SECOND FIVE-YEAR REVIEW REPORT

LETTERKENNY ARMY DEPOT
SOUTHEASTERN AREA
NATIONAL PRIORITIES LIST SITE
CHAMBERSBURG, PENNSYLVANIA

FINAL

U.S. Army Corps of Engineers
Hazardous, Toxic, Radioactive Waste Branch
Baltimore, Maryland

07P-0022

June 2008

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Letterkenny Army Depot
Chambersburg, Pennsylvania

June 2008

This report documents completion of the second five-year review for the Letterkenny Army Depot Southeastern Area as required by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) in accordance with CERCLA §121 (c), as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCO), part 300.430(f)(4)(ii) of the Code of Federal Regulations (CFR).

United States Department of the Army

By: _____ Date: 19 JUN 2008

Steven A. Shapiro
Colonel, U.S. Army
Commanding
Letterkenny Army Depot

EXECUTIVE SUMMARY

The United States (U.S.) Army, with review and input from the U.S. Environmental Protection Agency (U.S. EPA) and the Pennsylvania Department of Environmental Protection (PADEP) conducted the first five-year (statutory) review of the remedial actions implemented at the Operable Unit (OU) 1 (K–Areas), Southeastern (SE) Area, Letterkenny Army Depot (LEAD), Franklin County, Pennsylvania. The results of the first five-year review were documented in the five-year report submitted in October 2001. The remedial action was completed on September 30, 1995. The trigger for the first five-year review was the actual start of construction in August 1993. The trigger date for subsequent 5-year reviews is the date EPA concurs with the previous 5-year review. The first 5-year review was signed by the Army on 25 October 2001 (LEAD, 2001) and EPA concurred on 6 November 2001 (EPA Region III, 2001). Therefore, the trigger date for the second five-year review is 6 November 2001. The purpose of this report is to present results of the second five-year review, which was conducted between 1 September 2006 and August 2007.

Currently, there are fifteen (15) OUs established for the SE Area NPL Site. At the time of the first five-year review, there were only 12 OUs (1 through 12). Since the first review, OU 3 has been divided into two OUs (3A and 3B), and OU 13 and OU 14 have been added. Remedies have been selected for SE OU 1, SE OU 2, SE OU 3B, SE OU 4, portions of SE OU 8, SE OU 10, and SE OU 13. Remedies for the remaining OUs, including the remaining sites of which SE OU 8 is comprised, have not yet been selected.

Deficiencies were identified during the five-year review for SE OU 1, SE OU 2, and SE OU 8. Follow-up actions for mowing for cap maintenance are needed for SE OU 1; deficiencies from the first five review have been completed. The Land Use Controls Remedial Design to be prepared for SE OU 2 as specified in the ROD (Shaw, 2006a LKD.RT-284) has not yet been prepared and needs to be completed. An amendment to the LEAD Installation Master Plan needs to be completed to ensure land use controls are enforced for SE OU 2. For SE OU 8, a deficiency noted was that deeds for the Phase II road parcels do not reference land use restrictions as required by the Phase II ROD; however, a deed of correction was completed during the Five Year Review process and was recorded in the Franklin County Courthouse in Chambersburg on April 15, 2008. Also for SE OU 8, the BRAC Environmental Coordinator (BEC) has been signing annual Land Use Control inspection reports instead of the Letterkenny Army Depot Commander; a Land Use Controls Assurance Plan Memorandum of Agreement (LUCAP MOA) amendment is in progress.

Subsequent Phase I and II deeds reviewed in early January 2008 discovered that there was no follow through on the requirement (stated in the deed/leases) to provide to the GRANTOR, EPA, and PADEP, copies of the deed or lease 14 days after the effective date of the transaction. Also, it was discovered upon review of select leases that that not all leases reference the corresponding Phase I or II deed for land use restrictions. The Army is working with LIDA and CVBP tenants to determine an effective method to make sure that the deeds/leases are sent to the specified parties. In addition, the Army needs to complete the review of leases and revise leases that do not reference the appropriate land use controls in the deed.

These deficiencies, in the short term, do not impact the protectiveness of the remedies for SE OU 1, SE OU 2, or SE OU 8 under current conditions.

The Uniform Environmental Covenant Act (UECA) is a Pennsylvania law that was passed in November 2007 and became effective on February 19, 2008. This act provides a standardized process for creating, documenting and assuring the enforceability of activity and use limitations on contaminated sites. Under UECA an environmental covenant is required whenever an engineering or institutional control is required to demonstrate the attainment of an Act 2 remediation standard for any cleanup conducted under an applicable Pennsylvania environmental law. Under §6517(b) of the Act, an instrument created prior to the effective date of UECA which establishes activity and use limitations to demonstrate attainment or maintenance of a standard is to be converted to an environmental covenant within 60 months of the effective date unless conversion is waived by the PADEP. An environmental covenant is not required for property owned by the Federal Government, only on that property transferred to a Non-Federal entity or individual. As per the UECA requirement, BRAC property that was transferred prior to effective date of the law would be required to have an environmental covenant put in place within 60 months of February 19, 2008. Environmental Covenants, in the form of deed restrictions, currently exist, where necessary, for transferred BRAC parcels. However, the Army intends to begin the process to comply with UECA with the goal for completion before the end of the 60 month period.

Overall, the remedies are functioning as designed and are being operated and maintained in an appropriate manner; however, the existing groundwater remedy for SE OU 10 does not address risks from long-term exposure through the vapor intrusion pathway (VIP). Since the issuance of the Record of Decision, new information has been developed regarding the toxicity of TCE and methods to evaluate potential vapor intrusion from volatile organic compounds (VOCs). Most buildings overlying the shallow groundwater plume have not been evaluated for this pathway because, at the time of the ROD, the VIP was determined to be an incomplete pathway based on an evaluation using methods that are now considered inaccurate for preferential pathways situations. However, the current remedy potentially could reduce the contamination to levels that are acceptable based on risk calculations for commercial/industrial use. The EPA continues to evaluate this potential pathway and the current remedy at SE OU 10 until a determination can be made regarding its effectiveness in reducing the mass of the VOCs in the site groundwater. Until analysis is complete, EPA is deferring making a protectiveness statement. EPA anticipates that analysis and validation will take approximately one year to complete (December 2008), at which time a protectiveness determination will be made.

Site Identification	
Site Name: SE Areas, Letterkenny Army Depot	EPA ID: PA6213820503
Region: 03 State: PA	City/County: Franklin
Site Status	
NPL Status: Final	
Remediation Status: Ongoing Operation	
Multiple OUs: Yes	
Construction Completion Date: September 2007	
Has the site been put into reuse? Partial reuse	
Funding Source: ER,A and BRAC	
Review Status	
Lead Agency: U.S. Army	
Who Conducted the review (EPA Region, State, Federal Agency): Federal Facility	
Author Name: Joe Petrasek	
Author Title: LEAD ER,A Project Manager	
Author Affiliation: U.S. Army	
Review Period : From: 1 September 2006	To: 30 January 2008
Date(s) of Site Inspection: 15 August and 17 August 2007	
Type of Review: Statutory	Number of Review: 2
Triggering Action Event: Remedial Action Start	
Trigger Action Date: for first review - 11 August 1993; for second review 06 November 2001(EPA concur date)	
Due Date: 6 November 2006	

FIVE YEAR REVIEW SUMMARY REPORT

Seven Minor Deficiencies Were Noted:

- Follow-up with mowing for cap maintenance (associated with SE OU 1).
- A Land Use Controls Design Plan and amendment to LEAD Master Plan need to be completed to ensure land use controls are enforced (associated with SE OU 2).
- Deeds for the Phase II road parcels do not reference land use restrictions as required by the Phase II ROD (associated with portions of SE OU 8) – deed of correction was completed during the Five Year Review process and was recorded in the Franklin County Courthouse in Chambersburg on April 15, 2008.
- The BRAC Environmental Coordinator (BEC) has been signing annual Land Use Control inspection reports instead of the Letterkenny Army Depot Commander (associated with portions of SE OU 8) – LUCAP MOA amendment is in progress.
- Copies of deeds/leases are not being sent to the required parties as stated in the deed/lease as follows: CERCLA Remediation Section, Paragraph C.2. Deed/Lease: Within 14 days after the effective date of the transaction, GRANTEE, its successors and assigns, will provide to the GRANTOR, EPA, and PADEP, copies of the deed, lease, or other conveying instrument evidencing such transaction.
- A lease from a Cumberland Valley Business Park (CVBP) tenant was reviewed and discovered not to reference the corresponding Phase I Deed, thus confirming that not all leases reference the corresponding Phase I or II deed.
- The LEAD Master Plan does not explicitly restrict land use at SE OU 3A, SE OU 5, SE OU 7, remaining portions of SE OU 8, SE OU 9, SE OU 11, or SE OU 12 to commercial/industrial.

These deficiencies do not currently affect the protectiveness of the remedies under current conditions; however, future protectiveness may be affected if controls are not implemented.

Recommendations and Follow-up Actions:

- An Explanation of Significant Differences (ESD) was completed for SE OU 1 to implement land use controls that will restrict the use of the property and protect cap integrity. A Cap Maintenance Plan was also developed for SE OU 1 to further protect the cap integrity.
- The LUCAP MOA will also be revised to allow the BEC to sign the annual reports. Note: The deed of correction for the Phase II road parcels (SE OU 8) to provide additional legal certainty that the Land Use Restrictions are being fully implemented was completed during the Five Year Review process and was recorded in the Franklin County Courthouse in Chambersburg on April 15, 2008.
- For SE OU 2, the Army needs to prepare a Land Use Controls Design Plan and amendment to LEAD Master Plan for LUCs.
- The Army needs to follow-through with the LUCAP MOA amendment for the signature authority.
- The Army is working with LIDA and CVBP tenants to determine an effective method to make sure that the deeds/leases are sent to the specified parties. In addition, the Army needs to complete the review of leases and revise leases that do not reference the appropriate land use controls in the deed.
- The LEAD Master Plan will be amended to include land use restrictions for SE OUs 3A, 5, 7, 8, 9, 11, and 12.

Protectiveness Statement(s):

The remedies at SE OU 1, SE OU 2, and SE OU 8 are considered short-term protective of human health and the environment. Once the stated deficiencies are addressed, these operable units will be considered protective of human

health and the environment. No Further Action RODs were signed for SE OU 4 and SE OU 13 and are considered protective of human health and the environment. A No Action ROD was signed for SE OU 3B and is considered protective of human health and the environment.

EPA is deferring making a protectiveness statement for SE OU 10 related to potential risks from long-term exposure through the vapor intrusion pathway. Most buildings overlying the shallow groundwater plume have not been evaluated for this pathway. However, the current remedy potentially could reduce the contamination to levels that are acceptable based on risk calculations for commercial/industrial use. The EPA continues to evaluate this potential pathway and the current remedy at SE OU 10 until a determination can be made regarding its effectiveness in reducing the mass of the VOCs in the site groundwater.

The remedies for the following SE OUs have not been selected at this time:

SE OU 3A (Disposal Area VOC-Contaminated Groundwater)

SE OU 5 (Areas A and B Contaminated Soils)

SE OU 6 (VOC-Contaminated Groundwater North of Gate 6 and East of East Patrol Road [Off-Post, Rowe Run Drainage System])

SE OU 7 (Truck Open Storage Area)

SE OU 8 (BRAC Waste Sites) (note: remedies for portions of this OU have been selected)

SE OU 9 (Landfill J)

SE OU 11 (Northern Southeast Industrial Area VOC-Contaminated Groundwater North of Gate 6)

SE OU 12 (Landfill G)

SE OU 14 (Former Test Track Area)

Other Comments:

None

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LIST OF ACRONYMS

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
ARARs	applicable or relevant and appropriate requirements
BCT	BRAC Cleanup Team
BEC	BRAC Environmental Coordinator
BRAC	Base Closure and Realignment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm	centimeters
CVBP	Cumberland Valley Business Park
DA	Disposal Area
DAF	dilution attenuation factor
DCE	1,2-dichloroethene
DLA	Defense Logistics Agency
DNAPL	dense non-aqueous phase liquids
DRMO	Defense Reutilization Marketing Office
dscf	dry standard cubic foot
EE/CA	engineering evaluation/cost analysis
ESD	Explanation of Significant Differences
ESE	Environmental Science and Engineering, Inc.
FCGA	Franklin County General Authority
FFS	Focused Feasibility Study
fixated	exceeded TCLP standards for lead were treated
FOSLs	Findings of Suitability to Lease
FOST	Finding of Suitability to Transfer
ft/day	feet per day
H_2O_2	hydrogen peroxide
HRS	Hazard Ranking Score
IAG	Interagency Agreement
IC	Institutional Control
IWTP	Industrial Wastewater Treatment Plant
IWWS	Industrial Wastewater Storm Sewers
LDR	Land Disposal Restriction
LEAD	Letterkenny Army Depot
LT^3	Low Temperature Thermal Treatment

LUCAP MOA	Land Use Controls Action Plan Memorandum of Agreement
LUCs	Land Use Controls
mph	miles per hour
msl	mean sea level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NSIA	Northern Southeast Industrial Area
OBP	Oil Burn Pit
OU	Operable Unit
OU	Operable Unit
PADEP	Pennsylvania Department of Environmental Protection
PADER	Pennsylvania Department of Environmental Resources
PCBs	polychlorinated biphenyls
PDO	Property Disposal Office
PP	Proposed Plan
ppb	parts per billion
RA	Risk Assessment
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
SE	Southeastern Area
SIA	Southeast Industrial Area
SMSR	Southern Martinsburg Shale Region
SSIA	Southern Southeast Industrial Area
SSL	Soil Screening Level
SVOCs	semivolatile organic compounds
TBC	To Be Considered”
TCA	1,1,1-trichloroethane
TCE	trichloroethene
TCLP	Toxic Characteristic Leaching Procedure
TPH	total petroleum hydrocarbons
U.S. EPA	U.S. Environmental Protection Agency
USAF	U.S. Air Force
VOCs	Volatile organic compounds
WESTON®	Weston Solutions, Inc.

1. INTRODUCTION

The United States (U.S.) Army, with review and input from the U.S. Environmental Protection Agency, Region III (U.S. EPA III) and the Pennsylvania Department of Environmental Protection (PADEP) conducted the first five-year (statutory) review of the remedial actions implemented at the Operable Unit (OU) 1 (K–Areas), Southeastern Area, Letterkenny Army Depot (LEAD), Franklin County, Pennsylvania. The first five-year review was conducted from 31 July 2001 to 31 October 2001, and the results were documented in the five-year report submitted in October 2001. The first 5-year review was signed by the Army on 25 October 2001 (LEAD, 2001) and EPA concurred on 06 November 2001 (EPA Region III, 2001) (USACE, 2001 LKD.RT-198). Therefore, both the final report date and the trigger date for the second five-year review is 06 November 2001. The purpose of this report is to present results of the second five-year review, which was conducted between 1 September 2006 and August 2007.

The purpose of five-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports. In addition, five-year review reports identify deficiencies found during the review, if any, and recommendations to address them. The lead agency (U.S. Army) must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA 121(c), as amended states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.*

The NCP part 300.430(f)(4)(ii) of the Code of Federal Regulations (CFR) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

In addition, if after such review it is the judgment of the President that action is appropriate at such site in accordance with CERCLA §104 or §106, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

Currently, there are fifteen (15) OUs established for the Southeastern Area (SE) Area NPL Site. At the time of the first five-year review, there were only 12 OUs (1 through 12). In 2002, SE OU 3 was divided into two OUs (SE OU 3A and SE OU 3B) so that the area upgradient of the VOC-contaminated groundwater from the Disposal Area source could be managed separately as SE

OU 3B. SE OU 13 and SE OU 14 have also been added. SE OU 13 encompasses the Southern Martinsburg Shale Region (SMSR), a region at LEAD that contains an area of shale bedrock surrounded by downgradient limestone bedrock. SE OU 13 was originally part of SE OU 10 and SE OU 11, but became a separate OU based on the results of groundwater sampling conducted from 1999 through 2002, which showed no VOC-contaminated groundwater. SE OU 14 was created in 2007 to track sites in Army-retained land that were formerly administered under the BRAC program and are now in the ER,A program as a result of the revised BRAC boundary. The trigger for the first five-year review was the remedial action start date for the SE OU 1 (K-Areas), as shown in U.S. EPA's CERCLIS3/WasteLAN database: 11 August 1993. In addition, this (second) review, and subsequent reviews are also triggered by other operable units for which there is a final remedial action in-place (not including No Action or No Further Action Records of Decision [RODs]). This includes portions of SE OU 8 (BRAC Phase I and Phase II property transfers completed in November 1998 and May 2002), SE OU 2 (Industrial Waste Water Sewer System, ROD signed in September 2006), and SE OU 10 (SSIA VOC-Contaminated groundwater south of gate 6 [Conococheague Drainage System], ROD signed in September 2006). Since all the OUs are contained in one 5-year review report, the actual trigger date for subsequent the second five-year review is 06 November 2001. Specifically, this five-year review is being activated by the continuing presence of contaminants at the site above levels that allow for unlimited and unrestricted use. In addition, this five-year review discusses the status of the remaining thirteen OUs.

The following subsections provide a brief discussion and current status of each OU. Documents that are referenced in this 5-Year Review and have a LEAD Administrative number (e.g., LKD.RT-001) associated with them can be viewed by clicking the following link http://209.235.100.233/letterkennylibrary/Lib/docindex.htm. This link will direct your web browser to LEAD's BRAC/Restoration Administrative Record.

1.1 SE OU 1—K-AREAS

The K-Areas were used for the disposal of waste solvents used in painting, paint stripping, and degreasing operations at LEAD. The K-1 Area was in use from 1957 to 1970. The K-2 area was in use from 1965 to 1970 and included five partially revetted areas used to accumulate solid waste prior to disposal into a nearby landfill. The K-3 area was in use as a drum storage area from 1965 to 1970.

An Initial Installation Assessment of LEAD was performed in 1978 and the Discovery Phase was initiated in January 1979. In 1983, Roy F. Weston, Inc. (WESTON®) completed an investigation of the Disposal Area (DA), which included areas K-1, K-2, and K-3. This investigation revealed the presence of volatile organic compounds (VOCs), including TCE, 1,2-dichloroethene (DCE), and 1,1,2,2-tetrachloroethane at elevated concentrations in K Areas. In 1992, Environmental Science and Engineering, Inc. (ESE) conducted a soil boring program to delineate the boundaries of the K Areas. This effort discovered that the K Areas contained higher levels of VOCs than originally thought. Polychlorinated biphenyls (PCBs), metals, and semivolatile organic compounds (SVOCs) were also discovered.

The Record of Decision (ROD) (LEAD, 1991 LKD.RT-061) and an Explanation of Significant Differences (ESD) for SE OU 1 were issued in 1991. The ESD was for clarification of applicable or relevant and appropriate requirements (ARARs). Based on the remedy selected in the ROD, a remedial action was initiated at SE OU 1 in 1993 and was completed in September 1995. Per the Cap Inspection Standard Operating Procedure, yearly inspections of the K-1, 2, & 3 capped areas are required (and corrective actions if necessary) to maintain protectiveness of human health and the environment.

SE OU 1 soils were treated from July 1993 to December 1994. Contaminated soil was excavated to bedrock and to the defined horizontal limits, except at area K2 where just the upper 3 feet of soil was removed, treated with LT^3, and fixated as necessary. The soil was sampled to confirm it met both the TCE remediation criteria and the Toxicity Characteristic Leaching Procedure (TCLP) requirements for metals. All soil (including fixated material) was placed back in the original excavations upon successful treatment. A residual waste cap was installed over the treated soil areas in October 1995. The *Technology Remedial Action Report*, which documents the remedial actions conducted at the K Areas, was finalized in August 1997 (McLaren Hart, 1997).

Following the remedial action, a second ESD was issued in 2005. This ESD provided for land use controls and a Cap Inspection Plan to protect the integrity of the cap. An inspection of the cap conducted in August 2007 indicated that the vegetative cover, drainage system, and liner were intact.

1.2 SE OU 2—INDUSTRIAL WASTEWATER SEWER SYSTEM

Problems with the Industrial Wastewater Sewers (IWWS) were first identified in the 1993 Remedial Investigation (RI) Report for the Southeastern Area (ESE, 1993 LKD.RT-086). Studies of the IWWS lines showed that numerous breaks and/or leaks existed in both the IWWS and Stormwater Sewer Lines. Leak testing and sampling indicated that VOCs had leaked from the IWWS and migrated to the soil/bedrock interface. Emergency repairs were made to the IWWS beginning in October 1994 and completed in December 1995. An engineering evaluation/cost analysis (EE/CA) was prepared by LEAD to address the removal of contaminated soils associated with the leaking IWWS lines (Fluor Daniel, 1996 LKD.RT-119). LEAD conducted an emergency removal action of the IWWS-contaminated soils in summer 1997. A Proposed Plan for SE OU 2 was finalized in May 2005 (Shaw, 2005a LKD.RT-290) and a final ROD was completed in August 2006 (signed in September 2006) (Shaw, 2006a). The selected remedy for SE OU 2 was cleaning followed by abandonment of the sewer and drain lines at Buildings 37 and 57 to prevent future use of the existing sewers. The risk assessment showed that there are acceptable risks for industrial/commercial use; therefore, the remedy included land use controls to prevent the use of the property for residential housing, elementary and secondary schools, child care facilities, and playgrounds. The remedial action was completed in spring 2006. Currently, the wastewater from Building 37 is pumped into aboveground storage tanks then transported for treatment to the IWTP at LEAD because it does not meet the newly established LIDA pre-treatment standards for discharge into the LIDA-owned sanitary sewer system.

Wastewater from Building 57 continues to be discharged to the LIDA-owned sanitary sewer system. The Army is currently considering whether to continue the wastewater transport to the IWTP or to install a replacement force main (in the vicinity of the abandoned force main) to direct flow from both buildings to the IWTP.

1.3 SE OU 3A—DISPOSAL AREA VOC-CONTAMINATED GROUNDWATER

SE OU 3A is associated with on-post groundwater contamination in the DA. Figure 4 is a map showing the locations of the groundwater OUs at LEAD. The K Areas and Area A Spill Area were the source of groundwater contamination consisting primarily of chlorinated solvents that are present at SE OU 3A. Although the primary sources of contamination have been addressed, VOCs are still being detected; most likely due to the presence of contaminated subsurface soils and VOC contamination within the bedrock matrix, which is continuing to act as a secondary source.

Several pilot studies and site investigations have been conducted at the site, including: A recirculation well Pilot Study, an In-situ H_2O_2 Pilot Study (April 2000), and additional investigations to verify the vertical extent of groundwater contamination as requested by EPA (2005 to 2006). The results of the additional investigations will be reported in focused feasibility study (FFS). Additionally, a vapor intrusion pilot study was conducted from July 2004 to January 2006, and a draft report was submitted to EPA and PADEP in May 2006 (WESTON, 2006a). The FFS Draft Report is expected to be produced in 2008. A remedy will be selected based on the completion of the feasibility study and documented in a ROD.

1.4 SE OU 3B—AREA UPGRADIENT OF VOC-CONTAMINATED SOURCE IN SE OU 3A

SE OU 3B addresses the area upgradient of the VOC-contaminated groundwater from the DA source. Groundwater sampling was initiated in August 2003 and a final SI Report was completed in May 2005 (WESTON, 2005a LKD.RT-265). A Proposed Plan was issued for public review in May 2005 (WESTON, 2005b LKD.RT-267). A No Action ROD (WESTON, 2006b LKD.RT-275) and a FOST (WESTON, 2006c LKD.RT-279) were completed and signed in June 2006. The ROD specifies no action for SE OU 3B groundwater and for soil associated with four parcels that consist of a portion of SE OU 8; two of these parcels are to be transferred as part of the Phase IV BRAC property transfer.

1.5 SE OU 4—STORMWATER SEWER LINES AND ASSOCIATED DRAINAGEWAYS

SE OU 4, which is located in both the BRAC and ER,A portions of LEAD, consists of the stormwater sewer system lines, associated sediments, and drainageways. Prior to installation and connection to the IWTP, industrial wastewaters from the SE Area at LEAD were discharged, untreated, to the Depot stormwater sewer system. Wastewater generated south of Gate 6 was run

through oil/water separators then to the stormwater sewers. The Southern portion of the depot was connected to the IWTP system in the 1970's. Per an EE/CA, contaminated sediments were removed and filling of associated sinkholes was completed by the spring of 1997. A total of 1,037 tons of contaminated sediment was removed from the Southeast Drainageway and the Rowe Run Drainageway and disposed of as residual waste.

A final ROD (Shaw, 2005b LKD.RT-270) was completed in July 2005 (signed August 2005). The selected remedy was No Further Action.

1.6 SE OU 5—AREA A AND B CONTAMINATED SOILS

SE OU 5 is located in the ER,A portion of LEAD. Areas A and B were initially investigated in the 1980s. Contamination detected in Areas A and B is attributed to the K Areas and the Spill Area in Area A. Contaminants detected in Area A consisted primarily of total petroleum hydrocarbons (TPH) and metals, with a small amount of VOCs. The most recent rounds of sampling to delineate the extent of contamination were completed in July 1995, when a localized spill area of elevated VOC concentrations was identified. An EE/CA was prepared and an emergency removal action was conducted in summer 1997 to excavate and dispose of the VOC-contaminated soil in the Spill Area of Area A (Fluor Daniel, 1997 LKD.RT-129). The remainder of Area A was evaluated as part of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) RI process. A Final RI/RA for both Area A and Area B was completed in October 2004 (IT, 2004b LKD.RT-259), which also documented the post-removal action conditions for the Spill Area of Area A. An FS will be prepared based on the findings and conclusions in the RI/RA.

Area B was a former oil burning pit (OBP). The soil in this area was found to contain TPH, metals, and a small amount of VOCs; groundwater was also found to contain VOCs. Area B was further evaluated as part of the CERCLA RI process. A Final RI/RA was completed in October 2004 (IT, 2004b LKD.RT-259), published separately as an RI and an RA. A worm study was conducted in accordance with comments from EPA Biological Technical Assistance Group (BTAG), and as a result, a draft addendum to the ecological RA was submitted in September 2006. The RA addendum is currently being revised to address EPA comments. An FS will be prepared following resolution of EPA comments on the ecological RA.

1.7 SE OU 6—VOC-CONTAMINATED GROUNDWATER NORTH OF GATE 6 AND EAST OF EAST PATROL ROAD (ROWE RUN DRAINAGE SYSTEM)

SE OU 6 includes the discharge points of 6 VOC-impacted off-post springs and off-post VOC-contaminated groundwater associated with SE OU 3A and SE OU 11, including residential drinking water wells. A final dye study, which included the placement of dye in monitor wells located near LEAD's property line and in Rowe Run (boundary trace), was initiated in September 1995 and completed in December 1995.

In addition to the springs, off-post wells were also evaluated as part of SE OU 6. Approximately 50 wells were sampled and results were analyzed for VOC and metals concentrations during a period of 2 years. The results from this sampling indicated no additional VOC-contaminated off-post wells other than those previously identified.

A third study area of the off-post groundwater impacts was an evaluation of farm animals and farm animal products located on farms near the SE Area. Samples of eggs, milk, and meat were collected from numerous farms. Results from this sampling did not indicate the presence of VOCs or metals in the various media at concentrations above literature values or regional background levels.

The following is a chronology of recent activity at SE OU 6:

- July 2002—A draft RI/RA Report for SE OU 6 was submitted.
- November 2004—A final RI was submitted in November 2004 (Shaw, 2004b LKD.RT-296).
- 2005 to 2006—Additional investigations conducted to verify the vertical extent of groundwater contamination, as requested by EPA.
- July 2004 to January 2006—A vapor intrusion pilot study was conducted and a draft summary report was submitted to EPA and PADEP in May 2006 (WESTON, 2006). EPA comments were received in August 2006.
- July 2006—A final RA was submitted in July 2006 (Shaw, 2006c).
- June 2007—Work Plan for the Evaluation of the Vapor Intrusion Pathway at SE OUs 6 and 11 finalized (WESTON, 2007a LKD.RT-297).

1.8 SE OU 7—TRUCK OPEN STORAGE AREA

Sampling of SE OU 7 was initially conducted in summer 1994. This area consisted of an open storage area for trucks and an abandoned septic system used as an oil/water separator (see Figure 3). Analytical results from this sampling have shown no significant soil contamination present at SE OU 7. The detected groundwater contamination is attributable to SE OU 10, and not SE OU 7. During the investigation of SE OU 7, an abandoned septic system was found. The abandoned septic system was used as an oil/water separator for disposal of “boiler slops” and sanitary sewage from LEAD holding tanks. A removal action was conducted in spring 1997, which consisted of characterization, solidification and removal of the tank contents, backfilling of the tank, and restoration of the site.

A supplemental investigation was conducted in 1999 for the presence of polychlorinated dibenzo-p-dioxins and dibenzofurans (dioxins/furans), and polychlorinated biphenyls (PCBs). The results of the investigation were published in July 2000 (WESTON, 2000d LKD.RT-177) and showed that the presence of dioxins/furans in burned material was at concentrations greater

than the published (EPA Region III) industrial direct contact human health level. A time-critical removal action was completed in this area in December 2000.

A draft Current Conditions Human Health SLRA and SLERA was submitted for the TOSA/WOS site (WESTON, 2007b), which was submitted in August 2007. Regulatory review was completed in November 2007. It is expected that the site will be evaluated as protective of human health and the environment for the future intended commercial/industrial use. Both SE OU 7 and remaining sites in SE OU 8 will be included in the Phase V BRAC property transfer, which will take place following the completion of the FS, PP, ROD, and FOST for the Phase V BRAC Parcels.

1.9 SE OU 8—BRAC WASTE SITES

SE OU 8 is composed of potential waste sites identified in the to-be-excessed portion of the SE Area. SE OU 8 is being investigated under the BRAC investigation program. The locations of the SE OU 8 sites are shown in Figure 5. Additional information is provided in Section 3.

Property transfers under BRAC are being performed in phases. There are three phases of property transfer completed to date: Phase I (November 1998), Phase II (May 2002), and Phase III (January 2004). The most recent ROD was signed in August 2006 for the Phase IV BRAC Property transfer (WESTON, 2006b LKD.RT-275). A summary of the status of the phases of BRAC property transfers within the SE OU 8 area is provided in Section 3.

The BRAC boundary was revised in 2007 as a result of an agreement between LIDA and the LEAD, as sanctioned by the deputy assistant Secretary of the Army, to allow the depot to retain 225 acres of land adjoining the facility. As a result of the revised BRAC boundary, some of the sites that were administered under SE OU 8 are now administered under a new operable unit, SE OU 14, because they are to remain located in Army-retained land.

An FS is currently being prepared for the Phase V BRAC Parcels, which include 19 SE OU 8 BRAC waste sites and SE OU 7, the TOSA/WOS site. Once finalized, the Army will move toward completing the PP, ROD, and FOST for the Phase V BRAC property.

1.10 SE OU 9—LANDFILL J

SE OU 9 consists of a landfill (Landfill J) located west of Building 320. The location of Landfill J was discovered in 1995 while trenching for utilities (see Figure 3). The extent of the landfill was determined using geophysical techniques and trenching. The characteristics of the soils and groundwater were evaluated through several sampling efforts. An emergency removal action was conducted in June 2001 and a draft Removal Action Completion Report, which included the RI/RA data, was prepared in June 2002. A finalized Removal Action Summary was completed in October 2004 (Shaw, 2004c LKD.RT-261). A draft FS was completed in May 2005 (Shaw, 2005c) and is being revised to address regulatory review comments.

1.11 SE OU 10—SSIA VOC-CONTAMINATED GROUNDWATER SOUTH OF GATE 6 (CONOCOCHEAGUE DRAINAGE SYSTEM)

SE OU 10 consists of contaminated groundwater south of Gate 6. SE OU 10 was created when SE OU 3 was divided at the groundwater/surface water divide near Gate 6 (see Figure 4). The sources of the groundwater contamination for SE OU 10 are the formerly leaking IWWS lines in the vicinity of Building 37 (VOC-contaminants) and a release from a diesel tank fuel line in the vicinity of Building 37. Extensive work has been completed in the Building 37 area to design technically sound and cost-effective techniques to mitigate the contaminated on-site groundwater. An extended pilot study for enhanced bioremediation techniques to treat the groundwater, is currently underway at Building 37. The FFS Final Report was issued in September 2003 (WESTON, 2003g LKD.RT-237). A final Proposed Plan was completed in February 2005 (WESTON, 2005c LKD.RT-264), and a ROD was completed in March 2006 (WESTON, 2006d LKD.RT-274). The selected remedy for SE OU 10 was Enhanced Biodegradation with Monitored Natural Attenuation and Land Use Controls (to prevent contact with contaminated groundwater until the time the groundwater is safe for use). A final Remedial Action Work Plan was completed in April 2007 (WESTON, 2007c LKD.RT-294). The final sodium lactate injection for the selected remedy was completed at SE OU 10 in June 2007. A long-term groundwater monitoring program has been implemented for SE OU 10 and the most recent sampling event was conducted in August 2007.

1.12 SE OU 11—NSIA VOC-CONTAMINATED GROUNDWATER NORTH OF GATE 6

SE OU 11 consists of the VOC-contaminated groundwater associated with the IWTP lagoons and IWWS gravity lines. The groundwater discharges off-post (see SE OU 6). A pilot study was initiated in September 2001 to evaluate the feasibility of treating dense, non-aqueous phase liquids (DNAPL) sources and reducing off-site contaminant migration concentrations at the property line. This study was completed by January 2003. Additional investigations to verify the vertical extent of groundwater contamination, as requested by EPA, were conducted from 2005 to 2006. The results of the additional investigations will be reported in focused feasibility study (FFS).

A vapor intrusion pilot study was conducted from July 2004 to January 2006, and a draft report was submitted to EPA and PADEP in May 2006 (WESTON, 2006a). In order to address residual groundwater contamination associated with SE OUs 6 and 11 at LEAD, a final Work Plan for the Evaluation of the Vapor Intrusion Pathway at SE OUs 6 and 11 was submitted in June 2007 (WESTON, 2007a). Vapor intrusion sampling will be conducted in the winter of 2007 and in the spring/early summer of 2008 on-post at SE OU 11 and off-post (SE OU 6) in the Rowe Run Valley. The FFS Draft Report is expected to be produced in 2007. A remedy will be selected based on the completion of the feasibility study and documented in a ROD.

1.13 SE OU 12—LANDFILL G

The LEAD Installation Assessment (IA) identified this area as active from 1964 through 1978, when it was leveled to match the existing terrain. The area was used to dispose of residue from nearby trash revetments and IWTP sludge. Visibly contaminated leachate (metals) was reported to emanate from this site into a nearby drainage ditch. A 1991 SI identified several magnetic anomalies, which were cross trenched in 1993. All of the anomalies were related to buried metallic objects. This area contained empty buried drums that formerly contained caustics. Sampling indicated that these buried drums had caused no environmental problems. Another anomaly showed a large number of solvent containers, which were drummed and disposed of in this area. This site consists of contaminated soil, groundwater, and surface water. The 1995 SI follow-on identified this site as requiring an RI. A Work Plan for the RI was finalized in June 2006 (Shaw, 2006b LKD.RT-277).

The RI field work was completed in July 2006. The test trenching conducted during the first round of the RI showed that primarily municipal-type waste is present in the landfill. The analytical results for the RI indicated that additional test trenching, soil sampling, and analysis needed to be conducted to further assess elevated levels of PCBs. The additional site investigation work was conducted in July 2007. Containers of black tar-like substance, thought to be discarded adhesive material, were encountered during the second round of the RI. The material had a petroleum-like odor. The size of the area where the containers were found is approximately 10 ft by 15 ft and 6 ft deep. The containers were encountered at about 4 ft below ground surface and the depth of the affected area did not extend beyond 6 ft deep. The preliminary analytical results show that contaminants of potential concern are benzene, lead, zinc and 2-methylphenol. A removal action, performed in January 2008, consisted of the removal of containers and associated waste along with affected soils. A final fieldwork report will be submitted by Shaw Environmental after the second round of sampling is completed.

1.14 SE OU 13—SOUTHERN MARTINSBURG SHALE REGION GROUNDWATER

SE OU 13 encompasses BRAC property. The SMSR is a region at LEAD that contains an area of shale bedrock surrounded by downgradient limestone bedrock. This shale bedrock is generally more resistant to weathering than the surrounding limestone formations and therefore, forms the “highland” or elevated ridge areas in the area of the Phase III parcels. Several groundwater/surface water divides along this ridge in the SMSR cause groundwater to flow radially away from the SMSR.

The SMSR was originally considered to be part of VOC-contaminated groundwater SE OU 10 and SE OU 11. Based on its geologic and topographic setting, it was thought that the SMSR could be unaffected by the known and potential VOC sources located downgradient of the SMSR because groundwater flows from the SMSR into the lower lying valley areas underlain by limestone. Therefore, a groundwater investigation was initiated in 1999 to establish that the SMSR was not impacted by any previous industrial activities at Letterkenny. The results of four rounds of groundwater sampling, conducted in late 1999 through 2000 and in 2002, showed no

VOC groundwater contamination in the SMSR. Based on this finding, the SMSR was redefined as SE OU 13, and was included in the No Further Action ROD for the Phase III Parcels in August 2003 (WESTON, 2003e LKD-RT-239). SE OU 13 was part of the Phase III BRAC property transfer completed in January 2004.

1.15 SE OU 14—FORMER TEST TRACK AREA

SE OU 14 was created in 2007 to track sites in Army-retained land that were formerly administered under the BRAC program and are now in the ERA program as a result of the revised BRAC boundary. SE OU 14 consists of the Former Test Track in the Disposal Area and Areas E and F (AEDBR Sites LEAD-114, 033, and 049), and the Building 349 Soil Staging Area (AEDBR Site LEAD-114). The RI/RA for the Former Test Track and Areas E and F was finalized in 2004 (WESTON, 2004 LKD.RT-251); this RI/RA showed that risks are within acceptable levels for commercial/industrial use.

2. SITE CHRONOLOGY

Table 1 lists the chronology of events for the Southeastern Area site.

Table 1

Chronology of Site Events

Event	Date
Initial Discovery	1978
Pre-NPL Responses	RI/FS Completed 1983, LKD.RT-086
NPL Listing	22 July 1987
Federal Interagency Agreement	3 February 1989, LKD.RT-026
RI/FSs Complete	June 1993 (RI, SE OU 1 and SE OU 3 RI), LKD.RT-086 July 1994 (FS, SE OU 1 and SE OU 3 RI, FS), LKD.RT-95 July 1994 (RA, SE OU 1 and SE OU 3 RI, FS), LKD.RT-96 April 1998 (Phases I and II BRAC, which are portions of SE OU 8) September 1998 (SE OU 2 RI), LKD.RT-220 June 2002 (SE OU 2 RA), LKD.RT-246 2003 (Phase III BRAC, which consists of SE OU 13 and portions of SE OU 8) September 2003 (SE OU 4, Removal Action Completion Report, RI/RA), LKD.RT-241 November 2004 (SE OU 2 FS), LKD.RT-258 November 2004 (SE OU 6 RI), LKD.RT-296 May 2005 (Phase IV BRAC, SE OU 3B SI and SE OU 8 FVSA), LKD.RT-265 and -269 (latest dates shown) May 2005 (SE OU 10 FFS) LKD.RT-266a July 2006 (SE OU 6 RA), LKD.RT-298
Record of Decision (ROD) Signature	2 August 1991 (K Areas, SE OU 1), LKD.RT-061

Event	Date
Record of Decision (ROD) Signature (cont'd)	September 1998 (Phase I BRAC, BRAC Waste Sites, part of SE OU 8), LKD.RT-147 July 2001 Phase II BRAC, BRAC Waste Sites, part of SE OU 8), LKD.RT-190 August 2003, Phase III BRAC (Southern Martinsburg Shale Region [SMSR] groundwater, SE OU 13, and BRAC Waste Sites, part of SE OU 8) – No Action ROD, LKD.RT-239 August 2005 SE OU 4 (Stormwater Sewer Lines and Associated Drainageways) – No Further Action ROD LKD.RT-270 July 2006 Phase IV BRAC, BRAC Waste Sites, part of SE OU 8 soils and SE OU 3B (Area Upgradient of VOC-Contamination Source in SE OU 3A groundwater) – No Action ROD, LKD.RT-275 March 2006 (cover date) August 2006 (signed Army), September 2006 (signed EPA), SE OU 10 SE OU 10 (SSIA VOC-Contaminated Groundwater South of Gate 6, Conococheague Drainage System), LKD.RT-274 August 2006 (finalized) and September 2006 (signed), SE OU 2 (Industrial Wastewater Sewer System) LKD.RT-284
Explanation of Significant Differences (ESD)	2 August 1991 (K Areas, SE OU 1), LKD.RT-061 April 2004 (SE OU 1, K-Areas) (number two, for land use controls), LKD.RT-245
Remedial Design Start	25 September 1991 (K Areas, SE OU 1)
Remedial Design Complete	14 June 1993 (K-Areas, SE OU 1) August 2002, Land Use Control Action Plan Memorandum of Agreement (LUCAP MOA), signed by BRAC Cleanup Team (BRAC Waste Sites, part of SE OU 8) January 2004, SE OU 1 (K-Areas) Cap Maintenance Plan April 2007, Final Remedial Action Work Plan for SE OU 10 (including Land Use Controls design) SE OU 10 (SSIA VOC-Contaminated Groundwater South of Gate 6, Conococheague Drainage System, LKD.RT-294
Remedial Action Start	11 August 1993 (K-Areas, SE OU 1)

Event	Date
Remedial Action Start (cont'd)	November 1998, Phase I BRAC Property Transfer and Implementation of Post-Land Transfer Land Use Controls (BRAC Waste Sites, part of SE OU 8) May 2002, Phase II BRAC Property Transfer and Implementation of Post-Land Transfer Land Use Controls (BRAC Waste Sites, part of SE OU 8) June 2007, SE OU 10 (SSIA VOC-Contaminated Groundwater South of Gate 6, Conococheague Drainage System)
Remedial Action Complete	30 September 1995 (K-Areas, SE OU 1) Fall 2004 through Spring 2006 (Industrial Wastewater Sewers, abandon sewers part of SE OU 2 remedy) Ongoing for other OUs Note: No Action RODs for SE OU 3B, and portions of SE OU 8 (Phase III and IV BRAC). No further Action RODs for SE OU 4 and 13.
Removal Actions	1994-1995 (IWWS Emergency Repairs, SE OU 2) August 1996 (SE OU 2, SE OU 4) March 1997 (SE OU 5, SE OU 7) December 2000 (SE OU 7) July- November 2000 (SE OU 8, OVSA soils) July 2001 (SE OU 9)

3. SITE BACKGROUND

LEAD is located on the Western side of the Cumberland Valley, in the central part of Franklin County, 5 miles North of Chambersburg, PA (Figure 1). The Depot fronts on Pennsylvania State Highway 997. Based on the 2000 Census, Chambersburg is the largest town in Franklin County, and is the county seat, with 17,862 inhabitants. Surrounding population centers with populations greater than 9,000 include Greene Township (12,284), Guilford Township (13,100), Waynesboro (9,614), and Antrim Township (12,504). LEAD is located within the boundaries of three townships: Greene, Letterkenny, and Hamilton.

Prior to the establishment of LEAD, the area consisted of agricultural and forest lands. The area was predominantly single-family farms used for both subsistence and commercial purposes.

