendly solvents.
- Additionally, it was evident that pollution prevention measures at existing sites need to be implemented and improved so that discharge potential to surrounding soil and water resources are prevented.
- Facilities with floor drains connected to Public Operated Treatment Works (POTW) can be resolved after evidence of their connection is provided.

6.2.5 Fenceline Assessments:

Although the data is limited, evaluation of these three sites in two different regions appears to indicate that there is no problem with fencelines at these military sites. Sampling indicated that no areas of concern exist at the Pilot Study Sites that exceeded PA Act 2 standards for surface soils. All three sites were evaluated and found to meet Department requirements for resolution under the CMSA. Unless other environmental concerns are known to exist in association with the fenceline, such as fenceline areas that are located next to or near other waste management areas, fenceline sites should be categorically resolved.

- If proper weed/vegetation control is used as directed, there is no concern with these sites and they should be categorically resolved under Section 4.08 of the agreement.
- Consideration should be given to historical practices at each facility in order to resolve fenceline areas.

6.2.6 Indoor Firing Ranges:

Indoor firing ranges can encompass a range of facilities on current and former military facilities. This category of sites (and all ranges evaluated in the Pilot Study Project) only addresses indoor small caliber arms firing ranges. There was no attempt to evaluate Unexploded Ordnance (UXO) or Ordnance and Explosive Wastes (OEW) issues at any Pilot Study sites.

- The sample size was too small to recommend a general action based upon the number of sites (2 indoor firing ranges) in the Pilot Study project.
- The primary hazard encountered with indoor firing ranges is lead dust contamination.

- Outdoor ranges, although not specifically addressed in this Pilot Study Project, should be individually assessed when taken out of service and remediated and addressed in a manner appropriate for the proposed landuse.
- Prior to any future development or transfer of property at a former range site, all outdoor ranges need to be fully assessed for environmental contamination.
- Indoor firing ranges should be categorically resolved.

6.2.7 Missile Launch Sites:

- In general, inadequate documentation exists on previous practices and environmental impacts for this category of sites.
- In a review of Missile Launch Sites, insufficient site characterization information existed on most missile launch site areas.
- It is recommended that a special partnering program be considered for jointly funding a program to perform screening samples of possible areas of contamination. All Missile Launch Sites (FUDS) should be re-evaluated unless sufficient documentation exists to be able to make this determination. In addition, Missile Launch Sites addressed through other program processes under the CMSA and across the nation indicate a high probability for contamination.
- Since most of these installations were built to near identical specifications, it is recommended that the United States Army Reserve (USARC) standard scope of work for a complete environmental assessment of former Missile Launch Sites be used to assess all similar sites in Pennsylvania. The typical areas of concern associated with the operation of Missile Launch Sites (launch area, control area and quarters areas) should be investigated (including sampling and analysis) for potential areas of concern that have not been addressed.

6.2.8 Transformers:

- There were no known or documented releases at any of the transformer sites involved in the Pilot Study project. In the absence of documentation or knowledge to show releases have occurred at transformer sites, this class of site should be categorically resolved.
- It is recommended that any transformer that has been closed out (as verified by file reviews/site visits) should be considered for a resolution letter. If a visual observation indicates that a release may have occurred or it is suspected that a release has occurred, these sites should be individually assessed for contaminant releases.

6.2.9 Miscellaneous Sites:

- Fire Training areas – By their inherent nature, all Fire Training Areas tend to be serious areas of environmental concern for DEP. Verified releases associated with these sites support the conclusion that each specific site needs to

be assessed and dealt with individually. It is recommended that all fire-training areas be re-evaluated, to include a review of files and documentation and site visits, to assess and address these sites on an individual basis, unless there is clear and convincing evidence to the contrary.

- Due to the great variability of these sites, a category for resolution cannot be recommended in this instance.
- There were no unexploded ordinance (UXO) or ordnance and explosive waste (OEW) sites evaluated as part of the Pilot Study project. No conclusions can be drawn concerning these sites due to lack of data to support any categorical classification. Any UXO or OEW sites that are discovered should be immediately referred to the appropriate military component for evaluation. DEP regional representatives should be apprised of any assessment actions.