The Letterkenny Ordnance Depot was established in January 1942 as an ammunition storage facility. In subsequent years, the following missions were added:

- Reserve storage and export, advance storage of parts, tools, supplies, and equipment for combat vehicles, artillery, small munitions, and vehicle fire control equipment (1943).
- Receipt and storage of hardware, heavy-duty trucks, and parts (1944).
- Establishment of transport and combat vehicle shops and expansion of the maintenance program (1947).
- Establishment of a rebuild system for guided missile ground control, launching, and handling equipment; missile propellant systems; and internal guidance systems (1954).
- Assignment of the special weapons mission (1958).
- Designation of the Depot as the Eastern Equipment Assembly Area (1959). This mission gave the Depot responsibility for the handling and shipment of equipment for guided missile and special weapons units to overseas locations.
- Acceptance and destruction of U.S. Air Force (USAF) missile fuel (1961).
- Letterkenny Ordnance Depot was renamed the Letterkenny Army Depot (1962).
- Disposal of explosive ordnance from the Army as well as from state and local police (1964).
- Rebuilding artillery recoil mechanisms and maintenance and storage of USAF missiles (1966).
- Receipt, storage, and dispersal of batteries and tires to Army units (1972).

- Operation of a washout facility to reclaim explosives from munitions (1973).

Current and past operations conducted at LEAD involved cleaning, stripping, plating, lubrication, demolition, chemical/petroleum transfer/storage, and washout/deactivation of ammunition. Most of the above missions/activities were accomplished using petroleum hydrocarbons and various chlorinated solvents including trichloroethene (TCE) and 1,1,1-trichloroethane (1,1,1-TCA).

During the 1970s and 1980s, LEAD undertook several construction and modernization projects. New facilities, including a Care and Preservation Building, chrome plating facility, and radiographic inspection facility, were constructed. Several large modernization projects were completed, including the Automated Storage and Retrieval System-Plus, which provides state-of-the-art support to maintenance operations. During the cold war years, new missions in the maintenance of weapon systems–particularly Hawk, Patriot, and Paladin –were added. Most recently, LEAD has expanded its product line to include the overhaul of tactical wheeled vehicles, material handling equipment (cranes), and mobile kitchen trailers. In addition, as the Center for Industrial and Technical Excellence for Mobile Electric Power Systems LEAD repairs and remanufactures power generation sets. LEAD has also expanded its capabilities to include aviation ground power units. Other vital Defense Department products LEAD supports include the Force Provider (the Army's mobile, fully-enclosed base camp/buildings that supply food, dining, heating/cooling systems, etc.), mobile power generators, and the Biological Integrated Detection System (BIDS).

As a result of the 1995 Base Realignment and Closure (BRAC) Commission's recommendation, LEAD's mission was to be realigned by transferring the towed and self-propelled howitzer mission to Anniston Army Depot and by transitioning missile guidance and control to Tobyhanna Army Depot. As a result of this realignment, property at LEAD will be excessed (turned over to the local community for reuse).

In July 1987, the Southeastern Area (SE) of LEAD was listed on the NPL with a Hazard Ranking Score (HRS) of 34.21. On March 1989, the Property Disposal Office (PDO) Area of LEAD was placed on the National Priorities List (NPL); the HRS Score was 37.51. The locations of the SE and PDO Areas at LEAD are shown in Figure 2. Major Tenant activity on Depot includes the Defense Reutilization Marketing Office (DRMO) and the Defense Logistics Agency (DLA).

On 3 February 1989, a Federal Facility Interagency Agreement (IAG), was signed by the U.S. Army, EPA, and Pennsylvania Department of Environmental Resources (PADER) [pertaining to RCRA and Clean Streams Law issues]. The IAG established the framework for the CERCLA response actions at LEAD and required the review of all documents concerning the investigation of environmental contamination at LEAD produced prior to the IAG. PADER has since changed its name to the Pennsylvania Department of Environmental Protection (PADEP).

3.1 DESCRIPTION OF THE SOUTHEASTERN AREA OPERABLE UNITS

The locations of the OUs in the SE Area are provided in Figures 3, 4, and 5. At the time the K Area Record of Decision (ROD) was signed in 1991 (LEAD, 1991), the following three Operable Units (OUs) were identified:

- SE OU 1—K Areas
- SE OU 2—Industrial Wastewater Sewer System
- SE OU 3—Disposal Area VOC-Contaminated Groundwater

In 2002, SE OU 3 was divided into two OUs (SE OU 3A and SE OU 3B) to facilitate the BRAC transfer and to allow management of the area upgradient of the VOC-contaminated groundwater from the Disposal Area source separately as SE OU 3B. The designations of the new OUs are as follows:

- SE OU 3A— Disposal Area VOC-Contaminated Groundwater
- *SE OU 3B— Area Upgradient of VOC-Contamination Source in SE OU 3A

Additional OUs were designated based on the results of the former SE OU 3 Remedial Investigation (RI) Report (ESE 1993). The four additional OUs created within the SE Area included:

- SE OU 4— Stormwater Sewer Lines and Associated Drainageways
- SE OU 5— Area A and B Contaminated Soils
- SE OU 6— Off-Post VOC-Contaminated Groundwater North of Gate 6 and East of East Patrol Road [Rowe Run Drainage System]
- SE OU 7— Truck Open Storage Area

SE OU 6 originally included all off-post SE Area VOC-contaminated groundwater; however, in 2002 the portion of this OU associated with SE OU 10 (south of the groundwater divide in the vicinity of the old Gate 6) was moved to SE OU 10 in 2002 to facilitate the BRAC transfer and so that SE OU 6 is now associated only with the Rowe Run drainage.

To support the 1995 Base Closure and Realignment (BRAC) decision to realign the LEAD mission, SE OU 8 was created to deal with all waste sites within the BRAC property boundary.

- SE OU 8— BRAC Waste Sites

In February 1999, two additional OUs were created

- SE OU 9— Landfill J
- SE OU 10— Southern Southeast Industrial Area (SSIA) VOC-Contaminated Groundwater South of Gate 6 (Conococheague Drainage System)

SE OU 10 was originally part of SE OU 3 but was separated from SE OU 3 since there is a different source of contamination and due to the presence of a groundwater divide between the two areas.

In 2001, two additional OUs were created:

- SE OU 11— Northern Southeast Industrial Area (NSIA) VOC-Contaminated Groundwater North of Gate 6

*Denotes that the OU is covered under BRAC.

- SE OU 12— Landfill G

SE OU 11 was originally part of SE OU 3 and was separated from SE OU 3 since there is a different source of contamination.

- *SE OU 13—Southern Martinsburg Shale Region

In 2002, SE OU 13 was added so that the Southern Martinsburg Shale Region (SMSR) could be managed separately (originally, this was a part of SE OU 10 and SE OU 11) to facilitate the BRAC transfer.

- SE OU 14— Former Test Track Area

SE OU 14 was created in 2007 to track sites that were formerly BRAC sites and are now Army-retained land.

3.1.1 SE OU 1—K Areas

The K Areas were used for the disposal of waste generated from LEAD activities. The locations of the K Areas are shown in Figure 3. The K-1 area (or K-1 Lagoon) was used to dispose of waste solvents used in painting, paint stripping, and degreasing operations at LEAD. The K-1 Area was in use from 1957 to 1970. Its dimensions were approximately 200 ft by 50 ft. The area of VOC impacted soil was approximately 78 ft by 189 ft.

The K-2 area was in use from 1965 to 1970 and included five partially revetted areas used to accumulate solid waste prior to disposal into a nearby landfill. Its dimensions are approximately 270 ft by 75 ft. It appears that when the K-1 lagoon was closed some soil from K-1 ended up at K-2. The area impacted at K-2 was a 60-ft by 20-ft area approximately 10 ft deep.

The K-3 area was in use as a drum storage area from 1965 to 1970 and covered an overall area of approximately 100 ft by 40 ft. Based on available soil analytical data, the actual contaminated area was limited to a 50-ft by 50-ft area.

An Initial Installation Assessment of LEAD was performed in 1978 and the Discovery Phase was initiated in January 1979. This study concluded that toxic materials associated with the industrial activities at LEAD, along with uncertain past disposal practices, and the nature of the hydrogeologic regime offered significant potential for contamination by chlorinated hydrocarbons and contaminant migration. The Disposal Area (DA) where the K Areas were located was identified as a potential VOC-contamination source.

* Denotes that the OU is covered under BRAC.

In 1983, Roy F. Weston, Inc. (WESTON®) completed an investigation of the DA. As part of this effort, trenching and soil boring investigations were conducted at K-1, K-2, and K-3. This investigation revealed the presence of volatile organic compounds (VOCs) including TCE, 1,2-dichloroethene (DCE), and 1,1,2,2-tetrachloroethane in elevated concentrations in the K Areas.

In 1989, WESTON performed a comprehensive soil gas investigation in the DA. The results of the soil gas survey identified that high levels of VOCs existed in the vadose zone soils of the K Areas.

A ROD for SE OU 1 was finalized and signed in 1991 (LEAD, 1991). An Explanation of Significant Differences (ESD) for SE OU 1 was also issued in 1991; the ESD was for clarification of applicable or relevant and appropriate requirements (ARARs). The ROD indicated the selection of low-temperature thermal treatment (LT^3) as an accelerated remedial action for soil contamination at SE OU 1. In 1992, Environmental Science and Engineering, Inc. (ESE) conducted a soil boring program to delineate the boundaries of the K Areas. This effort discovered that soil in the K Areas contained higher levels of VOCs and lead than originally thought. Polychlorinated biphenyls (PCBs), metals, including lead, and semivolatile organic compounds (SVOCs) were also discovered. Based on the remedy selected in the ROD, a remedial action was initiated at SE OU 1 in 1993 and was completed in September 1995. Per the Cap Inspection Standard Operating Procedure, yearly inspections of the K-1, K-2, and K-3 capped areas are required (and corrective actions if necessary) as necessary to maintain the integrity of the caps and to ensure protectiveness of human health and the environment.

The treatment of the K Area soils was conducted from July 1993 to December 1994. The contaminated soil was excavated to bedrock and to the defined horizontal limits except at area K2, where just the upper 3 feet of soil was removed, treated with LT^3, and fixated as necessary. Treated soils were sampled to ensure that they met both the TCE remediation criteria and the Toxicity Characteristic Leaching Procedure (TCLP) requirements for metals. All soil (including fixated material) was placed back in the original excavations upon successful treatment. A residual waste cap was installed over the treated soil areas in October 1995. The *Technology Remedial Action Report*, which documents the remedial actions conducted at the K Areas, was finalized in August 1997.

Following the remedial action, a second ESD was issued in 2005. This ESD provided for land use controls and a cap inspection plan to protect the integrity of the cap. An inspection of the cap conducted in August 2007 indicated that the vegetative cover, drainage system, and liner were intact.

3.1.2 SE OU 2—Industrial Wastewater Sewer System

Problems with the Industrial Wastewater Sewers (IWWS) were first identified in the 1993 Remedial Investigation (RI) Report for the Southeastern Area. Studies of the IWWS lines showed that numerous breaks and/or leaks existed in both the IWWS and Stormwater Sewer lines. Leak testing and sampling indicated that VOCs had leaked from the IWWS and migrated to the soil/bedrock interface. Emergency repairs were made to the IWWS beginning in October 1994 and were completed in December 1995. An engineering evaluation/cost analysis (EE/CA)

was prepared by LEAD to address the removal of contaminated soils associated with the leaking IWWS lines (FD, 1996). LEAD conducted an emergency removal action of the IWWS-contaminated soils east of Building 370 in summer 1997.

Remedial Investigation (RI) and Risk Assessment (RA) Reports were completed in September 1998 (FD, 1998 LKD.RT-220) and June 2002 (IT, 2002 LKD.RT-246), respectively. A Final FS was completed in November 2004 (IT, 2004a LKD.RT-258), and a Proposed Plan was finalized in May 2005 (Shaw, 2005a LKD.RT-290). A final ROD for SE OU 2 (Shaw, 2006a) was completed in August 2006 (signed in September 2006). The selected remedy for SE OU 2 was cleaning followed by abandonment of the sewer and drain lines at Building 37 and 57 to prevent future use of the existing sewers. The remedial action was completed in spring 2006. Currently, the wastewater from Building 37 is pumped into aboveground storage tanks then transported for treatment to the IWTP at LEAD because it does not meet the newly established LIDA pre-treatment standards for discharge into the LIDA-owned sanitary sewer system. Wastewater from Building 57 continues to be discharged to the LIDA-owned sanitary sewer system. The Army is currently considering whether to continue the wastewater transport to the IWTP or to install a replacement force main (in the vicinity of the abandoned force main) to direct flow from both buildings to the IWTP.

The risk assessment showed that there are acceptable risks for industrial/commercial use; therefore, the remedy includes land use controls to prevent the use of the property for residential housing, elementary and secondary schools, child care facilities, and playgrounds.

3.1.3 SE Area OU 3: Disposal Area VOC-Contaminated Groundwater

The SE Area OU 3, which is located in both the BRAC and ER,A portions of LEAD, addresses on-post groundwater from the SE Area. Groundwater in these areas is contaminated with chlorinated solvents. Groundwater from the IWTP lagoon area is currently being intercepted and treated by the groundwater treatment system in place; however, dye studies have shown that water from areas within OU 3 is discharging off-post at six separate springs (see SE OU 6). VOCs above applicable or relevant and appropriate requirements (ARARs) have also been detected in these springs. The source of this contamination was the faulty IWWS (which was repaired in 1994); the DA operations; the former IWTP lagoons; and the stormwater drainages. Although the primary sources of contamination have been addressed, VOCs are still being detected, most likely due to the presence of contaminated subsurface soils and VOC contamination within the bedrock matrix, which is continuing to act as a secondary source. A focused feasibility study (FFS) for the Northern SIA lagoons and DA was begun in April 1994, and an FFS for Building 37 Southern SIA, another source of groundwater contamination, was begun in October 1995.

The rehabilitation of the groundwater treatment plant was completed in August 1996. Pump tests for recovery wells located in the former lagoon area were completed; a system pump test began in late summer 1996. Step-drawdown tests were completed in the DA, and pump tests for these wells were completed in the summer of 1997.

In 2002, SE OU 3 was divided into two OUs (SE OU 3A and SE OU 3B) so that the area upgradient of the VOC-contaminated groundwater from the Disposal Area source could be managed separately as SE OU 3B to facilitate the BRAC transfer. Figure 4 shows the locations of the groundwater OUs at LEAD.

SE OU 3A—Disposal Area VOC-Contaminated Groundwater

SE OU 3A addresses on-post groundwater contamination in the Disposal Area (DA). Groundwater in the vicinity of the DA is contaminated with chlorinated solvents. Dye studies have shown that water from areas within SE OU 3A is discharging off-post (see SE OU 6). The source of this contamination was the DA. Although the primary sources of contamination have been addressed, VOCs are still being detected, most likely due to the presence of contaminated subsurface soils and VOC contamination within the bedrock matrix, which is continuing to act as a secondary source.

A Focused Feasibility Study (FFS) was initiated for the DA, which includes more recent RI data and risk assessment (RA) evaluations. A recirculation well Pilot Study has been completed. An In-situ H_2O_2 Pilot Study was completed in April 2000. Additional investigations to verify the vertical extent of groundwater contamination, as requested by EPA, were conducted from 2005 to 2006. The results of the additional investigations will be reported in the FFS. A vapor intrusion pilot study was conducted from July 2004 to January 2006, and a draft report was submitted to EPA and PADEP in May 2006 (WESTON, 2006a). The vapor intrusion sampling plan, which incorporated regulatory agency comments, was finalized in 2007 (WESTON, 2007a). Vapor intrusion sampling is being conducted in accordance with the approved Technical Plan. The results of the vapor intrusion sampling will be reported in the FFS and a remedy will be selected based on the completion of the FFS and documented in a ROD.

SE OU 3B— Area Upgradient of VOC-Contamination Source in SE OU 3A

SE OU 3B is a BRAC OU that addresses the area upgradient of the VOC-contaminated groundwater from the DA source. Groundwater sampling was initiated in August 2003 and a final SI Report was finalized in May 2005 (WESTON, 2005a). A Proposed Plan was issued for public review in May 2005 (WESTON, 2005b). A No Action ROD (WESTON, 2006b) and a FOST (WESTON, 2006c) were completed and signed in June 2006. The ROD specifies no action for SE OU 3B groundwater and for soil associated with four parcels that consist of a portion of SE OU 8; two of these parcels are to be transferred as part of the Phase IV BRAC property transfer.

3.1.4 SE OU 4—Stormwater Sewer Lines and Associated Drainageways

SE OU 4, which is located in both the BRAC and ER,A portions of LEAD, consists of the stormwater sewer system and associated sediments. Prior to installation and connection to the IWTP, industrial wastewaters from the SE Area at LEAD were discharged, untreated, to the Depot stormwater sewer system. An EE/CA was prepared to cover the removal of contaminated sediment from the Southeast Drainage Way (between the headwall and Salem Road) and Rowe Run (between the headwall and State Route 997) and to address the emergency repair of associated sinkholes. An emergency removal of the sediments and filling of the sinkholes was

completed by the spring of 1997. A total of 1,037 tons of contaminated sediment was removed and disposed of as residual waste.

A Removal Action Summary Report for SE OU 4 was finalized in September 2003 (Shaw, 2003 LKD.RT-241). A Proposed Plan was issued for public review in November 2004 (Shaw, 2004a LKD.RT-255), and a final ROD (Shaw, 2005b) was completed in July 2005 (signed August 2005). The selected remedy was no further action.

3.1.5 SE OU 5—Areas A and B Contaminated Soils

SE OU 5 is located in the ER,A portion of LEAD. Areas A and B were initially investigated in the 1980s. Contamination detected in Area A consisted primarily of total petroleum hydrocarbons (TPH) and metals, with a small amount of VOCs. The most recent rounds of sampling to delineate the extent of contamination were completed in July 1995, when a localized spill area of elevated VOC concentrations was identified. An EE/CA was prepared and an emergency removal action was conducted in summer 1997 to excavate and dispose of the VOC-contaminated soil in the Spill Area of Area A (FD, 1997 LKD.RT-129). The remainder of Area A was evaluated as part of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) RI process.

Area B was a former OBP. The soil in this area was found to contain TPH, metals, and a small amount of VOCs; groundwater was also found to contain VOCs. Area B was further evaluated as part of the CERCLA RI process.

VOC contamination at Areas A and B is attributed to the K Areas (SE OU 1) and the Spill Area in Area A. A Draft RI/RA Report was completed in July 2000. An addendum to the RI/RA was submitted in July 2003, and a Final RI/RA was completed in October 2004 (IT, 2004b), published separately as an RI and an RA. A worm bio-uptake study was conducted in accordance with comments from EPA Biological Technical Assistance Group (BTAG), and as a result, a draft addendum to the ecological RA was submitted in September 2006. The RA addendum is currently being revised to address EPA comments. An FS will be prepared following resolution of EPA comments on the ecological RA.

3.1.6 SE OU 6—VOC-Contaminated Groundwater North of Gate 6 and East of East Patrol Road (Rowe Run Drainage System)

SE OU 6 includes the discharge points of 6 VOC-impacted off-post springs and off-post VOC-contaminated groundwater associated with SE OU 3A and SE OU 11, including residential drinking water wells. A final dye study, initiated in September 1995, included the placement of dye in on-post monitor wells located near LEAD's property line and in Rowe Run (boundary trace). This study was completed in December 1995.

In addition to the springs, off-post wells were also evaluated as part of SE OU 6. Approximately 50 wells were sampled and results were analyzed for VOC and metals concentrations during the

past 2 years. The results from this sampling indicated no additional VOC-contaminated off-post wells other than those previously identified.

A third study area of the off-post groundwater impacts was an evaluation of animals and animal products located on farms near the SE Area. Samples of eggs, milk, and meat were collected from numerous farms. VOCs and metals were detected at concentrations within the literature values or regional background levels for the media sampled.

A final RI Report for SE OU 6 was submitted in November 2004 (Shaw, 2004b). The final human health RA was submitted in July 2006 (Shaw, 2006c). In January 2008 the Army obtained EPA approval to conduct invertebrate sampling to assess potential effects to ecological receptors. This sampling is planned for spring 2008. The ecological RA will be published separately and will include the results of the invertebrate sampling. Additional investigations to verify the vertical extent of groundwater contamination, as requested by EPA, were conducted from 2005 to 2006, the results of which will be included in the SE OU 6 FS. A vapor intrusion pilot study was conducted from July 2004 to January 2006, and a draft summary report was submitted to EPA and PADEP in May 2006 (WESTON, 2006). EPA's comments on the draft report were received in August 2006. In order to address residual on- and off-post VOC-contaminated groundwater associated with SE OUs 6 and 11 at LEAD, a final Work Plan for the Evaluation of the Vapor Intrusion Pathway at SE OUs 6 and 11 was submitted in June 2007 (WESTON, 2007a). Vapor intrusion sampling will be conducted in the winter of 2007 and in the spring/early summer of 2008 on-post at SE OUs 6 and 11 and off-post in the Rowe Run Valley.

The Army expects to submit a draft FS for SE OU 6 for regulatory review in 2008.

3.1.7 SE OU 7—Truck Open Storage Area

Sampling of SE OU 7 was initially conducted in summer 1994. This area consisted of an open storage area for trucks and an abandoned septic tank and leach field system formerly used as an oil/water separator (see Figure 3). Analytical results from this sampling have shown no significant soil contamination present at SE OU 7. The detected groundwater contamination is attributable to SIA sources, such as the formerly leaking IWWS gravity lines associated with Building 37. Groundwater at SE OU 7 is addressed under SE OU 10. During the investigation of SE OU 7, an abandoned septic system was found. The septic system was used as an oil/water separator for the disposal of sanitary sewage from LEAD holding tanks. A removal action was conducted in spring 1997, which consisted of characterization, solidification and removal of the tank contents, backfilling of the tank, and restoration of the site.

A supplemental investigation was conducted in 1999 for the presence of polychlorinated dibenzo-p-dioxins and dibenzofurans (dioxins/furans), and polychlorinated biphenyls (PCBs). The results of the investigation were published in July 2000 (WESTON, 2000d) and showed that the presence of dioxins/furans in burned material was at concentrations greater than the published (EPA Region III) industrial direct contact human health level. A time-critical removal action was completed in this area in December 2000.

A draft Current Conditions Human Health SLRA and SLERA was submitted for the TOSA/WOS site in August 2007 (WESTON, 2007b). The document is undergoing regulatory

review, however, it is expected that the site will be evaluated as protective of human health and the environment for the future intended commercial/industrial use. Both SE OU 7 and remaining sites in SE OU 8 will be included in the Phase V BRAC property transfer, which will take place following the Army's completion of the FS, PP, ROD, and FOST for the Phase V BRAC Parcels. The process leading to FOST completion is expected to begin in 2008.

3.1.8 SE OU 8—BRAC Waste Sites

The SE OU 8 area is composed of potential waste sites identified in the to-be-excessed portion of the SE Area. SE OU 8 is being investigated under the BRAC investigation program. The locations of the SE OU 8 sites are shown in Figure 5.

Findings of Suitability to Lease (FOSLs) have been signed for the following SE areas: Buildings 6, 9, 19, 412, 416, 500, 522, 2291, 7, 8, and 42. Two FOSLs were also signed that covered the remainder of the BRAC buildings in the SE area (Phase II FOSL, February 2000 [WESTON, 2000c LKD.RT-168] and 2002 FOSL, October 2002 [WESTON, 2002e LKD.RT-226]). Property transfers under BRAC are being performed in phases. The following is a summary of the status of property transfers within the SE OU 8 area:

- Phase I — Properties within the SE portion included Parcels 1 through 13, Parcels 16 through 28, and Parcel 31. A ROD for the Phase I areas was signed in September 1998 (WESTON, 1998b LKD.RT-143). A Finding of Suitability to Transfer (FOST) was signed in October 1998 (WESTON, 1998g LKD.RT-148). Phase I BRAC Property Transfer was completed in November 1998. The ROD for Phase I documented selection of land use controls to prevent contact with contaminated groundwater and to ensure that the land use remains commercial/industrial.

- Phase II — Properties within the SE portion included Parcels 2-35 through 2-77 (with the exception of Parcel 2-73), consisting of structures and property above the seasonal high groundwater table. A ROD for the Phase II areas was signed in July 2001 (WESTON, 2001b LKD.RT-190). A FOST for the Phase II parcels was finalized in November 2001 (WESTON, 2001c LKD.RT-200). Phase II BRAC Property Transfer was completed in May 2002. The ROD for Phase II documented selection of land use controls to prevent contact with contaminated groundwater and to ensure that the land use for certain areas remains commercial/industrial.

- Phase III — Phase III parcels are located within an area referred to as Southern Martinsburg Shale Region (SMSR). A No Action ROD for Phase III was signed in August 2003 (WESTON, 2003e). A FOST for the Phase III parcels was signed in August 2003 (WESTON, 2003f LKD.RT-238). Properties within the SE portion include the following:

  - Parcels 3-89, 3-90, and 3-91. These parcels are located in both SE and PDO areas.
  - Parcels 2-53L, 2-54L, 2-70L, 2R-80L-3, 2R-84L-3, and 2R-86L-3. These parcels represent the subsurface property deeper than 8 ft of the Phase II parcels located within the SMSR. During the Phase II Property Transfer completed in May 2002,

only the upper 8 ft of the properties were transferred. These parcels are entirely located in the SE area.

- Parcels 24, 27, and 28. These represent that groundwater restrictions could be lifted for these Phase I parcels located within the SMSR.

- Phase IV - A Proposed Plan was issued for public review in May 2005 (WESTON, 2005b). The Phase IV Parcels ROD (WESTON, 2006b) and FOST (WESTON, 2006c) were signed in June 2006. Phase IV comprises approximately 60 acres (parcels 4-92 and 4-93). Note that parcels 4-94, and 4-95 are discussed in the Phase IV documents; however, these parcels are now to be retained by the Army, as discussed below. The ROD specified that no further remedial action is necessary for soil (SE OU 8) and groundwater (SE OU 3B) to protect human health and the environment.

- Phase V – An FS is currently being prepared for the Phase V BRAC Parcels, which includes 19 SE OU 8 BRAC waste sites and SE OU 7, the TOSA/WOS site. The process leading to FOST completion is expected to begin in the fall of 2007.

The BRAC boundary was revised in 2007 as a result of an agreement between LIDA and the LEAD, as sanctioned by the deputy assistant Secretary of the Army, to allow the depot to retain 225 acres of land adjoining the facility. As a result of the revised BRAC boundary, some of the sites that were administered under SE OU 8 are now administered under a new operable unit, SE OU 14, because they are to remain located in Army-retained land.

There are two remaining phases of BRAC property transfer planned for LEAD, Phase VI and VII. Each BRAC property transfer phase will be completed after a group of areas is deemed suitable for transfer after the CERCLA process is completed for the sites, which includes an RI/RA, FS, or Decision Document (as appropriate), PP, and ROD. In addition, a FOST will be prepared in accordance with the U.S. Army requirements.

3.1.9 SE OU 9—Landfill J

SE OU 9 consists of a landfill (Landfill J) located west of Building 320. The location of Landfill J was discovered in 1995 while trenching for utilities (see Figure 3). The extent of the landfill was determined using geophysical techniques and trenching. The characteristics of the soils and groundwater were evaluated through several sampling efforts. An emergency removal action was conducted in June 2001. A draft Removal Action Completion Report, which included the RI/RA data, was prepared in June 2002. A finalized Removal Action Summary Report was completed in October 2004 (Shaw, 2004c). A draft FS was completed in May 2005 (Shaw, 2005c) and is currently being revised to address regulatory review comments.

3.1.10 SE OU 10—SSIA VOC-Contaminated Groundwater South of Gate 6 (Conococheague Drainage System)

SE OU 10 consists of contaminated groundwater south of Gate 6. SE OU 10 was created when SE OU 3 was divided at the groundwater/surface water divide near Gate 6 (see Figure 4). The sources of the groundwater contamination for SE OU 10 are the formerly leaking IWWS lines in the vicinity of Building 37 (VOC-contaminants) and a release from a diesel tank fuel line in the vicinity of Building 37. Extensive work has been completed in the Building 37 area to design technically sound and cost-effective techniques to mitigate the contaminated on-site groundwater. An extended pilot study for enhanced bioremediation techniques to treat the groundwater is currently underway at Building 37. The FFS Final Report was issued in September 2003 (WESTON, 2003g). A final Proposed Plan was completed in February 2005 (WESTON, 2005c), and a ROD was completed in March 2006 (WESTON, 2006d). The selected remedy for SE OU 10 is Enhanced Biodegradation with Monitored Natural Attenuation and Land Use Controls (to prevent contact with contaminated groundwater until the time the groundwater is safe for use). A final Remedial Action Work Plan was completed in April 2007 (WESTON, 2007c). The final sodium lactate injection for the selected remedy was completed at SE OU 10 in June 2007. A long-term groundwater monitoring program has been implemented for SE OU 10 and the most recent sampling event was conducted in August 2007.

3.1.11 SE OU 11—NSIA VOC-Contaminated Groundwater North of Gate 6

SE OU 11 consists of the VOC-contaminated groundwater associated with the IWTP lagoons and IWWS gravity lines. The groundwater discharges off-post (see SE OU 6). A pilot study was initiated in September 2001 to evaluate the feasibility of treating DNAPL sources and reducing off-site contaminant migration concentrations at the property line. This study was completed by January 2003. Additional investigations to verify the vertical extent of groundwater contamination, as requested by EPA, were conducted from 2005 to 2006. The results of the additional investigations will be reported in focused feasibility study (FFS).

A vapor intrusion pilot study was conducted from July 2004 to January 2006, and a draft report was submitted to EPA and PADEP in May 2006 (WESTON, 2006a). EPA's comments on the draft report were received by the Army in August 2006. In order to address residual groundwater contamination associated with SE OUs 6 and 11 at LEAD, the Work Plan for the Evaluation of the Vapor Intrusion Pathway at SE OUs 6 and 11 was finalized in June 2007 (WESTON, 2007a). Vapor intrusion sampling will be conducted in the winter of 2007 and in the spring/early summer of 2008 on-post at SE OUs 6 and 11 and off-post in the Rowe Run Valley. The FFS Draft Report is expected to be produced in 2007. A remedy will be selected based on the completion of the feasibility study and documented in a ROD.

3.1.12 SE OU 12—Landfill G

The LEAD Installation Assessment (IA) identified this area as active from 1964 through 1978, when it was leveled to match the existing terrain. The area was used to dispose of residue from nearby trash revetments (K-2) and IWTP sludge. Visibly contaminated leachate (metals) was

reported to emanate from this site into a nearby drainage ditch. A 1991 SI identified several magnetic anomalies, which were cross trenched in 1993. All anomalies were related to buried metallic objects. This area contained empty buried drums that formerly contained caustics. Sampling indicated that these buried drums had caused no environmental problems. Another anomaly showed a large number of solvent containers, which were drummed and disposed of in this area. This site consists of contaminated soil, groundwater, and surface water. The 1995 SI follow-on identified this site as requiring an RI. A Work Plan for the RI was finalized in June 2006 (Shaw, 2006b).

The initial round of the RI field work was completed in July 2006. The test trenching conducted during the RI showed that primarily municipal-type waste is present in the landfill. The analytical results for the RI indicated that additional test trenching, soil sampling, and analysis needed to be conducted to further assess elevated levels of PCBs. The additional site investigation work was conducted in July 2007. Containers of black tar-like substance, thought to be discarded adhesive material, were encountered during the second round of the RI. The material had a petroleum-like odor. The size of the area where the containers were found is approximately 10 ft by 15 ft and 6 ft deep. The containers were encountered at about 4 ft below ground surface and the depth of the affected area did not extend beyond 6 ft deep. The preliminary analytical results show that contaminants of potential concern are benzene, lead, zinc and 2-methylphenol. A removal action is planned for this landfill to remove the containers and associated waste and affected soils.

3.1.13 SE OU 13— Southern Martinsburg Shale Region Groundwater

SE OU 13 encompasses BRAC property. The Southern Martinsburg Shale Region (SMSR) is a region at LEAD that contains an area of shale bedrock surrounded by downgradient limestone bedrock. This shale bedrock is generally more resistant to weathering than the surrounding limestone formations and therefore, forms the “highland” or elevated ridge areas in the area of the Phase III parcels. Several groundwater/surface water divides along this ridge in the SMSR cause groundwater to flow radially away from the SMSR.

The SMSR was originally considered to be part of VOC-contaminated groundwater SE OU 10 and SE OU 11. Based on its geologic and topographic setting, it was thought that the SMSR would be unaffected by the known and potential VOC sources located downgradient of the SMSR because groundwater flows from the SMSR into the lower lying valley areas underlain by limestone. Therefore, a groundwater investigation was initiated in 1999 to establish that the SMSR was not impacted by any previous industrial activities at Letterkenny. The results of four rounds of groundwater sampling, conducted in late 1999 through 2000 and in 2002, showed no VOC groundwater contamination in the SMSR. Based on this finding, the SMSR was redefined as SE OU 13, and a no further action ROD was signed for SE OU 13 in August 2003 (WESTON, 2003e). SE OU 13 was part of the Phase III BRAC property transfer completed in January 2004.

3.1.14 SE OU 14—Former Test Track Area

SE OU 14 was created in 2007 to track sites in Army-retained land that were formerly administered under the BRAC program and are now in the ER,A program as a result of the

revised BRAC boundary. SE OU 14 consists of the Former Test Track in the Disposal Area and Areas E and F (AEDBR Sites LEAD-114, 033, and 049), and the Building 349 Soil Staging Area (AEDBR Site LEAD-114). The RI/RA for the Former Test Track and Areas E and F was finalized in 2004 (WESTON, 2004); this RI/RA showed that risks are within acceptable levels for commercial/industrial use. The RI for the Building 349 Soil Staging Area was submitted to EPA and PADEP in 2003. Future plans are to resubmit the RI/RA, with the risk assessment based on likely future use of commercial/industrial, along with completion of the CERCLA process (FS, Proposed Plan, ROD).

3.2 PHYSICAL CHARACTERISTICS

3.2.1 Climatology

The climate at LEAD is moderate, with an average annual temperature of 11.2º C (52º F). Summers average 22.3º C (72º F) and winters average 0º C (32º F). Rainfall averages 98.2 centimeters (cm) (38.7 inches). The moderate climate results in an average of 15 days above 32º C (90º F) per year and mild winters with temperatures below 0º C (32º F) occurring less than 100 days per year. Winds are generally from the southwest, with an average velocity of 10 miles per hour (mph). During the period from July to mid-September, the area experiences warm periods lasting 4 to 5 days, during which time there is high relative humidity and only slight wind movement.

3.2.2 Site Topography and Surface Drainage

LEAD is located in the Great Valley section of the Valley Ridge Province of the eastern United States, and referred to locally as the Cumberland Valley. The Cumberland Valley trends northeast to southwest through central Pennsylvania and is bordered to the west by the Appalachian Mountain Province. The South Mountain section of the Blue Ridge Province is situated east of Chambersburg and marks the eastern edge of the Cumberland Valley.

The Cumberland Valley is characterized by southwest-trending limestone ridges and valleys. The valley floors are filled with rocks of the Martinsburg Formation. Weathering of the folded and faulted underlying geologic formations imparts a gently rolling aspect to the local topography. The majority of LEAD is located within the Martinsburg Shale terrain, except for bands of carbonate rocks along the eastern and western edges of LEAD. The PDO Area and the SIA of LEAD are underlain by limestone. Surface elevations throughout LEAD range from approximately 600 to 750 ft above mean sea level (msl), except for the northwest portion of LEAD, where the elevation increases abruptly to more than 2,300 ft above msl in the vicinity of Broad Mountain (EA, 1991).

Streams cutting through the limestone terrain flow through broad, open valleys and are usually intermittent. In contrast to this, streams cutting through the upper shale units of the Martinsburg Formation usually meander in small, steep-walled valleys and are perennial. Surface drainage at

LEAD is divided into two watersheds, the Susquehanna River to the northeast and the Potomac River to the southwest. Both the Susquehanna and Potomac Rivers eventually drain into the Chesapeake Bay.

Two major stormwater drain systems serve the southeast portion of LEAD and contribute to local surface drainage. One system serves the area north of Coffey Avenue and discharges near the IWTP into the industrial wastewater plant outfall (located north of the IWTP), which discharges to Rowe Run. The other system serves the southeast warehouse area. Water drains into the storm drain system, is discharged through the storm drain outfall, and joins other surface runoff flowing southward to Conococheague Creek (USATHAMA, 1980). Figure 7 illustrates the drainage system and drainage divides at LEAD.

3.2.3 Soils

Surface soils present at LEAD are predominantly shaley to very shaley silt loams that developed through weathering of the Martinsburg Shale and the interbedded siltstones and sandstones. According to the Soils Survey Bulletin of Franklin County, these soils have been classified as part of the Weikert-Berks-Bedington Association (see Figure 8). Soils on the eastern edge of LEAD associated with the limestone have been identified as part of the Hagerstown-Duffield Association. These soils are deep, level or sloping, somewhat poorly drained, and mostly rocky, silty, clay loams. Along the western side of LEAD, outside of the BRAC area, are soils of both the Laidig-very stony Land-Buchanan Association (formed from sandstone) and the Morrill-Laidig Association (formed on the foot of mountain slopes) (USATHAMA, 1980).

3.2.4 Geology

LEAD straddles two major structural features; the South Mountain anticlinorium to the east and the Massanutten synclinorium to the west. The eastern portion of the Depot (underlain by carbonate rocks) is part of the anticlinorium, whereas the western portion of the Depot (underlain by shale) is part of the synclinorium. These structures resulted from folding that occurred during the close of the Paleozoic era. High-angle reverse faulting accompanied the folding of rocks in the eastern portion of LEAD. Several major faults that strike north to northeast and dip to the southeast at fairly steep angles cross the PDO Area (WESTON, 1984).

In the vicinity of LEAD, the Great Valley is floored by Ordovician age carbonate rock, as well as Ordovician age shale and greywacke of the Martinsburg Formation. The five formations occurring at LEAD are the shales of the Martinsburg Formation, the limestones of the Chambersburg Formation and the St. Paul Group, the limestones and dolomites of the Rockdale Run Formation, and the dolomites of the Pinesburg Station Formation. These geologic formations are fractured and deformed to varying degrees from past geologic activity (ESE, 1993). Figure 9 shows the geologic units of the eastern part of LEAD.

Several faults extend through LEAD, including the Pinola and Letterkenny Faults. Although an east-to-west cross fault was identified between these two faults, both the position and surface trace are open to question (Becher and Taylor, 1982). Northeast of LEAD, the Pinola Fault truncates the Letterkenny Fault, indicating that the latter fault is older.

The Letterkenny Fault is one of the few faults in the region that parallels the tectonic grain, yet is an early formed, westward-dipping thrust that moved material from within the syncline to the west up onto the anticline to the east (EA, 1991).

The Pinola Fault, located to the west of the Letterkenny Fault, is considered to be an east-dipping, high-angle thrust fault (based on the fact that older beds are to the east of the fault). Because it is almost impossible to trace faults through the Martinsburg terrain, the fault trace is projected through the Martinsburg Formation on the basis of a ridge-forming unit that extends through it (Becher and Taylor, 1982).

3.2.5 Hydrogeology

The regional surface water flow system of Franklin County controls the general groundwater flow patterns within LEAD. The surface water drainage divide, discussed previously, also divides the groundwater flow system into two basins. Groundwater elevation contours within LEAD generally reflect surface topography. The water table is located at moderate depth in areas of topographic highs and is shallow near stream valleys and other topographic lows (ERM, 1995).

The shale and carbonate rock that underlie LEAD have been disturbed and faulted during deformational events that ultimately formed the Great Valley. The two major faults located within the confines of LEAD (the Pinola Fault and the Letterkenny Fault) influence groundwater flow. Where faulting is present and dissimilar rocks have been brought into contact, the fault tends to act as a barrier to groundwater movement, occasionally forcing water within the formation to discharge as a fault spring (i.e., Rocky Spring). The groundwater movement may be only minimally affected where similar rocks, such as two limestone units, are in contact along a fault (ERM, 1995).

Fracture systems within the Martinsburg Formation are small and well connected, thus allowing groundwater to generally follow a regional flow path. Groundwater flow within the limestone of the Chambersburg Formation and St. Paul Group is more complex because it occurs predominantly through individual fractures and solution cavities typical of karst terrain. Fractures in the limestones are mostly aligned with the regional northeast tectonic grain and are much more irregular and widely spaced than those in the adjacent shales. Where solution cavities are present in the limestone, groundwater flow more closely resembles open channel flow rather than the fracture flow described above. The quantity and density of fractures within the limestone units increase with proximity to the bedrock surface. During seasonal periods when the water table is at its highest (early spring, late autumn), water levels commonly rise above the bedrock/surface material contact. Leaching or resuspension of any materials or potential contaminants buried in the surficial sediments may be enhanced during high water table conditions. Table 2 presents a description of the water-bearing characteristics of the geologic units present at LEAD (ERM, 1995).

Groundwater recharge occurs primarily through precipitation. Recharge areas occur throughout the central part of LEAD, wherever sandstone, siltstone, or joints are close to the surface. Actual

points of recharge for the limestone aquifers have not been determined; however, the many faults, joints, and sinkholes present at LEAD are the most likely routes (ERM, 1995).

Groundwater underlying LEAD generally occurs under unconfined conditions, with local areas of artesian conditions. These artesian conditions occur along a moderately steep slope located near the northwest edge of LEAD in the Ammo Area.

A groundwater study completed for the USACE Baltimore District in the 1950s concluded that there was not a viable source of groundwater available within LEAD boundaries to supply the depot's industrial mission (Acker, 1955). The only use of groundwater in the area is outside LEAD, where some individual homes depend on groundwater for their domestic supply. Any homes on well water that were determined to be impacted by the groundwater contamination at LEAD (exceed maximum contaminant levels [MCLs] for VOCs) were initially supplied with bottled water, but are now connected to public water. Off-post VOC-contaminated groundwater is used to water livestock and produce.

Table 2

Description and Water Bearing Characteristics of the Geologic Units at Letterkenny Army Depot

System	Geologic Unit	Thickness (ft)	Character of Rocks	Water-Bearing Characteristics
Quaternary	Colluvium	0-250	Mixture of clay, silt, sand, pebbles, cobbles, and boulders overlying a thick residual clay layer.	Yields domestic supplies commonly at the contact with bedrock. Provides extra storage for underlying limestone. Maximum reported yield is 30 gpm from sand and gravel. Calculated maximum sustained yield is 110 gpm.
Ordovician	Martinsburg Formation	1,500-3,000	Thin basal unit of platy limestone; thick medial unit of graywacke; bulk of formation is black carbonaceous and fissile shale. Formation is thinner to west.	Good aquifer. Maximum reported yields are 150 gpm from shale and 50 gpm from graywacke. Calculated maximum sustained yield is 100 gpm for shale and graywacke. No data are available for basal limestone. Only 3% of wells need standby storage to supply minimum domestic needs.
	Chambersburg Formation	300-750	Dark-gray, thin-bedded limestone that characteristically weathers into cobblestone shapes. Thinner to west. Abundantly fossiliferous.	Fair Aquifer. Maximum reported yield is 225 gpm. Calculated maximum sustained yield is 160 gpm. Approximately 30% of wells require standby storage to supply minimum domestic needs.
	St. Paul Group	800-1,000	Light-gray limestone; minor interbeds of dolomite containing black chert. Thinner to west. Abundantly fossiliferous.	Fair aquifer. Maximum reported yield is 225 gpm. Calculated maximum sustained yield is 160 gpm. Approximately 30% of wells require standby storage to supply minimum domestic needs.
	Pinesburg Station Formation	250-800	Medium-gray dolomite; some interbeds of limestone. Black chert and white quartz.	Fair aquifer. Maximum reported yield is 30 gpm. Calculated maximum sustained yield is 150 gpm. About 25% of wells require standby storage for minimum domestic supply.

Source: Becher, A.E. and L.E. Taylor. 1982. *Groundwater Resources in the Cumberland and Contiguous Valleys of Franklin County, Pennsylvania.* Pennsylvania Geological Survey Water Resources Report 53. Harrisburg, PA.

3.3 CONTAMINATION ASSESSMENT

3.3.1 SE OU 1—K Areas

The K Areas are located in the Disposal Area (DA) of LEAD and consist of Areas K-1, K-2, and K-3. The K-1 lagoon, which was closed in the 1970s, was used to dispose of waste industrial solvents. The Remedial Action, which consisted of removal of VOC-contaminated soil, was completed at the site in 1995. Contaminants in the soils in this area were at concentrations of up to 5.5% total VOCs. The most common VOCs were:

- trans-1,2-Dichloroethene
- Methylene chloride
- 1,1,1-Trichloroethane
- Trichloroethene

The groundwater in the SE Area is contaminated with the same VOCs as the soils from the K Area, with historical data indicating concentrations in groundwater were detected at up to 20,000 micrograms per liter (µg/L). In soils, lead was detected at concentrations up to 1.5%. TAL metals contamination of the groundwater is not an issue due to the binding properties of the clay soil. Response is complete at this site. VOC-contaminated groundwater associated with the DA is addressed under SE OU 3A.

3.3.2 SE OU 2—Industrial Wastewater Sewer System

The IWWS collection system malfunctioned soon after it was installed in the mid 1950s. This allowed VOC-contaminated wastewater to infiltrate directly into the soils and bedrock, causing VOC groundwater contamination. RI Field Work in 1992 and 1993 led to emergency repairs in 1994 and 1995. An emergency removal of IWWS VOC-contaminated soils was conducted in 1997.

Soils surrounding the IWWS were contaminated with VOCs contributing to Onpost and Offpost VOC groundwater contamination. Although the emergency repairs to the IWWS eliminated the primary source of chemical release, the affected underlying soils were a source of chemical release to receiving media such as groundwater, surface water/sediment, and ambient air.

The following chemicals were identified as COPCs:

- 1,1-Dichloroethene
- 1,2-Dichloroethene, total
- Methylene chloride
- Tetrachloroethene
- Trichloroethene
- 1,1,1-Trichloroethane

SE OU 2—IWWS Sewers
Chemicals of Potential Concern in Soil

Chemical	Max. Conc. (mg/kg)
VOCs	
Trichloroethene	1,700
SVOCs	
Benzo (a) pyrene	0.5
Metals	
Antimony	3.5
Barium	1,050
Beryllium	4.6
Chromium	226
Lead	2,090
Nickel	83
Thallium	18

3.3.3 SE OU 3A—Disposal Area VOC-Contaminated Groundwater

Past data have indicated that groundwater at SE OU 3A was contaminated with up to 20,000 ppb of total VOCs. The source of this VOC groundwater contamination is Area K-1 (see SE OU 1 above) and the former Spill Area in Area A (see SE OU 5 below). Both of these areas have been remediated. This onpost VOC-contaminated groundwater migrates offpost (see SE OU 6).

The most common VOCs in the DA are:

- 1,2-dichloroethene
- trichloroethene
- tetrachloroethene
- vinyl chloride

3.3.4 SE OU 3B—Area Upgradient of VOC-Contamination Source in SE OU 3A

SE OU 3B is a BRAC OU that addresses the area upgradient of the VOC-contaminated groundwater from the DA source. Two rounds of groundwater sampling, August 2003 and March 2004, were conducted as part of the site investigation. The site investigation report concluded there were no contaminants of concern (COCs) in groundwater at SE OU 3B. The risk to human health from groundwater exposure in this OU was determined to be within acceptable levels for the intended future use (commercial/industrial) of the property as well as for unrestricted use (i.e., residential or daycare).

3.3.5 SE OU 4—Stormwater Sewer Lines and Associated Drainageways

SE OU 4 consists of the stormwater sewer system and associated downstream sediments in the Rowe and Southeast drainageways. Based on the results of the RI investigations conducted in 1994 and 1995, the following COCs were identified in sediments:

SE OU 4—Drainageway Sediments
Chemicals of Potential Concern in Sediment

Chemical	Max. Conc. (mg/kg)
Polychlorinated biphenyls (PCBs)	7.3
SVOCs	
Naphthalene	6
Phenanthrene	35
Metals	
Cadmium	81.9
Chromium	448
Lead	3,070
Manganese	6,340
Zinc	1,520

Approximately 1,030 tons of contaminated sediments were removed from drainageways at SE OU 4 during an Emergency Removal Action, which was completed in 1997. The post-removal results are summarized below because the post-removal data was used for the risk assessment and to support the findings in the ROD.

SE OU 4—Drainageway Sediments
Chemicals of Potential Concern in Sediment
(Post-Removal)

Chemical	Max. Conc. (mg/kg)
Polychlorinated biphenyls (PCBs)	0.039
SVOCs	
Naphthalene	ND
Phenanthrene	0.15
Metals	
Cadmium	0.88
Chromium	33.5
Lead	42.7
Manganese	1,580
Zinc	60.9

3.3.6 SE OU 5—Areas A and B Contaminated Soils

SE OU 5 consists of three areas:

Area A: Waste Disposal Trench Area. Area A is approximately 5 acres in size and was used to dispose of sand blasting abrasive and organic liquid/sludge.

The COCs were:

- SVOCs
- lead

Spill Area in Area A: Formerly thought to be the site of a spill/release of TCE. It was discovered during a 1997 emergency removal that the site contained laboratory containers of VOCs.

The COCs were:

- lead
- trichloroethene

Area B: Clay-Lined Oil Burn Pit (OBP), used to burn waste oil. An RI has determined that the OBP is not a source of VOCs to the groundwater.

The COCs are:

- SVOCs
- lead

The COCs are summarized below.

SE OU 5—Areas A and B
Chemicals of Potential Concern in Soil

Chemical	Max. Conc. (mg/kg)
VOCs	
1,2-Dichloroethene	3
Benzene	0.4
Chlorobenzene	50
Methylene Chloride	0.08
Trichlorethene	0.2
Vinyl Chloride	0.2
SVOCs	
4-Methylphenol	10
Naphthalene	90
Metals	
Antimony	160
Cadmium	80
Copper	190,000
Lead	4,590
Thallium	52

3.3.7 SE OU 6—VOC-Contaminated Groundwater North of Gate 6 and East of East Patrol Road (Rowe Run Drainage System)

SE OU 6 includes off-post VOC-contaminated groundwater at LEAD associated with SE OU 3A and SE OU 11. To the north of Gate 6 is the Rowe Run Drainage Area. The on-post sources for this area of groundwater contamination are the IWWS, IWTP Lagoons, and the DA (Area K-1 and the Area A Spill Area). Six VOC-contaminated springs exceeded ARARs. Residential groundwater exceedances up to 2 miles Offpost (all homes with a groundwater ARARs exceedance have been placed on a public water supply). A summary of the COCs is summarized below.

SE OU 6—VOC-Contaminated Groundwater North of Gate 6 and East of East Patrol Road (Rowe Run Drainage System)
Chemicals of Potential Concern in Groundwater (1994-2006)

Chemical	Max. Conc. (µg/L)
VOCs	
1,1-Dichloroethene	270
1,1,1-Trichchloroethane	4.4 J
Trichloroethene	410
1,2-Dichloroethene	270
SVOCs	
None	—
Metals	
Iron	44,600
Manganese	1,530
Lead	78.3
Zinc	3,700

J = estimated value

3.3.8 SE OU 7—Truck Open Storage Area/Waste Oil Sump

A former open storage area, with an abandoned septic tank and leaching field, was used to dispose of "boiler slops" and septage. The initial COCs identified were SVOCs and PCBs in the sludge in the septic tank. A removal action for the septic tank was completed in spring 1997. In 1999, polychlorinated dibenzo-p-dioxins/polychlorinated dibenzofurans (dioxins/furans) were discovered at low concentrations at the site in a limited area of shallow (0-1 foot) soils. A time-critical removal action for the dioxin-contaminated soils was performed in December 2000.

In order to evaluate the current conditions of the TOSA/WOS site and to document the nature and extent of any risk related to the transfer of the site, a draft Current Conditions SLRA and SLERA was completed for SE OU 7 in August 2007. Results of the SLRA indicated that human health risk at the TOSA/WOS site was driven by TCE via the groundwater ingestion pathway (maximum concentration 7.9 micrograms per liter [µg/L]) and arsenic (maximum concentration 5.2 milligrams per kilogram [mg/kg]) via the direct contact/soil ingestion pathway. Results of the SLERA indicated site ecological risk was driven by Aroclor 1260, 2,3,7,8-TCDD TEQ for mammals 1.63E-05, and 2,3,7,8-TCDD TEQ for birds (maximum concentrations 1.33E-02 µg/kg and 1.68E-02 µg/kg, respectively). Although future drafts will require regulatory review, it is expected that the site will be evaluated as protective of human health and the environment for the future intended commercial/industrial use. A finalized version is expected to be produced in 2008.

3.3.9 SE OU 8—BRAC Waste Sites

The SE OU 8 area is composed of the to-be-excessed (BRAC) portion of the SE Area. Portions of the SE OU 8 are still being investigated. The contaminants of potential concern (COPCs) for these sites include:

- VOCs
- SVOCs
- TAL metals
- dioxins

The sites within the SE OU 8 are listed in the following table.

SE OU 8 Sites

AEDBR Site ID	Site Name
001	Building 57 Site(2)
002	Building 37 Site(2)
008	Building T-228 Battery Acid Disposal Pit(2)
011	Backwash Discharge Area from the Water Treatment Plant(1)
023	Building 51 RAD Storage Area(2)
055/125	Former Transfer Area Near Building 98(2)
060	Lot 29 Ingot Storage Area(2) Lot 48 Ingot Storage Area(2)
072	Southeast Storm Drainage System Discharge Area
073	Southeast Drainageway Sediment Pile Areas(2)
074	IWWS System Lines(2)
092	Buildings 16 and 17 Area(2)
110 and 114	Open Vehicle Storage Area(1) (2) Former Vehicle Storage Area North of the Test Track(1)
115	Tank Farm Storage Area(1)
116	Radioactive Materials Storage at Building 441
118	Building 400 Series Fire Training Area(1) Building 422 North(2) Building 433 West(2) Building 433 Defueling Point(2) Former Storage Area West of Building 446(2) ASTs at Golf Course Storage Buildings(2)
126	Building 425 UST Removal Site(2) Building 437 UST Removal Site(1) (2) Gate 1 Guardhouse(1)
127	IWWS Force Main Breaks
130	Former Storage Shed Near Building S38-1/S-38-2(2)

Notes:

(1) Final Remedial Investigation/Risk Assessment (RI/RA) reports were published for these sites. The conclusion was that there are no unacceptable risks exist based on unrestricted use for the Phase III

and Phase IV sites (Open Vehicle Storage Area, Backwash Discharge Area, Building 400 Series Fire Training Area, Test Track Area (WESTON, 2005e), Former Vehicle Storage Area West of the Test Track, and Former Tank Farm Storage Area) and for the intended commercial/ industrial property use for the other sites. RI/RA reports for these sites are: (a) Backwash Discharge Area (WESTON, 2002b); (b) Open Vehicle Storage Area (WESTON, 2003d); (c) Building 400 Series Fire Training Area (WESTON, 2002a); (d) Building 437 UST Removal Site (WESTON, 2003c); (e) Gate 1 Guardhouse, Building 511(WESTON, 2001f); (f) Former Vehicle Storage Area North of the Test Track (WESTON, 2005h); (g) Test Track Area (WESTON, 2005e); and (h) Former Tank Farm Storage Area (WESTON, 2005d).

(2)These sites will be part of the Phase V BRAC property transfer. An FS, PP, ROD, and FOST for the Phase V BRAC Parcels are expected to be completed in fall 2007.

(3)A non-time critical removal action was performed at the Open Vehicle Storage Area as reported in the *Property Disposal Office Area Operable Unit 6 Southeast Area, Operable Unit 8 – Removal Action Completion Report PAH-Contaminated Soils at the Open Vehicle Storage Area (OVSA), Letterkenny Army Depot* (IT, 2001).

3.3.10 SE OU 9—Landfill J

Landfill J is an abandoned landfill located behind Building 320. Additional investigation occurred in 2000 and an emergency removal action was conducted in June 2001. The COPCs include:

SE OU 9—Area J
Chemicals of Potential Concern in Soil

Chemical	Max. Conc. (mg/kg)
VOCs	
1,2-Dichloroethene	180
Trichloroethene	6,100
Tetrachloroethene	440
Vinyl Chloride	3
SVOCs	
Naphthalene	105
1,2-Dichlorobenzene	180
1,4-Dichlorobenzene	46
n-Nitrosodiphenylamine	3
Pentachlorophenol	22
Benzo (a) pyrene	287
Benzo (b) fluoranthene	238
Chrysene	283
Pyrene	556
Metals	
Lead	199,000
Cobalt	2,370
Antimony	1,370
Cadmium	77
Mercury	17
Thallium	16
Zinc	44,500

3.3.11 SE OU 10—Southern Southeast Industrial Area (SSIA) VOC-Contaminated Groundwater South of Gate 6 (Conococheague Drainage System)

The source of the VOCs in groundwater at SE OU 10 is the Building 37 IWWS gravity lines. RI field work in 1992 and 1993 led to emergency repairs in 1994 and 1995. The COCs include VOCs (TCE, TCA, and associated breakdown products) and SVOCs related to a diesel fuel release at Building 37. The selected remedy documented in the ROD for SE OU 10 was Enhanced Biodegradation with Monitored Natural Attenuation and Land Use Controls (WESTON, 2006d). A final Remedial Action Work Plan was completed in April 2007 and the final sodium lactate injection for the Enhanced Biodegradation occurred in June 2007. Monitoring of the natural attenuation processes and land use controls will remain in place until chemical concentrations in groundwater are protective of human health and the environment.

3.3.12 SE OU 11—NSIA VOC-Contaminated Groundwater North of Gate 6

The original unlined lagoon was constructed in 1954 and operated until 1967. The lagoon was used as a settling/equalization basin for the IWTP. Over time, this process led to the generation of a sludge layer in the lagoon. Losses of sludge and untreated wastes from the unlined lagoon had been occurring for an unspecified time. In 1967 a concrete-lined, two-cell lagoon was built over the existing bare earth lagoon. In 1992 the soil in the Lagoon Area was excavated and treated. The groundwater below the lagoon area is contaminated with VOCs. Onpost VOC-contaminated groundwater migrates offpost (see SE OU 6).

The most common VOCs in the Lagoon Area are:

- chloroform
- 1,2-dichloroethane
- 1,1-dichloroethene
- *cis*-, *trans*-, and total 1,2-dichloroethene
- methylene chloride
- trichloroethene
- vinyl chloride

SE OU 11—NSIA VOC-Contaminated Groundwater North of Gate 6
Chemicals of Potential Concern in Groundwater

Chemical	Max. Conc. (µg/L)
VOCs	
Chloroform	15
1,2-Dichloroethane	1.8
1,1-Dichloroethene	20
1,2-Dichloroethene (total)	9,900
Methylene Chloride	3.3
Trichloroethene	12,000
Vinyl Chloride	2,200
SVOCs	
None	—
Metals	
None	—

3.3.13 SE OU 12—Landfill G

The LEAD IA identified this area active from 1964 through 1978, when it was leveled to match the existing terrain. This area was used to dispose of residue from nearby trash revetments (K-2) and IWTP sludge. Visibly contaminated leachate (metals) was reported to (and continues to) emanate from this site into a nearby drainage ditch. Leachate containing metals emanates from this site into a small wetland area that has formed in a nearby drainage ditch, where the metals are precipitated out. The drainage ditch ultimately discharges to Muddy Run. Aerial photographs from 1965 do not reveal landfilling activities at this site, however, aerial photographs from 1970 confirm disposal activities here. A former LEAD worker had identified this area as containing buried drums. A 1991 SI has identified several magnetic anomalies. In 1993 these anomalies were cross-trenched. The anomalies were related to buried metallic objects. This area contained empty buried drums that formerly contained caustics. Sampling indicated that these buried drums had caused no environmental problems. Another anomaly showed a large number of solvent containers. These were drummed and disposed of in this area. The 1995 SI follow-on identified this site as requiring an RI. An RI is underway. This site consists of contaminated soil, groundwater and surface water. The COPCs for this site are summarized in the following tables:

SE OU 12—Landfill G
Chemicals of Potential Concern in Soil and Sediment

Chemical	Max. Conc. (mg/kg)
VOCs none	—
SVOCs Benzo(a)pyrene	1.7
PCBs Aroclor 1016 Aroclor 1254	 24,000 110
Metals Lead	1,450

SE OU 12—Landfill G
Chemicals of Potential Concern in Surface Water

Chemical	Max. Conc. (µg/L)
VOCs Carbon Disulfide	500
SVOCs None	—
Metals Aluminum Iron Manganese Lead Zinc	 5,080 11,900 679 2.6 72.8

SE OU 12—Landfill G
Chemicals of Potential Concern in Groundwater

Chemical	Max. Conc. (µg/L)
VOCs Carbon Disulfide	24
SVOCs None	—
Metals Iron Manganese Nickel	 114,000 2,670 206

Cross trenching was conducted at SE OU 12 in July 2007. Six 5-gallon containers of a black tar-like substance were encountered and some containers were punctured as a result of the trenching activities. The containers were removed from the trench along with the soil that had been freshly covered with this tar like substance, which had a petroleum-like odor. The containers were encountered at about 4 ft below ground surface and the depth of the affected area did not extend beyond 6 ft deep. A Form U sample was collected to allow LEAD to perform a waste characterization on this material. A removal action, performed in January 2008, consisted of the removal of containers and associated waste along with affected soils. COPCs associated with the tar-like substance are provided in the following table:

SE OU 12—Landfill G
Chemicals of Potential Concern in Waste Material
Form U Sample Results

Chemical	Max. Conc. (mg/kg)
VOCs	
None	—
SVOCs	
None	—
PCBs	
None	—
Metals	
Arsenic	4.9
Barium	6.5
Cadmium	1.4
Chromium	180
Copper	4.3
Lead	8,540
Nickel	2.0
Zinc	20,000

TCLP Sample Analysis

Chemical	Max. Conc. (µg/L)
VOCs	
Benzene	150
SVOCs	
2-Methylphenol	25
PCBs	
Aroclor 1260	160
Metals	
Lead	8,540
Zinc	20,000

3.3.14 SE OU 13—Southern Martinsburg Shale Region Groundwater

An extensive study conducted in the SMSR, as reported in the *Summary Report on the Groundwater Quality in the Southern Martinsburg Shale Region, Letterkenny Army Depot* (WESTON, April, 2003b) and the RI/RA Report for the OVSA (WESTON, April 2003d) indicated that groundwater in this region is not contaminated (i.e., risk calculated based on unrestricted use due to exposure to groundwater are within acceptable levels), which supported the recommendation for the no further action ROD for the Phase III BRAC Property Transfer. The SMSR area groundwater was originally part of SE OU 10 and SE OU 11.

3.3.15 SE OU 14—Former Test Track Area

As discussed in Subsection 3.1.14, The RI/RA for the Former Test Track and Areas E and F was finalized in 2004; this RI/RA showed that risks are within acceptable levels for commercial/industrial use. The RI for the Building 349 Soil Staging Area was submitted to EPA and PADEP in 2003. Future plans are to resubmit the RI/RA, with the risk assessment based on likely future use of commercial/industrial, along with completion of the CERCLA process (FS, Proposed Plan, and ROD).

4. REMEDIAL ACTIONS

4.1 SE OU 1—K-AREAS

4.1.1 Remedy Selection

The ROD for the Southeastern Area OU 1: K Areas was signed on 2 August 1991. The remedial action objective was:

- Minimize the deterioration of groundwater by providing source control of the contaminated soils.

The remedial actions at SE OU 1 were:

- Excavation of 8,000 cubic yards of contaminated soils in the K Area.
- Thermal treatment of contaminated soils at a temperature not greater than 450 °F.
- Destruction of volatilized contaminants by adsorption of volatilized contaminants onto activated carbon.
- Analysis of representative samples of treated soils and comparison with treatment criteria.
- Return of treated soils to original excavation.

An Explanation of Significant Differences (ESD) for the Southeastern Area OU 1: K Areas was signed on 2 August 1991 as a result of comments provided by EPA to the Army following signature of the ROD by the Army. The ESD clarifies that the appropriate ARARs for any metals found in soils during the remediation at the SE Area are the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901 et seq., Land Disposal Restrictions promulgated at 40 C.F.R. Part 268, and that the Pennsylvania proposed regulations on residual waste management are “To Be Considered” (TBC) in implementing the proposed remedy.

4.1.2 Remedy Implementation

The remedial design for the site was started in September 1991 and completed in June 1993. The plans called for the Army to excavate all soils in the K-Areas that contained 225 parts per billion (ppb) of trichloroethene or greater. The soils were to be treated using Low Temperature Thermal Treatment (LT^3). Excavation to bedrock (the limits of mechanical excavation) yielded approximately 14,100 yd^3 of soil from Areas K-1, K-2, and K-3 to be treated. Mobilization began in August 1993.

4.1.2.1 LT^3 Treatment

The LT^3 system was required to remove TCE from the impacted soils down to a residual concentration level of 50 ppb as well as remove other target organic contaminants to the residual Land Disposal Restriction (LDR) concentration limits specified in 40 CFR 268.41. In addition, the LT^3 system was required to comply with all applicable air emissions standards to include a particulate matter concentration of less than 0.08 grains per dry standard cubic foot (dscf) and a 99% removal efficiency of target organic compounds. LT^3 technology was previously used to successfully treat impacted soil at LEAD's Industrial Wastewater Treatment Plant (IWTP) lagoons.

The following performance requirements were required:

- Trichloroethene 50 ppb
- Acetone 160,000 ppb
- Benzene 3,700 ppb
- Carbon Tetrachloride 5,600 ppb
- Chlorobenzene 5,700 ppb
- O-Dichlorobenzene 6,200 ppb
- 1,1,1-Trichloroethane 5,600 ppb
- 1,1,2-Trichloroethane 7,600 ppb
- Tetrachloroethene 5,600 ppb
- Ethyl Benzene 6,000 ppb
- Toluene 28,000 ppb
- Xylene (Total) 28,000 ppb

4.1.2.2 Stabilization

Following LT^3, approximately 4,000 yd^3 of soil that exceeded TCLP standards for lead were treated (fixated) to meet the TCLP regulatory requirements of 5 ppm.

4.1.2.3 Backfilling

LT^3 treated and stabilized soil was returned to the area from which it was excavated. These soils were placed into all of the excavations in 8-inch lifts and compacted. The K Areas were returned to their pre-remediation contours or, where necessary, modified to promote surface water drainage and prevent ponding or collection of surface water. Slopes associated with final grading were constructed and maintained to ensure permanent stability, control erosion, and to allow for the placement of the soil and vegetative cover.

4.1.2.4 Construction of Class III Residual Waste Landfill

The cover system placed on the K Areas was required to meet all final cover requirements of the PADER Title 25 Residual Waste Management Regulations, Chapter 288, pertaining to class III residual waste landfills.

A minimum of 12 inches of the intermediate cover layer was installed in no greater than 8-inch lifts. A 40-mil geomembrane was installed onto the completed intermediate layer. The drainage layer consisted of a Geotextile over a Geonet layer. Cover soil was placed on the drainage layer in a manner that prevented damage to and wrinkling of the Geotextile and Geonet. Topsoil was installed over the cover soil. The topsoil layer was then seeded and mulched.

4.1.2.5 Project Schedule

August 1993 -	Began Mobilization and Excavation Shoring activities
September 1993 -	Completed Mobilization activities
November 1993 -	Received PADER Exemption Approval for LT^3 system
November 1993 -	Continued Excavation/Treatment/Backfill activities
January 1994 -	Suspension of Work pending regulatory approval of the Solidification/ Stabilization Treatability report
April 1994 -	Resumed Excavation/Treatment/Backfill activities
October 1994 -	Completed Excavation/Treatment/Backfill activities
November 1994 -	Began Final Cap/Site Restoration activities
September 1995 -	Completed Capping and Site Demobilization activities

4.1.2.6 Cost

The total cost of the Remedial Action was $4,295,578.
The contract cost of the Remedial Action was $3,905,256.
Excavation costs were $24.77 per yd^3.
LT^3 treatment costs were $74.70 per yd^3.
TCLP soils stabilization costs were $17.13 per yd^3.

4.1.3 Operation and Maintenance

The operation and maintenance plan and schedule for the capped areas in the K Area is documented in the SE OU 1 (K-Areas) *Vegetative Cover Preventative Maintenance and Corrective Action Standard Operating Procedure* (USACE, 2004).

4.1.4 Current Status

The Army has conducted visual inspections of the capped areas yearly. The most current inspection was conducted on 16 August 2007 and indicated that the vegetative cover, the under drainage system, and the liner are intact. The U.S. Navy installed two test-monitoring wells in December 1997 as part of a Three-Dimensional Seismic Technology Demonstration effort. Such wells were installed on the toe of the cap and did not penetrate the liner.

In spring 1999 the Army installed four in situ hydrogen peroxide injectors to support a pilot study. These injectors did penetrate the liner. Polyethylene boots were attached to the liner and clamped to the injector casing, maintaining liner integrity. This effort supports the SE OU 3A FFS that addresses the VOC groundwater contamination caused by the K Areas.

4.2 SE OU 2—INDUSTRIAL WASTEWATER SEWER SYSTEM

4.2.1 Remedy Selection

The selected remedy for SE OU 2 is cleaning and abandonment of the sewer lines in the parcels transferred to the public. Also, because the risk assessment showed that there are acceptable risks for commercial/industrial use, the remedy includes land use controls to prevent residential use of the property. The remedial action objectives for SE OU 2 consist of specific goals for protection of human health and the environment, and, more specifically are to:

- Prevent potential future releases from the sewers; and
- Prevent residential land use exposure.

As discussed in the ROD for SE OU 2, this remedial action alternative protects human health and the environment, is cost effective, technically and administratively feasible, and its implementation will not present any risks to site workers, the surrounding community, or the environment. The following documents support the selection of the remedy for SE OU 2:

- *SE OU 2, Industrial Wastewater Sewers, Risk Assessment Report, Final.* (IT, 2002)
- *Summary Report on the Emergency Removal of Contaminated Soils from the Industrial Wastewater Sewer System at the Letterkenny Army Depot, Chambersburg, PA.* (Weston, 1998h)
- *Data Validation Plan for Historical Analytical Data.* (Weston and MSTI, 1999)

- *Engineering Evaluation/Cost Analysis (EE/CA) for the Industrial Wastewater Sewer System Contaminated Soils for Southeastern Area Operable Unit 2, Letterkenny Army Depot, Chambersburg, PA. Final Report.* (Fluor Daniel, 1996)
- *Remedial Investigation for Southeastern Area Operable Unit 2 Industrial Wastewater Sewer Lines and Associated Contaminated Soils at Letterkenny Army Depot. Draft*. (Fluor Daniel, 1998)
- *SE OU2 Industrial Wastewater Sewers Feasibility Study Report Final* (Shaw, 2004d)
- *Proposed Plan for Southeastern Area Operable Unit 2* (Shaw, 2005a)
- *Record of Decision for Southeastern Area Operable Unit 2*. (Shaw. 2006a).

4.2.2 Remedy Implementation

The selected remedy for SE OU 2 includes the following elements:

- Abandonment of the sewer lines in the BRAC parcel (was completed and reported as part of SE OU 8 investigations); and
- Implementation of land use controls to restrict land use to commercial/industrial.

4.2.2.1 Sewer Lines

The selected remedy for SE OU 2 consisted of the cleaning and abandonment of the IWWS force main, and gravity drain lines servicing Buildings 37 and 57 to prevent future use of the existing sewers. The IWWS gravity lines in the Army-retained portion of the installation will remain in use. The sewer abandonment activities that were associated with the parcels transferred or to be transferred to the public are shown on Figures 10 through 16. The sewer abandonment portion of the SE OU 2 remedy was implemented as part of the remedial investigation activities for the IWWS under SE OU 8 and is reported in the draft SE OU 8 RI/RA report for Building 37 and IWWS (Weston, 2007d).

The IWWS system flushing/cleaning, testing and abandonment activities were conducted from fall 2004 through spring 2006. Work conducted to date includes abandonment of the industrial wastewater force main that extended from Building 57 to Manhole 140 A, and reconnections were made for the sanitary sewer as discussed below.

The IWWS force main extends from the Building 57 to Building 360 (the IWTP). The IWWS force main was abandoned from Building 57 to Manhole 140 A. The Building 57 gravity line and parts of the Building 37 gravity line, wet wells, and lift stations remain in use. This section of the force main is approximately 5,000 ft long and varies in diameter from 4 inches at Building 57 to 6 inches at Lift Station No. 2 to manhole 140A. The system was designed to discharge wastewater to this force main via gravity flow at Buildings 57, 37, 227, and 228 and pressurized

flow at Building 12 and a portion of Building 57. All IWWS lines and associated fixtures (e.g., lift stations, cleanouts, ARMs, sumps, and listening posts) that were not rerouted to the sanitary sewer were abandoned after they were cleaned and leak tested. The IWWS force main was abandoned from Cleanout No. 1 (downgradient of LS 4) to Manhole No. 140A (near Building 102). The existing force main was plugged at Cleanout No. 1, directly upgradient and downgradient of LS 1 and LS 2, cleanouts, ARMs, and at Manhole No. 140A. LS 2 and all listening posts along the force main were also abandoned. Figures 10 through 13 show the IWWS force main associated with Buildings 57, 37, 227 and 228, and 12, respectively, the points at which the line was plugged, and the abandonment of all listening posts, cleanouts, ARMs, and manholes.

Three sections of the IWWS force main near Buildings 37 and 57 were tested and abandoned as shown in Figure 14, 15 and 16. The active portion of the IWWS system (i.e., that received wastewater from new missions at Buildings 37 and 57), was rerouted to the Franklin County General Authority (FCGA) sanitary sewer at LEAD, and the remaining unused portion of the IWWS system force main in this area was abandoned. Currently, the wastewater from Building 37 is pumped into aboveground storage tanks then transported for treatment to the IWTP at LEAD because it does not meet the newly established LIDA pre-treatment standards for discharge into the LIDA-owned sanitary sewer system. Wastewater from Building 57 continues to be discharged to the LIDA-owned sanitary sewer system. The Army is currently considering whether to continue the wastewater transport to the IWTP or to install a replacement force main (in the vicinity of the abandoned force main) to direct flow from both buildings to the IWTP.

4.2.2.2 Land Use Controls

The selected remedy for SE OU 2 also includes land use controls to prohibit the development and use of property for residential housing, elementary and secondary schools, child care facilities, and playgrounds. Implementation of this remedy will maintain the industrial use of the property by the development and enforcement of environmental deed restrictions. These restrictions will become a permanent part of the real estate documentation and will be required to be included in any subsequent sales, transfers, and/or lease agreements. According to the description of the selected remedy in the ROD, “within 90 days after the last signature on this ROD, the Army will prepare and submit to EPA for review and approval a Land Use Control (LUC) Remedial Design as the land use component of the Remedial Design; this LUC Remedial Design shall contain LUC implementation and maintenance actions, including periodic inspections.” Appropriate land use controls are to be contained in the Land Use Control Remedial Design document including any explicit prohibitions that may be deemed necessary. The land use controls will be maintained until the concentrations of hazardous substances in the soil are at levels that allow for unrestricted use and unlimited exposure. It was determined during the 5-Year review that the Land Use Control Remedial Design document has not been prepared and this is a deficiency that needs to be addressed. The document is currently in progress and a draft is expected to be completed by the end of September 2008. The remedy will be implemented as discussed below.

Land use controls for property that has been transferred to the public, which are located in the Phase I and Phase II parcels (Figure 6) were implemented via deed restrictions at the time of

property conveyance. The land use controls also include zoning restrictions and enforcement provisions as summarized below. Deed restrictions were included upon transfer of the property to LIDA and include a covenant to use the area solely for non-residential purposes. The deed restrictions do not preclude additional remediation to residential standards; however, the restrictions require USEPA and PADEP approval prior to any residential use of the property. Residential use as defined in the deed restriction includes, but is not limited to, housing, daycare facilities, schools (excluding educational and training programs for persons over 18 years of age), assisted living facilities, and outdoor recreational activities (excluding recreational activities by employees and their families incidental to authorized commercial and industrial uses on the property). A Land Use Control Assurance Plan Memorandum of Agreement (LUCAP MOA) was developed and signed by the BRAC Cleanup Team in August 2002. The LUCAP MOA documents the land use controls and mechanisms, the enforcement and the annual reporting requirements, and ensures that the land use restrictions for the Phase I and Phase II BRAC property transfer remain in-place. The LUCAP MOA and its land use control provisions last until 2012, when the Army, USEPA and PADEP may consult and, if necessary, make other provisions for ensuring the effectiveness of the institutional controls on the Phase I and II property. In addition, the existing Greene Township zoning ordinances restricts the property to non-residential use.

For parcels related to SE OU 2 currently retained for military use at LEAD, the LEAD Master Plan describes land use on-post as commercial/industrial by specifying various military uses (LEAD Master Plan, Chapter 5).; however, it does not explicitly restrict land use for SE OU 2 to commercial/industrial. Therefore, the LEAD Master Plan will be amended to address this deficiency. A statement that prohibits residential use at SE OU 2, including residential housing, elementary and secondary schools, child care facilities, and playgrounds will be included in the LEAD Master Plan, along with the figure showing the locations of the sewer lines. Some of the parcels associated with SE OU 2 are to be transferred to LIDA in the future (will be Phase V BRAC, see Figure 17); the land use controls for these parcels will be implemented via deed restrictions, analogous to what was done for the Phase I and II BRAC parcels as was previously described. The details for land use restrictions for the sewers in Phase V BRAC parcels will be specified in the Land Use Control Remedial Design document, which is expected to be completed by the end of September 2008. In the interim, land use in SE OU 2 is restricted to commercial/industrial through the requirement for health and safety and dig permits to perform work at the site. Security patrols are also being utilized to prevent unauthorized activity at the site.

In addition, the removal of contaminants from groundwater through enhanced bioremediation was conducted for SE OU 2 as part of the SE OU 10 remedial action (see Subsection 4.11).

4.2.3 Operation and Maintenance

The land use controls portion of the SE OU 2 remedy requires O&M to prevent future residential use of the property. Portions of SE OU 2 are located in Army retained land, and portions are located in within BRAC parcel and the land will ultimately be transferred to LIDA. As stated in

the ROD, the long-term effectiveness of the land use controls will be contingent upon enforcement of use restrictions initially by the Army through the LEAD Master Plan, and after transfer, through enforcement of zoning restrictions and environmental deed restrictions.

The LUCAP MOA ensures that the land use restrictions for the Phase I and Phase II BRAC property transfer remain in-place. The monitoring and enforcement provisions of the LUCAP MOA include ongoing inspections by the Army as part of day-to-day activities at LEAD. The Army will provide written notification to PADEP and USEPA within three working days after observing or being informed of institutional controls violations. Annual requirements stated in the LUCAP MOA include: annual inspection of the CVBP; annual notification of land use controls to LIDA, Greene Township, Letterkenny Township, and CVBP; and annual status report of land use controls to PADEP and EPA. Other institutional control mechanisms are deed restrictions, zoning restrictions and the CVBP Declaration of Covenants, Conditions and Restrictions. LIDA's Health and Safety Plan and the CVBP Declaration of Covenants, Conditions, and Restrictions ensure that the land is used solely for commercial/industrial purposes. Additionally, all of the Phase I and Phase II BRAC parcels are located in the portion of Greene Township that has zoning restrictions prohibiting residential use of the land. The Army, with USEPA and PADEP approval, may arrange with other entities such as LIDA to maintain the institutional controls as long as the Army will remain ultimately responsible for the effectiveness of the institutional controls. Greene Township will have enforcement authority for the local zoning restrictions.

The LUCAP MOA documents the land use controls and mechanisms, the enforcement and the annual reporting requirements. Letterkenny has submitted annual inspection reports to the EPA and PADEP for calendar years 1999 thru 2006. One requirement under the LUCAP MOA is the development by the BCT of a notification letter for the LIDA. The notification letter was finalized by the BCT in May 2006, signed by the BRAC Environmental Coordinator on June 16, 2006 and delivered to LIDA. LIDA will in turn distribute this notification letter on an annual basis to the Cumberland Valley Business Park landowners and tenants.

The sewer abandonment portion of the SE OU 2 remedy does not specifically necessitate O&M since the specified abandonment activities associated with Building 37 and 57 have been completed. The Army has plans to continue using Buildings 37 and 57 under a lease agreement after the property is transferred to LIDA. The Army also plans to use portions of the IWWS lines at Buildings 37 and 57. Therefore, the Army is currently considering whether to continue transporting the wastewater to the IWTP or install a new force main (in the vicinity of the abandoned force main) to direct flow from both buildings to the IWTP. These future activities will be maintained by the LEAD Public Works Department and are outside of the scope of the SE OU 2 ROD.

4.3 SE OU 3A—DISPOSAL AREA VOC-CONTAMINATED GROUNDWATER

4.3.1 Remedy Selection

The remedy for SE OU 3A has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 3A will be protective of human health and the environment. In the

interim, exposure pathways that could result in unacceptable risks are being controlled through the use of the LEAD Master Plan, which prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. The LEAD Master Plan describes land use on-post as commercial/industrial by specifying various military uses (LEAD Master Plan, Chapter 5); however, it does not explicitly restrict land use for SE OU 3A to commercial/industrial. Therefore, the LEAD Master Plan will be amended to address this deficiency. Buildings that could potentially be affected by the vapor intrusion pathway are currently being evaluated to determine whether the pathway is complete.

4.3.2 Remedy Implementation

Not applicable.

4.3.3 Operation and Maintenance

Not applicable.

4.4 SE OU 3B— AREA UPGRADIENT OF VOC-CONTAMINATION SOURCE IN SE OU 3A

4.4.1 Remedy Selection

A ROD and a FOST were completed and signed in June 2006. The ROD (Weston, 2006b) specifies No Action for SE OU 3B groundwater and for soil associated with four parcels that consist of a portion of SE OU 8; two of these parcels are to be transferred as part of the Phase IV BRAC property transfer. See Section 4.9.1 for additional discussion.

4.4.2 Remedy Implementation

The risk associated with groundwater in SE OU 3B is within acceptable levels based on unrestricted use (see Subsection 4.9.1). The Phase IV ROD (WESTON, 2006b) concluded that No Action is required for SE OU 3B.

4.4.3 Operation and Maintenance

Not applicable (selected remedy was No Action).

4.5 SE OU 4—STORMWATER SEWER LINES AND ASSOCIATED DRAINAGEWAYS

4.5.1 Remedy Selection

A ROD was completed in July 2005 (signed in August 2005) (Shaw, 2005b). The ROD contains the supporting information and documents that no further action is necessary for SE OU 4 to be protective of human health and the environment.

4.5.2 Remedy Implementation

Not applicable (selected remedy was no further action).

4.5.3 Operation and Maintenance

Not applicable (selected remedy was no further action).

4.6 SE OU 5—AREA A AND B CONTAMINATED SOILS

4.6.1 Remedy Selection

The remedy for SE OU 5 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 5 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled through the LEAD Master Plan, which prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 5 to commercial/industrial; however, the document will be amended to address this deficiency. Potential risks to ecological receptors are currently in the risk management decision process.

4.6.2 Remedy Implementation

Not applicable.

4.6.3 Operation and Maintenance

Not applicable.

4.7 SE OU 6— VOC-CONTAMINATED GROUNDWATER NORTH OF GATE 6 AND EAST OF EAST PATROL ROAD (ROWE RUN DRAINAGE SYSTEM)

4.7.1 Remedy Selection

The remedy for SE OU 6 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 6 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled. To eliminate the possibility for direct contact with and ingestion of contaminated groundwater, residents affected by groundwater contamination have received bottled water and/or have been connected to the public water supply line and the public has been notified through public meetings and publicly-available documents about the contaminated groundwater. In addition, the Greene Township code Chapter 101 contains a provision for requiring additional analysis of a water supply if the township has reason to suspect that harmful substances are present in amounts that are significantly adverse to human health and safety. Also, the Greene Township code (*Code of the Township of Greene Pennsylvania, Part II General Legislation, V3 Updated through 12-15-2002, Chapter 85, Subdivision and Land Development, and Chapter 101, Water)* also applies to SE OU 6 which is located entirely within Greene Township. The Greene Township code requires connection to public water supply for specified areas and situations as defined in Chapters 85 and 101 of the 2005 Code of the Township of Greene. Chapter 85 states that if any part of a proposed subdivision, mobile home park, or land development is located within 500 feet of an existing or planned public water system, it shall be connected to said water system and shall serve every lot, dwelling unit or other occupancy within the proposed subdivision. Chapter 101 of Greene Township code requires connection to public water supply for existing structures located within 150 feet of a public water system where the existing individual or semipublic water supply becomes nonfunctional or inadequate, as defined by the code.

The vapor intrusion pathway is currently being evaluated at SE OU 6 to determine whether this pathway is complete and whether this pathway presents any unacceptable risk to human health or the environment in SE OU 6.

4.7.2 Remedy Implementation

Not applicable.

4.7.3 Operation and Maintenance

Not applicable.

4.8 SE OU 7—TRUCK OPEN STORAGE AREA

4.8.1 Remedy Selection

The remedy for SE OU 7 has not been selected at this time. The selected remedy for SE OU 7 will be documented in the FS, Proposed Plan, and ROD for the Phase V BRAC property transfer. It is anticipated that all remedial actions selected for SE OU 7 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled through the LEAD Master Plan, which prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 7 to commercial/industrial; however, the LEAD Master Plan will be amended to address this deficiency.

4.8.2 Remedy Implementation

Not applicable.

4.8.3 Operation and Maintenance

Not applicable.

4.9 SE OU 8—BRAC WASTE SITES

4.9.1 Remedy Selection

A Proposed Plan (PP) (WESTON, 1998a) was approved and a ROD (WESTON, 1998b) was signed in September 1998 for the Phase I Parcels. The ROD specified land use controls as the final remedy for soils and the interim remedy for groundwater. The following areas comprise the SE portions of Phase One: Parcels 1 and 2, Parcels 3 and 4, Parcel 5, Parcel 6, Parcel 7, Parcel 8, Parcel 9, Parcels 10 through 13, Parcels 16 through 21, Parcels 22 and 31, Parcel 23, Parcel 24, Parcel 25, Parcel 26, and Parcel 27. The locations of these parcels in the SE Area are shown in Figure 6.

The following documents were completed and approved to support the ROD for the Phase I Parcels in the SE Area.

- *Decision Document for BRAC Parcels 1 and 2, Letterkenny Army Depot* (WESTON, 1998c).
- *Decision Document for BRAC Parcels 8 through 13, Letterkenny Army Depot* (WESTON, 1998d).
- *Decision Document for BRAC Parcel 24, Letterkenny Army Depot* (WESTON, 1998e).

- *Decision Document for BRAC Railroad Parcels, Letterkenny Army Depot* (WESTON, 1998f).

The remedial action objectives for the Phase I Parcels in SE OU 8 are to:

- Prevent direct contact and ingestion of soil under residential and other nonindustrial exposure scenario.
- Prevent direct contact and ingestion of groundwater under any scenario.
- Prevent exposure levels of contaminants that produce unacceptable risk.