6.2.10 Unlocated Sites:

These are sites for which there was no known release, no existing documentation and for which existing locational information about the site was unavailable.

- Approximately 4% of the Pilot Study Sites (4) were not able to be located and should be resolved due to lack of information indicating that these sites were associated with any known release to the environment. It should be noted, however, that the Commonwealth reserves its right to reopen these sites for further action or resolution determination if these sites are located at a future time.
- The military components, in cooperation with DEP, should develop and institute an enhanced procedure to locate any and all information relative to unlocated sites addressed on the CMSA List of Sites. For those sites that are not able to be located after this procedure is implemented, the site should be administratively resolved and removed from the list of Program Study sites.

7.0 Additional Considerations

These following areas were not part of the original Pilot Study Project sites and are not being addressed under the terms of the Cooperative Multi-site Agreement; nevertheless, they are mentioned here as areas of additional concern for possible follow up action by other programs and funding sources.

Region 1 – Conshohocken

MCRC Folsom – The current vehicle maintenance area and the former wash rack areas are not part of the CMSA Program Study Sites List but should be assessed for possible impacts they may have had at the facility.

USARC Germantown – There are TPH contaminated soils around the area where a tank was removed and contaminated groundwater and free product was known to have existed. Also, there is a former indoor firing range and a fence line assessment that should be evaluated.

USARC North Penn – Drainage from the previous missile silo area drains to the Stony Creek/Schuylkill River. Groundwater contamination is known to have existed and homeowners' wells in the vicinity have been sampled for impacts. A vehicle maintenance area should be added to the List of Study Program Sites, which is not on the list (particularly if the facility has an associated oil/water separator. The outfall of the new wastewater treatment plant should be sampled for possible residual contamination (possibly add to the Study Program or Scheduled List of Sites).

Region 2 – Wilkes Barre

No additional areas of concern were mentioned in the SARs.

Region 3 – Harrisburg

AMSA 29 Reading - Site 1, the Indoor Firing Range, was not reviewed by this study because it is part of another installation, the neighboring USARC Reading facility. Additionally, the Army has been apprised that the UST is not registered with DEP and has promised to address the matter at this site and assess other similar properties statewide for additional occurrences. At least three previous locations of this installation have been identified that were previously used by the Department of Defense and should be considered for the FUDS program.

USARC Greencastle - the Transformer Pad area, as a non-CMSA cleanup site, should be addressed under standard Act 2/Act 108 administrative policies and procedures. In addition, there are several FUDS concerns, several unregulated USTs and a trash burning area/landfill trenches. The storm water outfall should be sampled. Also, there were possible solvent traces detected in groundwater samples that need to be further investigated. Since this is an operational facility, it was not covered under the provisions of the CMSA.

USARC Harrisburg - An evaluation of the POL shed and the oil/water separator area needs to be made. No closure report could be located for the UST that was recently removed. DEP is taking additional samples to determine the need for further action or site resolution.

USARC New Cumberland - An assessment is needed along the fenceline where drums of waste were previously stored.

Region 4 – Williamsport

USARC Bloomsburg – A fuel bin with “empty” fuel containers needs to be assessed.

USARC Lewisburg – There are visibly stained soils around the fuel storage area, a parts washer and a former fuel bin.

USARC Williamsport – A former vehicle maintenance area was not characterized in the USATHAMA report for this facility. This should be addressed with the remaining vehicle maintenance areas in the List of Study Program Sites.

Region 5 – Pittsburgh

Missile Launch Site PI-25 and Missile Launch Site PI-92 – Additional information is needed concerning USTs at both sites. The actual disposition of the UST and any associated soil is not known. The potential for groundwater contamination from the third vault should also be evaluated.

USARC Greensburg – Storage procedures for the water treatment chemicals should be evaluated to eliminate the potential for unconfirmed releases.