The remedial actions for the Phase I Parcels in SE OU 8 are:

- To restrict the property for commercial and industrial use only.
- To not permit soil excavation activities below a depth of 3 ft above the water table without prior approval of the Army, EPA, and PADEP.
- To not permit the construction of any subsurface structure for human occupation, without prior approval of the Army, EPA, and PADEP.
- To restrict access or use of the groundwater underlying the property without the prior written approval of the Army, EPA, and PADEP.
- To institute through an amendment to LEAD's Master Plan for the Phase I Parcels to reflect the land use controls until the date of transfer.
- To implement the restrictions through the appropriate deed restrictions at the time of transfer.
- To establish periodic inspection procedures to ensure adherence to the land use controls.

As stated in the ROD, the long-term effectiveness of the land use controls will be contingent upon enforcement of use restrictions initially by the Army through the LEAD Master Plan, and after transfer, through enforcement of the environmental deed restrictions. The Army, with USEPA and PADEP approval, may arrange with other entities such as LIDA to maintain the land use controls as long as the Army will remain ultimately responsible for the effectiveness of the land use controls.

Implementation of this remedy will maintain the industrial use of the property and reduce the future risk of exposure to groundwater by the development and enforcement of environmental deed restrictions. These restrictions will become a permanent part of the real estate documentation and will be required to be included in any subsequent sales, transfers, and/or lease agreements.

A Proposed Plan (PP) (WESTON, 2001a) was approved and a ROD (WESTON, 2001b) was signed in July 2001 for the Phase II Parcels. The ROD specified land use controls as the final

remedy for soils and the interim remedy for groundwater. The following areas comprise the SE Portions of Phase II: Parcels 2-35 through 2-77 (with the exception of Parcel 2-73). The locations of these parcels in the SE Area are shown in Figure 6.

Because the groundwater beneath the Phase II parcels is known to be or potentially is contaminated with VOCs, the Army and LIDA have defined the Phase II parcels to exclude the groundwater. To expedite transfer, the Phase II parcels are defined to include only the surface structures and soil to a depth of 8 feet below ground surface (ft bgs), which is above the seasonal high groundwater table.

The following documents were completed and approved to support the ROD for the Phase II Parcels in the SE Area:

- *Final Decision Document, Former PCB Transformer Sites in Southeastern (SE) Area, Operable Unit (OU) 8, (DSERTS Site LEAD-125)* (WESTON, 2000a).
- *Final Termination Survey Report for Building 441 at Letterkenny Army Depot* (WESTON, 2000b).
- *Remedial Investigation and Risk Assessment Report for the Gate 1 Guardhouse, Building 511, Southeastern Area (SE) Operable Unit (OU) 8, Letterkenny Army Depot.* Final Report (WESTON, 2001c).
- *Groundwater Vapor Intrusion Risk Assessment, Letterkenny Army Depot.* Final Report (WESTON, 2001d).
- *Feasibility Study Report for the Gate 1 Guardhouse, Building 511, Southeastern Area (SE) Operable Unit (OU) 8, Letterkenny Army Depot.* Final Report (WESTON, 2001e).
- *Seasonally High Groundwater Determination for the Phase 2 BRAC Parcels, Letterkenny Army Depot.* Final Report (EPSYS, 2001).

The remedial action objectives for the Phase II Parcels in SE OU 8 are to:

- Prevent direct contact and ingestion of soil under residential and other nonindustrial exposure scenario.
- Prevent direct contact and ingestion of groundwater under any scenario.
- Prevent exposure to levels of contaminants that produce unacceptable risk.

The remedial actions for the Phase II Parcels in SE OU 8 are:

- To restrict the Gate 1 Guardhouse (Building 511 Area) to commercial and industrial use.
- To prohibit soil excavation activities below a depth of 3 ft above the water table without prior approval of the Army.
- To prohibit the construction of any subsurface structure for human occupation, without the prior approval of the Army, EPA and PADEP.

- To prohibit access to or use of the groundwater underlying the Phase II Parcels without the prior written approval of the Army, EPA and PADEP.
- To amend LEAD's Master Plan for the Phase II Parcels to reflect the land use controls until the date of transfer.
- To implement the restrictions through the appropriate deed restrictions at the time of transfer.

In addition, upon transfer of the property, the Army, in consultation with EPA and PADEP, will establish periodic inspection procedures as described in the Land Use Control Assurance Plan and the Land Use Control Implementation Plan to ensure adherence to the land use controls. By means of the Land Use Control Assurance Plan (which is a Memorandum of Agreement with EPA and PADEP), LEAD, on behalf of the Department of the Army, will agree to implement Depot-wide, certain periodic site inspection, condition certification, and agency notification procedures designed to ensure the maintenance by Army personnel (or other approved designee) of any site-specific land use controls deemed necessary for future protection of human health and the environment. A fundamental premise underlying execution of the agreement will be that through the Army's substantial good-faith compliance with the procedures called for therein, reasonable assurances would be provided to EPA and PADEP as to the permanency of those remedies that included the use of specific land use controls. The Army, with EPA and PADEP approval, may arrange with other entities such as LIDA to maintain land use controls. The Army remains ultimately responsible for protecting human health and the environment through this remedy.

A Proposed Plan (WESTON, 2003a) was approved, and a No Action ROD (WESTON, 2003e) was signed in August 2003 for the Phase III Parcels. All Phase III parcels are located in SMSR. An extensive study conducted at the SMSR and the BRAC sites indicated that the soil and groundwater in this region are not contaminated. Consequently, it was determined in the ROD that no further remedial action is necessary to protect public health or welfare or the environment from the soil or groundwater at the Phase III parcels, and the properties can be transferred for unrestricted use. In addition, through the No Action ROD, groundwater restrictions were lifted for the Phase I BRAC parcels located within the SMSR area. Phase III BRAC transfer in the SE Area consists of: (1) Parcels 3-89, 3-90, and 3-91 located in both SE and PDO Areas; (2) Parcels 24, 27, and 28 (groundwater of the Phase I parcels located within the SMSR); and (3) Parcels 2-53L, 2-54L, 2-70L, 2R-80L-3, 2R-84L-3, and 2R-86L-3 (subsurface property deeper than 8 ft of the Phase II parcels located within the SMSR). Locations of these parcels are shown in Figure 6.

The following documents related to SE OU 8 were completed and approved to support the ROD for the Phase III Parcels in the SE OU 8 area:

- *Remedial Investigation and Risk Assessment Report for the Building 400 Series Fire Training* Area (WESTON 2002a).
- *Remedial Investigation and Risk Assessment Report for the Backwash Discharge Area* (WESTON 2002b).
- *Summary Report on the Groundwater Quality in the Southern Martinsburg Shale Region* (WESTON 2003b).

- *Remedial Investigation and Risk Assessment Report for the Open Vehicle Storage Area* (WESTON, 2003d).

There are no remedial action objectives or remedial actions associated with Phase III parcels.

A Proposed Plan (WESTON, 2005b) was approved, and a No Action ROD (WESTON, 2006b) was signed in 2006 for the Phase IV Parcels. The Army and EPA, in consultation with the PADEP, determined that no further CERCLA remedial action is necessary to protect public health or welfare or the environment from the soil at the BRAC Phase IV parcels or groundwater associated with these parcels (SE OU 3B). Phase IV BRAC transfer in the SE Area consists of Parcels 4-92, 4-93, 4-94, and 4-95. A Finding of Suitability to Transfer (FOST) was approved and these parcels will be transferred without any restrictions. Parcels 4-94 and 4-95 are now going to be retained by the Army. As of the date of this report, the parcels have not yet been transferred. The No Action Remedy is protective of human health and the environment.

The following documents related to SE OU 8 were completed and approved to support the ROD for the Phase IV Parcels in the SE OU 8 area:

- *Remedial Investigation (RI) and Risk assessment (RA) Report for the Tank Farm Storage Area, southeastern (SE) Area Operable Unit (OU) 8 (DSERTS Site LEAD-115), Letterkenny Army Depot.* Final (WESTON, 2005d).
- *Remedial Investigation (RI) and Risk Assessment (RA) Report for the Test Track Area, Southeastern (SE) Area Operable Unit (OU) 8, (DSERTS Site LEAD-016), Letterkenny Army Depot.* Final (WESTON, 2005e).
- *Report for the Groundwater Site Investigation (SI) in the Southeastern (SE) Area Operable Unit (OU) 3B, AEDBR Sites LEAD-016, LEAD-114, and LEAD-115, Letterkenny Army Depot.* Final (WESTON, 2005f).
- *Screening Level Ecological Risk Assessment for Southeastern (SE) Area Drainageways for BRAC Sites Operable Unit (OU) 8, Letterkenny Army Depot.* Final (WESTON, 2005f)
- *Screening Level Risk Assessment for Unrestricted Use of the Former Vehicle Storage Area North of the Test Track (FVSA), PDO OU 6 and SE OU 8, AEDBR LEAD-110 and LEAD-114, Letterkenny Army Depot.* Final (WESTON, 2005h)

There are no remedial action objectives or remedial actions associated with Phase IV parcels.

4.9.2 Remedy Implementation

Land use controls were adopted by the Letterkenny Industrial Development Authority (LIDA) in October 1998 at the time of the Phase I Properties transfer. The land use controls mechanisms consist of permanent deed restrictions placed on the property, Greene Township zoning

restrictions, and the Cumberland Valley Business Park (CVBP) Declaration of Covenants, Conditions, and Restrictions. The land use controls consist of the following: restricting the use of the property to industrial and commercial; prohibiting the excavation of soil deeper than 3 ft above the water table without the prior approval of the Army; prohibiting access to groundwater underlying the property without the prior written approval of the Army, PADEP, and EPA; and prohibiting construction of subsurface structures without the prior approval of the Army The same approach was adopted at the time of property transfer of the Phase II Parcels in May 2002.

Phase III parcels are located within the SMSR, therefore, the risk associated with soil and groundwater of these parcels, based on unrestricted use, is within acceptable levels (see Subsection 4.9.1). The Phase III ROD (WESTON, 2003e) concluded that no action will be necessary for the parcels identified in the ROD. Phase III ROD includes Phase III parcels, as well as the groundwater portions of Phase I in the SMSR area that were previously transferred with restrictions on groundwater use, and the lower portion of the Phase II parcels located within the SMSR had not been previously transferred. Based on the results of the SMSR investigation, it was concluded in the Phase III ROD that there is an acceptable level of risk at the sites, and therefore no action will be necessary. In accordance with the Phase III ROD, the following parcels require no action:

- Soil and groundwater at Parcels 3-89, 3-90, and 3-91.
- Groundwater at Phase I parcels 24, 27, and 28 (previous groundwater restrictions can be removed).
- Subsurface property deeper than 8 ft (denoted with an “L” in the parcel number) at Phase II Parcels 2-53L, 2-54L, 2-70L, 2R-80L-3, 2R-84L-3, and 2R-86L-3. These parcel numbers were assigned in the Phase II ROD.

Phase IV parcels are located within the groundwater operable unit SE OU 3B, therefore, the risk associated with soil and groundwater of these parcels, based on unrestricted use, is within acceptable levels (see Subsection 4.9.1). The Phase IV ROD (WESTON, 2006b) concluded that no action will be necessary for the parcels identified in the ROD. Phase IV ROD includes Phase IV parcels and SE OU 3B. In accordance with the Phase IV ROD, parcels 4-92, 4-93, 4-94, and 4-95 require no action.

4.9.3 Operation and Maintenance

A Land Use Control Memorandum of Agreement (LUCAP MOA) for the LEAD BRAC parcels was signed by the Army, EPA and PADEP in July and August of 2002 to ensure that the soil and groundwater use restrictions for the Phase I and Phase II BRAC property transfer remain in-place. Annual requirements stated in the LUCAP MOA include: annual inspection of the CVBP; annual notification of land use controls to LIDA, Greene Township, Letterkenny Township, and CVBP; and annual status report of land use controls to PADEP and EPA. Other institutional control mechanisms are deed restrictions, zoning restrictions and the CVBP Declaration of Covenants, Conditions and Restrictions. The Phase I and II parcels are located in the CVBP where a potable water supply/distribution system is already in-place (that does not use groundwater from the LEAD Site). LIDA’s Health and Safety Plan and the CVBP Declaration of

Covenants, Conditions, and Restrictions ensure that the land is used solely for commercial/industrial purposes and that the users of the site are protected from exposure to VOC-contaminated groundwater. Additionally, all of the Phase I and Phase II BRAC parcels are located in the portion of Greene Township that has zoning restrictions prohibiting residential use of the land.

A LUCAP MOA was developed and signed by the BRAC Cleanup Team in August 2002. The LUCAP MOA documents the land use controls and mechanisms, the enforcement and the annual reporting requirements. Letterkenny has submitted annual inspection reports to the EPA and PADEP for calendar years 1999 thru 2006. The 2007 inspection report is in progress and will be submitted in the spring of 2008. One requirement under the LUCAP MOA is the development by the BCT of a notification letter for the LIDA. The notification letter was finalized by the BCT in May 2006, signed by the BRAC Environmental Coordinator on June 16, 2006 and delivered to LIDA. LIDA will in turn distribute this notification letter on an annual basis to the Cumberland Valley Business Park landowners and tenants.

4.10 SE OU 9—LANDFILL J

4.10.1 Remedy Selection

The remedy for SE OU 9 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 9 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled. This land is owned by the Army and the LEAD Master Plan prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 9 to commercial/industrial; however, the document will be amended to address this deficiency. In addition, a soil laver covers nearly all of the landfill, preventing direct contact with landfill contents.

4.10.2 Remedy Implementation

Not applicable.

4.10.3 Operation and Maintenance

Not applicable.

4.11 SE OU 10— SOUTHERN SOUTHEAST INDUSTRIAL AREA VOC-CONTAMINATED GROUNDWATER SOUTH OF GATE 6 (CONOCOCHEAGUE DRAINAGE SYSTEM)

4.11.1 Remedy Selection

A final Proposed Plan was completed in February 2005, and a ROD was completed in March 2006 (signed by the Army in August 2006 and by EPA in September 2006). The selected remedy for SE OU 10 included enhanced biodegradation, monitored natural attenuation of contaminants in groundwater, and implementation of land use controls to restrict site use. The timeline for the selected remedy is presented in subsections 4.11.2.1 through 4.11.2.3.

4.11.2 Remedy Implementation

As stated above, the selected remedy for SE OU 10 included enhanced biodegradation, monitored natural attenuation of contaminants in groundwater, and implementation of land use controls to restrict site use. The following Subsections provide details on each of these remedial actions.

4.11.2.1 Enhanced Biodegradation

Enhanced biodegradation technology was shown to be effective at the site based on the results of bench-scale and full-scale field pilot tests, and was selected for SE OU 10 based on the nine CERCLA evaluation criteria. The selected remedial alternative was subsequently incorporated into the final Proposed Plan for the site (Weston, 2005c LKD-RT-264).

Continuation of the enhanced biodegradation program on a full-scale basis was implemented in November 2000 and concluded in June 2007. Preliminary indications suggest that the enhanced bioremediation program was an effective remedial strategy for reducing the mass and toxicity of the VOCs in the site groundwater.

4.11.2.2 Monitored Natural Attenuation

Since implementation of the remedial action in November 2000, a long-term groundwater and surface water sampling has been implemented at SE OU 10 on a tri-annual basis (April, August and December) at 4 locations to track the monitored natural attenuation of the benzene, toluene, ethylbenzene, and xylene (BTEX) portion of the plume. The rationale for each of the 4 sampling locations is discussed in detail in the Remedial Action Work Plan for SE OU 10 (WESTON, April 2007). Samples are analyzed for VOCs in accordance with EPA's CLP requirements. All data packages are subject to independent, third party data validation. Annual reports summarizing the results of the MNA program and the status of the institutional controls have been and will continue to be submitted to the agencies by the end of the 1st quarter of each year.

4.11.2.3 Land Use Controls

The land use control objectives for SE OU 10 are follows:

A. Reduce risks to human health by: preventing bathing with, showering with and drinking VOC-contaminated groundwater throughout SE OU 10; prohibiting people from digging into, drilling into or otherwise disturbing soil below the water table in on-post areas (Army-retained and BRAC property); and prohibiting people from building subsurface structures designed for human occupation in on-post areas (Army-retained and BRAC property); and

B. Maintain the integrity of any current or future remedial or monitoring system associated with SE OU 10 remedial actions, such as monitoring wells.

4.11.3 Operation and Maintenance

No operation or maintenance for the enhanced biodegradation program is currently necessary; the program was concluded in June 2007, which is when the final nutrient injection occurred.

The continued need for land use controls within SE OU 10 is evaluated as part of the CERCLA 5-year review process for the SE Area of LEAD. Assessment of the need for land use controls at SE OU 10 is included in Section 6.

When a part of the property in SE OU 10 is transferred, the land use controls will be implemented through appropriate use restrictions in the deed, which will be recorded at the time of transfer. In addition, upon transfer of the property, the Army, in consultation with EPA and PADEP, will make arrangements to maintain the land use controls. The Army, with USEPA and PADEP approval, may arrange with other entities such as LIDA to maintain the land use controls as long as the Army will remain ultimately responsible for the effectiveness of the land use controls. In addition, the Greene Township code (*Code of the Township of Greene Pennsylvania, Part II General Legislation, V3 Updated through 12-15-2002, Chapter 85, Subdivision and Land Development, and Chapter 101, Water)* also applies to SE OU 10 which is located entirely within Greene Township. The Greene Township code requires connection to public water supply for specified areas and situations as defined in Chapters 85 and 101 of the 2005 Code of the Township of Greene. Chapter 85 states that if any part of a proposed subdivision, mobile home park, or land development is located within 500 feet of an existing or planned public water system, it shall be connected to said water system and shall serve every lot, dwelling unit or other occupancy within the proposed subdivision. Chapter 101 of Greene Township code requires connection to public water supply for existing structures located within 150 feet of a public water system where the existing individual or semipublic water supply becomes nonfunctional or inadequate, as defined by the code. On-post water is supplied by the Franklin County General Authority (FCGA) from the Letterkenny Reservoir located in Roxbury, PA.

In the off-post portion of SE OU 10, the Army has already hooked residences with VOC-contaminated groundwater at levels above MCLs to public water. Also, as described above, existing codes are in place and implemented by Greene Township that require connection to

public water supply for specified areas and situations as defined in Chapters 85 and 101 of the 2005 Code of the Township of Greene. In addition, the Greene Township code Chapter 101 contains a provision for requiring additional analysis of a water supply if the township has reason to suspect that harmful substances are present in amounts that are significantly adverse to human health and safety. The Army will be responsible for providing off-post sampling results to Greene Township and the public through annual reporting until ARARs are met and maintained throughout SE OU 10; however, there are no restrictions to excavation depths and no construction prohibitions off-post. The Greene Township Zoning Officer is responsible for implementing, enforcing, and internal reporting of the Greene Township existing codes and ordinances which are the land use controls for off-post areas of SE OU 10.

4.12 SE OU 11—NSIA VOC-CONTAMINATED GROUNDWATER NORTH OF GATE 6

4.12.1 Remedy Selection

The remedy for SE OU 11 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 11 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled. The Army has an existing water supply and the LEAD Master Plan prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 11 to commercial/industrial; however, the document will be amended to address this deficiency.

4.12.2 Remedy Implementation

Not applicable.

4.12.3 Operation and Maintenance

Not applicable.

4.13 SE OU 12—LANDFILL G

4.13.1 Remedy Selection

The remedy for SE OU 12 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 12 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled. This land is owned by the Army and the LEAD Master Plan prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 12 to commercial/industrial; however, the document will be amended to address this deficiency.

4.13.2 Remedy Implementation

Not applicable.

4.13.3 Operation and Maintenance

Not applicable.

4.14 SE OU 13—SOUTHERN MARTINSBURG SHALE REGION GROUNDWATER

4.14.1 Remedy Selection

A no further action decision was implemented in the ROD for the Phase III BRAC parcels, which included all of SE OU 13. The Army and EPA, in consultation with the PADEP, determined that no further CERCLA remedial action is necessary to protect public health or welfare or the environment from the soil or groundwater at the Southern Martinsburg Shale Region (SMSR) (SE OU 13), otherwise known as the BRAC Phase III parcels. These parcels were transferred without any restrictions in January 2004. The no further action remedy is protective of human health and the environment.

4.14.2 Remedy Implementation

Not applicable (selected remedy was No Further Action).

4.14.3 Operation and Maintenance

Not applicable (selected remedy was No Further Action).

4.15 SE OU 14—FORMER TEST TRACK AREA

4.15.1 Remedy Selection

This OU was created in 2007 to track sites in Army-retained land that were formerly administered under the BRAC program but are now in the ER,A program as a result of the 2007 revised BRAC boundary. RI/RAs for the Building 349 Staging Area and for the Former Test Track and Areas E and F were submitted to EPA in 2003 and 2004, respectively. Future plans are to resubmit the RI/RA, with the risk assessment based on likely future use of commercial/industrial, along with completion of the CERCLA process (FS, Proposed Plan, ROD).

4.15.2 Remedy Implementation

Not Applicable.

4.15.3 Operation and Maintenance

Not Applicable.

5. FIVE-YEAR REVIEW PROCESS

The following tasks were conducted as part of the five-year review process: document review, interviews, site inspection, ARARs review, and data review. There were no significant changes in the ARARs or site contaminants for OUs with final RODs; therefore, site risks were not recalculated.

5.1 FIVE-YEAR REVIEW TEAM

The 5-year review was led by Joe Petrasek, ER,A Project Manager, LEAD. The following team members assisted in the analysis and/or review:

- Bryan Hoke, BRAC Environmental Coordinator, LEAD
- Ruth Bishop, PADEP Regional Project Manager
- Rob Thomson/Curtis Callahan, Project Managers, EPA Region III
- Paul R. Stone III, Technical Manager, USACE

The community was informed of the five-year review in August 2007 via an email to RAB members from B. Hoke, LEAD BRAC Coordinator. In addition, the purpose and requirement of a CERCLA five-year review was discussed at the February 2007 RAB meeting in a discussion about the Property Disposal Office (PDO) 5-year review.

5.2 INTERVIEWS

Interviews were conducted with Joseph Petrasek, ER,A Project Manager, Letterkenny Army Depot in 2001, 2003 and 2007. The interview summaries are presented in Appendix A of this document.

An interview was conducted with John Van Horn, Executive Director of the Letterkenny Industrial Development Authority. The interview is presented in Appendix A of this document. An interview was also conducted with Bryan Hoke, Letterkenny Army Depot, BRAC Environmental Coordinator. Additional interviews were conducted in conjunction with the ongoing update to the LEAD Community Relations Plan, including with a local government official (Ruth Bishop - PADEP Environmental Cleanup Regional Program Manager), tenants of the Cumberland Valley Business Park and an adjacent neighbor of Letterkenny Army Depot

5.3 SITE INSPECTION

Inspections are conducted throughout the calendar year during construction events. These inspections are included in the annual letter that is submitted to EPA and PADEP that documents the status of the land use controls. The annual inspection letter can be found in the Letterkenny Administrative Record File containing regulatory correspondence. The annual inspection letters can be found on the Letterkenny Army Depot Environmental Website, Administrative Records,

Regulatory Correspondence, at http://209.235.100.233/padep/testrunsearch2.htm. In addition, backup information for inspections since 1999 can be found in the Constructions Inspection yearly office files. A table summarizing the inspections is enclosed in Appendix D. Table includes inspection location, date of inspection, reason for inspection, inspector(s), inspection activities, results and findings, and inspection report/data location.

In addition the following documents and data were reviewed for the 5-year review report:

- *Proposed Plan for Phase I Parcels, Letterkenny Army Depot*. WESTON (Roy F. Weston, Inc.). March 1998. LKD.RT-133.
- *Record of Decision for Phase I Parcels, Letterkenny Army Depot.* WESTON (Roy F. Weston, Inc.). September 1998. LKD.RT-143.
- *Finding of Suitability to Transfer (FOST) for Phase I Parcels, Letterkenny Army Depot*. WESTON (Roy F. Weston, Inc.). Final Report. October 1998. LKD.RT-148.
- *Proposed Plan for Phase II Parcels, Letterkenny Army Depot.* WESTON (Roy F. Weston, Inc.). February 2001. LKD-RT-181.
- *Record of Decision for Phase II Parcels, Letterkenny Army Depot.* WESTON (Roy F. Weston, Inc.). July 2001. LKD-RT-190.
- *Finding of Suitability to Transfer (FOST) for the Phase II BRAC Parcels, Letterkenny Army Depot.* WESTON (Roy F. Weston, Inc.). February 2002. LKD-RT-200.
- *Proposed Plan for Phase III Parcels, Letterkenny Army Depot*. WESTON (Roy F. Weston, Inc.). April 2001.
- *Record of Decision for the Phase III BRAC Parcels.* Final. WESTON (Roy F. Weston, Inc.). August 2003. LKD-RT-239.
- *Finding of Suitability to Transfer (FOST) for the Phase III BRAC Parcels.* September 2003. Final. WESTON (Roy F. Weston, Inc.). LKD-RT-238.
- *Land Use Control Assurance Plan Memorandum of Record, Phase I & II Parcels, Letterkenny Army Depot*. August 2002. LKD.RT-257.
- *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Explanation of Significant Differences (ESD) Two: Letterkenny Army Depot National Priorities List Southeastern Area EPA ID number PA 6213820503 Operable Unit One K-Areas.* LEAD (Letterkenny Army Depot). April 2004. LKT.RT-245.
- *SE OU 2, Industrial Wastewater Sewers (IWWS) and Contaminated Soils, Proposed Plan, Final, AEDBR Site LEAD-083 Report Number SEOU2ROD0405.* Shaw Environmental. April 2005. LKD.RT-290.

- *SE OU 2 Industrial Wastewater Sewers and Associated Contaminated Soils Record of Decision AEDBR Site LEAD-083, Report Number SEOU2ROD0806.* Shaw Environmental. August 2006. LKD.RT-284

- *SE OU 4, Stormwater Sewers and Associated Sediments, Proposed Plan.* Shaw Environmental. October 2004. LKD.RT-255

- *SE OU 4, Stormwater Sewer Lines and Contaminated Sediments, Record of Decision, Final, AEDBR Site LEAD-036, Report Number SEOU4ROD0605.* Shaw Environmental. June 2005. LKD.RT-270.

- *SE OU One (K Areas) Vegetative Cover Preventive Maintenance and Corrective Action Standard Operating Procedure.* Letterkenny Army Depot (LEAD). January 2004.

Bryan Hoke reviewed the most recent property deeds and leases for the Phase I and Phase II BRAC parcels, located in the Chambersburg Court House files, on 15 August 2007. The deeds were reviewed to verify that the land use restrictions specified in the ROD were recorded with the respective parcels at the time of property transfer. Letters documenting the review of the most current deeds and leases, as well as copies of typical deed and lease language, are provided in Appendix F.

Annual land use control letter reports and construction inspection office files from 1999 to 2007 were also reviewed as part of the 5-year review.

Additionally, the Greene Township Codes were reviewed via the internet to verify water use restrictions are still in place that are part of the land use controls for SE OU 10 remedy (Greene Township, 2007).

Subsequent Phase I and II deeds reviewed in early January 2008 discovered the following requirement in the CERCLA Remediation Section, Paragraph C.2. Deed/Lease: Within 14 days after the effective date of the transaction, GRANTEE, its successors and assigns, will provide to the GRANTOR, EPA, and PADEP, copies of the deed, lease, or other conveying instrument evidencing such transaction. It was found during this review that the copies referenced above were not being sent to the three parties as stated in the deed/lease.

Select leases from the Letterkenny Industrial Development Authority (LIDA) were reviewed on January 28, 2008 and confirmed that the leases reference the corresponding Phase I or Phase II Deed. It was verified with LIDA representative Kip Feldman that all LIDA leases follow the same format and therefore reference the corresponding Phase I and II deeds. In late January 2008, a lease from the Letterkenny Business Park was reviewed and discovered not to reference the corresponding Phase I Deed, thus confirming that not all leases reference the corresponding Phase I or II deed.

5.4 COMMUNITY INVOLVEMENT

The community's concerns were reviewed based on the minutes of the ongoing Restoration Advisory Board (RAB) meetings and interviews conducted as part of the ongoing Community

Relations Plan update. The purpose and requirement of the five-year review process was presented at the February 2007 RAB meeting and discussed in an email to the RAB members in August 2007. The findings of the five-year review will be presented at a future RAB meeting in November 2007. The community will be notified when the 5-year review is completed and a draft community notice is enclosed in Appendix C).

6. ASSESSMENT

6.1 SE OU 1—K-AREAS

6.1.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

6.1.1.1 Remedial Action Performance

The Low Temperature Thermal Treatment was effective in meeting the remedial action objectives, which are to prevent direct contact and ingestion of soil; and reduce exposure levels of contaminants that produce unacceptable risk. The 1991 ROD for SE OU 1 (K-Areas) specified that the soil contaminant concentration at SE OU 1 be reduced to levels below the cleanup criteria of 225 μg/kg, and that the thermal treatment unit be operated at or above 99.95% efficiency. Based on a review of the remedial action data and the information presented in Appendix B, it was determined that the performance requirements of the selected remedy (Alternative 4A) were met.

The remedy selected for SE OU 1 remains protective of human health and the environment based on continued industrial use. This determination is supported by the conclusions presented in this section.

6.1.1.2 System Operations/O&M

An inspection of the cap conducted in August 2007 indicated that the vegetative cover, drainage system, and liner are intact. The Cap Inspection Plan recommends yearly inspections of the K-Area caps. Continued inspections of the liner (and repairs if needed) are necessary to maintain protectiveness of human health and the environment. There was some accidental vehicle traffic noted in August 2007 across K-3 which has not damaged the cover. The Army has posted new “Please Keep Off” signs in early September 2007 as part of cap maintenance. The capped areas (K-1, K-2, and K-3) are included in the Depot's mowing and landscape plan. The last few years this work has been performed by contractors; at a reduced level of effort. K-3 has not been mowed for several years. The Army will mow the area this fall. Mowing at a minimum frequency of once per year is needed to prevent the growth of woody plants that could possibly compromise the integrity of the cover.

6.1.1.3 Opportunities for Optimization

Not applicable (project is complete).

6.1.1.4 Early Indicators of Potential Remedy Problems

There have been no early indicators of potential remedy problems as documented by the findings of the yearly cap inspections, other than infrequent mowing at K-3. Mowing will be done at a minimum frequency of once per year to prevent the growth of woody plants that could possibly compromise the integrity of the cover.

6.1.1.5 Implementation of Land Use Controls and Other Measures

A deficiency was identified during the production of the first five-year review, which was completed in October 2001 (USACE, 2001). Neither the 1991 ROD nor the first Explanation of Significant Differences (ESD) identified the necessary land use controls needed to limit future use of the capped areas and to maintain the long-term integrity of the capped areas. To remedy this deficiency, significant additions were made to the remedy selected in the 1991 ROD via the second ESD (LEAD, 2004), including land use controls to limit the future use of the three capped areas K-1, K-2, and K-3, and a Cap Maintenance Plan to maintain the long-term integrity through yearly inspections (the most recent cap inspection occurred in August 2007) of the three capped areas K-1, K-2, and K-3 (USACE, 2004). The implementation of land use controls was carried out through amendments to the LEAD Master Plan. The following was added to the *Environmental Constraints* section of the Letterkenny 2010 Master Plan:

"Two areas of the installation contain remediated soils covered with synthetic caps. They include the industrial waste treatment plant lagoons (IWTP) (See SE OU 11) and the K areas west of the ore piles. Intrusive activities are prohibited in these areas." The cap boundaries at the K Areas are shown in Appendix E.

<u>ANSWER A SE OU 1:</u> Yes – The remedy is functioning as intended by the 1991 ROD for SE OU 1 (K-Areas)

6.1.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of remedy selection still valid?

6.1.2.1 Changes in Standards and TBCs

At the time of the ROD for SE OU 1, there were no ARARs for soil. The following could be considered to be ARARs at this point in time:

- PADEP Medium-specific concentrations (MSCs), Residential, Soil Direct Contact and Soil to Groundwater Used Aquifer, TDS<2,500 (Title 25 PA code, Chapter 250, Administration of Land Recycling Program).

- PADEP Residential MSCs for Groundwater, Used Aquifer, TDS<2,500 (Title 25 PA code, Chapter 250, Administration of Land Recycling Program).

Comparison of the data that was used for the risk assessment used to support the ROD (ESE, 1988a) to the PADEP criteria indicates that the detected concentrations of contaminants of concern in soil are below the current PADEP direct contact MSCs. The COCs for the SE OU 1 specified in the ROD were TCE and 1,1-DCE. These COCs were identified due to contamination that had migrated to offpost groundwater (see SE OU 6) and to prevent further migration of contaminants from soil to groundwater that could occur in the future. The risk assessment for SE OU 1 showed that the risks to onpost workers were within acceptable levels for the pathways evaluated. Therefore, the cleanup goal for the SE OU 1 (TCE) stated in the ROD was a site-specific goal developed for protection of soil-to-groundwater pathway and was calculated for TCE only because the groundwater ARAR (MCL) for TCE is lower than that for 1,1-DCE. The cleanup goal was 225 parts per billion (ppb, equivalent to 225 micrograms per kilogram [µg/kg]).

The following table provides a list of COCs at SE OU 1 along with the original cleanup goals and risk-based criteria, and the current applicable standards:

Groundwater COCs	**EPA MCL and PADEP MSC - ARAR used to derive Soil Cleanup Goal**	**Current EPA MCLs/PADEP MSC**
TCE	5 ug/L	5 ug/L
1,1-DCE	7 ug/L	7 ug/L

Soil COC	**Exposure Pathway**	**Original Benchmarks (PADEP MSCs)**	**Current Benchmarks PADEP MSCs**
TCE	Soil Cleanup Goal	225 ug/kg	--
TCE	Residential Soil	190,000 µg/kg	190,000 µg/kg
TCE	NonResidential Soil	970,000 µg/kg	970,000 µg/kg
TCE	Soil-to-Groundwater Residential, Generic Value, TDS<2500	170 ug/kg	170 ug/kg

Note that although the PADEP soil-to-groundwater MSC is lower than the soil cleanup goal, this value has not changed over time. In addition, the PADEP number is a statewide generic number under Act 2, and Act 2 allows calculation of a site-specific number. The evaluation provided in Appendix B supports that the site-specific number is protective and also supports that the overall conclusion for the site is that the Federal and State standards for the contaminants of concern have not changed in a manner that affects the protectiveness of the remedy. For example, Appendix B states that the Removal Areas delineated in the K Areas were delineated to non-detect, not 225, as a conservative measure.

6.1.2.2 Changes in Exposure Pathways

Exposure pathways evaluated at SE OU 1 were skin absorption, incidental ingestion of soil, and vapor inhalation. Since the first SE 5-Year Review, it has been determined that the vapor intrusion pathway (VIP) will need to be evaluated at many LEAD sites within the SE Area. However, this pathway poses no new threat to human health and the environment at SE OU 1 based on land use controls, in the form of signage restricting access to the K Areas, implemented in the second ESD (LEAD, 2004) and the implementation of the Cap Maintenance Plan, which was designed to preserve long-term integrity of the synthetic caps.

6.1.2.3 Changes in Toxicity and Other Contaminant Characteristics

There are no significant changes in toxicity and other contaminant characteristics other than for TCE. TCE toxicity is a complicated issue involving many uncertainties and has been the subject of considerable controversy over the past two decades. The current guidelines implemented by the EPA are draft provisional guidance not accepted by EPA as final as of the date of this report. The most recently proposed guidance regarding TCE is under internal review with the EPA. Based on the current and future intended commercial/industrial use the site is protective of human health. Issues regarding toxicity of TCE will be revisited during the next SE 5-Year Review.

6.1.2.4 Changes in Risk Assessment Methods

There are no changes in risk assessment methods that affect the protectiveness of the remedy. There have been some minor changes in risk assessment procedures recommend by EPA since 1991, such as methods for calculation of exposure point concentrations (EPA, 2004); however, these do not affect the overall protectiveness of the remedy (see discussion in Appendix B).

6.1.2.5 Expected Progress Towards Meeting RAO's

The RAO's, specified in the ROD for SE OU 1, have been completed as follows:

- Excavation of approximately 8,000 yd^3 of contaminated soil.
- Thermal treatment of the contaminated soils at a temperature not to exceed 450 degrees Fahrenheit.
- Destruction of the volatilized contaminants by a secondary high-temperature combustor or collection on a carbon filter.
- Chemical analysis of representative samples of the treated soils to ensure cleanup criteria are met.
- Proper management of treated soils.

<u>ANSWER B SE OU 1:</u> YES – The exposure assumptions, toxicity data, cleanup levels, and RAO's used at the time of remedy selection are still valid.

6.1.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.1.3.1 Newly Identified Ecological Risks

There are no newly identified ecological risks.

6.1.3.2 Impacts from Natural Disasters

There have been no impacts from natural disasters.

6.1.3.3 Any other New Information that could affect the Protectiveness of the Remedy.

There has been no other information that could affect the protectiveness of the remedy.

<u>ANSWER C SE OU 1:</u> NO – There has not been any new information that calls into question the protectiveness of the remedy.

6.2 SE OU 2—INDUSTRIAL WASTEWATER SEWER SYSTEM

6.2.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

6.2.1.1 Remedial Action Performance

A ROD was signed in September 2006. The selected remedy for SE OU 2 consists of cleaning and abandonment of sewers and drain lines at Buildings 37 and 57 and the implementation of land use controls to prevent future residential use of the existing sewers.

From fall 2004 through spring 2006, the IWWS system was cleaned and tested for leaks, a portion of the IWWS system that serviced Buildings 37 and 57 was rerouted to the sanitary sewer at LEAD to support a new mission, and the remaining unused portion of the IWWS system force main was abandoned. Currently, the wastewater from Building 37 is being containerized and transported for treatment at the IWTP at LEAD because it does not meet the newly established discharge criteria for the sanitary sewer system. Wastewater from Building 57 continues to be discharged to the sanitary sewer system. The Army is currently considering whether to continue transporting the wastewater to the IWTP or to install a new force main (in the vicinity of the abandoned force main) to direct flow from both buildings to the IWTP. This part of the remedy is complete and is performing as expected.

Land use controls will be effective in preventing the use of the property for residential housing, elementary and secondary schools, child care facilities, and playgrounds, as specified in the ROD for SE OU 2 (Shaw, 2006a). The LUCs are to be implemented and maintained as described in the Land Use Control (LUC) Remedial Design. It was determined during the 5-Year review that the Land Use Control Remedial Design document has not yet been prepared and this is a deficiency that needs to be addressed. The document is currently in progress and it is expected to be completed by the end of September 2008; however, the remedy is being implemented and has been functioning properly to date because none of the lands where the sewers are located has been or is being used for residential-type purposes.

Land use controls for property that has been transferred to the public, which are located in the Phase I and Phase II parcels (Figure 6) were implemented via deed restrictions at the time of property conveyance. The remedy is performing as expected for these parcels. The 2002 LUCAP MOA ensures that the land use restrictions for the Phase I and Phase II BRAC property transfer remain in-place. The LUCAP MOA and its land use control provisions last until 2012, when the Army, USEPA and PADEP may consult and, if necessary, make other provisions for ensuring the effectiveness of the institutional controls on the Phase I and II property. In addition, the existing Greene Township zoning ordinances restricts the property to non-residential use. Bryan

Hoke reviewed the deeds in the Chambersburg Court House in August 2007 and verified that the land use restrictions specified in the ROD were recorded with the respective Phase I and II parcels at the time of property transfer.

For parcels related to SE OU 2 currently retained for military use at LEAD, the LEAD Master Plan describes land use on-post as commercial/industrial by specifying various military uses (LEAD Master Plan, Chapter 5); however, it does not explicitly restrict land use for SE OU 2 to commercial/industrial. Therefore, the LEAD Master Plan will be amended to address this deficiency. A statement that prohibits residential use at SE OU 2, including residential housing, elementary and secondary schools, child care facilities, and playgrounds will be included in the LEAD Master Plan, along with the figure showing the locations of the sewer lines. Some of the parcels associated with SE OU 2 are to be transferred to LIDA in the future (will be Phase V BRAC, see Figure 17); the land use controls for these parcels will be implemented via deed restrictions, analogous to what was done for the Phase I and II BRAC parcels as was previously described. The details for land use restrictions for the sewers in Phase V BRAC parcels will be specified in the Land Use Control Remedial Design document, which is expected to be completed by the end of September 2008. In the interim, land use in SE OU 2 is restricted to commercial/industrial through the requirement for health and safety and dig permits to perform work at the site. Security patrols are also being utilized to prevent unauthorized activity at the site.

6.2.1.2 System Operations/O&M

The abandonment of sewers and drain lines at Buildings 37 and 57 has been completed and O&M is not necessary.

The land use controls portion of the SE OU 2 remedy requires O&M to prevent future residential use of the property. Portions of the sewers associated with SE OU 2 are located in Army retained land, and portions are located within BRAC parcel, and this BRAC property has been or the land will ultimately be transferred to LIDA.

The O&M requirements for the BRAC property that has been transferred, the Phase I and Phase II parcels, are documented in the LUCAP MOA that was developed and signed by the BRAC Cleanup Team in August 2002 (LEAD, 2002 LKD.RT-257). The LUCAP MOA documents the land use controls and mechanisms, the enforcement and the annual reporting requirements.

Annual requirements for land use controls stated in the MOA include: annual inspection of the CVBP; annual notification of land use controls to LIDA, Greene Township, Letterkenny Township, and CVBP; and annual status report of land use controls to PADEP and EPA. Inspections of the land use controls were conducted for calendar years 1999 thru 2007 for the Phase I and II Parcels. An annual report summarizing the findings was submitted to EPA and PADEP for calendar years 1999 thru 2006. The 2007 inspection report is in progress and will be submitted in the spring of 2008. To date no land use control violations have been discovered. Land use at the Cumberland Valley Business Park has followed the commercial/industrial use restrictions.

For the portions of SE OU 2 located in Army-retained property, the property has not been used for purposes other than commercial/industrial use to date. Restrictions that have been placed in the LEAD Master Plan will ensure this for the future. For sewer parcels that are to be transferred in the future (Phase V BRAC), the land use controls O&M will be maintained as specified in the Land Use Controls Remedial Design document.

6.2.1.3 Opportunities for Optimization

There have been no opportunities for optimization.

6.2.1.4 Early Indicators of Potential Remedy Problems

There have not been any indications of potential remedy problems other than the need to follow through with formalized land use controls for the areas other than those covered under the LUCAP MOA.

6.2.1.5 Implementation of Land Use Controls and Other Measures

Land use controls will be implemented as specified in Section 6.2.1.1 and 6.2.1.2 at SE OU 2 as part of the selected remedy. The land use controls will be effective in preventing the use of the property for residential housing, elementary and secondary schools, child care facilities, and playgrounds, as specified in the ROD for SE OU 2 (Shaw, 2006a), and they will be maintained until the concentrations of hazardous substances in the soil are at levels that allow for unrestricted use and unlimited exposure.

ANSWER A SE OU 2: YES – The remedy of abandonment of specified sewers is functioning as intended. The remedy of land use controls is functioning as intended and is preventing use of the property for residential housing, elementary and secondary schools, child care facilities, and playgrounds.

6.2.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of remedy selection still valid?

6.2.2.1 Changes in Standards and TBCs

The site was evaluated for industrial/commercial use only (most likely future use), and the post-removal risks were found to be within acceptable levels; therefore, there are no COCs based on likely future use of the site. Screening criteria that were used to support the Decision Document, which could potentially be considered to be ARARs at this point in time, included:

- PADEP Medium-specific concentrations (MSCs), Residential, Soil Direct Contact and Soil to Groundwater Used Aquifer, TDS<2,500 (Title 25 PA code, Chapter 250, Administration of Land Recycling Program).