Region 6 – Meadville

USARC Butler – The discharge from an oil/water separator that flows to a storm sewer or drainage ditch should be evaluated for impact to surface soils and surface/groundwater .

8.0 Glossary of Terms

ACT 2	-	Pennsylvania Land Recycling and Remediation Standards of 1995
AFRC	-	Armed Forces Reserve Center
AMSA	-	Army Maintenance Support Activity
AST	-	Above Ground Storage Tank
CMSA	-	Cooperative Multi-site Agreement
DEP	-	Department of Environmental Protection
DERA	-	Defense Environmental Restoration Account
DLA	-	Defense Logistics Agency
DOD	-	Department of Defense
DSERTS	-	Defense Site Environmental Restoration Tracking System
FUDS	-	Formerly Used Defense Sites
MDL	-	Method Detection Limit
MSC	-	Medium Specific Concentrations
N&MCRC	-	Navy and Marine Corps Reserve Center
NOFA	-	No Further Action
NPDES	-	National Permit Discharge Elimination System
NPL	-	National Priorities List
OEW	-	Ordnance and Explosive Waste
PA/SI	-	Preliminary Assessment/Site Inspection (SUPERFUND)
PCB	-	Polychlorinated Bi-Phenols
POL	-	Petroleum, Oil and Lubricants

POTW	-	Public Owned Treatment Works
PRP	-	Potentially Responsible Party
SAR	-	Site Assessment Report
TPH	-	Total Petroleum Hydrocarbons
USARC	-	United States Army Reserve Command
UST	-	Underground Storage Tank
UXO	-	Unexploded Ordnance
VMA	-	Vehicle Maintenance Areas
VOC	-	Volatile Organic Contamination

APPENDIX A

Selection of Pilot Study Sites

Revised 10/15/98

LIST OF 66 DRAFT SITES

*** List of 15 NO FURTHER ACTION SITES:**

INSTALLATION NAME	SITE ID	MUNICIPALITY	COUNTY	REG	STATUS	COMPONENT
BOYD PROVING GROUND	C03PA1034	LOWER MERION	MONTGOMERY	1	NI	FUDS
MCRC FOLSOM	NONE	RIDLEY TWP	DELAWARE	1	NH	NAVY
PHILADELPHIA PA NSWCSSES	SITE 00007	PHILADELPHIA	PHILADELPHIA	1	NR	NAVY
BETHLEHEM STEEL	C03PA0994	EAST LEHIGH	NORTHAMPTON	2	NC	FUDS
JOLIETT GAP FILLER ANNEX	C03PA0444	TREMONT	SCHUYLKILL	2	NH	FUDS
NMCRC HARRISBURG	NONE	HARRISBURG	DAUPHIN	3	NH	NAVY
USAR OUTDOOR TRNG SITE	C03PA0438	HAMBURG	BERKS	3	NI	FUDS
PENN TEST ANX	C03PA0854	MONTOUR	MONTOUR	4	NI	FUDS
ULYSSES GFA Z-30E	C03PA0461	HECTOR TWP	POTTER	4	NB	FUDS
ELIZABETH	C03PA0405	ELIZABETH	ALLEGHENY	5	NI	FUDS
MISSILE LAUNCH SITES	C03PA1045	PLUM BOROUGH	ALLEGHENY *	5	NH	FUDS
MISSILE LAUNCH SITES PI-92	C03PA0226	PITTSBURGH	ALLEGHENY	5	NB	FUDS
NMCRC PITTSBURGH	NONE	PITTSBURGH	ALLEGHENY	5	NH	NAVY
ERIE HOWITZER ANNEX	C03PA1086	ERIE	ERIE	6	NH	FUDS
TITUSVILLE GUN PLANT	C03PA1035	TITUSVILLE	CRAWFORD	6	NH	FUDS

NB: No further action: beneficial use of the facility by a new owner.

NC: No further action: categorically excluded FUDS.

NH: No further action: no hazards found.

NI: No further action: no information found/ineligible FUDS

NR: No further action: response complete FUDS.