- PADEP Residential MSCs for Organics and Inorganics in Groundwater, Used Aquifer, TDS<2,500 (Title 25 PA code, Chapter 250, Administration of Land Recycling Program).

The following table provides a list of ARARs and TBCs for the site for the COC (identified prior to the removal action at SE OU 2) along with the original benchmarks and the current applicable standards:

Pre-Removal COCs	Exposure Pathway	Original Benchmarks (PADEP MSCs)	Current Benchmarks PADEP MSCs
TCE	Residential Soil	190,000 µg/kg	190,000 µg/kg
TCE	NonResidential Soil	970,000 µg/kg	970,000 µg/kg
TCE	Soil-to-Groundwater Residential, Generic Value, TDS<2500	170 ug/kg	170 ug/kg

Overall, ARARs or TBCs for the contaminant of concern have not changed in a manner that affects the protectiveness of the remedy.

6.2.2.2 Changes in Exposure Pathways

Exposure pathways evaluated at SE OU 2 were direct contact with soil, incidental ingestion of dust, soil-to-groundwater, and vapor inhalation. Since the first SE 5-Year Review, it has been determined that the VIP will need to be re-evaluated at many LEAD sites within the SE Area. At the time of the ROD VIP was determined to be an incomplete pathway based on an evaluation using methods that are now considered inaccurate for preferential pathways situations. In addition, new information has been developed regarding the toxicity of TCE. VIP is of potential concern with SE OU 2 because the sewers are located in areas where underlying groundwater is contaminated with VOCs. However, this pathway poses no new threat to human health and the environment at SE OU 2 because the OU covers industrial sewers which are underground, primarily below roadways. It is very unlikely that habitable buildings would be constructed on top of the road/sewers; therefore, the VIP is not considered a pathway of concern for this OU.

6.2.2.3 Changes in Toxicity and Other Contaminant Characteristics

There have been no changes in toxicity or other contaminant characteristics that affect the protectiveness of the remedy. TCE toxicity is a complicated issue involving many uncertainties and has been the subject of considerable controversy over the past two decades. The current guidelines implemented by the EPA are draft provisional guidance not accepted by EPA as final as of the date of this report. The most recently proposed guidance regarding TCE is under internal review with the EPA. Based on the current and future intended commercial/industrial use the site is protective of human health. Issues regarding toxicity of TCE will be revisited during the next SE 5-Year Review.

6.2.2.4 Changes in Risk Assessment Methods

There have been no changes in risk assessment methods that affect the protectiveness of the remedy.

6.2.2.5 Expected Progress Towards Meeting RAO's

The following RAOs were established in the SE OU 2 ROD (Shaw, 2006a):

- Prevent potential future releases from the sewers
- Prevent residential land use exposure

The possibility of future releases from the sewers has been prevented by abandoning the sewers and drain lines as outlined in the ROD. Land use controls will be implemented at SE OU 2 to prohibit the future use of the property for residential housing, elementary and secondary schools, child care facilities, and playgrounds. Land use controls will be implemented as specified in Section 6.2.1.1 and 6.2.1.2.

<u>ANSWER B SE OU 2:</u> YES – The exposure assumptions, toxicity data, cleanup levels, and RAO's used at the time of remedy selection are still valid.

6.2.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.2.3.1 Newly Identified Ecological Risks

There are no newly identified ecological risks.

6.2.3.2 Impacts from Natural Disasters

There have been no impacts from natural disasters.

6.2.3.3 Any other New Information that could affect the Protectiveness of the Remedy.

No new information has come to light that would affect the selected remedy.

<u>ANSWER C SE OU 2:</u> NO – There has not been any new information that calls into question the protectiveness of the remedy.

6.3 SE OU 3A—DISPOSAL AREA VOC-CONTAMINATED GROUNDWATER

6.3.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

6.3.1.1 Remedial Action Performance

The remedy for SE OU 3A has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 3A will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled through the use of the LEAD Master Plan, which prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells (LEAD Master Plan, Chapter 5). The LEAD Master Plan describes land use on-post as commercial/industrial by specifying various military uses (LEAD Master Plan, Chapter 5); however, it does not explicitly restrict land use for SE OU 3A to commercial/industrial. Therefore, the LEAD Master Plan will be amended to address this deficiency. Buildings that could potentially be affected by the vapor intrusion pathway are currently being evaluated to determine whether the pathway is complete.

6.3.1.2 System Operations/O&M

Not applicable.

6.3.1.3 Opportunities for Optimization

Not applicable.

6.3.1.4 Early Indicators of Potential Remedy Problems

Not applicable.

6.3.1.5 Implementation of Land Use Controls and Other Measures

Not applicable.

ANSWER A SE OU 3A: Not applicable since a remedy has not been selected.

6.3.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of remedy selection still valid?

6.3.2.1 Changes in Standards and TBCs

Not applicable since remedy has not yet been selected.

6.3.2.2 Changes in Exposure Pathways

Not applicable since remedy has not yet been selected.

6.3.2.3 Changes in Toxicity and Other Contaminant Characteristics

Not applicable since remedy has not yet been selected.

6.3.2.4 Changes in Risk Assessment Methods

Not applicable since remedy has not yet been selected.

6.3.2.5 Expected Progress Towards Meeting RAO's

Not applicable since remedy has not yet been selected.

ANSWER B SE OU 3A: Not applicable since a remedy has not been selected.

6.3.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.3.3.1 Newly Identified Ecological Risks

Not applicable since remedy has not yet been selected.

6.3.3.2 Impacts from Natural Disasters

Not applicable.

6.3.3.3 Any other New Information that could affect the Protectiveness of the Remedy.

Not applicable.

ANSWER C SE OU 3A: Not applicable since a remedy has not been selected.

6.4 SE OU 5—AREA A AND B CONTAMINATED SOILS

6.4.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

6.4.1.1 Remedial Action Performance

The remedy for SE OU 5 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 5 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled through the LEAD Master Plan, which prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 5 to commercial/industrial; however, the document will be amended to address this deficiency. Exposure to contaminated soil will also be addressed by the Land Use Control Remedial Design document, which will be completed by the end of September 2008. Potential risks to ecological receptors are currently in the risk management decision process.

6.4.1.2 System Operations/O&M

Not applicable.

6.4.1.3 Opportunities for Optimization

Not applicable.

6.4.1.4 Early Indicators of Potential Remedy Problems

Not applicable.

6.4.1.5 Implementation of Land Use Controls and Other Measures

Not applicable.

ANSWER A SE OU 5: Not applicable since a remedy has not been selected.

6.4.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of remedy selection still valid?

6.4.2.1 Changes in Standards and TBCs

Not applicable since remedy has not yet been selected.

6.4.2.2 Changes in Exposure Pathways

Not applicable.

6.4.2.3 Changes in Toxicity and Other Contaminant Characteristics

Not applicable.

6.4.2.4 Changes in Risk Assessment Methods

Not applicable.

6.4.2.5 Expected Progress Towards Meeting RAO's

Not Applicable.

ANSWER B SE OU 5: Not applicable since a remedy has not been selected.

6.4.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.4.3.1 Newly Identified Ecological Risks

Not applicable.

6.4.3.2 Impacts from Natural Disasters

Not applicable.

6.4.3.3 Any other New Information that could affect the Protectiveness of the Remedy.

Not applicable.

ANSWER C SE OU 5: Not applicable since a remedy has not been selected.

6.5 SE OU 6—VOC-CONTAMINATED GROUNDWATER NORTH OF GATE 6 AND EAST OF EAST PATROL ROAD (ROWE RUN DRAINAGE SYSTEM)

6.5.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

6.5.1.1 Remedial Action Performance

The remedy for SE OU 6 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 6 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled. To eliminate the possibility for direct contact with and ingestion of contaminated groundwater, residents affected by groundwater contamination have received bottled water and/or have been connected to the public water supply line and the public has been notified through public

meetings and publicly-available documents about the contaminated groundwater. In addition, the Greene Township code Chapter 101 contains a provision for requiring additional analysis of a water supply if the township has reason to suspect that harmful substances are present in amounts that are significantly adverse to human health and safety. Also, the Greene Township code (*Code of the Township of Greene Pennsylvania, Part II General Legislation, V3 Updated through 12-15-2002, Chapter 85, Subdivision and Land Development, and Chapter 101, Water)* also applies to SE OU 6 which is located entirely within Greene Township. The Greene Township code requires connection to public water supply for specified areas and situations as defined in Chapters 85 and 101 of the 2005 Code of the Township of Greene. Chapter 85 states that if any part of a proposed subdivision, mobile home park, or land development is located within 500 feet of an existing or planned public water system, it shall be connected to said water system and shall serve every lot, dwelling unit or other occupancy within the proposed subdivision. Chapter 101 of Greene Township code requires connection to public water supply for existing structures located within 150 feet of a public water system where the existing individual or semipublic water supply becomes nonfunctional or inadequate, as defined by the code.

The vapor intrusion pathway is currently being evaluated at SE OU 6 to determine whether this pathway is complete and whether this pathway presents any unacceptable risk to human health or the environment in SE OU 6.

6.5.1.2 System Operations/O&M

Not applicable.

6.5.1.3 Opportunities for Optimization

Not applicable.

6.5.1.4 Early Indicators of Potential Remedy Problems

Not applicable.

6.5.1.5 Implementation of Land Use Controls and Other Measures

Not applicable.

ANSWER A SE OU 6: Not applicable since a remedy has not been selected.

6.5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of remedy selection still valid?

6.5.2.1 Changes in Standards and TBCs

Not applicable since remedy has not yet been selected.

6.5.2.2 Changes in Exposure Pathways

Not applicable.

6.5.2.3 Changes in Toxicity and Other Contaminant Characteristics

Not applicable.

6.5.2.4 Changes in Risk Assessment Methods

Not applicable.

6.5.2.5 Expected Progress Towards Meeting RAO's

Not Applicable.

ANSWER B SE OU 6: Not applicable since a remedy has not been selected.

6.5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.5.3.1 Newly Identified Ecological Risks

Not applicable.

6.5.3.2 Impacts from Natural Disasters

Not applicable.

6.5.3.3 Any other New Information that could affect the Protectiveness of the Remedy.

Not applicable.

<u>ANSWER C SE OU 6:</u> Not applicable since a remedy has not been selected.

6.6 SE OU 7—TRUCK OPEN STORAGE AREA

6.6.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

6.6.1.1 Remedial Action Performance

The remedy for SE OU 7 has not been selected at this time. The selected remedy for SE OU 7 will be documented in the FS, Proposed Plan, and ROD for the Phase V BRAC property transfer. It is anticipated that all remedial actions selected for SE OU 7 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled through the LEAD Master Plan, which prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 7 to commercial/industrial; however, the document will be amended to address this deficiency. Exposure to contaminated soil will also be addressed by the future Phase V Land Use Control Remedial Design document.

6.6.1.2 System Operations/O&M

Not applicable.

6.6.1.3 Opportunities for Optimization

Not applicable.

6.6.1.4 Early Indicators of Potential Remedy Problems

Not applicable.

6.6.1.5 Implementation of Land Use Controls and Other Measures

Not applicable.

ANSWER A SE OU 7: Not applicable since a remedy has not been selected.

6.6.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of remedy selection still valid?

6.6.2.1 Changes in Standards and TBCs

Not applicable since remedy has not been selected.

6.6.2.2 Changes in Exposure Pathways

Not applicable.

6.6.2.3 Changes in Toxicity and Other Contaminant Characteristics

Not applicable.

6.6.2.4 Changes in Risk Assessment Methods

Not applicable.

6.6.2.5 Expected Progress Towards Meeting RAO's

Not Applicable.

ANSWER B SE OU 7: Not applicable since a remedy has not been selected.

6.6.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.6.3.1 Newly Identified Ecological Risks

Not applicable.

6.6.3.2 Impacts from Natural Disasters

Not applicable.

6.6.3.3 Any other New Information that could affect the Protectiveness of the Remedy.

Not applicable.

ANSWER C SE OU 7: Not applicable since a remedy has not been selected.

6.7 SE OU 8—BRAC WASTE SITES

6.7.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

6.7.1.1 Remedial Action Performance

As of December 2003, remedies have been selected for the Phase I and Phase II BRAC parcels portions of SE OU 8. In addition, a No Further Action decision was documented for the Phase III BRAC parcels portion of SE OU 8. The remedy is performing as expected for these parcels. The 2002 LUCAP MOA ensures that the land use restrictions for the Phase I and Phase II BRAC property transfer remain in-place The land use controls are effective in meeting the remedial action objectives for the SE OU 8 Phase I and Phase II Transfer Parcels. The land use controls prevent direct contact and ingestion of soil under residential and other nonindustrial exposure scenarios, prevent direct contact and ingestion of groundwater under any scenario, and reduce exposure levels of contaminants that produce unacceptable risk. In addition, the existing Greene Township zoning ordinances restricts the property to non-residential use. Bryan Hoke reviewed the most recent deeds in the Chambersburg Court House in August 2007 and verified that the

land use restrictions specified in the ROD were recorded with the respective Phase I and II parcel deeds at the time of property transfer.

In the Phase III ROD (WESTON, 2003e and 2006) it was determined that the soil and groundwater associated with the SE OU 8 sites and SE 13 groundwater are not contaminated (i.e., risk calculated based on unrestricted use of and exposure to groundwater and soil are within acceptable levels), and no further action is warranted for parcels located within these regions. As a result of No Further Action for Phase III, groundwater use restrictions previously placed on some of the Phase I and Phase II parcels were lifted, since they are located within the SMSR. Based on the Phase III ROD, the following are the parcels that require No Further Action:

- Parcels 3-89, 3-90, and 3-91 located in both SE and PDO Areas.
- Parcels 24, 27, and 28 (groundwater of the Phase I parcels located within the SMSR).
- Parcels 2-53L, 2-54L, 2-70L, 2R-80L-3, 2R-84L-3, and 2R-86L-3 (subsurface property deeper than 8 ft of the Phase II parcels located within the SMSR).

6.7.1.2 System Operations/O&M

The O&M requirements for the Phase I and Phase II parcels of this OU are documented in the LUCAP MOA that was developed and signed by the BRAC Cleanup Team in August 2002 (LEAD, 2002 LKD.RT-257). The LUCAP MOA documents the land use controls and mechanisms, the enforcement and the annual reporting requirements.

Annual requirements for land use controls stated in the MOA include: annual inspection of the CVBP; annual notification of land use controls to LIDA, Greene Township, Letterkenny Township, and CVBP; and annual status report of land use controls to PADEP and EPA. Inspections of the land use controls were conducted for calendar years 1999 thru 2007 for the Phase I and II Parcels. An annual report summarizing the findings was submitted to EPA and PADEP for calendar years 1999 thru 2006. To date no land use control violations have been discovered. Land use at the Cumberland Valley Business Park has followed the commercial/industrial use restrictions. To date no new tenants or lessees have excavated into any contaminated soil or underlying groundwater.

6.7.1.3 Opportunities for Optimization

There are currently no opportunities for optimization for the SE OU 8 Phase I and Phase II Transfer Parcels.

6.7.1.4 Early Indicators of Potential Remedy Problems

There are no early indicators of potential remedy problems.

6.7.1.5 Implementation of Land Use Controls and Other Measures

Land use controls have been implemented successfully at the Phase I and II BRAC parcels to prevent contact with contaminated groundwater and to ensure land use remains commercial/industrial.

ANSWER A SE OU 8: YES – The remedy of land use controls is functioning as intended and is preventing human exposure to the underlying groundwater and preventing use of the property for residential housing, elementary and secondary schools, child care facilities, and playgrounds.

6.7.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of remedy selection still valid?

6.7.2.1 Changes in Standards and TBCs

The ARARs and TBCs for soil as identified for SE OU 8 sites associated with the Phase I and II Parcels ROD are the following:

- PADEP Medium-specific concentrations (MSCs), Non-Residential, Soil Direct Contact and Soil to Groundwater Used Aquifer, TDS<2,500 (Title 25 PA code, Chapter 250, Administration of Land Recycling Program).
- EPA, Title 40 Code of Federal Regulations (CFR), Part 761, Disposal of Polychlorinated Biphenyls (PCB), Final Rule under the Toxic Substances Control Act (TSCA), Section 761.61(a)(4)(i)(A), Cleanup Levels for Bulk PCB Remediation Waste, High Occupancy Areas: action is required for concentrations greater than 1 part per million (equivalent to milligrams per kilogram for soil or solid materials). Source: Federal Register, Volume 63, Number 124, 29 June 1998, pp 35383-35474).

The EPA ARAR for PCBs as described above has not changed.

The COCs for Phase I parcels identified in the respective Area of Concern Decision Documents (WESTON, 1998c-1998f) are shown in the following tables. There were no COCs identified for Parcels 8 – 13 (Open Shed Storage Area) and Buildings 6 and 9 (former storage),

Parcels 1 and 2 (Industrial area) – arsenic and beryllium

Parcel 24 (former vehicle storage) – arsenic

Parcel 29 (former vehicle storage) – arsenic and beryllium

Railroad parcels – arsenic and beryllium

The only constituents which were detected above any of the screening criteria were arsenic and beryllium, which were consistently detected at concentrations above the Region III RBCs. These results were discussed by the Army, EPA and PADEP, and the concentrations were deemed as not requiring additional remedial action (based on continued industrial/commercial use of the parcel) for the following reasons:

- Arsenic and beryllium are naturally occurring compounds, and are not known to be related to any past or current operations at LEAD; and/or
- The results are within published regional (PA) values for these two metals.

The changes in standards for the 2 metals of concern are as follows; these standards for the respective COCs have not changed in a manner that would affect the protectiveness of the remedy. The standards for beryllium have remained the same or increased (are less restrictive). Although some standards for arsenic have decreased, levels of arsenic are still considered within naturally occurring levels.

	Region III EPA RBC (original/current value)	PA Act 2 (original/current value)	
Metals	**Soil Ingestion - Industrial (mg/kg)**	**Nonresidential Ingestion (mg/kg)**	**Soil to Groundwater Pathway (mg/kg)**
Arsenic	3.8/1.9	53/12	150/150
Beryllium	1.3/2,000	18/440	320/320

The Gate 1 Guardhouse was the only Phase II site with COCs; however, the COCs were determined using a future resident scenario. Under the future intended commercial/industrial use scenario there were no compounds determined to be COCs. The following table provides a list of COCs under the future resident scenario and the respective MSCs:

COCs	Original Critera PADEP MSCs Residential Soil (mg/kg)	Current PADEP MSCs Residential Soil (mg/kg)	Original Critera EPA RBCs Residential Soil (mg/kg)	Current EPA RBCs Residential Soil (mg/kg)
aluminum	190,000	190,000	7,821	7,821
arsenic	12	12	0.43	0.43
barium	15,000	15,000	548	1,564
chromium	1,100 (IV)	94 (IV)	23	23.5
cobalt	13,000	4,400	469	469
iron	66,000	66,000	2,346	5,475
lead	500	500	400*	400*

manganese	10,000	31,000	156	156
nickel	4,400	4,400	156	156
selenium	1,100	1,100	39	39.1
thallium	18	15	0.55	0.55
vanadium	13	1,500	55	7.82
zinc	66,000	66,000	2,346	2,346
acetone	10,000	10,000	782	7,039
benzene	38	41	12	11.6
naphthalene	8,800	4,400	156	156
acenaphthene	13,000	13,000	469	469
benz[a]anthracene	25	25	0.87	0.22
benzo[a]pyrene	2.5	2.5	0.087	0.022
benzo[b]fluoranthene	25	25	0.87	0.22
dibenz[a,h]anthracene	2.5	2.5	0.087	0.022
indeno[1,2,3-cd]pyrene	25	25	0.87	0.22
fluorene	8,800	8,800	313	313

*There is no RBC for lead; the value listed is the CERCLA guideline number.

The land use controls and deed provisions for the Phase I and Phase II Parcels portions of SE OU 8 are protective of human health and the environment. A No Further Action ROD was signed for the Phase III and Phase IV BRAC parcels portions of SE OU 8. Any action planned for the remaining areas of this OU in the future will meet ARARs and be protective of human health and the environment.

A No Action ROD was signed for Phases III and IV. These portions of SE OU 8 were evaluated for unrestricted use (i.e., residential or daycare) and the risks were found to be within acceptable levels. Therefore the CERCLA 5-year review and associated review of standard and TBCs is not required.

6.7.2.2 Changes in Exposure Pathways

Exposure pathways evaluated for SE OU 8 were direct contact (skin adsorption and ingestion), vapor/dust inhalation, and vapor intrusion. Since the first SE 5-Year Review, it has been determined that the VIP will need to be re-evaluated at many LEAD sites within the SE Area due to changes in methods and new information has been developed regarding the toxicity of TCE. At the time of the ROD VIP was determined to be an incomplete pathway based on an evaluation using methods that are now considered inaccurate for preferential pathways situations. Based on current evaluation methods, the VIP is incomplete for the majority of the Phase I and II parcels, and all of the Phase III and IV parcels due to levels of VOCs being below practical quantitation limits. Phase I BRAC Parcels 10 and 12 and Phase II BRAC Parcels 2-65, 2-66, and 2R-82 within SE OU 8 overlap the SE OU 10 VOC-contaminated groundwater plume and are potentially affected by this exposure pathway. VIP is not considered to be of concern for roadways parcels since there are no buildings on these parcels and it is unlikely that habitable

buildings will be constructed. The other parcels are being further evaluated. However, the current remedy for SE OU 10 potentially could reduce the contamination to levels that are acceptable based on risk calculations for commercial/industrial use. The EPA continues to evaluate this potential pathway and the current remedy at SE OU 10 until a determination can be made regarding its effectiveness in reducing the mass of the VOCs in the site groundwater.

6.7.2.3 Changes in Toxicity and Other Contaminant Characteristics

There have been no changes in toxicity and other contaminants at the SE OU 8 Phase I and Phase II Transfer Parcels that would affect the protectiveness of the remedy.

6.7.2.4 Changes in Risk Assessment Methods

There have been no changes in risk assessment methodology that would affect the protectiveness of the remedy other than a change in the approach for evaluating VIP (see Section 6.9.2.2).

6.7.2.5 Expected Progress Towards Meeting RAO's

The remedy for the SE OU 8 Phase I and Phase II Transfer Parcels continues to achieve the remedial action objectives.

<u>ANSWER B SE OU 8:</u> The exposure assumptions, toxicity data, cleanup levels, and RAO's used in preparing the Phase I and Phase II RODs are still valid, with the exception of Vapor Intrusion Pathway which continues to be evaluated.

6.7.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.7.3.1 Newly Identified Ecological Risks

There have been no newly identified ecological risks.

6.7.3.2 Impacts from Natural Disasters

There have been no impacts from natural disasters.

6.7.3.3 Any other new information that could affect the protectiveness of the remedy.

There has been no new information that could affect the protectiveness of the remedy.

ANSWER C SE OU 8: NO – There has not been any new information that calls into question the protectiveness of the Phase I and II remedies consisting of land use controls.

6.8 SE OU 9—LANDFILL J

6.8.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

6.8.1.1 Remedial Action Performance

The remedy for SE OU 9 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 9 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled. This land is owned by the Army and the LEAD Master Plan prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 9 to commercial/industrial; however, the document will be amended to address this deficiency. In addition, a laver of soil and crushed shale covers nearly all of the landfill, preventing direct contact with landfill contents.

6.8.1.2 System Operations/O&M

Not applicable.

6.8.1.3 Opportunities for Optimization

Not applicable.

6.8.1.4 Early Indicators of Potential Remedy Problems

Not applicable.

6.8.1.5 Implementation of Land Use Controls and Other Measures

Not applicable.

ANSWER A SE OU 9: Not applicable since a remedy has not been selected yet.

6.8.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of remedy selection still valid?

6.8.2.1 Changes in Standards and TBCs

Not applicable; the remedy for SE OU 9 has not been selected at this time.

6.8.2.2 Changes in Exposure Pathways

Not applicable.

6.8.2.3 Changes in Toxicity and Other Contaminant Characteristics

Not applicable.

6.8.2.4 Changes in Risk Assessment Methods

Not applicable.

6.8.2.5 Expected Progress Towards Meeting RAO's

Not Applicable.

ANSWER B SE OU 9: Not applicable since a remedy has not been selected.

6.8.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.8.3.1 Newly Identified Ecological Risks

Not applicable.

6.8.3.2 Impacts from Natural Disasters

Not applicable.

6.8.3.3 Any other New Information that could affect the Protectiveness of the Remedy.

Not applicable.

ANSWER C SE OU 9: Not applicable since a remedy has not been selected.

6.9 SE OU 10—SOUTHERN SOUTHEAST INDUSTRIAL AREA VOC-CONTAMINATED GROUNDWATER SOUTH OF GATE 6 (CONOCOCHEAGUE DRAINAGE SYSTEM)

6.9.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

6.9.1.1 Remedial Action Performance

A final Proposed Plan was completed in February 2005 (WESTON, 2005c), and a ROD was completed in March 2006 (WESTON, 2006d). The selected remedy for SE OU 10 was Enhanced Biodegradation with Monitored Natural Attenuation and Land Use Controls.

In late 2000, the USACE retained WESTON to continue the enhanced bioremediation pilot study (EBPS) in SE OU 10 as a full-scale treatment operation (WESTON, 2001h, LKD-RT-185). The EBPS, which was initiated by Geophex, Ltd. (Geophex) in 1999 as part of the SE OU 10 FFS, was successful in accelerating the biodegradation of chlorinated volatile organic compounds (CVOCs) in the on-post groundwater and off-post groundwater and springs. Due to the effectiveness of the EBPS, the FFS concluded that enhanced biodegradation with institutional

controls was the preferred remedial alternative for the CVOC groundwater contamination within SE OU 10. The findings and scope of the initial EBPS served as the basis for the design of the continued field pilot EBPS at a level equal to that designed for a full-scale operation, as detailed in the *Final Technical Plan for the EBPS* (WESTON, 2001h) and the Remedial Action Work Plan for SE OU 10 (WESTON, 2007c).

A pair of nutrient delivery systems were set up in October 2000 as gravity feed systems (as per the pilot study). Introduction of sodium lactate nutrient solution began on November 2, 2000 following completion of monitor well and epikarst dye injection point (EDIP) installations and baseline sampling of the groundwater in October 2000. To track and document the distribution of the nutrient solution throughout the groundwater regime from each EDIP, fluorescein dye and rhodamine WT dye were mixed with the water/sodium lactate solution introduced into the EDIPs. Nine four-week long nutrient introductions (at rates and concentrations designed for full-scale implementation) were performed between November 2000 and May 2007 according to the following schedule:

- 2 November to 1 December 2000
- 17 May to 15 June, 2001
- 13 November to 24 December 2001
- 21 May to 18 June 2002
- 23 October to 21 November 2002
- 9 July to 6 August 2003
- 27 August to 24 September 2004
- 27 May to 22 July 2005 (Injection suspended briefly in June due to failure/replacement of pump)
- 9 April to 7 May 2007

The FFS Addendum concluded that bi-annual applications of the nutrient solution has enhanced the microbial activity and stimulated the reductive dechlorination processes in SE OU 10 groundwater. Decreased concentrations of the primary parent compounds (TCE and 1,1,1-TCA) to below MCLs, decreased concentrations of degradation compounds, and increased production of dissolved gases (i.e., methane, ethane and ethene) in the treatment area indicate that complete dechlorination through vinyl chloride is occurring at most locations.

Consistent detections of tracer dyes (fluorescein and rhodamine WT) in treatment area monitoring wells and off-post locations following nutrient introductions indicates that nutrients were effectively distributed and maintained throughout the target treatment area. While lactate concentrations in treatment area wells were intermittent and oscillated in concentrations, this was attributed to the increased microbial populations consuming the nutrients during the dechlorination process.

The declining concentrations of primary CVOC and lighter molecular weight daughter products in off-post wells and Hawbaker Spring indicates that the mass of contaminants on-post, that were

trapped in the epikarst and bedrock matrix, has been significantly reduced since the start of the continued EBPS program was implemented at a full-scale magnitude. Since 2003 and 2004, there have been no exceedances of either Federal MCLs or State SWQS in off-post sampling locations for site related VOCs.

The SE OU 10 remedial action objectives are:

- Protect human health and the environment.
- Restore the aquifer to federal and state drinking water standards within a reasonable timeframe.
- Comply with all federal and state environmental laws and ARARs.
- Reduce or eliminate further contamination of groundwater.
- Reduce or eliminate the migration of VOC-contaminated groundwater off-post and the discharge of VOC-contaminated groundwater to surface waters at off-post springs.
- Provide a suitable remedial alternative so that land can be transferred for beneficial use with minimal limitations.
- Prevent human exposure to contaminants associated with VOC-contaminated groundwater and springs at concentration in excess of the remediation goals.

In accordance with the Remedial Action Work Plan, the final chemical injection for the selected remedy was completed at SE OU 10 in June 2007. A long-term groundwater monitoring program has been implemented for SE OU 10 and the most recent sampling event was conducted in August 2007. Information to date has indicated that the remedial action objectives are being met during remedial actions; post-treatment monitoring data is needed to determine final compliance with ARARs and risk-based levels in groundwater.

The SE OU 10 land use controls objectives are as follows:

- Reduce risks to human health by: preventing bathing with, showering with and drinking VOC-contaminated groundwater throughout SE OU 10; prohibiting people from digging into or drilling into or otherwise disturbing soil below the water table in on-post areas (Army-retained and BRAC property); and prohibiting people from building subsurface structures designed for human occupation in on-post areas (Army-retained and BRAC property).
- Maintain the integrity of any current or future remedial or monitoring system associated with SE OU 10 remedial actions, such as monitoring wells.

In the future, it is anticipated that the Army will transfer portions of the SE OU 10 site to LIDA. In addition, the SE OU 10 site includes off-post groundwater. As a result of the anticipated property transfer and off-post groundwater contamination, the SE OU 10 remedy includes pre-

transfer land use controls, post-transfer land use controls, and off-post land use controls, as described in the SE OU 10 ROD (WESTON, 2006d) and Remedial Action Work Plan (WESTON, 2007c).

6.9.1.2 System Operations/O&M

Land use controls have been implemented at SE OU 10 as part of the selected remedy. The land use controls have been effective in preventing exposure to groundwater with concentrations greater than MCLs, PADEP medium specific concentrations (MSCs), and carcinogen and systemic toxicant remediation levels, as specified in the ROD for SE OU 10 (WESTON, 2006d) and the Remedial Action Work Plan for SE OU 10 (WESTON, 2007c). Regular inspections have been conducted to ensure their ongoing effectiveness. Land use controls for onpost property already transferred to the public are discussed in Section 6.9 for SE OU 8 and are maintained via the LUCAP MOA and the CVBP codes, which are still in force. The LEAD Master Plan was amended as follows to include groundwater use restrictions for Army property, to be implemented until risks to exposure to groundwater are within acceptable levels:

> **"Groundwater Land Use Controls**
>
> The groundwater underlying the Industrial Area, the Administrative Area, and the BRAC Excess Area is contaminated with solvents. Source areas include the (IWTP) lagoons, the K Areas west of the ore piles, the Building 37 leaking industrial gravity sewer lines, the DRMO revetments, and the Oil Burn Pit. As stated on Page 10 Letterkenny receives its drinking water from the Letterkenny Reservoir, therefore the Letterkenny employees are not drinking the underlying contaminated groundwater.
>
> All depot personnel are prohibited from coming in contact with the groundwater. Installation of drinking water wells is absolutely forbidden. Installation of monitoring wells is prohibited without prior approval from BRAC Environmental Coordinator or the Letterkenny Remedial Project Manager. All excavations must follow the Letterkenny Army Depot National Environmental Policy Act Handbook as documented in Section VI, p 16, *NEPA Procedure at LEAD*, dated June 30, 1995.
>
> The land use controls pertaining to the BRAC Excess Area will only remain in effect as long as the Army owns the property. Once the property is transferred to the Letterkenny Industrial Development Authority the environmental land use controls will be incorporated into the property transfer deed."

Land use controls for onpost property associated with SE OU 10 that will be transferred to the public will be maintained as specified in the Remedial Action Work Plan for SE OU 10 (WESTON, 2007c).

Groundwater use in offpost property is managed via local ordinances of Greene Township. The Greene Township code (*Code of the Township of Greene Pennsylvania, Part II General Legislation, V4 Updated through 07-15-2005, Chapter 85, Subdivision and Land Development, and Chapter 101, Water)* applies to SE OU 10 which is located entirely within Greene

Township. It was verified that, as of September 2007, these ordinances are still in place (Greene Township, 2007).

6.9.1.3 Opportunities for Optimization

There have not been any opportunities for optimization for the SE OU 10 selected remedy.

6.9.1.4 Early Indicators of Potential Remedy Problems

There have been no early indicators of potential remedy problems.

6.9.1.5 Implementation of Land Use Controls and Other Measures

See Subsection 6.11.1.2.

ANSWER A SE OU 10: YES – The remedy of Enhanced Biodegradation and Land Use Controls is functioning as intended by lowering VOC concentrations and preventing human exposure in the underlying groundwater.

6.9.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of remedy selection still valid?

6.9.2.1 Changes in Standards and TBCs

COCs, original target cleanup goals, and current applicable standards are provided in the following table:

Chemical	EPA MCL micrograms per liter (µg/L) (original/current)	PADEP MSC µg/L Residential (original/current)	WQC µg/L (lower of fish and aquatic life or human health criteria) (original/current)
benzene	5/5	5/5	1.2 (human health, cancer risk level at 1 x 10^{-6})/1.2
chloroethane	NA	230/230	NA
1,1-dichlorothane (1,1-DCA)*	NA	27 /27	NA
1,1-dichloroethene (1,1-DCE)*	7/7	7/7	0.057 (human health, cancer risk level at 1 x 10^{-6},regulation allows for achievable detection limit of 0.13)/0.057 (0.13)
cis-1,2-dichloroethene (cis-1,2-DCE)*	70/70	70/70	NA
trans-1,2-dichloroethene (trans-1,2-DCE)*	100/100	100/100	700 (threshold effect human health criterion)/700
trichloroethene (TCE)	5/5	5/5	2.7 (human health, cancer risk level at 1 x 10^{-6})/2.7
vinyl chloride	2/2	2/2	2 (human health, cancer risk level at 1 x 10^{-6})/2

*Breakdown products of TCE.

As shown in the table above, the applicable standards for the contaminants of concern have not changed since the original cleanup goals were determined for SE OU 10 groundwater.

6.9.2.2 Changes in Exposure Pathways

The exposure pathway evaluated for SE OU 10 was groundwater consumption and contact, and vapor intrusion. Since the first SE 5-Year Review, it has been determined that the VIP will need to be re-evaluated at many LEAD sites within the SE Area due to changes in methods and new information has been developed regarding the toxicity of TCE. At the time of the ROD VIP was determined to be an incomplete pathway based on an evaluation using methods that are now considered inaccurate for preferential pathways situations. Based on current evaluation methods, the VIP is incomplete for the majority of SE OU 10 due to levels of CVOCs being below practical quantitation limits. The SE OU 10 plume is being further evaluated. However, the current remedy foe SE OU 10 potentially could reduce the contamination to levels that are acceptable based on risk calculations for commercial/industrial use. The EPA continues to

evaluate this potential pathway and the current remedy at SE OU 10 until a determination can be made regarding its effectiveness in reducing the mass of the VOCs in the site groundwater.

6.9.2.3 Changes in Toxicity and Other Contaminant Characteristics

There have been no changes in toxicity or other contaminant characteristics that would affect the protectiveness of the selected remedy. TCE toxicity is a complicated issue involving many uncertainties and has been the subject of considerable controversy over the past two decades. The current guidelines implemented by the EPA are draft provisional guidance not accepted by EPA as final as of the date of this report. The most recently proposed guidance regarding TCE is under internal review with the EPA. Based on the current and future intended commercial/industrial use the site is protective of human health. Issues regarding toxicity of TCE will be revisited during the next SE 5-Year Review.

6.9.2.4 Changes in Risk Assessment Methods

There have been no changes in risk assessment methods with the exception of the method to evaluate VIP (see Section 6.11.2.2).

6.9.2.5 Expected Progress Towards Meeting RAO's

<u>ANSWER B SE OU 10:</u> YES – The exposure assumptions, toxicity data, cleanup levels, and RAOs used in preparing the SE OU 10 ROD are still valid, with the exception of Vapor Intrusion Pathway which continues to be evaluated.

6.9.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.9.3.1 Newly Identified Ecological Risks

There have been no newly identified ecological risks.

6.9.3.2 Impacts from Natural Disasters

There have been no impacts from natural disasters. Land use controls will prevent exposure to contaminated groundwater in the event of any natural disaster.

6.9.3.3 Any other New Information that could affect the Protectiveness of the Remedy.

There has been no new information that has come to light that affects the protectiveness of the selected remedy.

ANSWER C SE OU 10: NO – There has not been any new information that calls into question the protectiveness of the SE OU 10 remedy.

6.10 SE OU 11—NSIA VOC-CONTAMINATED GROUNDWATER NORTH OF GATE 6

6.10.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

6.10.1.1 Remedial Action Performance

The remedy for SE OU 11 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 11 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled. The Army has an existing water supply and the LEAD Master Plan both prohibits all depot personnel from coming in contact with groundwater use at this site and prohibits the installation of drinking water wells.

6.10.1.2 System Operations/O&M

Not applicable.

6.10.1.3 Opportunities for Optimization

Not applicable.

6.10.1.4 Early Indicators of Potential Remedy Problems

Not applicable.

6.10.1.5 Implementation of Land Use Controls and Other Measures

Not applicable.

ANSWER A SE OU 11: Not applicable since a remedy has not been selected.

6.10.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of remedy selection still valid?

6.10.2.1 Changes in Standards and TBCs

Not applicable; the remedy has not been selected.

6.10.2.2 Changes in Exposure Pathways

Not applicable.

6.10.2.3 Changes in Toxicity and Other Contaminant Characteristics

Not applicable.

6.10.2.4 Changes in Risk Assessment Methods

Not applicable.

6.10.2.5 Expected Progress Towards Meeting RAO's

Not Applicable.

ANSWER B SE OU 11: Not applicable since a remedy has not been selected.

6.10.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.10.3.1 Newly Identified Ecological Risks

Not applicable.

6.10.3.2 Impacts from Natural Disasters

Not applicable.

6.10.3.3 Any other New Information that could affect the Protectiveness of the Remedy.

Not applicable.

ANSWER C SE OU 11: Not applicable since a remedy has not been selected.

6.11 SE OU 12—LANDFILL G

6.11.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

6.11.1.1 Remedial Action Performance

The remedy for SE OU 12 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 12 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled through the LEAD Master Plan, which prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 12 to commercial/industrial; however, the document will be amended to address this deficiency. Exposure to contaminated soil will also be addressed by the future SE OU 12 Land Use Control Remedial Design document.

6.11.1.2 System Operations/O&M

Not applicable.

6.11.1.3 Opportunities for Optimization

Not applicable.

6.11.1.4 Early Indicators of Potential Remedy Problems

Not applicable.

6.11.1.5 Implementation of Land Use Controls and Other Measures

Not applicable.

ANSWER A SE OU 12: Not applicable since a remedy has not been selected.

6.11.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of remedy selection still valid?

6.11.2.1 Changes in Standards and TBCs

Not applicable; the remedy has not been selected.

6.11.2.2 Changes in Exposure Pathways

Not applicable.

6.11.2.3 Changes in Toxicity and Other Contaminant Characteristics

Not applicable.

6.11.2.4 Changes in Risk Assessment Methods

Not applicable.

6.11.2.5 Expected Progress Towards Meeting RAO's

Not Applicable.

ANSWER B SE OU 12: Not applicable since a remedy has not been selected.

6.11.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.11.3.1 Newly Identified Ecological Risks

Not applicable.

6.11.3.2 Impacts from Natural Disasters

Not applicable.

6.11.3.3 Any other New Information that could affect the Protectiveness of the Remedy.

Not applicable.

ANSWER C SE OU 12: Not applicable since a remedy has not been selected.

6.12 SE OU 14—FORMER TEST TRACK AREA

6.12.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

6.12.1.1 Remedial Action Performance

The remedy for SE OU 14 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 14 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled through the LEAD Master Plan, which prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 14 to commercial/industrial; however, the document will be amended to address this deficiency. Exposure to contaminated soil will also be addressed by the future SE OU 14 Land Use Control Remedial Design document.

6.12.1.2 System Operations/O&M

Not applicable.

6.12.1.3 Opportunities for Optimization

Not applicable.

6.12.1.4 Early Indicators of Potential Issues

Not applicable.

6.12.1.5 Implementation of Land Use Controls and Other Measures

Not applicable.

ANSWER A SE OU 14: Not applicable since a remedy has not been selected.

6.12.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of remedy selection still valid?

6.12.2.1 Changes in Standards and TBCs

Not applicable.

6.12.2.2 Changes in Exposure Pathways

Not applicable.

6.12.2.3 Changes in Toxicity and Other Contaminant Characteristics

Not applicable.

6.12.2.4 Changes in Risk Assessment Methods

Not applicable.

6.12.2.5 Expected Progress Towards Meeting RAO's

Not Applicable.

ANSWER B SE OU 14: Not applicable since a remedy has not been selected.

6.12.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.12.3.1 Newly Identified Ecological Risks

Not applicable.

6.12.3.2 Impacts from Natural Disasters

Not applicable.

6.12.3.3 Any other New Information that could affect the Protectiveness of the Remedy.

Not applicable.

ANSWER C SE OU 14: Not applicable since a remedy has not been selected.

7. DEFICIENCIES

The deficiencies identified during the five-year review are noted in the table below. These deficiencies are not considered by the Army to be sufficient to warrant a finding that the remedy is not protective as long as corrective actions are implemented in a timely manner with respect to each deficiency. The deficiencies include some that were identified during the first five-year review to indicate progress.