***NOTE:** These are sites that the military components deemed that No Further Action (NOFA) was required.

* List of 51 REMEDIATION COMPLETE sites.

INSTALLATION NAME	SITE ID	MUNICIPALITY	COUNTY	REG	SITE / PROJECT DESCRIPTION	MILITARY COMP
AFRC PHILADELPHIA	SITE 01	PHILADELPHIA	PHILADELPHIA	1	#2 FUEL OIL LUST	ARMY
EDGEMONT USARC	SITE 01	EDGEMONT TWP	DELAWARE	1	SEWAGE TREATMENT PLANT	ARMY
EDGEMONT USARC	SITE 15	EDGEMONT TWP	DELAWARE	1	GREASE RACK (2)	ARMY
MG WURTS USARC	SITE 05	HORSHAM	MONTGOMERY	1	TRANSFORMER	ARMY
NORTH PENN USARC	SITE 01	WORCESTER TWP	MONTGOMERY	1	FENCELINE ASSESSMENT	ARMY
USARC GERMANTOWN	SITE 03	GERMANTOWN	PHILADELPHIA	1	BATTERY STORAGE AREA	ARMY
USARC GERMANTOWN	SITE 05	GERMANTOWN	PHILADELPHIA	1	PAINT STORAGE AREA	ARMY
USARC HORSHAM 01	SITE 6	HORSHAM	MONTGOMERY	1	PARTS CLEANER	ARMY
USARC MARCUS HOOK	SITE 05	MARCUS HOOK	DELAWARE	1	TUG BOAT 2	ARMY
USARC SCHUYLKILL HAVEN	SITE 13	SCHUYLKILL HAVEN	SCHUYLKILL	1	FLAMMABLE MATERIALS LOCKER	ARMY
NAVAL RESEARCH CENTER	C03PA0478	ALLENTOWN	LEHIGH	2	CON/HTRW	FUDS
SCRANTON ARMY AMMUNITION PLANT	SCAAP-15	SCRANTON	LACKAWANNA	2	TANK FARM	ARMY
SCRANTON ARMY AMMUNITION PLANT	SCAAP-05	SCRANTON	LACKAWANNA	2	PRODUCTION SHOP	ARMY
SCRANTON ARMY AMMUNITION PLANT	SCAAP-12	SCRANTON	LACKAWANNA	2	ABOVE GROUND STORAGE TANKS-SODIUM NITRATE	ARMY
USARC BETHLEHEM	SITE 03	BETHLEHEM	NORTHAMPTON	2	POL STORAGE	ARMY
USARC STOCKERTOWN	SITE 05	STOCKERTOWN	NORTHAMPTON	2	DRUM STORAGE AREA (ANTIFREEZE)	ARMY
USARC WILKES-BARRE	SITE 07	WILKES-BARRE	LUZERNE	2	FLAMMABLE MATERIALS LOCKER	ARMY
USARC WILKES-BARRE	SITE 09	WILKES-BARRE	LUZERNE	2	GREASE PIT (OIL & GREASE)	ARMY
USARC WILKES-BARRE	SITE 12	WILKES-BARRE	LUZERNE	2	POL STORAGE BIN (ANTIFREEZE)	ARMY
AMSA 29 READING	AMSA29-02	READING	BERKS	3	CERCLA DOCKET PA SITE ASSESSMENT	ARMY

CROSS AND HEARTHSTONE MTN	C03PA041601	WARREN	FRANKLIN	3	CON/HTRW	FUDS
FORT INDIANTOWN GAP	SS002	UNION TWP	LEBANON	3	WASTE HOLDING AREA	AIR FORCE
FORT INDIANTOWN GAP	FTIG-005	UNION TWP	LEBANON	3	CLOSURE HW STORAGE 4-25	ARMY
FORT INDIANTOWN GAP	FTIG-004	UNION TWP	LEBANON	3	BURNING PIT (FIRE TRAINING AREA)	ARMY
HARRISBURG INTERNATIONAL AIRPORT	SS001	LOWER SWATARA TWP	DAUPHIN	3	PCB RELEASE AREA	AIR FORCE
USARC GREENCASTLE (AMSA 113)	SITE 07	ANTRIM	FRANKLIN	3	UNDERGROUND STORAGE TANK (DIESEL FUEL)	ARMY
USARC HUNTINGDON	SITE 02	HENDERSON	HUNTINGDON	3	FLAMMABLE MATERIALS ROOM	ARMY
USARC NEW CUMBERLAND	SITE 02	FAIRVIEW TWP	YORK	3	DRUM STORAGE AREA (WASTE OIL)	ARMY
AMSA 112 LOCK HAVEN	SITE 05	LOCK HAVEN	CLINTON	4	VEHICLE WASH RACK O/W SEPARATOR	ARMY
STATE COLLEGE AIR NATIONAL GUARD BASE	DP001	COLLEGE TWP	CENTRE	4	SURFACE WASTE DISPOSAL AREA	AIR FORCE
USARC BLOOMSBURG	SITE 07	BLOOMSBURG	COLUMBIA	4	FLAMMABLE MATERIALS LOCKER	ARMY
USARC LEWISBURG	SITE 04	LEWISBURG	UNION	4	WASTE OIL/GREASE UST	ARMY
USARC LEWISBURG	SITE 11	LEWISBURG	UNION	4	FENCELINE ASSESSMENT	ARMY
USARC STATE COLLEGE	SITE 02	STATE COLLEGE	CENTRE	4	FUEL OIL UST	ARMY
USARC WILLIAMSPORT	SITE 02	WILLIAMSPORT	LYCOMING	4	INDOOR FIRING RANGE	ARMY
HAYS AAP	HYAAP-04	HAYS	ALLEGHENY	5	UNDERGROUND STORAGE TANKS (8)	ARMY
PITTSBURGH MUNICIPAL AIRPORT	SS002	MOON TWP	ALLEGHENY	5	DRUM STORAGE BLDG 416	AIR FORCE
PITTSBURGH MUNICIPAL AIRPORT	PL007	MOON TWP	ALLEGHENY	5	FORMER FUEL HYDRANT SYSTEM	AIR FORCE

USARC GREENSBURG	SITE 04	HEMPFIELD TWP	WESTMORELAND	5	SEPTIC TANK/LEACHFIELD	ARMY
USARC JOHNSTOWN 01	SITE 10	JOHNSTOWN	CAMBRIA	5	DRUM STORAGE AREA	ARMY
USARC JOHNSTOWN 01	SITE 08	JOHNSTOWN	CAMBRIA	5	PAINT STORAGE CABINET	ARMY
USARC NEW CASTLE (AMSA 110)	SITE 4	NEW CASTLE	LAWRENCE	5	BRAKE CHANGING AREA	ARMY
USARC PITTSBURGH 02	SITE 02	PITTSBURGH	ALLEGHENY	5	FRESH SOLVENT STORAGE	ARMY
USARC UNIONTOWN	SITE 02	UNIONTOWN	FAYETTE	5	VEHICLE WASH RACK O/W SEPARATOR	ARMY
AFRC ERIE	SITE 04	ERIE	ERIE	6	VEHICLE WASH AREA	ARMY
USARC BROOKVILLE	SITE 02	BROOKVILLE	JEFFERSON	6	VEHICLE WASH RACK O/W SEPARATOR	ARMY
USARC BUTLER	SITE 04	BUTLER	BUTLER	6	FLAMMABLE STORAGE AREA	ARMY
USARC FARRELL	SITE 03	FARRELL	MERCER	6	BATTERY ACID NEUTRALIZATION SUMP	ARMY
USARC PUNXSUTAWNEY (AMSA 106)	SITE 01	PUNXSUTAWNEY	JEFFERSON	6	POL STORAGE SHED	ARMY
USARC PUNXSUTAWNEY (AMSA 106)	SITE 06	PUNXSUTAWNEY	JEFFERSON	6	PARTS CLEANER	ARMY
USARC ST. MARY'S	SITE 04	ST. MARYS	ELK	6	FLAMMABLES STORAGE CABINET	ARMY