Past Deficiencies	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
SE OU 1: Land use controls (LUCs) and Cap Maintenance Plan – From First 5-Year Review – Now resolved		
Land Use Controls to restrict the use of the K Areas OU were not a component of the remedy, as identified in the first five-year review. The land is owned by the Army and the land use has been limited to industrial and groundwater use is restricted; however, maintaining the LUCs needed to be formalized in the form of a change to the LEAD Master Plan. In addition a Cap Maintenance Plan had not been formally implemented at the time of the first five-year review to maintain the long-term integrity of the capped areas. As a result of the first 5-Year Review the Army prepared an explanation of significant difference (ESD) to document LUCs and cap maintenance plan; the ESD was finalized in 2004 (LEAD, 2004). The Cap Maintenance Plan was prepared in 2004 (USACE, 2004). The LEAD Installation Master Plan now includes Environmental Constraints, shown after this table.[1]	N	N

Current Deficiencies	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
1. SE OU 1: Cap Integrity		
SE OU 1: In 2003 the cap integrity was satisfactory. In the past (2001) there was evidence of small animal burrows at a few locations on the surface of the cap but in 2003 and 2007 the high groundwater table has kept the groundhogs away from the area. (Note: Based on the findings of the 28 September 2001 video inspection, the burrows did not breach through the cap). There was some accidental vehicle traffic noted in August 2007 across K-3 which has not damaged the cover. The Army has posted new “Please Keep Off” signs in early September 2007 as part of cap maintenance. The capped areas (K-1, K-2, and K-3) are included in the Depot's mowing and landscape plan. The last few years this work has been performed by contractors at a reduced level of effort. K-3 has not been mowed for several years. The Army will mow the area this fall. Mowing at a minimum frequency of once per year is needed to prevent the growth of woody plants that could possibly compromise the integrity of the cover.	N	Y

Current Deficiencies	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
2. SE OU 2: LUCs Design and Implementation		
The LUC Remedial Design to be prepared for SE OU 2 as specified in the ROD has not been prepared. The last signature on the ROD was 24 September 2006. Within 90 days of this date the Army was to prepare and submit to EPA for review and approval a LUC Remedial Design containing LUC implementation and maintenance actions, including periodic inspections. The parcels where sewers are located that have been transferred to the public (Phase I and II BRAC) are maintained via the LUCAP MOA, Greene Township codes and the CVBP codes. For parcels related to SE OU 2 currently retained for military use at LEAD, the LEAD Master Plan describes land use on-post as commercial/industrial by specifying various military uses (LEAD Master Plan, Chapter 5); however, it does not explicitly restrict land use for SE OU 2 to commercial/industrial. Therefore, the LEAD Master Plan will be amended to address this deficiency. A statement that prohibits residential use at SE OU 2, including residential housing, elementary and secondary schools, child care facilities, and playgrounds will be included in the LEAD Master Plan, along with the figure showing the locations of the sewer lines. Land use controls for parcels that are to be transferred to the public in future (Phase V BRAC) will be specified in a LUC Remedial Design document, which will be completed in September 2008. The Army will prepare a LUC Remedial design to document methods for maintaining and checking land use controls, and the LEAD Master Plan will be amended.	N	Y
3A. SE OU 8: Institutional Controls		
Deeds for Road Parcels 2R-80, 2R-81, 2R-84, 2R-85, 2R-86, and 2R-87 do not include or reference the Land Use Restrictions required by the Phase II ROD. Because the Land Use Restrictions recorded in the May 3, 2002 Phase II deed "run with the land," they are enforceable. However, because the restrictions are not explicitly stated in the deeds, more research would be required for potential future owners to know about them. This deficiency was noted during the PDO Area five-review review and discussions have been initiated with LIDA and Greene Township. Preparation of a deed of correction was implemented during the Five Year Review to provide additional legal certainty that the Land Use Restrictions are being fully implemented. The deed of correction was completed and recorded in the Franklin County Courthouse in Chambersburg on April 15, 2008.	N	N
3B. SE OU 8: Institutional Controls		
The LUCAP MOA requires the LEAD Commander to sign the annual Land Use Control inspection reports. However, it has been the practice at LEAD for the BRAC Environmental Coordinator (BEC) to sign the inspection reports. The Army, PADEP, and EPA agree that requiring the LEAD Commander to sign the inspection reports is overly burdensome, and that it would be more appropriate for the BEC to sign the reports. Therefore, the LUCAP MOA should be revised to allow the BEC to sign the annual reports. The Army and EPA are still in the process of amending the LUCAP MOA to replace the commander with BEC. Discussions were being held in March 2007 with EPA at the BCT meeting. For the interim, there is an e-mail from EPA dated 10/19/06 stating that it was	N	N

Current Deficiencies	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
acceptable for the BEC to sign the annual letter instead of the Commander.		
3C. SE OU 8: Institutional Controls		
Two deficiencies were found as a result of the inspection of Phase I/II deeds and leases done to verify that the land use restrictions specified in the ROD were recorded as necessary: 1. Copies of deeds/leases are not being sent to the required parties as stated in the deed/lease as follows: CERCLA Remediation Section, Paragraph C.2. Deed/Lease: Within 14 days after the effective date of the transaction, GRANTEE, its successors and assigns, will provide to the GRANTOR, EPA, and PADEP, copies of the deed, lease, or other conveying instrument evidencing such transaction. 2. A lease from a Cumberland Valley Business Park (CVBP) tenant was reviewed and discovered not to reference the corresponding Phase I Deed, thus confirming that not all leases reference the corresponding Phase I or II deed. The Army is working with LIDA and CVBP tenants to determine an effective method to make sure that the deeds/leases are sent to the specified parties. In addition, the Army needs to complete the review of leases and revise leases that do not reference the appropriate land use controls in the deed.	N	N
4. Interim Commercial/Industrial Land Use		
The remedies for SE OU 3A, SE OU 5, SE OU 6, SE OU 7, SE OU 9, SE OU 11, SE OU 12, SE OU 14, and for the remaining portions (BRAC Phase V Parcels) of SE OU 8 have not yet been selected. To be protective of human health and the environment, the interim land use of these areas must be restricted to commercial/industrial use. The LEAD Master Plan prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, however, the LEAD Master Plan does not explicitly restrict land use at SE OUs 3A, 5, 7, remaining portions of 8, 9, 11, 12 or 14 to commercial/industrial. The LEAD Master Plan will be amended to address this deficiency.	N	Y

[1]The following paragraphs were added to the *Environmental Constraints* section of the Letterkenny 2010 Installation Master Plan:

"Two areas of the installation contain remediated soils covered with synthetic caps. They include the industrial waste treatment plant lagoons (IWTP) and the K areas west of the ore piles. Intrusive activities are prohibited in these areas."

"Groundwater Land Use Controls
The groundwater underlying the Industrial Area, the Administrative Area, and the BRAC Excess Area is contaminated with solvents. Source areas include the (IWTP) lagoons, the K Areas west of the ore piles, the Building 37 leaking industrial gravity sewer lines, the DRMO revetments, and the Oil Burn Pit. As stated on Page

10 Letterkenny receives its drinking water from the Letterkenny Reservoir, therefore the Letterkenny employees are not drinking the underlying contaminated groundwater.

All depot personnel are prohibited from coming in contact with the groundwater. Installation of drinking water wells is absolutely forbidden. Installation of monitoring wells is prohibited without prior approval from BRAC Environmental Coordinator or the Letterkenny Remedial Project Manager. All excavations must follow the Letterkenny Army Depot National Environmental Policy Act Handbook as documented in Section VI, p 16, NEPA Procedure at LEAD, dated June 30, 1995."

8. RECOMMENDATIONS AND REQUIRED FOLLOW-UP ACTIONS

Issue/OU (see Section 7)	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
1. SE OU 1	Inspection of sign integrity and mowing cap once per year.	Army, Restoration Program Manager	EPA	Completed – will be done Yearly	**N**	**Y**
2. SE OU 2	Land Use Controls Remedial Design to be prepared.	Army, Restoration Program Manager	EPA	Draft September 2008	**N**	**Y**
3A. SE OU 8	Preparation of a deed of correction for Phase II Road parcels to provide additional legal certainty that the Land Use Restrictions are being fully implemented.	Army, BRAC Environmental Coordinator	EPA	Completed and recorded in Court House April 15, 2008	**N**	**N**
3B. SE OU 8	LUCAP MOA needs to be revised to replace the commander with BEC (in progress). Interim: Email from EPA has stated it is acceptable for the BEC to sign the annual Land Use Control inspection reports instead of the LEAD Commander.	Army, BRAC Environmental Coordinator	EPA	October 15, 2008	**N**	**N**

Issue/OU (see Section 7)	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
3C. SE OU 8	The Army is working with LIDA and CVBP tenants to determine an effective method to make sure that the deeds/leases are sent to the specified parties. In addition, the Army needs to complete the review of leases and revise leases that do not reference the appropriate land use controls in the deed.	Army, BRAC Environmental Coordinator, and LIDA	EPA and PADEP	October 15, 2008	**N**	**N**
4. Multiple OUs	The LEAD Master Plan will be amended to specifically restrict land use to commercial/industrial for all applicable sites.	Army, Restoration Program Manager	EPA	October 15, 2008	**N**	**Y**

SE OU 1—K-Areas: The original ROD called for excavation, treatment, and management of treated soils. The remedy provided cleanup to industrial-based cleanup levels, but did not include land use controls. Current EPA policy requires that land use controls need to be implemented for those areas where the remedy does not clean up to the most conservative (i.e., residential) standards for human health risk. In addition, the original ROD and original ESD reference capping the area in accordance with Pennsylvania Residual Waste Regulations; however, this does not include cap maintenance as part of the site Operation and Maintenance Plan. The first five-year review resulted in identifying these issues. An ESD (LEAD, 2004) and Cap Maintenance Plan (USACE, 2004) were prepared as a result of the first five-year review to address land use controls and cap maintenance. Land use controls needed to be implemented by changing the LEAD Master Plan to make sure that in the long-term the land use remains commercial/industrial. The LEAD Master Plan now includes Environmental Constraints to address these issues. There was some accidental vehicle traffic noted in August 2007 across K-3 which has not damaged the cover. It was recommended that signs be posted in the areas. The Army has posted new "Please Keep Off" signs in early September 2007 as part of cap maintenance. The capped areas (K-1, K-2, and K-3) are included in the Depot's mowing and landscape plan. The last few years this work has been performed by contractors at a reduced level of effort. K-3 has not been mowed for several years. *It is recommend that the Army mow*

the K-3 area this fall and follow-up to make sure the mowing is occurring as per the maintenance plan.

SE OU 2—Industrial Wastewater Sewer System: A ROD was completed in August 2006 and signed for SE OU 2 in September 2006 (Shaw, 2006a). The selected remedy for SE OU 2 was cleaning followed by abandonment of the sewers and drain lines at Building 37 and 57 to prevent future use of the existing sewers and implementation of land use controls to prevent the use of the property for residential housing, elementary and secondary schools, child care facilities, and playgrounds. This portion of the remedial action was completed in spring 2006. The LUC Remedial Design to be prepared for SE OU 2 as specified in the ROD has not been prepared as per the schedule in the ROD; therefore *the Army must prepare and submit to EPA for review and approval a LUC Remedial Design containing LUC implementation and maintenance actions, including periodic inspections.* The parcels where sewers are located that have been transferred to the public (Phase I and II BRAC) are maintained via the LUCAP MOA, Greene Township codes and the CVBP codes. For parcels currently retained for military use at LEAD, the LEAD Master Plan describes land use as non-residential; however it does not explicitly prohibit residential housing, elementary and secondary schools, child care facilities, or playgrounds. The LEAD Master Plan will be amended to include a statement prohibiting such residential-type use. Land use controls for parcels that are to be transferred to the public in the future (Phase V BRAC) will be specified in the LUC Remedial Design; a draft will be completed in September 2008.

SE OU 3A—Disposal Area VOC-Contaminated Groundwater: A remedy has not yet been selected for SE OU 3A. Once the remedy for SE OU 3A has been determined, long-term monitoring and O&M will need to be evaluated. There are no recommendations or required actions at this time.

SE OU 5—Area A and B Contaminated Soils: A remedy has not yet been selected for SE OU 5. The selected remedy will be documented in an FS, Proposed Plan, and a ROD for SE OU 5. These documents are expected to be completed in late 2007 or early 2008. Once the remedy for SE OU 5 has been determined, long-term monitoring and O&M will need to be evaluated. There are no recommendations or required actions at this time.

SE OU 6— VOC-Contaminated Groundwater North of Gate 6 and East of East Patrol Road (Rowe Run Drainage System): A remedy has not yet been selected for SE OU 6. The vapor intrusion pathway will be evaluated at this site in winter of 2007 and spring/early summer of 2008. The selected remedy will be documented in an FS, Proposed Plan, and a ROD for SE OU 6. These documents are expected to be completed in 2008. Once the remedy for SE OU 6 has been determined, long-term monitoring and O&M will need to be evaluated. There are no recommendations or required actions at this time.

SE OU 7—Truck Open Storage Area: A remedy has not yet been selected for SE OU 7. SE OU 7 will be included in the Phase V BRAC Property transfer. Documents for the Phase V BRAC Property transfer are currently in progress. The selected remedy will be presented in an FS, Proposed Plan, and a ROD for the Phase V BRAC Property transfer. These documents are expected to be completed in fall 2007. There are no recommendations or required actions at this time.

SE OU 8—BRAC Waste Sites: Based upon a comprehensive review of available site data, the implemented remedies for Phase I and Phase II parcels portions of SE OU 8 appear to be protective of human health and the environment, and no additional action, other than maintaining land use controls, is recommended at this time. The annual notification letter that identifies the land use controls was finalized and distributed to the LIDA on June 16, 2006. This annual notification letter was most recently mailed out on January 30, 2007. Deeds for the Phase II Road Parcels do not include or reference the Land Use Restrictions required by the Phase II ROD. Because the Land Use Restrictions recorded in the May 3, 2002 Phase II deed "run with the land," they are enforceable. However, because the restrictions are not explicitly stated in the deeds, more research would be required for potential future owners to know about them. This deficiency was noted during the PDO Area five-review review and discussions have been initiated with LIDA and Greene Township. *Preparation of a deed of correction was implemented to provide additional legal certainty that the Land Use Restrictions are being fully implemented; this deed of correction was completed and recorded in the Franklin County Courthouse in Chambersburg on April 15, 2008. In addition, the LUCAP MOA needs to be revised to allow the BRAC Environmental Coordinator to sign the annual reports instead of the Commander.*

Subsequent Phase I and II deeds reviewed in early January 2008 discovered the following requirement in the CERCLA Remediation Section, Paragraph C.2. Deed/Lease: Within 14 days after the effective date of the transaction, GRANTEE, its successors and assigns, will provide to the GRANTOR, EPA, and PADEP, copies of the deed, lease, or other conveying instrument evidencing such transaction. It was found during this review that the copies referenced above were not being sent to the three parties as stated in the deed/lease.

Select leases from the Letterkenny Industrial Development Authority (LIDA) were reviewed on January 28, 2008 and confirmed that the leases reference the corresponding Phase I or Phase II Deed. It was verified with LIDA representative Kip Feldman that all LIDA leases follow the same format and therefore reference the corresponding Phase I and II deeds. In late January 2008, a lease from the Letterkenny Business Park was reviewed and discovered not to reference the corresponding Phase I Deed, thus confirming that not all leases reference the corresponding Phase I or II deed.

The Army is working with LIDA and CVBP tenants to determine an effective method to make sure that the deeds/leases are sent to the specified parties. In addition, the Army needs to complete the review of leases and revise leases that do not reference the appropriate land use controls in the deed.

The Phase III ROD (WESTON, 2003e) concluded that no further action was necessary for Phase III parcels including groundwater associated with some Phase I and the lower portion of some Phase II parcels. Consequently, no recommendations or required actions are applicable to these parcels. After the remedy for the remaining portions of SE OU 8 have been determined, long-term monitoring and O&M will need to be evaluated. The Army and EPA, in consultation with the PADEP, determined that no further CERCLA remedial action is necessary to protect public health or welfare or the environment from the soil at the BRAC Phase IV parcels or groundwater associated with these parcels (SE OU 3B). A FOST (WESTON, 2006c) was approved and these parcels will be transferred without any restrictions. As of the date of this report, the parcels have

not yet been transferred. The No Action remedy is considered protective of human health and the environment. There are no recommendations or required actions for Phase IV.

Remedies have not yet been selected for the SE OU 8 sites associated with the Phase V BRAC Property transfer. Documents for the Phase V BRAC Property transfer are currently in progress. The selected remedy will be presented in an FS, Proposed Plan, and a ROD for the Phase V BRAC Property transfer. These documents are expected to be completed in fall 2007. There are no recommendations or required actions at this time for Phase V.

SE OU 9—Landfill J: A remedy has not yet been selected for SE OU 9. Once the remedy for SE OU 9 has been determined, long-term monitoring and O&M will need to be evaluated. There are no recommendations or required actions at this time.

SE OU 10— Southern Southeast Industrial Area VOC-Contaminated Groundwater South of Gate 6 (Conococheague Drainage System): A ROD for SE OU 10 was completed in March 2006 (WESTON, 2006d). The selected remedy was Enhanced Biodegradation with Monitored Natural Attenuation and Land Use Controls. The Enhanced Biodegradation was completed in May 2007 but the long-term groundwater monitoring and land use controls at SE OU 10 are still in effect. The protectiveness of this remedy cannot be determined at this time based on new exposure pathways (VIP) and continued evaluation. Once sufficient data has been collected and validated from SE OU 10, allowing for a final determination regarding the overall effectiveness of the groundwater remediation as it relates to vapor intrusion, a protectiveness statement will be made. There are no recommendations or required actions at this time.

SE OU 11—NSIA VOC-Contaminated Groundwater North of Gate 6: A remedy has not yet been selected for SE OU 11. The vapor intrusion pathway will be evaluated at this site in winter of 2007 and spring/early summery 2008. The selected remedy will be documented in an FS, Proposed Plan, and a ROD for SE OU 11. These documents are expected to be completed in 2008. Once the remedy for SE OU 11 has been determined, long-term monitoring and O&M will need to be evaluated. There are no recommendations or required actions at this time.

SE OU 12—Landfill G: A remedy has not yet been selected for SE OU 12. Once the remedy for SE OU 12 has been determined, long-term monitoring and O&M will need to be evaluated. There are no recommendations or required actions at this time.

SE OU 14—Former Test Track Area: Future plans are to resubmit the RI/RA, with the risk assessment based on likely future use of commercial/industrial, along with completion of the CERCLA process (FS, Proposed Plan, ROD).

9. PROTECTIVENESS STATEMENT

Remedies have been selected for SE OU 1, SE OU 2, SE OU 3B, SE OU 4, portions of SE OU 8, and SE OU 13 and are protective of human health and the environment. The remedy for SE OU 10 has been selected; however, as described below, the protectiveness statement is being deferred. The remedies for SE OU 3A, SE OU 5, SE OU 6, SE OU 7, SE OU 9, SE OU 11, SE OU 12, SE OU 14, and for the remaining portions (BRAC Phase V Parcels) of SE OU 8 have not yet been selected.

SE OU 1—K-Areas: The 1991 ROD for SE OU 1 specified that the soil contaminant concentration at the K-Areas be reduced to levels below the cleanup criteria of 225 micrograms per kilogram (μg/kg). This cleanup criterion has been met through thermal treatment of soil. The remedy at SE OU 1 is protective of human health and the environment under current industrial land use. Long-term protectiveness of the remedial action is expected now that land use controls are specified in the LEAD Master Plan and a Cap Maintenance Plan is in place.

SE OU 2—Industrial Wastewater Sewer System: A ROD was completed (August 2006) and signed for SE OU 2 in September 2006 (Shaw, 2006a). The selected remedy for SE OU 2 was cleaning followed by abandonment of the sewers and drain lines at Building 37 and 57 to prevent future use of the existing sewers. The remedial action for sewer abandonment was completed in spring 2006.

The remedy at OU 2 currently protects human health and the environment. Figure F-1 in Appendix F of this 5-Year report (source SE OU 2 ROD) depicts the parcels and land use controls associated with SE OU 2. For parcels related to SE OU 2 currently retained for military use at LEAD, the LEAD Master Plan describes land use on-post as commercial/industrial by specifying various military uses (LEAD Master Plan, Chapter 5); however, it does not explicitly restrict land use for SE OU 2 to commercial/industrial. Therefore, the LEAD Master Plan will be amended to address this deficiency. A statement that prohibits residential use at SE OU 2, including residential housing, elementary and secondary schools, child care facilities, and playgrounds will be included in the LEAD Master Plan, along with the figure showing the locations of the sewer lines. Some of the parcels shown on Figure F-1 are to be transferred to LIDA in the future (will be Phase V BRAC, see Figure 17); the land use controls for these parcels will be implemented via deed restrictions, analogous to what was done for the Phase I and II BRAC parcels as was previously described. The details for land use restrictions for the sewers in Phase V BRAC parcels will be specified in the Land Use Control Remedial Design document, for which a draft is expected to be completed by the end of September 2008. In the interim, land use in SE OU 2 is restricted to commercial/industrial through the requirement for health and safety and dig permits to perform work at the site. Security patrols are also being utilized to prevent unauthorized activity at the site.

SE OU 3A—Disposal Area VOC-Contaminated Groundwater: The remedy for SE OU 3A has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 3A will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled through the LEAD Master Plan, which prohibits depot personnel from coming in contact with groundwater and forbids installation of

drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 3A to commercial/industrial; however, the document will be amended to address this deficiency.

SE OU 3B— Area Upgradient of VOC-Contamination Source in SE OU 3A: A ROD and a FOST were completed and signed in June 2006 (WESTON, 2006b). The ROD specifies No Action for SE OU 3B groundwater and for soil associated with four parcels that consist of a portion of SE OU 8; two of these parcels are to be transferred as part of the Phase IV BRAC property transfer. The no action decision is protective of human health and the environment.

SE OU 4—Stormwater Sewer Lines and Associated Drainageways: A No Further Action ROD was completed in July 2005 and signed for SE OU 4 in August 2005 (Shaw, 2005b). The No Further Action decision is protective of human health and the environment.

SE OU 5—Area A and B Contaminated Soils: The remedy for SE OU 5 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 5 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled through the LEAD Master Plan, which prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 5 to commercial/industrial; however, the document will be amended to address this deficiency. Potential risks to ecological receptors are currently in the risk management decision process

SE OU 6— VOC-Contaminated Groundwater North of Gate 6 and East of East Patrol Road (Rowe Run Drainage System): The remedy for SE OU 6 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 6 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled. To eliminate the possibility for direct contact with and ingestion of contaminated groundwater, residents affected by groundwater contamination have received bottled water and/or have been connected to the public water supply line and the public has been notified through public meetings and publicly-available documents about the contaminated groundwater. In addition, the Greene Township code Chapter 101 contains a provision for requiring additional analysis of a water supply if the township has reason to suspect that harmful substances are present in amounts that are significantly adverse to human health and safety. Also, the Greene Township code (*Code of the Township of Greene Pennsylvania, Part II General Legislation, V3 Updated through 12-15-2002, Chapter 85, Subdivision and Land Development, and Chapter 101, Water)* also applies to SE OU 6 which is located entirely within Greene Township. The Greene Township code requires connection to public water supply for specified areas and situations as defined in Chapters 85 and 101 of the 2005 Code of the Township of Greene. Chapter 85 states that if any part of a proposed subdivision, mobile home park, or land development is located within 500 feet of an existing or planned public water system, it shall be connected to said water system and shall serve every lot, dwelling unit or other occupancy within the proposed subdivision. Chapter 101 of Greene Township code requires connection to public water supply for existing structures located within 150 feet of a public water system where the existing individual or semipublic water supply becomes nonfunctional or inadequate, as defined by the code.

The vapor intrusion pathway is currently being evaluated at SE OU 6 to determine whether this pathway is complete and whether this pathway presents any unacceptable risk to human health or the environment in SE OU 6.

SE OU 7—Truck Open Storage Area: The remedy for SE OU 7 has not been selected at this time. The selected remedy for SE OU 7 will be documented in the FS, Proposed Plan, and ROD for the Phase V BRAC property transfer. It is anticipated that all remedial actions selected for SE OU 7 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled through the LEAD Master Plan, which prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 7 to commercial/industrial; however, the LEAD Master Plan will be amended to address this deficiency.

SE OU 8—BRAC Waste Sites: The RODs for Phase I (WESTON, 1998b) and II (WESTON, 2001b) documented selection of land use controls to prevent contact with contaminated groundwater and to ensure that the land use remains commercial/industrial. The remedy for the Phase I and Phase II Parcels portions of SE OU 8 is considered protective of human health and the environment.

During the Five Year Review, the following minor deficiencies were discovered that do not affect the protectiveness of the remedy.

- The deeds transferring the road parcels (2R-80, 2R-81, 2R-84, 2R-85, 2R-86, and 2R-87) to Greene and Letterkenny Townships do not include or reference the Land Use Controls required by the Phase II ROD. Because the Land Use Restrictions recorded in the May 3, 2002 Phase II deed "are binding on the GRANTEE, its successors and assigns; shall run with the land; and are forever enforceable," they are enforceable and the remedy is protective. However, because the restrictions are not explicitly stated in the deeds, the deeds should be modified to incorporate the Land Use Restrictions, providing additional legal certainty that the remedy is protective. Note: The deed of correction was completed during the Five Year Review process and was recorded in the Franklin County Courthouse in Chambersburg on April 15, 2008.

- The LUCAP MOA requires the LEAD Commander to sign the annual Land Use Control inspection reports. However, it has been the practice at LEAD for the BRAC Environmental Coordinator to sign the inspection reports. This breach of protocol does not affect the protectiveness of the remedy. The Army has submitted the inspection reports to EPA and PADEP annually, as required by the LUCAP MOA. Furthermore, the LEAD Commander signs the Five Year Review reports that incorporate the findings of the annual inspections. In addition, the Army, PADEP, and EPA agree that requiring the LEAD Commander to sign the inspection reports is overly burdensome, and that it would be more appropriate for the BRAC Environmental Coordinator to sign the annual reports. Therefore, the LUCAP MOA should be revised to allow the BRAC Environmental Coordinator to sign the annual reports.

A No Further Action decision was implemented in the ROD for the Phase III BRAC parcels (WESTON, 2003e), which included another portion of SE OU 8 and all of SE OU 13. The No Further Action decision is protective of human health and the environment.

The Army and EPA, in consultation with the PADEP, determined that no CERCLA remedial action is necessary to protect public health or welfare or the environment from the soil at the BRAC Phase IV parcels or groundwater associated with these parcels (SE OU 3B). A FOST (WESTON, 2006c) was approved and these parcels will be transferred without any restrictions. As of the date of this report, the parcels have not yet been transferred. The No Action remedy is considered protective of human health and the environment.

The remedies for the remaining SE OU 8 sites (BRAC Phases V) have not yet been selected. It is anticipated that all remedial actions selected for the remaining portions of SE OU 8 will be protective of human health and the environment. It is anticipated that land use controls will prevent direct contact and ingestion of soil under residential and other non-industrial exposure scenarios, prevent direct contact and ingestion of groundwater under any scenario, and reduce exposure levels of contaminants that produce unacceptable risk. The Army, with USEPA and PADEP approval, may arrange with other entities such as LIDA to maintain the land use controls as long as the Army will remain ultimately responsible for the effectiveness of the land use controls.

SE OU 9—Landfill J: The remedy for SE OU 9 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 9 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled. This land is owned by the Army and the LEAD Master Plan prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 9 to commercial/industrial; however, the document will be amended to address this deficiency. In addition, a laver of soil and crushed shale covers nearly all of the landfill, preventing direct contact with landfill contents.

SE OU 10— Southern Southeast Industrial Area VOC-Contaminated Groundwater South of Gate 6 (Conococheague Drainage System): A final Proposed Plan was completed in February 2005, and a ROD was completed in March 2006 (WESTON, 2006d). The selected remedy for SE OU 10 was Enhanced Biodegradation and Land Use Controls. The Enhanced Biodegradation program has been completed (the last nutrient injection occurred from April to May 2007) and onpost as well as offpost land use controls have been effective in preventing exposure to groundwater with concentrations greater than MCLs, MSCs, and carcinogen and systemic toxicant remediation levels, as specified in the ROD. Regular inspections have been conducted to ensure their ongoing effectiveness. The protectiveness of this remedy for a portion of the SE OU 10 groundwater contamination plume cannot be determined at this time based on the need to re-evaluate the VIP exposure pathway, as discussed in Subsection 6.9.2.2. Once sufficient data has been collected and validated from SE OU 10, allowing for a final determination regarding the overall effectiveness of the groundwater remediation as it relates to vapor intrusion, a protectiveness statement will be made.

SE OU 11—NSIA VOC-Contaminated Groundwater North of Gate 6: The remedy for SE OU 11 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 11 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled. The Army has an existing water supply and the LEAD Master Plan prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 11 to commercial/industrial; however, the document will be amended to address this deficiency

SE OU 12—Landfill G: The remedy for SE OU 12 has not been selected at this time. It is anticipated that all remedial actions selected for SE OU 12 will be protective of human health and the environment. In the interim, exposure pathways that could result in unacceptable risks are being controlled. This land is owned by the Army and the LEAD Master Plan prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 12 to commercial/industrial; however, the document will be amended to address this deficiency.

SE OU 13—Southern Martinsburg Shale Region Groundwater: A No Further Action decision was implemented in the ROD for the Phase III BRAC parcels, which included all of SE OU 13 (WESTON, 2003e). The Army and EPA, in consultation with the PADEP, determined that no further CERCLA remedial action is necessary to protect public health or welfare or the environment from the soil or groundwater at the Southern Martinsburg Shale Region (SMSR) (SE OU 13), which was included in the Phase III BRAC Property Transfer. These parcels were transferred without any restrictions in January 2004. The No Further Action remedy is considered protective of human health and the environment.

SE OU 14—Former Test Track Area: This OU was created in 2007. Future plans are to resubmit the RI/RA, with the risk assessment based on likely future use of commercial/industrial, along with completion of the CERCLA process (FS, Proposed Plan, ROD). This land is owned by the Army and the LEAD Master Plan prohibits depot personnel from coming in contact with groundwater and forbids installation of drinking water wells. Currently, the LEAD Master Plan does not explicitly restrict land use at SE OU 14 to commercial/industrial; however, the document will be amended to address this deficiency.

10. NEXT FIVE-YEAR REVIEW

This is a statutory site that requires ongoing five-year reviews. The initial trigger date for the first year review was 11 August 1993. The first 5-year review was signed by the Army on 25 October 2001 (LEAD, 2001) and EPA concurred on 06 November 2001 (EPA Region III, 2001). Subsequent 5-year reviews are to be completed five years from the date of EPA concurrence of the previous 5-year review. Therefore, the trigger date for this second five-year review was 06 November 2001. The third five-year review for SE Area will be completed no later than five years after EPA concurs with this five-year review, which will be in 24 June 2013.

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FIGURES

U.S. Army Corps of Engineers
Baltimore District

Letterkenny Army Depot

Chambersburg, Pennsylvania

FIGURE 1
PROPERTY LOCATION

Property location shown in black. Base map image adapted from the U.S. Geological Survey 30x60 minute quadrangle maps, *Carlisle, PA (photo inspected 1985) and Hagerstown, MD, PA, WV (1983).*

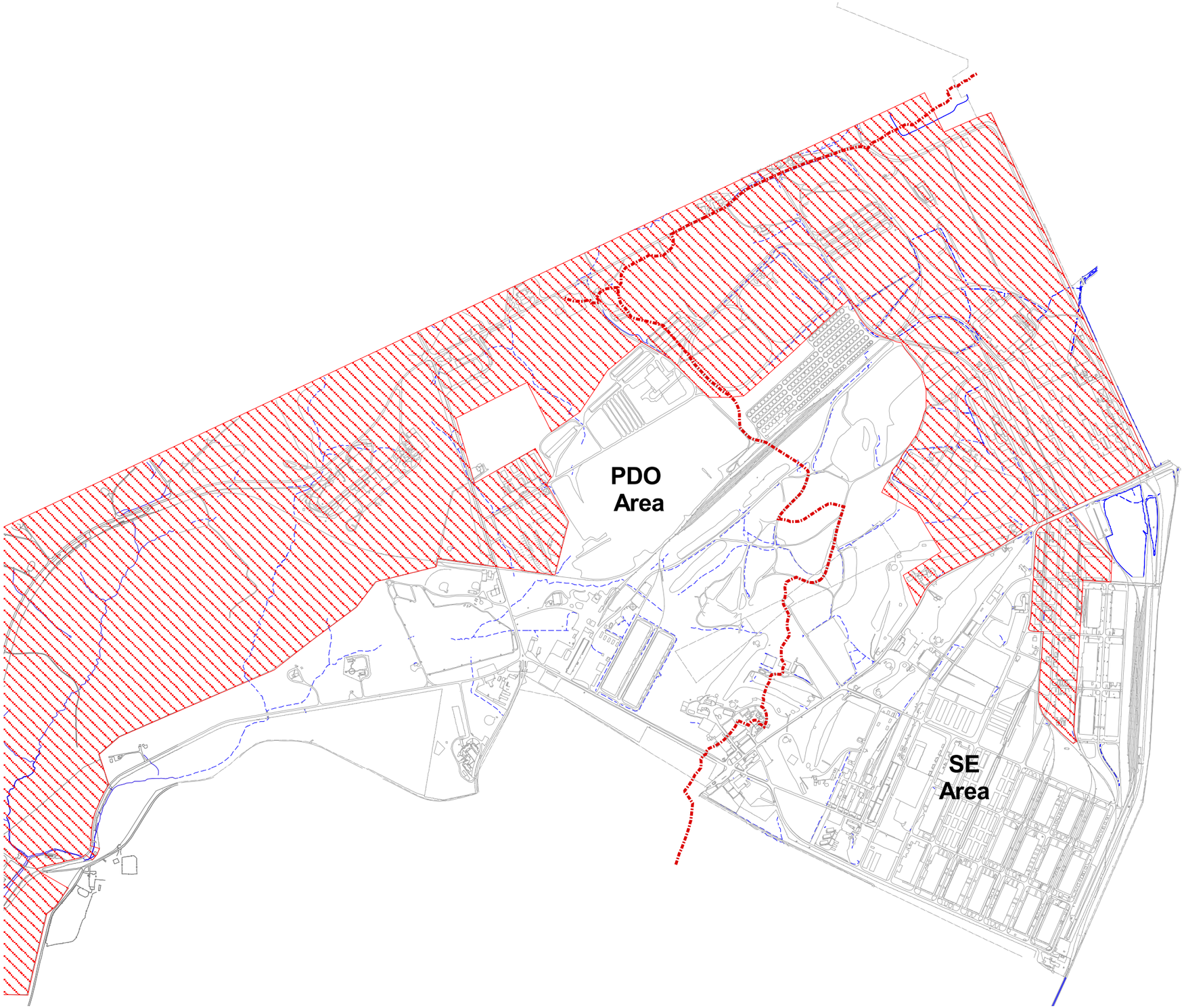
Scale 1:100,000

0 Miles 4

0 Kilometers 5

N

98P-0629



Legend:

- Buildings
- Army Retained Area
- Roads
- Drainage
- Dividing Line Between SE and PDO Areas

N
W E
S

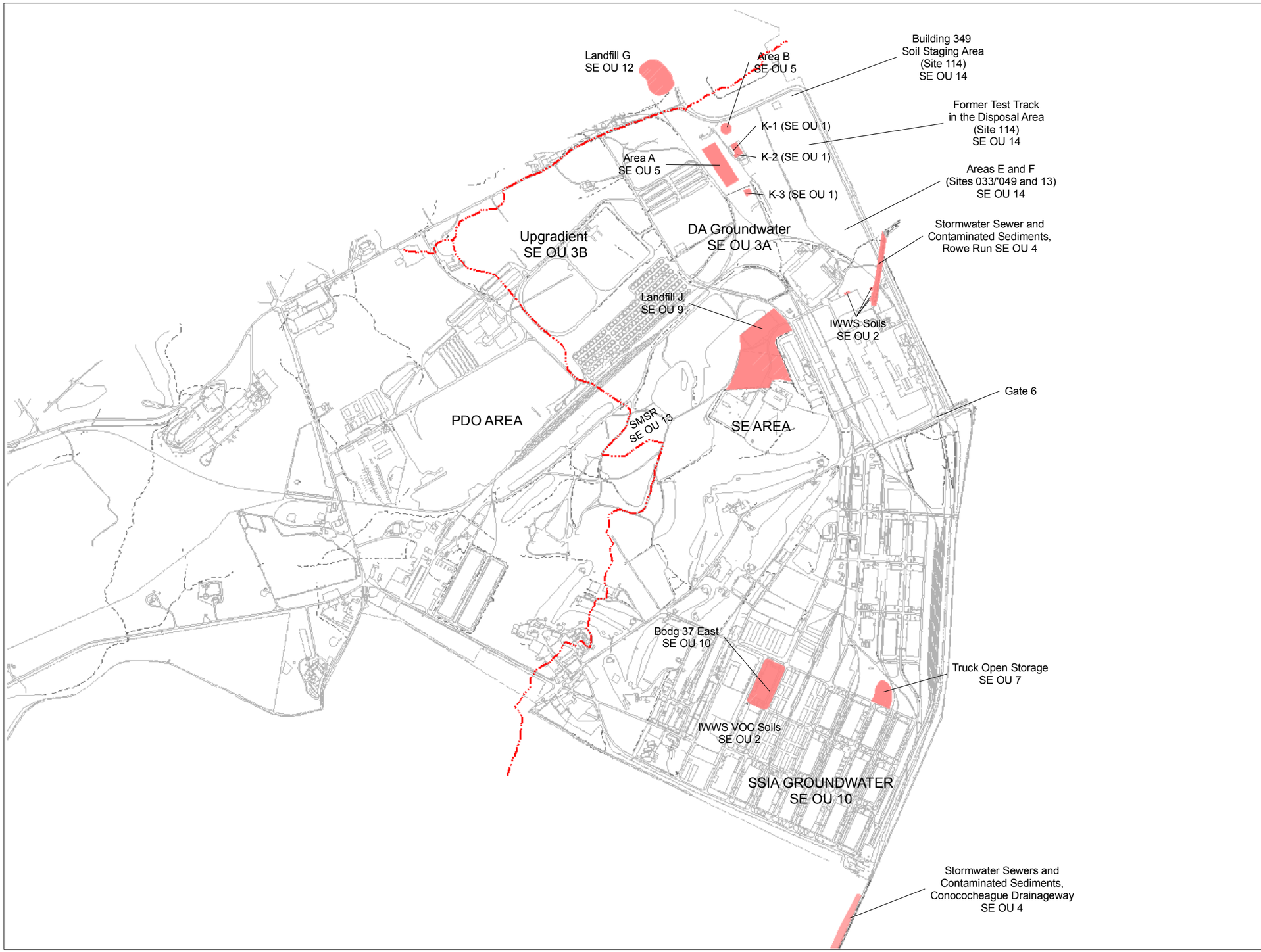
1000 0 1000 Feet

Letterkenny Army Depot
Chambersburg, PA

Figure 2
Location of SE and PDO Areas at Letterkenny Army Depot

U.S. Army Corps of Engineers
Baltimore District

Date:
01/16/07



Legend:

- Buildings
- Roads
- Operable Unit Location (approximate)
- Dividing Line Between SE and PDO Areas

Notes:

1. SE OU 6 is off-post contaminated groundwater beyond SE OU 3 and SE OU 11 and is not shown on this map.

2. SE OU 2 (IWWS and associated contaminated soils) is located throughout the Southeast Industrial Area and the sewer lines are not specifically identified.

3. SE OU 3A, SE OU 3B, SE OU 11and SE OU 13 are on-site groundwater OUs. SE OU 3A is the DA Area VOC - contaminated source in the DA area. SE OU 11 is the NSIA VOC - Contaminated Groundwater (IWTP Lagoons Area and Industrial Sewers) located north of Gate 6 (SE OU 3A, SE OU 3B and SE OU 11 area in the Susquehanna Drainage Basin). SE OU 13 is the Southern Martinsburg Shale Region groundwater.

4. SE OU 10 is located south of Gate 6 (Potomac Drainage Basin). SE OU 10 consists of on-site and off-site VOC - contaminated groundwater.

5. The areal extents of SE OU 3A, SE OU 3B, SE OU 11 and SE OU 13 are shown on Figure 4, and SE OU 8 sites are shown in Figure 5.

N W E S

1,400 700 0 1,400 Feet

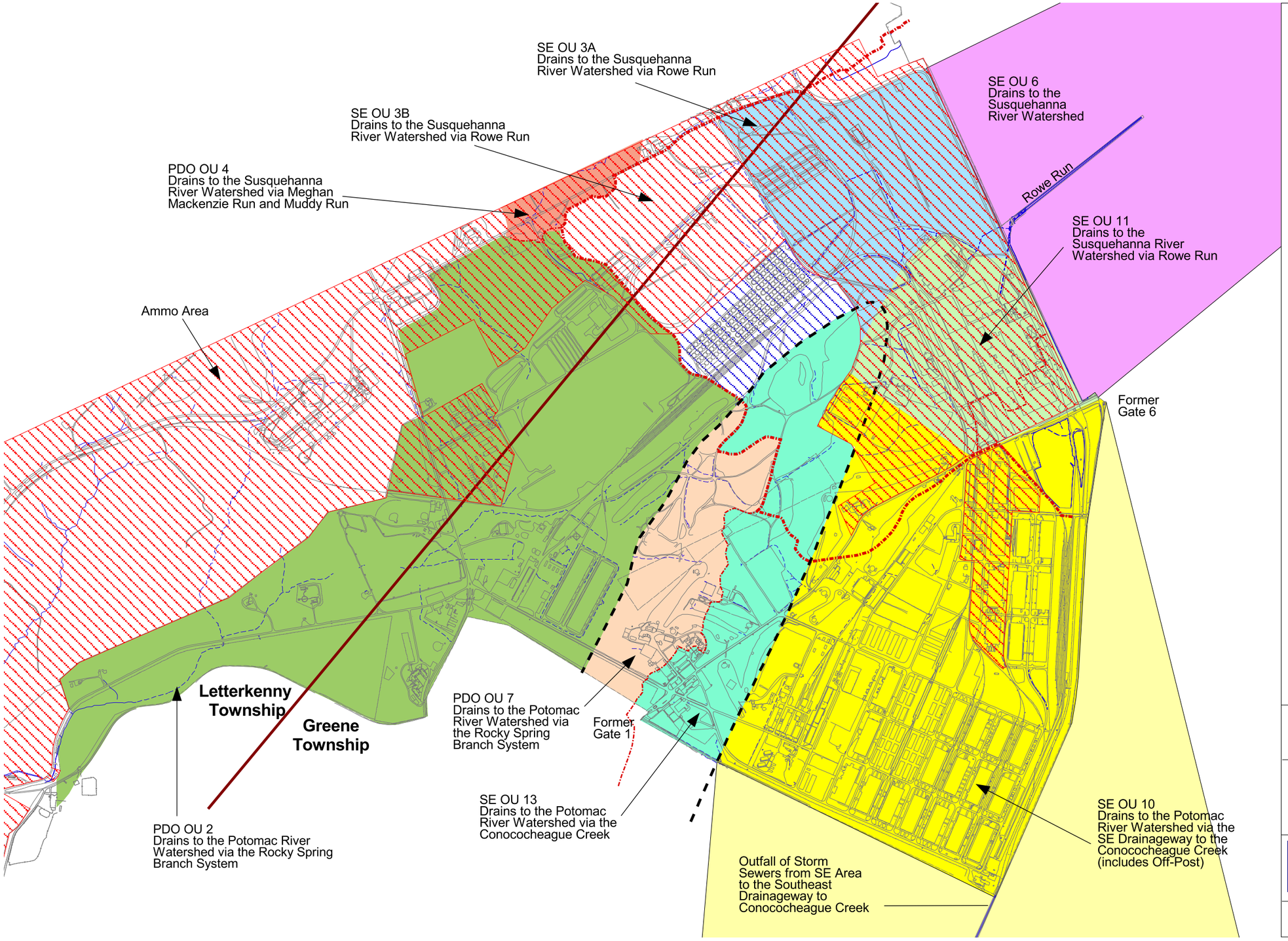
Letterkenny Army Depot
Chambersburg, PA

Figure 3
Locations of Operable Units in the SE Area at Letterkenny Army Depot

U.S. Army Corps of Engineers
Baltimore District

Date:
09-07-07

File: \\Fsfed01\TIG\LEAD\MXD\se_ou4.mxd, 07-Sep-07 11:49, ricksc



Legend:

- Base Features
- Drainage
- Major Watershed Divide
- Township Line
- Subbasin Drainage Divide
- Shale/Limestone Boundary
- Army Retained Area
- SE OU 3A: Disposal Area VOC-Contaminated Groundwater
- SE OU 3B: Area Upgradient of VOC Contamination Source in SE OU 3A
- SE OU 6: Off-Post VOC-Contaminated Groundwater North of Former Gate 6
- SE OU 10: Southern Southeast Industrial Area VOC-Contaminated Groundwater Primarily South of Former Gate 6 (Conococheague Drainage System)
- SE OU 10 (Off-Post)
- SE OU 11: Northern Southeast Industrial Area VOC-Contaminated Groundwater North of Former Gate 6
- PDO OU 2: PDO Area Groundwater and Surface Water
- PDO OU 4: Groundwater Associated with the PDO Oil Burn Pit
- PDO OU 7 / SE OU 13: Southern Martinsburg Shale Region (SMSR) Groundwater

Note: SE OU 6 (entire area not shown) is SE Area Off-Post VOC-Contaminated Groundwater (Downgradient of SE OU 3 and SE OU 11)

N W E S

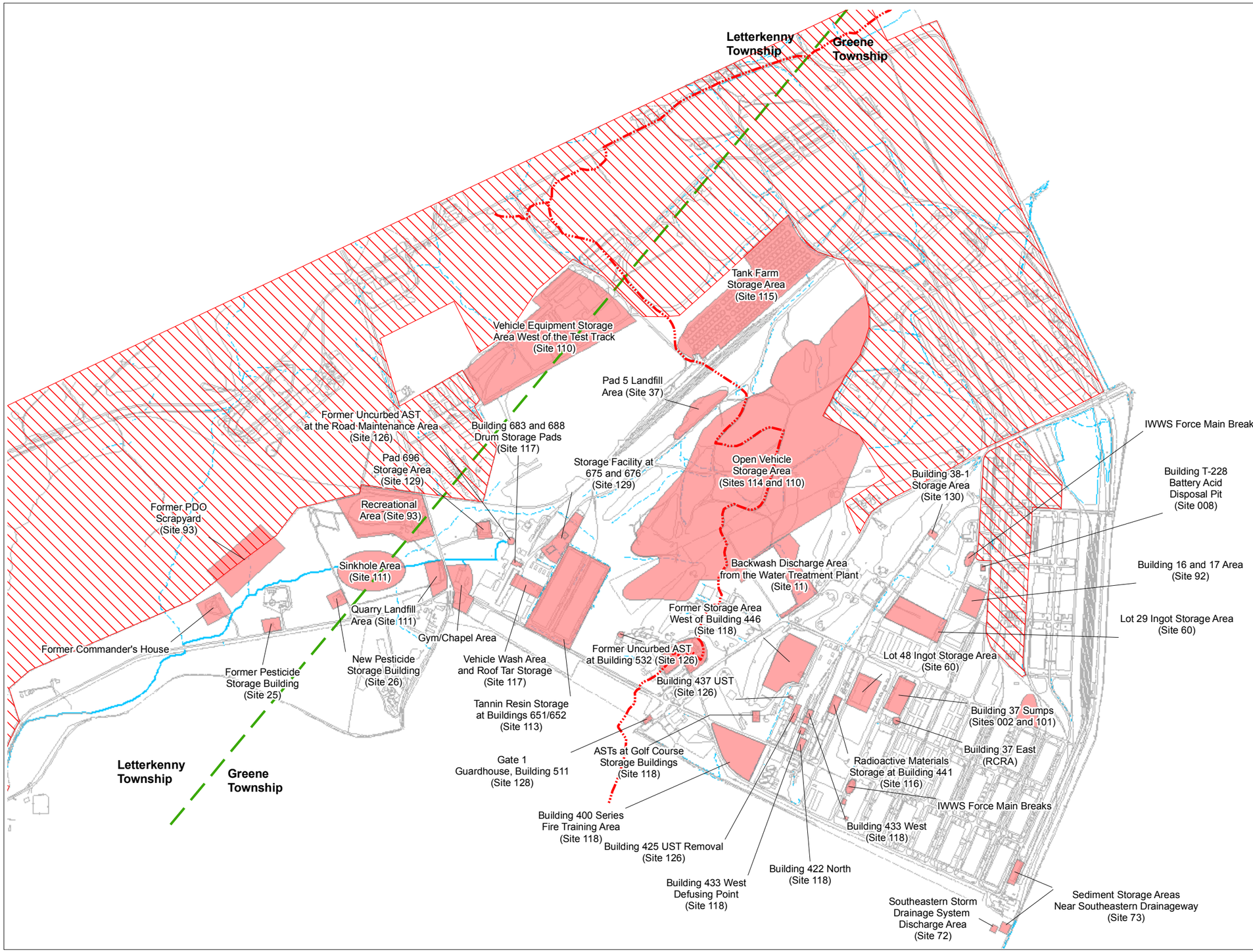
1400 0 1400 Feet

Letterkenny Army Depot
Chambersburg, PA

Figure 4
Current Layout of LEAD Groundwater Operable Units (OUs)
Letterkenny Army Depot

U.S. Army Corps of Engineers
Baltimore District

Date:
01-16-07



Legend:

- Buildings
- Roads
- SE PDO Drainage Divide
- Drainage
- Army Retained Area
- Township Line (Approximate)

Notes:
Former PCB Transformer Site not shown.

Site numbers in parentheses are Army Enviromental Database Restoration (AEDBR) numbers.

N W E S

1,250 625 0 1,250 Feet

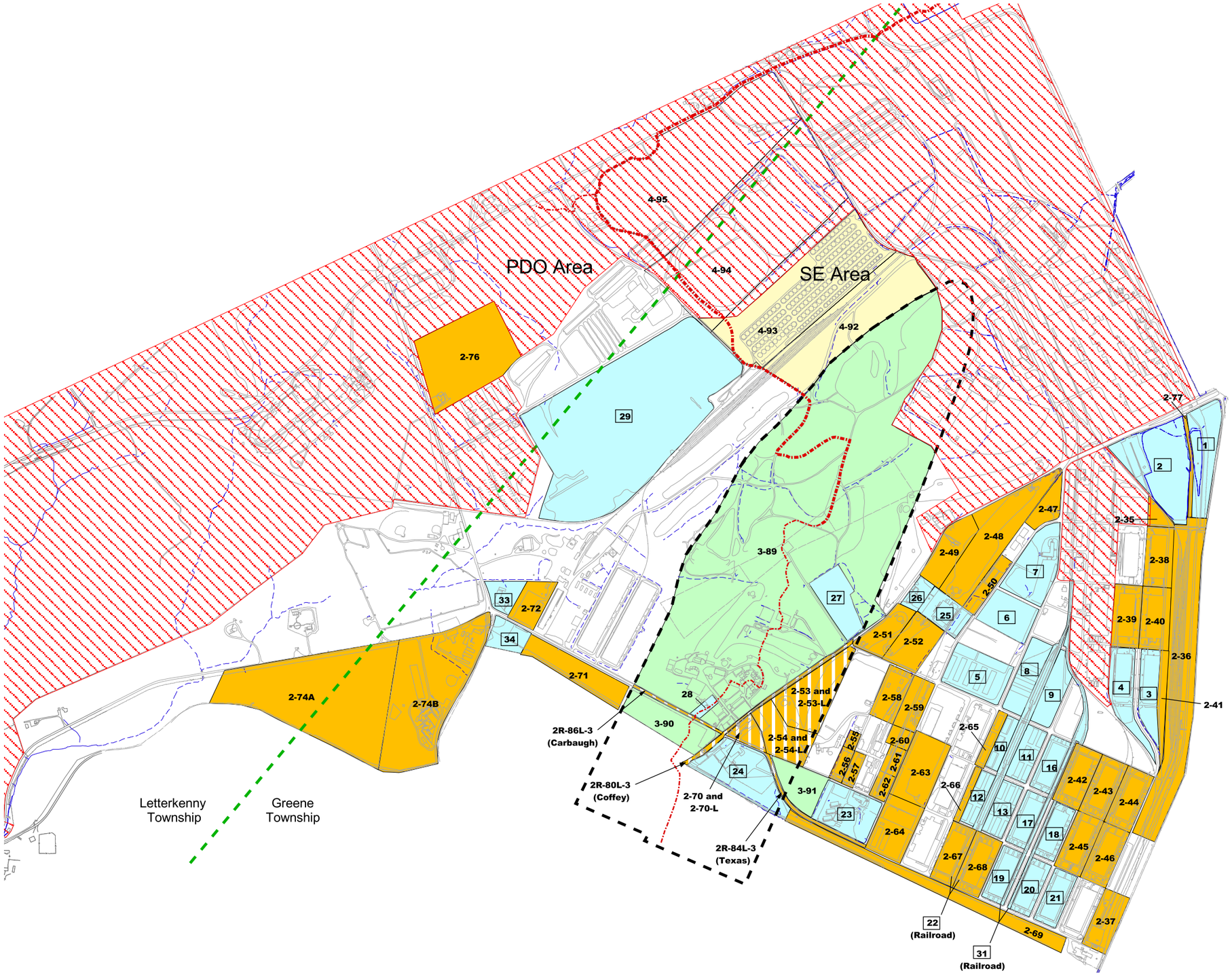
Letterkenny Army Depot
Chambersburg, PA

Figure 5
SE OU 8 and PDO 6 BRAC Investigation Sites

U.S. Army Corps of Engineers
Baltimore District

Date:
08-28-07

File: \\Fsfed01\TIG\LEAD\MXD\sepu8_and_pdou6_v2.mxd, 28-Aug-07 10:44, ricksc



Legend:

- Buildings
- Army Retained Area
- Roads
- Drainage Divides
- Shale/Limestone Boundary
- Township Line
- 1 — Phase I Parcels
- 2-48 — Phase II Parcels (Does not show all roads)
- 2-70-L — Phase III Parcel that is Lower Portion of Phase II Parcel (8 ft. below ground surface to center of the earth)
- 3-90 — Phase III Parcels
- 4-92 — Phase IV Parcels

N W E S

1250 0 1250 Feet

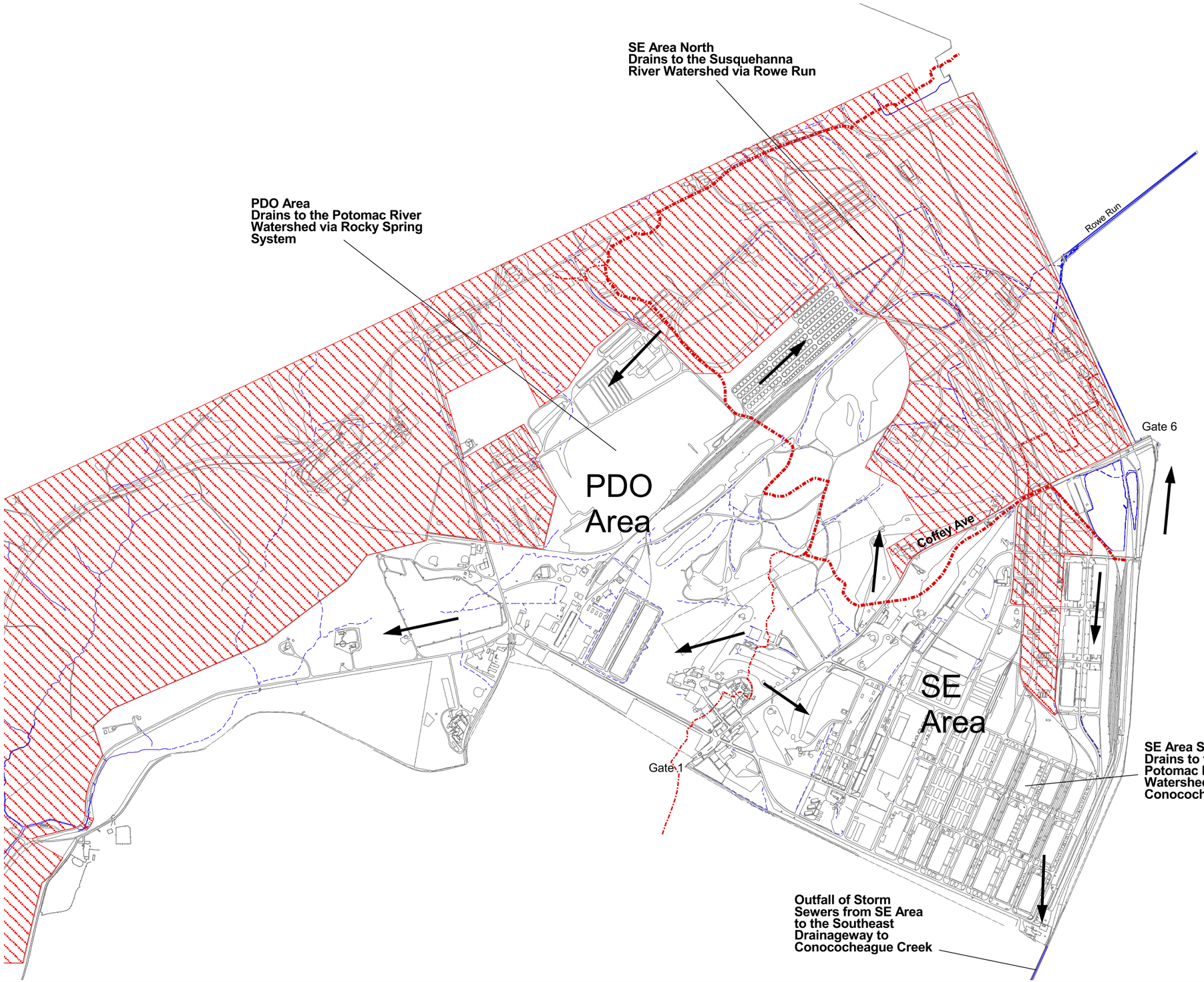
Letterkenny Army Depot
Chambersburg, PA

Figure 6
BRAC Phases I-IV
Parcels

U.S. Army Corps of Engineers
Baltimore District

WESTON SOLUTIONS

Date:
01-16-2007



Legend:

- Buildings
- Roads
- Drainage
- Army Retained Area
- Major Watershed Divide
- Subbasin Drainage Divide
- General Flow Direction

N W E S

1400 0 1400 Feet

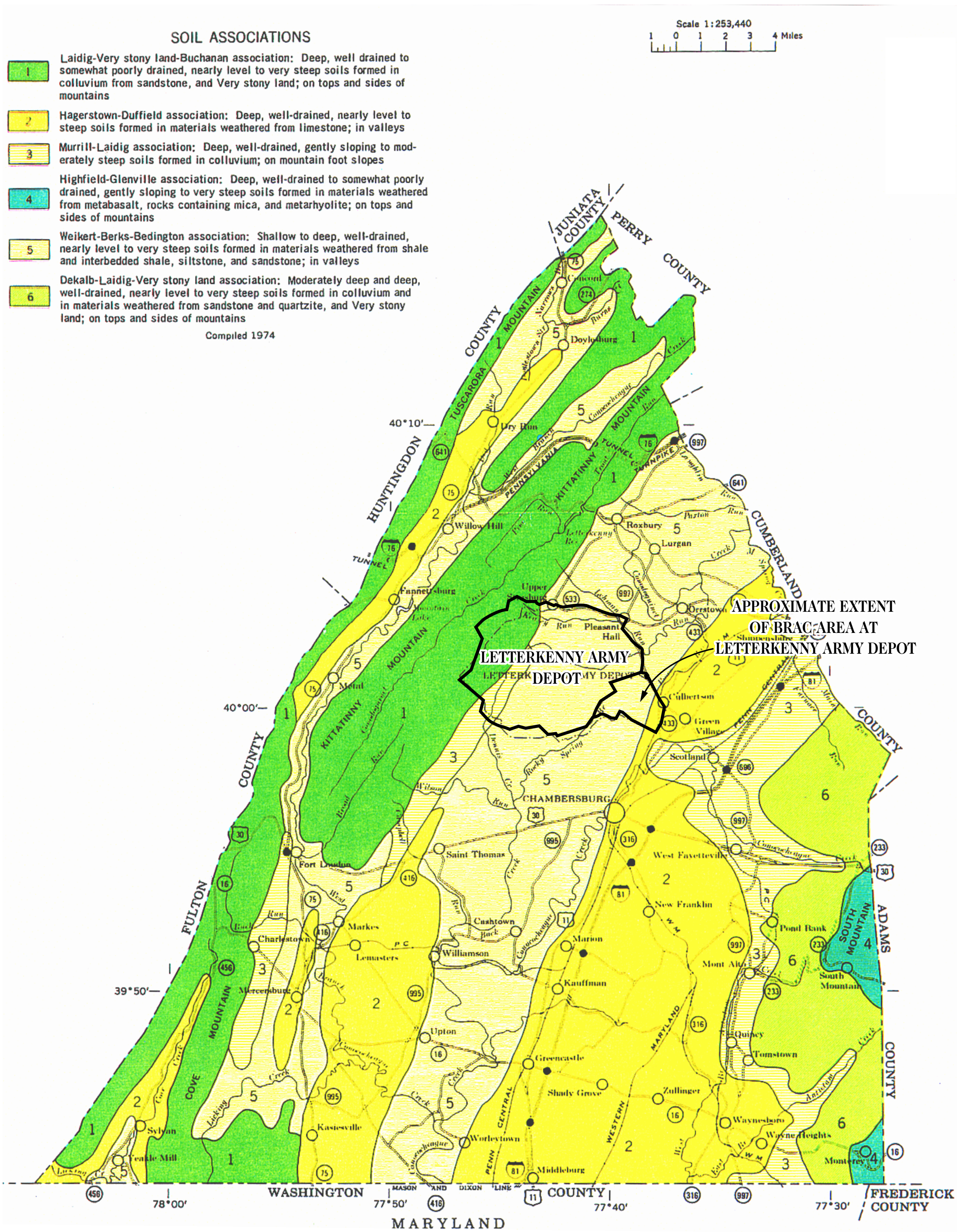
Letterkenny Army Depot
Chambersburg, PA

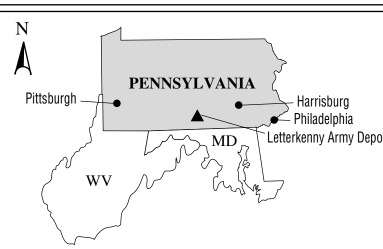
Figure 7

Location of Drainageways and Major Drainage Divides at Letterkenny Army Depot

U.S. Army Corps of Engineers
Baltimore District

Date:
01/16/07





Source: USDA, 1974; ESE.

U.S. Army Corps of Engineers, Baltimore District

Letterkenny Army Depot

Chambersburg, Pennsylvania

FIGURE 8

General Soil Map: Franklin County, Pennsylvania

02P-1355

FIGURE 9
GEOLOGIC MAP OF THE PDO AND SE AREAS
LETTERKENNY ARMY DEPOT

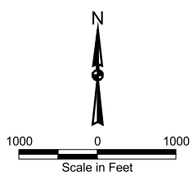
Legend:

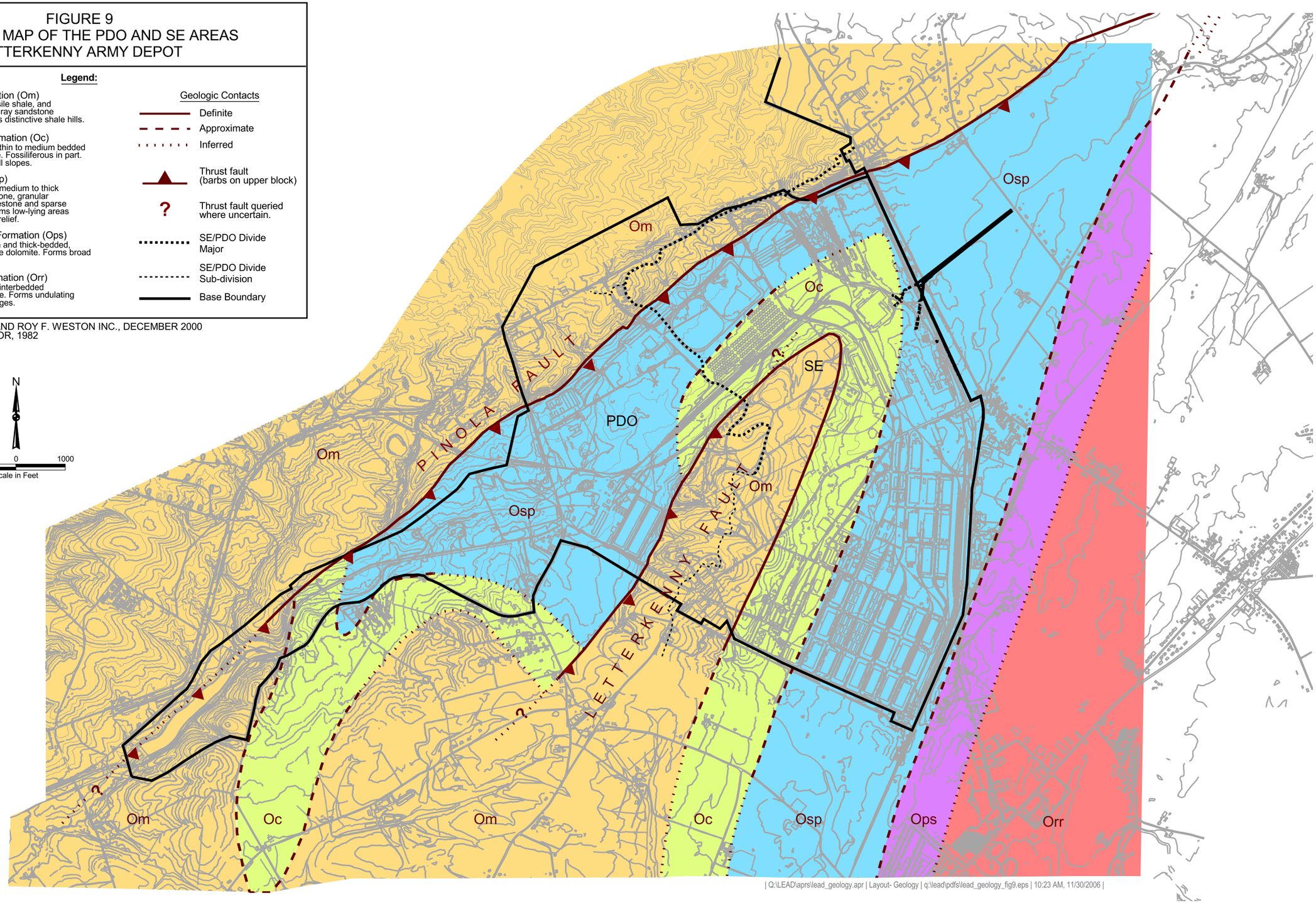
Om	Martinsburg Formation (Om) Dark-gray to black fissile shale, and yellow-green to dark-gray sandstone and graywacke. Forms distinctive shale hills.
Oc	Chambersburg Formation (Oc) Medium to dark-gray, thin to medium bedded argillaceous limestone. Fossiliferous in part. Occurs primarily on hill slopes.
Osp	St. Paul Group (Osp) Medium to dark-gray, medium to thick bedded micritic limestone, granular limestone, striped limestone and sparse dolomite. Typically forms low-lying areas with little topographic relief.
Ops	Pinesburg Station Formation (Ops) Light-colored, medium and thick-bedded, laminated and massive dolomite. Forms broad topographic rise.
Orr	Rockdale Run Formation (Orr) Medium to dark-gray, interbedded limestone and dolomite. Forms undulating terraine with rocky ledges.

Geologic Contacts

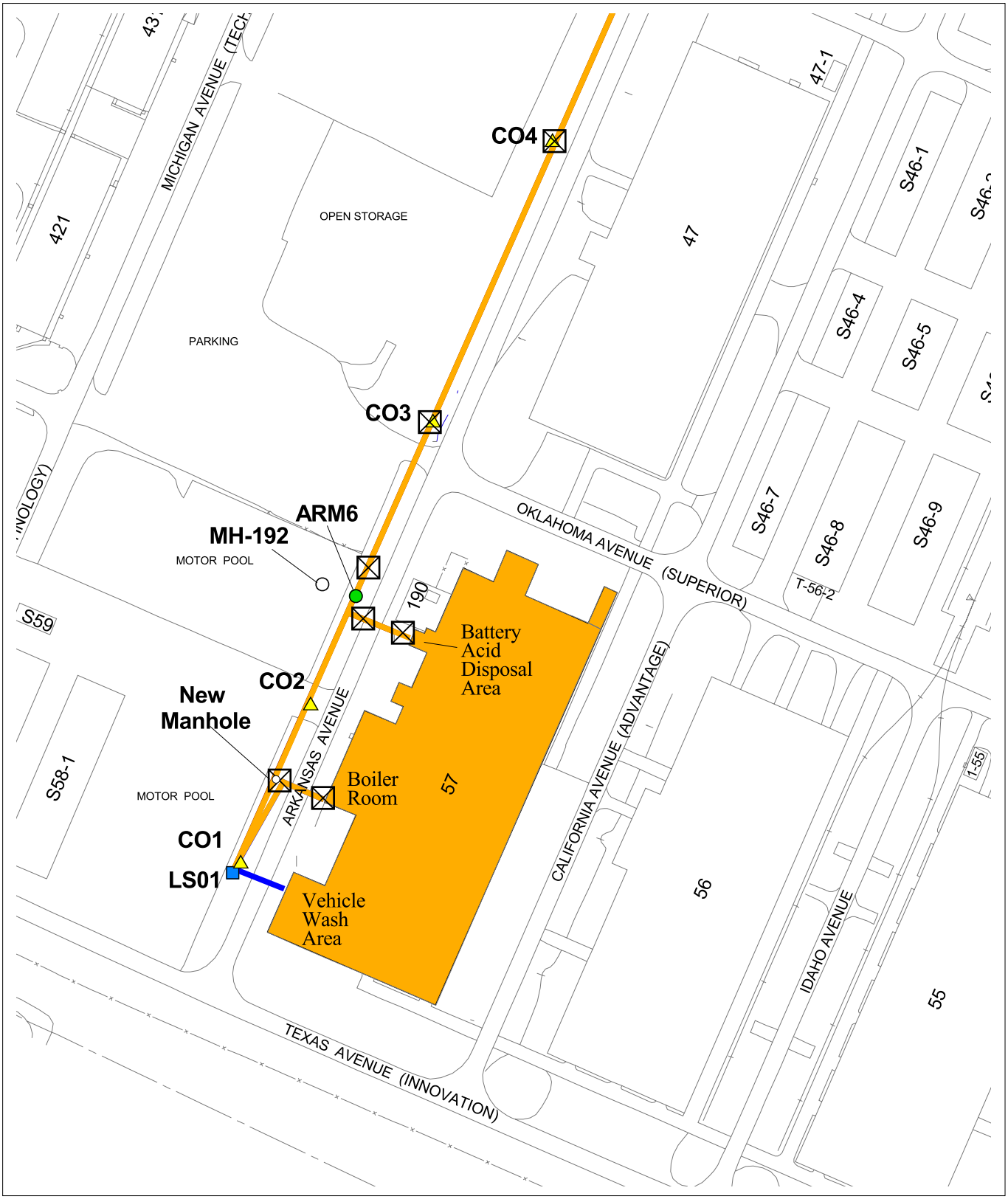
- Definite
- Approximate
- Inferred
- Thrust fault (barbs on upper block)
- ? Thrust fault queried where uncertain.
- SE/PDO Divide Major
- SE/PDO Divide Sub-division
- Base Boundary

SOURCES: IT CORPORATION AND ROY F. WESTON INC., DECEMBER 2000
BECHER AND TAYLOR, 1982





| Q:\LEAD\aprs\lead_geology.apr | Layout- Geology | q:\lead\pdfs\lead_geology_fig9.eps | 10:23 AM, 11/30/2006 |



Legend:

- Building
- Roads
- Drainage
- Gravity Flow IWWS Pipeline
- Abandoned IWWS Pipeline
- Air Release Manhole
- Cleanout
- Lift Station
- Listening Post
- Manhole
- Abandonment Point

50 0 50 100 Feet

N W E S

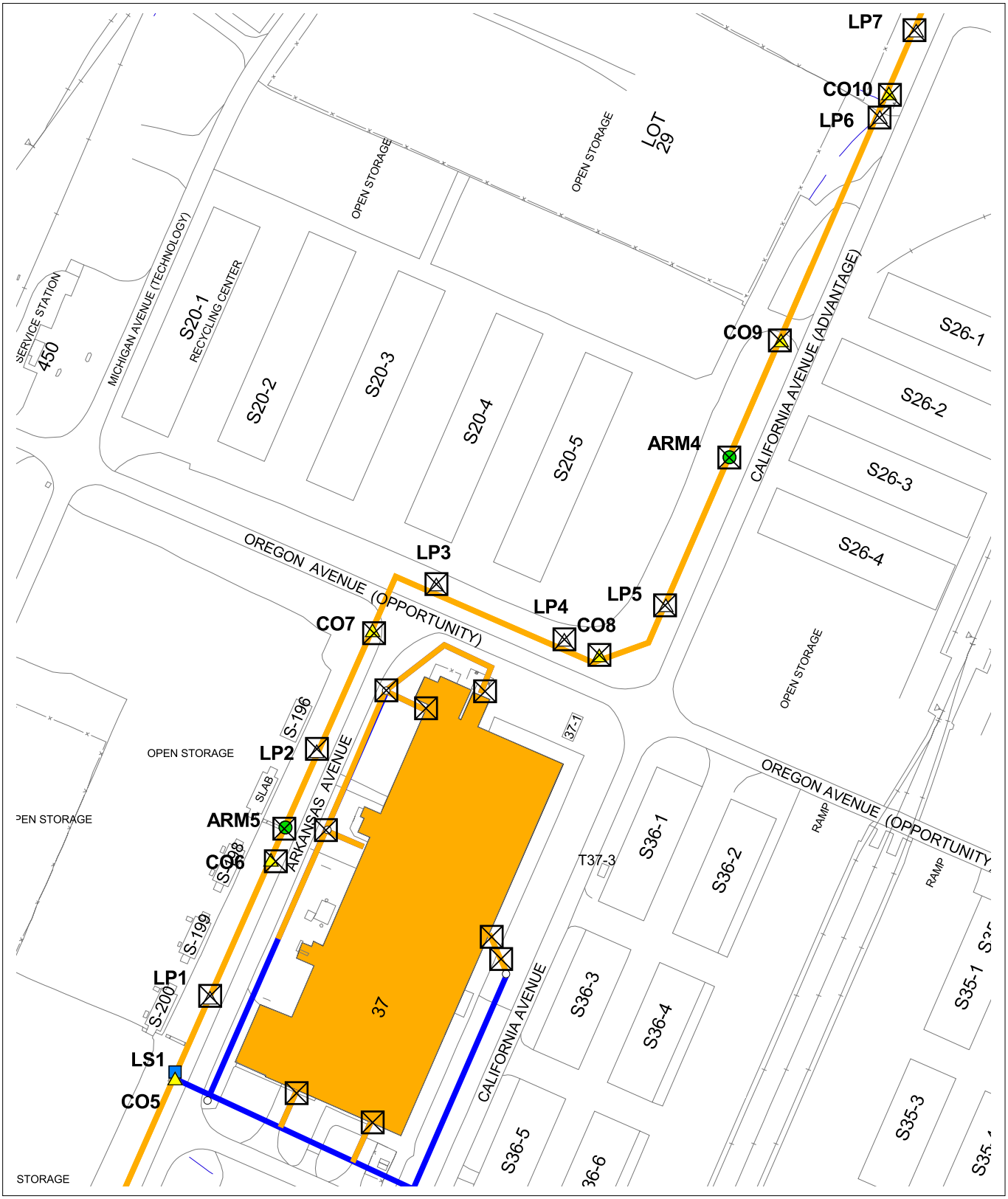
Letterkenny Army Depot
Chambersburg, PA
U.S. Army Corps of Engineers
Baltimore District

Figure 10
Abandonment Points
for IWWS Lines Associated
with Building 57

WESTON SOLUTIONS

Date:
09/05/2007

| Y:\LEAD\aprs\iwtp.apr | Layout- Building 57 | y:\lead\pdfs\iwtp_bldg57.eps | 3:32 PM, 9/7/2007 |



Legend:

- Building
- Roads
- Drainage
- Gravity Flow IWWS Pipeline
- Abandoned IWWS Pipeline
- Air Release Manhole
- Cleanout
- Lift Station
- Listening Post
- Manhole
- Abandonment Point

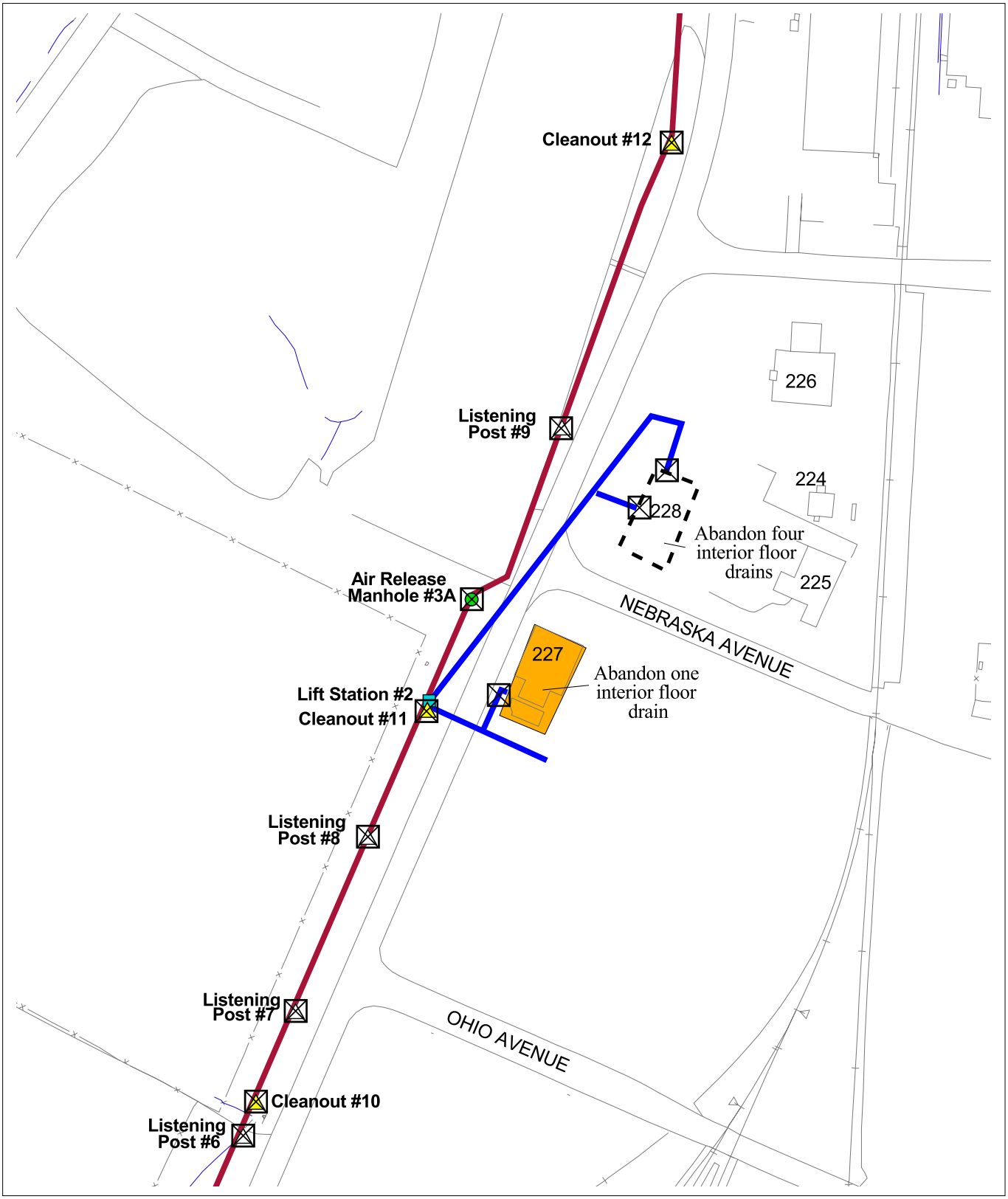
0 150 Feet

Letterkenny Army Depot
Chambersburg, PA
U.S. Army Corps of Engineers
Baltimore District

Figure 11
Abandonment Points
for IWWS Lines Associated
with Building 37

Date:
09/05/2007

| Y:\LEAD\aprs\iwtp.apr | Layout- Building 37 | y:\lead\pdfs\iwtp_bldg37.eps | 3:33 PM, 9/7/2007 |



Legend:

- Building
- Roads
- Drainage
- Gravity Flow IWWS Pipeline
- Pressurized IWWS Pipeline
- Air Release Manhole
- Cleanout
- Lift Station
- Listening Post
- Manhole
- Abandonment Point

50 0 50 100 Feet

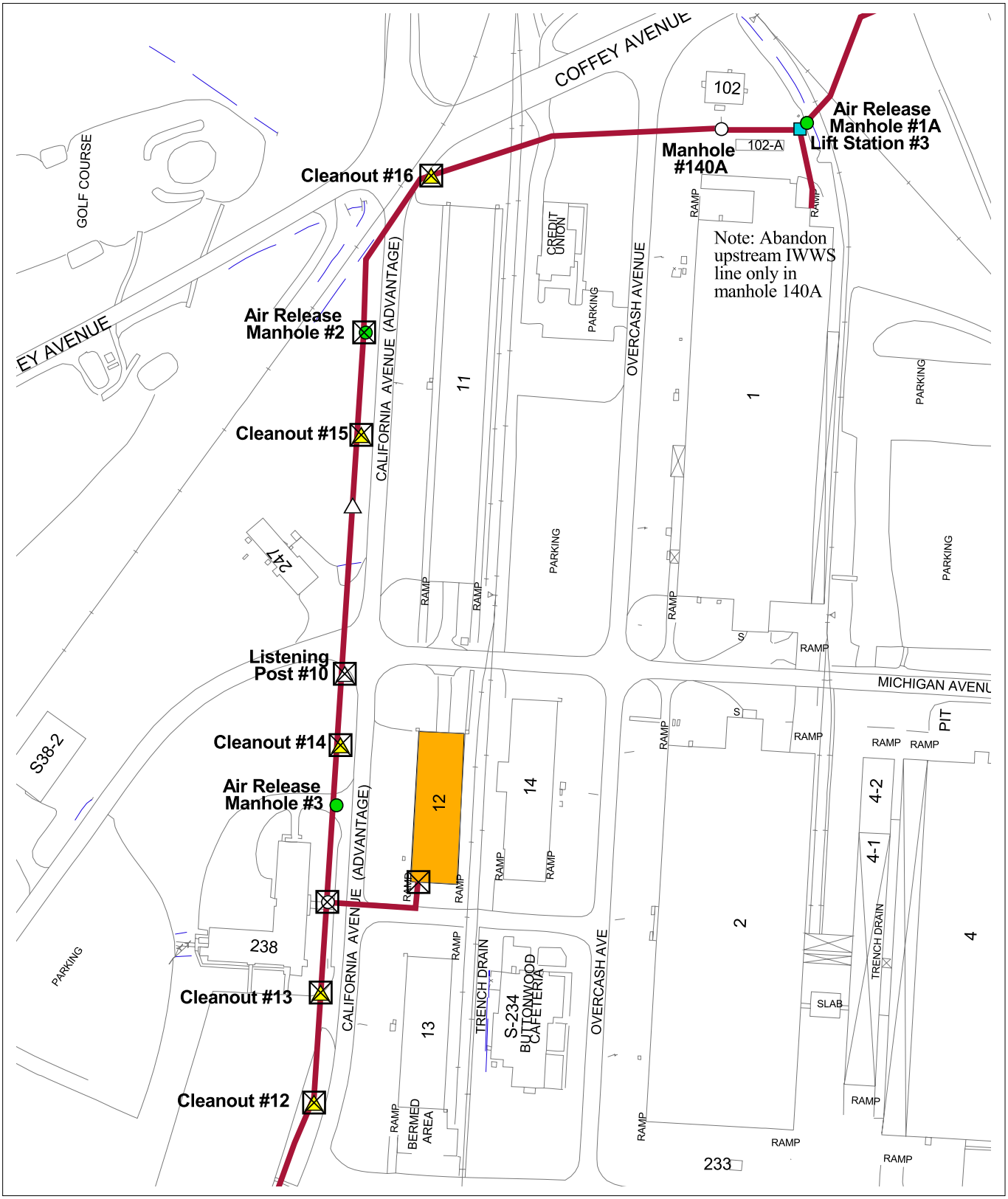
N W E S

Letterkenny Army Depot
Chambersburg, PA
U.S. Army Corps of Engineers
Baltimore District

Figure 12
Abandonment Points
for IWWS Lines Associated
with Buildings 227 and 228

Date:
09/05/2007

| Y:\LEAD\aprs\iwtp.apr | Layout- Building 227 | y:\lead\pdfs\iwtp_bldg227.eps | 3:34 PM, 9/7/2007 |



Legend:

- Building
- Roads
- Drainage
- Gravity Flow IWWS Pipeline
- Pressurized IWWS Pipeline
- Air Release Manhole
- Cleanout
- Lift Station
- Listening Post
- Manhole
- Abandonment Point

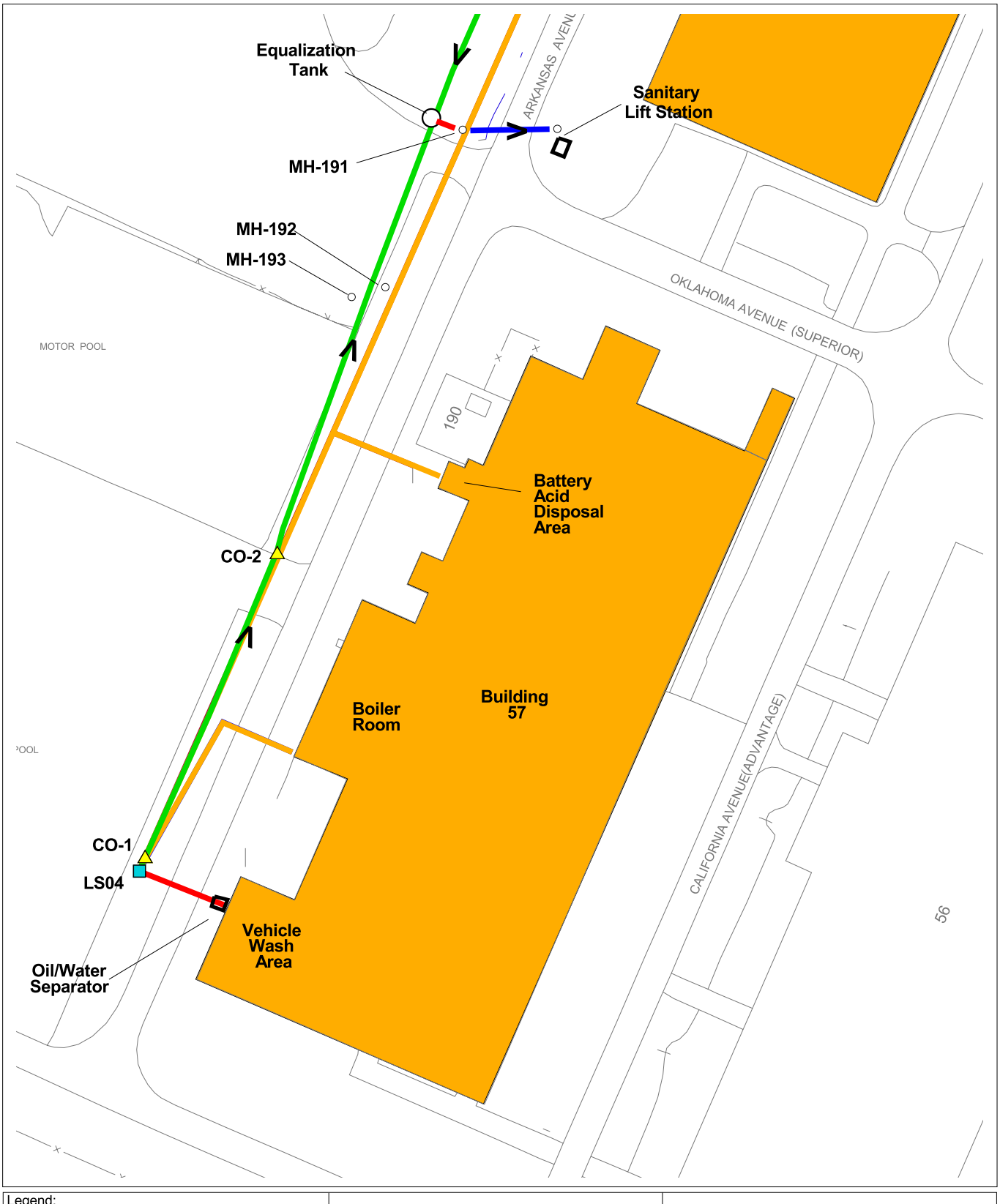
50 0 50 100 Feet

Letterkenny Army Depot
Chambersburg, PA
U.S. Army Corps of Engineers
Baltimore District