- **These are sites at which the military components have taken cleanup or response actions and consider all remediation actions completed.**

APPENDIX B
STUDY PROGRAM PILOT PROJECT SITES

Sorted by DEP Region
7/27/99

INSTALLATION	SITE ID	MUNICIPALITY	COUNTY	REG	MIL_COMP
AFRC PHILADELPHIA 06	SITE 01	PHILADELPHIA	PHILADELPHIA	1	ARMY
BOYD PROVING GROUND	C03PA1034	LOWER MERION TWP	MONTGOMERY	1	FUDS
EDGEMONT USARC	SITE 15	EDGEMONT TWP	DELAWARE	1	ARMY
EDGEMONT USARC	SITE 01	EDGEMONT TWP	DELAWARE	1	ARMY
MCRC FOLSOM	NONE	RIDLEY TWP	DELAWARE	1	NAVY
MG WURTS USARC	SITE 05	HORSHAM	MONTGOMERY	1	ARMY
NORTH PENN USARC	SITE 01	WORCESTER TWP	MONTGOMERY	1	ARMY
PHILADELPHIA PA NSWCSSES	SITE 00007	PHILADELPHIA	PHILADELPHIA	1	NAVY
USARC GERMANTOWN	SITE 03	GERMANTOWN	PHILADELPHIA	1	ARMY
USARC GERMANTOWN	SITE 05	GERMANTOWN	PHILADELPHIA	1	ARMY
USARC HORSHAM 01	SITE 6	HORSHAM	MONTGOMERY	1	ARMY
USARC MARCUS HOOK	SITE 05	MARCUS HOOK	DELAWARE	1	ARMY
BETHLEHEM STEEL	C03PA0994	EAST LEHIGH	NORTHAMPTON	2	FUDS
JOLIETT GAP FILLER ANNEX	C03PA0444	TREMONT	SCHUYLKILL	2	FUDS
NAVAL RESERVE CENTER	C03PA047801	ALLENTOWN	LEHIGH	2	FUDS
SCRANTON ARMY AMMUNITION PLANT	SCAAP-15	SCRANTON	LACKAWANNA	2	ARMY
SCRANTON ARMY AMMUNITION PLANT	SCAAP-05	SCRANTON	LACKAWANNA	2	ARMY
SCRANTON ARMY AMMUNITION PLANT	SCAAP-12	SCRANTON	LACKAWANNA	2	ARMY
USARC BETHLEHEM	SITE 03	BETHLEHEM	NORTHHAMPTON	2	ARMY
USARC SCHUYLKILL HAVEN	SITE 13	SCHUYLKILL HAVEN	SCHUYLKILL	2	ARMY
USARC STOCKERTOWN	SITE 05	STOCKERTOWN	NORTHAMPTON	2	ARMY
USARC WILKES-BARRE	SITE 12	WILKES-BARRE	LUZERNE	2	ARMY
USARC WILKES-BARRE	SITE 09	WILKES-BARRE	LUZERNE	2	ARMY
USARC WILKES-BARRE	SITE 07	WILKES-BARRE	LUZERNE	2	ARMY
AMSA 29 READING	AMSA29-02	READING	BERKS	3	ARMY

CROSS AND HEARTHSTONE MTN	C03PA041601	WARREN	FRANKLIN	3	FUDS
FORT INDIANTOWN GAP	FTIG-004	UNION TWP	LEBANON	3	ARMY
FORT INDIANTOWN GAP	FTIG-005	UNION TWP	LEBANON	3	ARMY
FORT INDIANTOWN GAP	SS002	UNION TWP	LEBANON	3	AIR FORCE
HARRISBURG INTERNATIONAL AIRPORT	SS001	LOWER SWATARA TWP	DAUPHIN	3	AIR FORCE
NMCRC HARRISBURG	NONE	HARRISBURG	DAUPHIN	3	NAVY
USAR OUTDOOR TRNG SITE	C03PA0438	HAMBURG	BERKS	3	FUDS
USARC GREENCASTLE (AMSA 113)	SITE 07	ANTRIM TWP	FRANKLIN	3	ARMY
USARC HUNTINGDON	SITE 02	HENDERSON	HUNTINGDON	3	ARMY
USARC NEW CUMBERLAND	SITE 02	FAIRVIEW TWP	YORK	3	ARMY
AMSA 112 LOCK HAVEN	SITE 05	LOCK HAVEN	CLINTON	4	ARMY
PENN TEST ANX	C03PA0854	MONTOUR	MONTOUR	4	FUDS
STATE COLLEGE AIR NATIONAL GUARD	DP001	COLLEGE TWP	CENTRE	4	AIR FORCE
ULYSSES GFA Z-30E	C03PA0461	HECTOR TWP	POTTER	4	FUDS
USARC BLOOMSBURG	SITE 07	BLOOMSBURG	COLUMBIA	4	ARMY
USARC LEWISBURG	SITE 04	LEWISBURG	UNION	4	ARMY
USARC LEWISBURG	SITE 11	LEWISBURG	UNION	4	ARMY
USARC STATE COLLEGE	SITE 02	STATE COLLEGE	CENTRE	4	ARMY
USARC WILLIAMSPORT	SITE 02	WILLIAMSPORT	LYCOMING	4	ARMY
ELIZABETH	C03PA0405	ELIZABETH	ALLEGHENY	5	FUDS
HAYS AAP	HYAAP-04	HAYS	ALLEGHENY	5	ARMY
MISSILE LAUNCH SITES BATTERY PI-25	C03PA1045	PLUM BOROUGH	ALLEGHENY	5	FUDS
MISSILE LAUNCH SITES PI-92 (PITTSBURGH)	C03PA0226	PITTSBURGH	ALLEGHENY	5	FUDS
NMCRC PITTSBURGH	NONE	PITTSBURGH	ALLEGHENY	5	NAVY
PITTSBURGH MUNICIPAL AIRPORT	PL007	MOON TWP	ALLEGHENY	5	AIR FORCE
PITTSBURGH MUNICIPAL AIRPORT	SS002	MOON TWP	ALLEGHENY	5	AIR FORCE
USARC GREENSBURG	SITE 04	HEMPFIELD TWP	WESTMORELAND	5	ARMY
USARC JOHNSTOWN 01	SITE 10	JOHNSTOWN	CAMBRIA	5	ARMY
USARC JOHNSTOWN 01	SITE 08	JOHNSTOWN	CAMBRIA	5	ARMY
USARC PITTSBURGH 02	SITE 02	PITTSBURGH	ALLEGHENY	5	ARMY
USARC UNIONTOWN	SITE 02	UNIONTOWN	FAYETTE	5	ARMY
AFRC ERIE	SITE 04	ERIE	ERIE	6	ARMY
ERIE HOWITZER ANNEX	C03PA1086	ERIE	ERIE	6	FUDS

TITUSVILLE GUN PLANT	C03PA1035	TITUSVILLE	CRAWFORD	6	FUDS
USARC BROOKVILLE	SITE 02	BROOKVILLE	JEFFERSON	6	ARMY
USARC BUTLER	SITE 04	BUTLER	BUTLER	6	ARMY
USARC FARRELL	SITE 03	FARRELL	MERCER	6	ARMY
USARC NEW CASTLE (AMSA 110)	SITE 4	NEW CASTLE	LAWRENCE	6	ARMY
USARC PUNXSUTAWNEY (AMSA 106)	SITE 06	PUNXSUTAWNEY	JEFFERSON	6	ARMY
USARC PUNXSUTAWNEY (AMSA 106)	SITE 01	PUNXSUTAWNEY	JEFFERSON	6	ARMY
USARC ST. MARY'S	SITE 04	ST. MARYS	ELK	6	ARMY