Figure 13
Abandonment Points
for IWWS Lines Associated
with Building 12

Date:
09/05/2007

| Y:\LEAD\aprs\iwtp.apr | Layout- Building 12 | y:\lead\pdfs\iwtp_bldg12.eps | 3:35 PM, 9/7/2007 |



Legend:

- Building
- Roads
- Drainage
- Lift Station
- Manhole
- Cleanout
- Gravity Lines Revised
- Abandoned Force Main Line
- Newly Installed Force Main Line

0 100 Feet

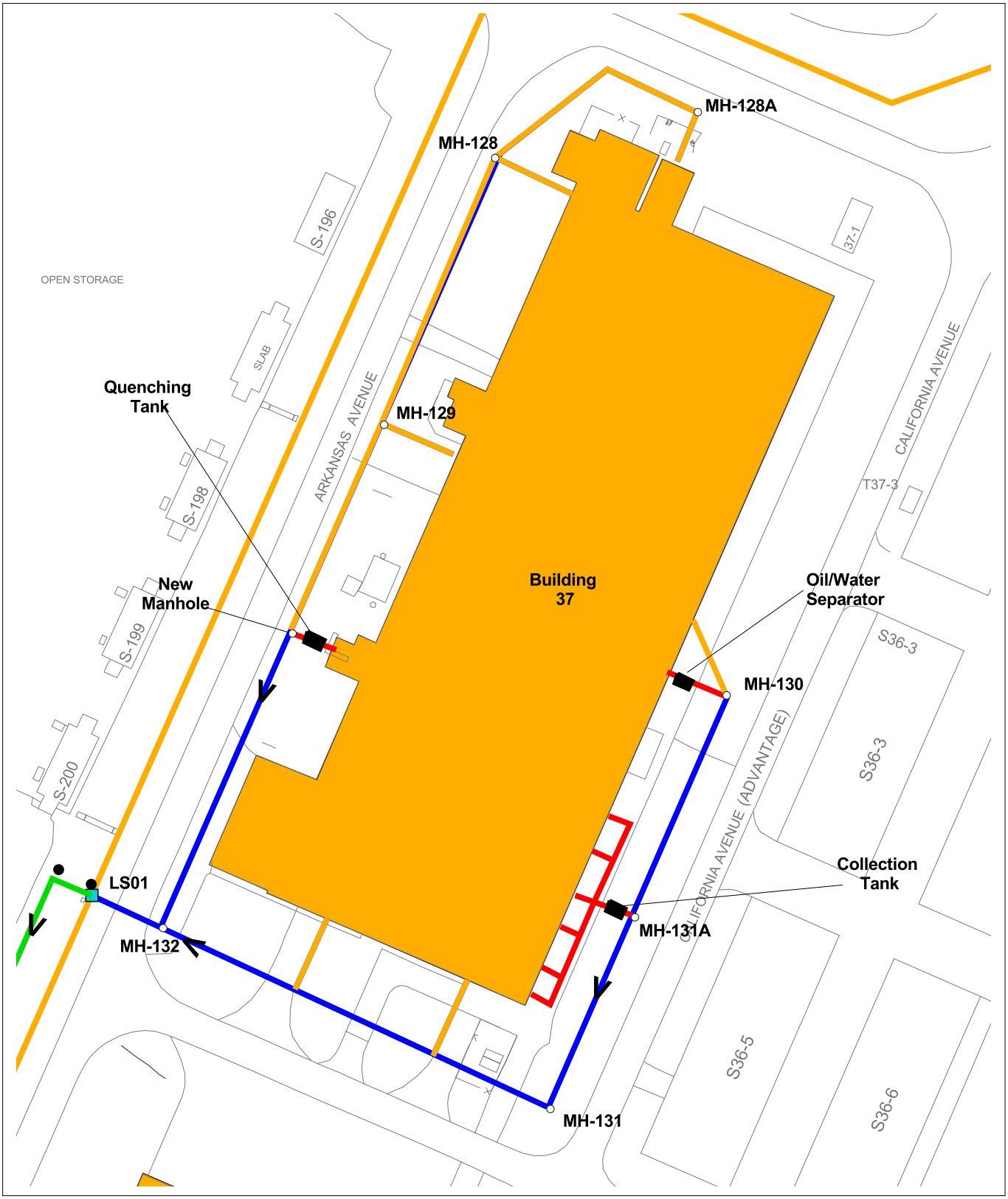
N W E S

Letterkenny Army Depot
Chambersburg, PA
U.S. Army Corps of Engineers
Baltimore District

Figure 14
Building 57 Reroute Work

Date:
09/05/2007

| Y:\LEAD\aprs\bldg57_fm_new.apr | Layout- Building 57 New Force | y:\lead\pdfs\bldg57_new_forcemain.eps | 3:40 PM, 9/7/2007 |



Legend:

- Building
- Roads
- Drainage
- Gravity Line Revised
- Abandoned Force Main Line
- Newly Installed Force Main Line
- New Gravity Line
- Lift Station

0 75 Feet

N W E S

Letterkenny Army Depot
Chambersburg, PA
U.S. Army Corps of Engineers
Baltimore District

Figure 15
Building 37 Reroute Work

Date:
09/05/2007

| Y:\LEAD\aprs\bldg57_fm_new.apr | Layout- Building 37 Features | y:\lead\pdfs\bldg37_features.eps | 3:41 PM, 9/7/2007 |

Legend:

- Building
- Roads
- Drainage
- Gravity Line Revised
- Abandoned Force Main Line
- Newly Installed Force Main Line
- 1,000 gal Cement Tank
- Cleanout
- Lift Station
- Storm Sewer
- Manhole
- New Gravity Line

0 200 Feet

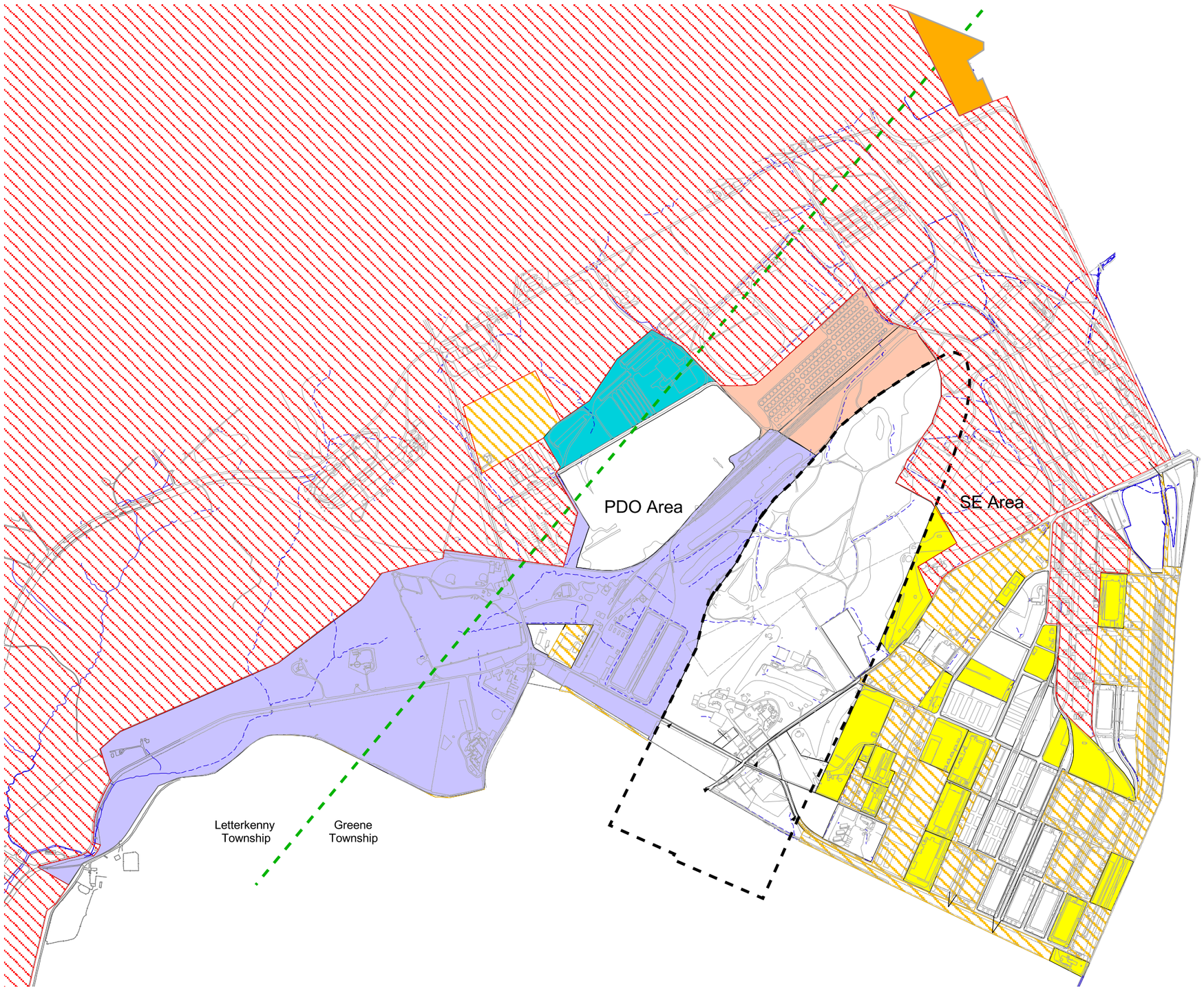
N W E S

Letterkenney Army Depot
Chambersburg, PA
U.S. Army Corps of Engineers
Baltimore District

Figure 16
New IWWS
Force Main Section

Date:
09/05/2007

| Y:\LEAD\aprs\bldg57_fm_new.apr | Layout - Proposed Force Main | y:\lead\pdfs\bldg57_fm_new.eps | 3:43 PM, 9/7/2007 |



Legend:

- Buildings
- Army Retained
- Roads
- Drainage Divides
- Shale/Limestone Boundary
- Township Line
- Phase I, II, and III Parcels
- Phase IV Parcels
- Phase V Parcels
- Phase VI Parcels
- Phase VII Parcels
- Phase II Parcels where lower portion needs to be transferred (8 ft. below ground surface to center of the earth)
- Air Hill Church Parcel

N W E S

1400 0 1400 Feet

Letterkenny Army Depot
Chambersburg, PA

Figure 17
Phases of
BRAC Property
Transfer

U.S. Army Corps of Engineers
Baltimore District

Date:
09-06-07

ATTACHMENT 1

AGENCY CONCURRENCE LETTERS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

June 24, 2008

Colonel Steven A. Shapiro
Commander, Letterkenny Army Depot
1 Overcash Avenue, AMSAM-LE-CO
Chambersburg, PA 17201-4150

RE: Second Five-Year Review Report
Letterkenny Army Depot Southeastern Area NPL Site
Chambersburg, PA

Dear Colonel Shapiro:

Thank you for submitting the U.S. Army's (Army's) report, entitled "Second Five-Year Review Report, Letterkenny Army Depot Southeastern Area National Priorities List Site, Chambersburg, Pennsylvania", dated June, 2008 to the U.S. Environmental Protection Agency (EPA) for review and concurrence. EPA has reviewed this five-year review report and compared it to EPA's June, 2001 guidance document, *Comprehensive Five Year Review Guidance* (OSWER No. 9355.7-03B-P, EPA 540-R-01-007).

The five-year review process involved conducting an inspection of the Land Use Controls (LUCs) of the property transferred from the Army to Letterkenny Industrial Development Authority (LIDA) under the 1995 Base Realignment and Closure (BRAC). It was discovered that two of the properties transferred do not reference the Phase I restrictions. However, it is the position of EPA that courts today would likely enforce the land use restrictions against the new owners, even though the restrictions are not explicitly incorporated into the latest deed, based on the following:

1. The covenants and restrictions are in the 1998 "Phase I" deed from the Army to the LIDA and were drafted to run with land.
2. The Phase I deed was recorded in the public title records and is in the chain of title of the parcels now owned by Bentley World Packaging and 5K Logistics.
3. Reasonable commercial practice includes a title search before buying property; therefore, the Phase I deed restrictions should have been discovered.
4. The underlying property is a former military base, as well as a Superfund Site on the National Priorities List (NPL).

5. Similar restrictions are included in the business park's Codes, Covenants and Restrictions and in local ordinances.
6. Restrictions on land use are an ordinary part of business at commercial properties.
7. If the new owners want liability protection as "bona fide prospective purchasers" (BFPPs) under CERCLA, they must comply with land use restrictions and not impede the effectiveness or integrity of institutional controls. CERCLA 101(40)(F). They must also provide "full cooperation, assistance and access to persons that are authorized to conduct response actions," CERCLA 101(40)(E).

Therefore, EPA concurs with the Army's determination that the remedies for SE OU 1, SE OU 2, SE OU 3B, SE OU 4, portions of SE OU 8 and SE OU 13 are protective of human health and the environment; the protectiveness of the remedy for SE OU 10 must be deferred until the Vapor Intrusion Pathway analysis is complete.

The Army prepared this report to address the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 121(c) five-year review requirements. The requirement for this five-year review at Letterkenny Army Depot Southeastern Area NPL Site was triggered by the Operable Unit 1 Remedial Action start date of August 11, 1998. A previous five-year review report was completed and signed by the Army on November 6, 2001. The next five-year review will be due five years from the date of this concurrence letter.

If you have any questions, please contact Curtis Callahan at (215) 814-3354.

Sincerely,

James J Burke

James J. Burke, Director
Hazardous Site Cleanup Division

cc: Ms. Ruth Bishop, PADEP

Pennsylvania Department of Environmental Protection

909 Elmerton Avenue
Harrisburg, Pennsylvania 17110-8200

June 20, 2008

717-705-4705
FAX 717-705-4830

Southcentral Regional Office

Mr. Bryan Hoke
BRAC Environmental Coordinator
DAIM-BO-N-LE, Building 14
Letterkenny Army Depot
One Overcash Avenue
Chambersburg, PA 17201-4150

Re: Final Second Five-Year Review Report
Letterkenny Army Depot
Greene Township, Franklin County

Dear Mr. Hoke:

The Pennsylvania Department of Environmental Protection (PADEP) has reviewed the response-to-comments and the final Second Five-Year Review Report for the Southeastern Area, Letterkenny Army Depot. The response-to-comments have adequately addressed PADEP's comments. The Department has no further comments on this document and approves the final document.

If you have any questions on this matter, please contact me at 717-705-4833.

Sincerely,

Ruth Bishop

Ruth Bishop
Regional Project Manager
Environmental Cleanup Program

cc: Curtis Callahan, USEPA Region 3 (3HS11)
Greg Daloisio, Weston Solutions, Inc.
Stacie Popp-Young, Weston Solutions, Inc.

APPENDIX A

INTERVIEW SUMMARIES

APPENDIX A

2007 INTERVIEW SUMMARY

Personnel Interviewed: Joseph Petrasek, LEAD ERA, Project Manager
Interviewer: Paul R. Stone III, Project Manager, CENAB-EN-HM
Date: 16 August 2007
Location: LEAD, Building 14

1. To date what sort of maintenance has been performed on the capped K Areas?
Routine mowing. The capped areas (K-1, K-2, and K-3) are included in the Depot's mowing and landscape plan. The last few years this work has been performed by contractors; at a reduced level of effort. K-3 has not been mowed for several years.

2. To date what sort of inspections have been performed on the capped K Areas?
In 1995 the USACE Project Manager (performs technical environmental work for the Depot) inspected the capped areas with the Contractor performing the SE OU 3 FFS effort prior to the installation of monitoring wells.
From 1996 to 2001 the USACE Design Manager inspected the capped areas with the SE OU 3 FFS contractor as part of additional FFS efforts.
Since 2001, CENAB has performed yearly K-Areas Cap Inspections for LEAD.

3. Is there damage to the capped areas?
No, some of the monitoring wells were installed close to the capped K-1 site. In addition, drilling rigs and support vehicles were operated close to this site. There has been some vehicle traffic across K-3. As the road to K-3 has no outlet; it appears that this access is accidental. The access road to K-3 will be blocked by a cable barrier and signs. No permanent damage has been caused.

4. Are there problems with groundhog burrows?
The groundwater is very close to the surface at K-1. The groundhogs tended to live in the ore piles where they can stay dry. The ore piles have now been removed. This has greatly diminished the groundhog population in the K Areas. In 2007 only one burrow (five holes) were discovered at K-1.

5. Have there been changes to the capped areas?
Yes, in the winter of 1996-1997 LEAD allowed the Navy to install monitoring wells near K-1 as part of a test of High Resolution Three Dimensional Seismic. Several wells were installed on the toe of the cap (soil cover that slopes to grade). None of these wells penetrated the cap liner. LEAD had notified PADEP and received their approval for this action.

In the summer of 1999 the Army performed an In-Situ H2O2 Bedrock Injection Pilot Study at area K-1. To perform this study the Army had to breach the liner. The Army hand excavated the soil until the Geotextile, membrane, and liner were exposed. These were hand cut to expose the underlying soil cover. Boards were placed over the cap to distribute the drilling rigs weight over a wider area. Once the wells were installed, "boots" were placed over the wells and attached to the casing. The bottom of the boot was then solvent welded to the liner, then recovered.

In 2005 the ore piles (manganese) were removed. This has reduced groundhog habitat at the K Areas.

6. Was the K Areas Remediation successful?
It was since the soil source was removed and treated. It had no immediate impact on groundwater quality, as the majority of the VOC source is in the bedrock.

7. How is the K Areas groundwater being addressed?
It is being addressed by SE OU 3A (Disposal Area VOC-Contaminated Groundwater).

2003 INTERVIEW SUMMARY

Personnel Interviewed: Joseph Petrasek, LEAD ERA, Project Manager

Interviewer: Paul R. Stone III, Project Manager, CENAB-EN-HM

Date: 21 November 2003

Location: LEAD, Building 14

1. To date what sort of maintenance has been performed on the capped K Areas?

Routine mowing. The capped areas (K-1, K-2, and K-3) are included in the Depot's mowing and landscape plan. The last few years this work has been performed by contractors; at a reduced level of effort.

2. To date what sort of inspections have been performed on the capped K Areas?

In 1995 the USAEC Project Manager (performs technical environmental work for the Depot) inspected the capped areas with the Contractor performing the SE OU 3 FFS effort prior to the installation of monitoring wells.

From 1996 to 2001 the USACE Design Manager inspected the capped areas with the SE OU 3 FFS contractor as part of additional FFS efforts.

Since 2001, CENAB has performed yearly K-Areas Cap Inspections for LEAD.

3. Is there damage to the capped areas?

No, some of the monitoring wells were installed close to the capped K-1 site. In addition, drilling rigs and support vehicles were operated close to this site. No permanent damage has been caused.

4. Are there problems with groundhog burrows?

The groundwater is very close to the surface at K-1. The groundhogs tend to live in the ore piles where they can stay dry. The 2001 inspection identified evidence of groundhog burrowing in K1 and K-2. In 2002 a video inspection determined that the groundhog burrows did not penetrate the capped areas. In 2003; due to high rainfall and an elevated groundwater table; the groundhogs are not burrowing in the K-Areas.

5. Have there been changes to the capped areas?

Yes, in the winter of 1996-1997 LEAD allowed the Navy to install monitoring wells near K-1 as part of a test of High Resolution Three Dimensional Seismic. Several wells were installed on the toe of the cap (soil cover that slopes to grade). None of these wells penetrated the cap liner. LEAD had notified PADEP and received their approval for this action.

In the summer of 1999 the Army performed an In-Situ H2O2 Bedrock Injection Pilot Study at K-1. To perform this study the Army had to breach the liner. The Army hand excavated the soil until the Geotextile, membrane, and liner were exposed. These were hand cut to expose the underlying soil cover. Boards were placed over the cap to distribute the drilling rigs weight over a wider area. Once the wells were installed, "boots" were placed over the wells and attached to the casing. The bottom of the boot was then solvent welded to the liner, then recovered.

6. After the pilot study was completed was the site restored?

The summer of 1999 was a drought year. Restoration efforts would have been futile. Site vegetation restored naturally in Spring 2001.

7. Was the K Areas Remediation successful?

It was since the soil source was removed and treated. It had no immediate impact on groundwater quality, as the majority of the VOC source is in the bedrock.

8. How is the K Areas groundwater being addressed?

It is being addressed by SE OU 3A (Disposal Area VOC-Contaminated Groundwater).

2001 INTERVIEW SUMMARY

Personnel Interviewed: **Joseph Petrasek, LEAD ERA, Project Manager**

Interviewer: **Paul R. Stone III, Design Manager, CENAB-EN-HM**

Date: **1 August 2001**

Location: **LEAD**

1. To date what sort of maintenance has been performed on the capped K Areas?

Routine mowing. The capped areas (K-1, K-2, and K-3) are included in the Depot's mowing and landscape plan. The last few years this work has been performed by contractors.

2. To date what sort of inspections have been performed on the capped K Areas?

In 1995 the USAEC Project Manager (performs technical environmental work for the Depot) inspected the capped areas with the Contractor performing the SE OU 3 FFS effort prior to the installation of monitoring wells.

From 1996 to 2001 the USACE Design Manager inspected the capped areas with the SE OU 3 FFS contractor as part of additional FFS efforts.

3. Was there damage to the capped areas?

No, some of these monitoring wells were installed close to the capped sites. In addition, drilling rigs and support vehicles were operated close to these sites. No permanent damage was caused to the site.

4. Are there problems with groundhog burrows?

The groundwater is very close to the surface at K-1. The groundhogs tend to live in the ore piles where they can stay dry. The 2001 inspection identified evidence of groundhog burrowing in K-1 and K-2.

5. Have there been changes to the capped areas?

Yes, in the winter of 1996-1997 LEAD allowed the Navy to install monitoring wells near K-1 as part of a test of High Resolution Three Dimensional Seismic. Several wells were installed on the toe of the cap (soil cover that slopes to grade). None of these wells penetrated the cap liner. LEAD had notified PADEP and received their approval for this action.

In the summer of 1999 the Army performed an In-Situ H_2O_2 Bedrock Injection Pilot Study at K-1. To perform this study the Army had to breach the liner. The Army hand excavated the soil until the Geotextile, membrane, and liner were exposed. These were hand cut to expose the underlying soil cover. Boards were placed over the cap to distribute the drilling rigs weight over a wider area. Once the wells were installed, "boots" were placed over the wells and attached to the casing. The bottom of the boot was then solvent welded to the liner, then recovered.

6. After the pilot study was completed was the site restored?

The summer of 1999 was a drought year. Restoration efforts would have been futile. Site vegetation restored naturally in Spring 2001.

7. Was the K Areas Remediation successful?

It was since the soil source was removed and treated. It had no immediate impact on groundwater quality, as the majority of the VOC source is in the bedrock.

8. How is the K Areas groundwater being addressed?

It is being addressed by SE OU 3 (Disposal Area VOC-Contaminated Groundwater).

INTERVIEW RECORD

Site Name: Letterkenny Army Depot		**EPA ID No.:** PA6213820503	
Subject: Five-Year Review Interview		**Time:**	**Date:** 08/29/07
Contact Made By:			
Name: Bryan Hoke	**Title:** BRAC Environmental Coordinator	**Organization:** Letterkenny Army Depot	
Individual Contacted:			
Name: John Van Horn	**Title:** Executive Director	**Organization:** Letterkenny Industrial Development Authority	
Telephone No: **Fax No.:** NA **E-Mail Address:** NA		**Street Address:** **City, State, Zip:**	

Summary Of Conversation

Five-Year Review Interview Questions:

1. **Did the Phase I and II deeds filed at the Franklin County Courthouse contain the Land Use Restrictions pertaining to commercial/industrial use restrictions, groundwater restrictions, and soil excavation restrictions?**

A: Yes, Copies of the Phase I and II Quit Claim Deeds can be found at the Cumberland Valley Business Park website. www.cvbpa.org Letterkenny Industrial Development Authority web link.

2. **Has LIDA allowed any reuse that does not meet the industrial/commercial definition?**

A: No, LIDA does not allow any residential. Cumberland Valley Business Park in the SE Area is zoned heavy industrial (HI).

3. **Has LIDA allowed anyone access to the groundwater underlying the Phase I and II Parcels?**

A: No

4. **Has LIDA allowed any subsurface construction suitable for human occupation to be constructed on the Phase I and II Parcels?**

A: No

INTERVIEW RECORD

Site Name: Letterkenny Army Depot		**EPA ID No.:** PA6213820503	
Subject: Five-Year Review Interview		**Time:**	**Date:** 08/29/2007
Contact Made By:			
Name: Stacie Young	**Title:** Project Manager	**Organization:** Weston Solutions	
Individual Contacted:			
Name: Bryan Hoke	**Title:** BRAC Environmental Coordinator	**Organization:** Letterkenny Army Depot	
Telephone No: **Fax No.:** NA **E-Mail Address:** NA		**Street Address:** **City, State, Zip:**	

Summary Of Conversation

Five-Year Review Interview Questions:

1. **Has the Army reported annually to the EPA and PADEP regarding land use controls?**

A: Letterkenny has submitted annual reports on December 22, 1999, January 12, 2001, February 4, 2002, January 24, 2003, January 27, 2004, January 31, 2005, January 25, 2006, and January 29, 2007.

2. **As required by the Phase I ROD did the BRAC Cleanup Team establish periodic inspection procedures to ensure adherence to the institutional controls?**

A: The Phase II ROD specified the requirement for the maintenance of institutional controls in a memorandum of agreement. The BRAC Cleanup Team developed and signed the Land Use Control Assurance Plan Memorandum of Agreement for BRAC Phase I and II Parcels on August 29, 2002.

3. **Has the BRAC Cleanup Team developed a notification letter as required by the Land Use Control Assurance Plan Memorandum of Agreement?**

A: A joint land use control notification letter dated was developed and finalized by the BCT in 2006 and mailed to the Letterkenny Industrial Development Authority (LIDA) on June 1, 2006. For calendar year 2007 it was mailed to LIDA on January 30, 2007.

INTERVIEW RECORD

Site Name: Letterkenny Army Depot	**EPA ID No.:** PA6213820503	
Subject: Community Interview and Five-Year Review Interview	**Time:** 10 a.m.	**Date:** 09/12/06

Contact Made By:

Name: Deb Volkmer	**Title:** Project Manager	**Organization:** Weston Solutions

Individual Contacted:

Name: Ruth Bishop	**Title:** Project Officer/Risk Assessor	**Organization:** PADEP

Telephone No: 717-705-4833 **Fax No.:** NA **E-Mail Address:** NA	**Street Address:** 909 Elmerton Avenue **City, State, Zip:** Harrisburg, PA 17110-8200

Summary Of Conversation

Community Interview Questions:

1. What is your understanding of the site's environmental situation during the past 9 years (from 1997 to present)?

There was a significant groundwater contamination problem. The contamination extended off-site. There is a soil contamination investigation ongoing on the base.

2. What is your opinion of the government's commitment to cleaning up the hazardous waste at Letterkenny?

Seems to be very committed to determine contamination and doing reasonable effort to clean it up.

3. What are your concerns regarding the site? Are you aware of any general community concerns about the site or its operation and administration?

Concerned about groundwater issues, source areas for contamination, and vapor intrusion. Aware only of community concerns that were brought up at public meetings: future use and cleanup.

4. How or where have you received most of your information about the environmental and reuse activities at Letterkenny? Do you feel well-informed about site activities?

Received most of information through reports and e-mail communications. Feels well-informed about site activities.

5. How can Letterkenny best provide you with information concerning its environmental activities?

Continue what doing now.

6. What information regarding site environmental and reuse activities do you want or need?

Already receiving the information wanted.

7. What is your opinion of the cleanup activities related to the Base Realignment and Closure (BRAC)?

Seem to be doing a good job of finding contamination and doing a good job cleaning it up.

8. What is your opinion of how the Letterkenny excessed parcels of land have been reused?

Seem to be making good use of property.

9. What is your hope for the future of the Letterkenny Army Depot?

That it can be cleaned up.

10. Do you have any comments, suggestions or recommendations regarding the site's management or operations?

No.

11. Have you viewed Letterkenny's BRAC and Restoration web site?

Yes, occasionally refers to web site.

12. Do you know what the Remediation Program does at LEAD?

Yes, investigates property for problems and cleans up the contamination.

13. Do you know the difference between the active and BRAC properties at Letterkenny?

Yes, active properties retained by the Army and BRAC properties excessed to LIDA for public use.

Five-Year Review Interview Questions:

1. What effects have site operations had on the surrounding community?

(Not asked. Not applicable to respondent.)

2. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency response from local authorities? If so, please give details.

No.

3. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.

Yes, attending or participating in monthly meetings and conference calls. Has participated in tours of facility and BRAC portion of site.

4. Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses.

Received only one complaint about the BRAC parcels: odor issues from roofing company. Air division inspectors responded and required company to install additional treatment for emissions. The company complied with requirement.

INTERVIEW RECORD

Site Name: Letterkenny Army Depot	**EPA ID No.:** PA6213820503	
Subject: Community Interview and Five-Year Review Interview	**Time:** 10 a.m.	**Date:** 09/14/06

Contact Made By:

Name: Deb Volkmer	**Title:** Project Manager	**Organization:** Weston Solutions

Individual Contacted:

Name: DeEtta Antoun	**Title:** Acting Community Co-Chair	**Organization:** RAB, also local neighbor to site

Telephone No: 717-263-8934 **Fax No.:** NA **E-Mail Address:** NA	**Street Address:** 4857 Letterkenny Road West **City, State, Zip:** Chambersburg, PA 17201-8789

Summary Of Conversation

Community Interview Questions:

1. What is your understanding of the site's environmental situation during the past 9 years (from 1997 to present)?

They have made huge progress in identifying sites and the cleanup activities.

2. What is your opinion of the government's commitment to cleaning up the hazardous waste at Letterkenny?

Extremely pleased with the commitment. If the site was private industry it would have been abandoned and bankrupt.

3. What are your concerns regarding the site? Are you aware of any general community concerns about the site or its operation and administration?

Hope that the cleanup remains funded. Federal-level funding has gone overseas for the war in Iraq and other places and issues. Concerned funding will not continue for site cleanup.

General community concerns: It is the community's perception that LEAD is still contaminated with nerve agents and radioactive material. They believe more contamination exists and is not being cleaned up. Some acres are being given to the school district for sports and special needs programs and the public perception is that it isn't safe for use. The public believes the site should be cleaned to residential levels. The message is out there that it is still not safe for children. They do not realize or accept that the groundwater and surface contamination has been or is being cleaned up.

4. How or where have you received most of your information about the environmental and reuse activities at Letterkenny? Do you feel well-informed about site activities?

Receive most of information from the RAB meetings. These meetings provide huge amounts of information. Also checks the information repository and attends the reuse committee meetings. Enjoys knowing the details … can't have enough information!

Personally feels well informed; however, believes the community is not well informed but thinks the public chooses not to be informed.

5. How can Letterkenny best provide you with information concerning its environmental activities?

Letterkenny should send out newsletters via direct mail to community about the cleanup. The newsletters should be written in non-technical terms. Part of the problem is the community doesn't understand and therefore assumes the worst. Better communication is needed. The RAB needs to announce the meetings in the newspaper. People don't attend the RAB meetings unless personally impacted. People are quiet when the contamination is being addressed; however, people will come out in large numbers when affected. LIDA and the Cumberland Valley Business Park need to do a better job communicating with the public. They could send newsletters to the public. One has to seek out LIDA to obtain information and the authority is not openly sharing information. LIDA may think they are communicating but they aren't doing enough. LIDA has a responsibility to the community in terms the community can understand. There is a lack of trust there too.

6. What information regarding site environmental and reuse activities do you want or need?

Already informed as a RAB member. Has access to database. LIDA not giving information freely. LIDA operates as a business, and they are, but they are also responsible to the community.

7. What is your opinion of the cleanup activities related to the Base Realignment and Closure (BRAC)?

Doing an excellent job of identifying and cleaning up sites. RAB earned my trust over the years. Army is spending a lot of money for the cleanup.

8. What is your opinion of how the Letterkenny excessed parcels of land have been reused?

Excessed parcels could have been better used and better marketed. Some businesses are better uses and then there are marginal uses. Some uses have potential to recontaminate the land and that is unfortunate. LIDA needed to aggressively market for better uses. It is good that they are trying to delist portions of property where contamination does not exist. There is a perception that large amounts of contamination has remained. It is good that the prison with 420 beds is being built and that is a residential use, not an industrial use. Sellers didn't have a real estate background to market property – a tarpaper company released fumes – not well thought out action. A golf course or church would be better uses for the excessed parcels. Army use is heavy industrial and that is grandfathered in because the depot was already there.

9. What is your hope for the future of the Letterkenny Army Depot?

Hope the depot continues to exist. It is a valued employer in Franklin County. Would like the depot to increase employment opportunities. I brace against future BRACs because they earned my trust through the cleanup actions.

10. Do you have any comments, suggestions or recommendations regarding the site's management or operations?

The depot's command had done an outstanding job. LIDA/business park needs to be a better communicator and be in line with residential living … with people who are their neighbors. LIDA and the business park have to pay attention to residential areas even though it is an island of industry.

11. Have you viewed Letterkenny's BRAC and Restoration web site?

Yes, have accessed them both. Has also accessed the LEAD web site.

12. Do you know what the Remediation Program does at LEAD?

Yes, cleans contaminated sites at the depot.

13. Do you know the difference between the active and BRAC properties at Letterkenny?

Yes. BRAC is the 1,500 acres excessed and active refers to the 17,400 acres remaining under Army control/mission.

Five-Year Review Interview Questions:

1. What effects have site operations had on the surrounding community?

They have done a lot of burning and detonating explosives that have directly affected residents. There was no communication – residents talked to a recording machine. Activities changed when the depot held a meeting to increase the burns and detonations. The community attended the meeting, voiced their concerns, and the depot backed off. Current actions do not impact the residents.

Depot's employment benefits the county. Depot mission benefits the nation. There is a small issue of semi-trucks using some roads to the depot and LIDA/business park through area marked No Trucks Allowed. There is a sharp curve and a small sign and the drivers do not see the sign. A larger sign may be needed to direct the truck drivers. This issue could be easily resolved.

2. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency response from local authorities? If so, please give details.

Periodically, there have been fires at the business park and the depot has had minor incidences. At the business park the newspaper at the insulation company sometimes catches on fire. Also at the business park, rail cars of grain may tip over.

Likes all the people on the RAB. They know their stuff. Military is hard working and dedicated. They have worked hard to avoid future BRACs. Have won awards.

Needs to do a random sampling of residents who are not involved in RAB or LIDA to access their viewpoints and concerns.

3. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.

(Not asked. Not applicable to respondent.)

4. Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses.

(Not asked. Not applicable to respondent.)

INTERVIEW RECORD

Site Name: Letterkenny Army Depot	**EPA ID No.:** PA6213820503	
Subject: Five-Year Review Interview	**Time:** 9:30 a.m.	**Date:** 11/10/06

Contact Made By:

Name: Deb Volkmer	**Title:** Project Manager	**Organization:** Weston Solutions

Individual Contacted:

Name: John Kortenhoven	**Title:** Manager	**Organization:** Tom James Co. (Industrial Park Tenant)

Telephone No: 717-264-5768, Ext. 3170 **Fax No.:** NA **E-Mail Address:** NA	**Street Address:** 5121 Innovation Way **City, State, Zip:** Chambersburg, PA 17201

Summary Of Conversation

Five-Year Review Interview Questions:

1. What effects have site operations had on the surrounding community?

Very positive. Creates jobs.

2. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency response from local authorities? If so, please give details.

No, not aware of any problems what so ever regarding vandalism or security issues.

3. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.

(Not asked. Not applicable to respondent.)

4. Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses.

(Not asked. Not applicable to respondent.)

INTERVIEW RECORD

Site Name: Letterkenny Army Depot	**EPA ID No.:** PA6213820503	
Subject: Community Interview and Five-Year Review Interview	**Time:** 11 a.m.	**Date:** 12/11/06

Contact Made By:

Name: Deb Volkmer	**Title:** Project Manager	**Organization:** Weston Solutions

Individual Contacted:

Name: Barry Stup	**Title:** Business Park Tenant	**Organization:** The Woods Company

Telephone No: **Fax No.:** NA **E-Mail Address:** NA	**Street Address:** **City, State, Zip:**

Summary Of Conversation

Community Interview Questions:

1. What is your understanding of the site's environmental situation during the past 9 years (from 1997 to present)?

Groundwater issues.

2. What is your opinion of the government's commitment to cleaning up the hazardous waste at Letterkenny?

Not moving very quickly. Hasn't signed off on documentation of cleanup that has been completed.

3. What are your concerns regarding the site? Are you aware of any general community concerns about the site or its operation and administration?

a. Remediation and reports finished when the property is cleaned up. b. No

4. How or where have you received most of your information about the environmental and reuse activities at Letterkenny? Do you feel well-informed about site activities?

a. LIDA. b. yes

5. How can Letterkenny best provide you with information concerning its environmental activities?

Better communication with LIDA.

6. What information regarding site environmental and reuse activities do you want or need?

Don't need a whole lot. Just interested in getting documentation for property. Documentation has been sitting in a LEAD office since May 2005 and is still not completed.

7. What is your opinion of the cleanup activities related to the Base Realignment and Closure (BRAC)?

No opinion.

8. What is your opinion of how the Letterkenny excessed parcels of land have been reused?

Reuse has been handled very well.

9. What is your hope for the future of the Letterkenny Army Depot?

Hope LEAD remains as a depot and the other areas that go private are part of a successful business park.

10. Do you have any comments, suggestions or recommendations regarding the site's management or operations?

Complete the environmental assessments and turn over properties as they are cleaned up.

11. Have you viewed Letterkenny's BRAC and Restoration web site?

No.

12. Do you know what the Remediation Program does at LEAD?

Yes.

13. Do you know the difference between the active and BRAC properties at Letterkenny?

Yes.

Five-Year Review Interview Questions:

1. What effects have site operations had on the surrounding community?

No idea.

2. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency response from local authorities? If so, please give details.

No.

3. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.

4. Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses.

APPENDIX B

REPORT ON 225 PPB SOIL REMOVAL ACTION LEVEL

APPENDIX B

REPORT ON 225 PPB SOIL REMOVAL ACTION LEVEL

LETTERKENNY ARMY DEPOT
SOUTHEASTERN AREA
OPERABLE UNIT ONE (K AREAS)
FIVE YEAR REVIEW

Question One: Why was 225 ppb selected as the soil removal action level? How was it documented?

Background History:

The Record of Decision (ROD) for the Accelerated Remedial Action Southeastern Area Operable Unit One: K Area Contaminated Soils was signed by the United States Army (Army) on 28 June 1991.

An Explanation of Significant Differences (ESD) was signed by the Army on 31 July 1991 and the EPA on 02 August 1991. The ESD stated that the appropriate ARARs for any metals found in soils during the remediation at the SE Area was the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 5901 et seq., Land Disposal Restrictions promulgated at 40 C.F.R. Part 268.

These two documents constitute the ROD for this effort.

The ROD (27 June 1991) on page two identified the major components of the planned K Areas Remedial Action as:

- Excavation of 8,000 cubic yards of contaminated soils in the K Area.
- Thermal treatment of contaminated soils at a temperature not greater than 450 °F.
- Destruction of volatilized contaminants by a secondary high-temperature combustor or adsorption of volatilized contaminants onto activated carbon.
- Analysis of representative samples of treated soils and comparison with treatment criteria.
- Proper management of treated soils.

Documents:

Endangerment Assessment of the Southeastern Area at Letterkenny Army Depot, September 1988, Final

The Endangerment Assessment (EA) used two Remedial Investigation Reports to document the site conditions at the DA:

Remedial Investigation/Feasibility Study of LEAD (SIA/Disposal Area), Weston, 1984. Values for VOCs in soil and groundwater in the DA from this effort are found in Table 3.3-5.

Remedial Investigation of the Disposal Area (SIA) ESE 1986. Table 3.3-7 (page 3-22) listed the following values for soil and groundwater contamination in the DA:

Table 3.3-5. Contaminants Found Above Detection Limits in the Soils and Groundwater of Area K-1 in the DA

Contaminant	Concentration	
	Soil (µg/kg)	Groundwater (µg/L)
Organics		
Chloroform (CHCL3)	200	40
1,1-Dichloroethylene (1,1-DCE)	3,000	400
trans-1,2-Dichloroethylene (Tl2DCE)	50,000 – 2,000,000	90,000
Methylene Chloride (CH2CL2)	800 – 10,000	30
Tetrachloroethylene (TCLEE)	200 – 800,000	
Trichloroethylene (TCE)	300 – 500,000	10,000
Metals		
Arsenic (As)	6,800	—
Cadmium (Cd)	10,800 – 24,800	

Note: DA = Disposal Area.
µg/kg = micrograms per kilogram.
µg/L = micrograms per liter.
— = no data.

Source: Weston, 1984.

Table 3.3-7. Contaminants Found Above Detection Limits in the Soils and Groundwater of Area K-1 in the DA

Contaminant	Concentration	
	Soils (µg/kg)	Groundwater (µg/L)
Organics		
Benzene	100-700 (3)	30 (1)
Chlorobenzene	600 (1)	
Chloroform	200 (1)	40 (1)
1,1-Dichloroethene	3,000 (1)	400 (1)
cis/trans-1,2-Dichloroethene	50,000-2,000,000 (7)	90,000 (1)
Dichloropropane	10,000 (1)	
Ethylbenzene	9,000-10,000 (2)	50 (1)
Ethylmethylbenzene	3,000 (1)	
Methylene chloride	800-10,000 (5)	30 (1)
1,1,2,2-Tetrachloroethene	200-800,000 (7)	5,000 (1)
Toluene	1,000-100,000 (5)	20 (1)
Trichloroethylene	300-500,000 (7)	10,000 (1)
Trimethylbenzene	2,000-30,000 (2)	
Various hydrocarbons	2,000-400,000 (3)	
Vinyl chloride	5,000-200,000 (3)	10,000 (1)
xylene	1,000-700,000 (5)	
Inorganics		
Arsenic	6,800 (1)	
Barium	108,000-235,000 (3)	
Cadmium	10,800-24,800 (3)	
Chromium (total)	25,800-150,000 (3)	
Copper	53,500-156,000 (3)	
Cyanide	<10,000 (3)	
Lead	44,100-3,390,000 (3)	
Mercury	700 (1)	
Sulfide	<10,000->10,000 (3)	
Zinc	115,000-1,360,000 (3)	

*( ) - Number of positive responses.

Sources: Weston, 1984.
ESE, 1985b.

The exposure assessment and risk characterization of the EA determined that consumption of home-produced vegetables was the only exposure pathway where the estimated risks exceed the CERCLA 10-6 target risk level.

Page 6-10 of the EA states that: "*Results of the RA for use of the offpost groundwater indicate that risks associated with consumption of home-produced vegetables is the only exposure pathway where the estimated risks exceed the 10-6 target risk level (i.e., with a total estimated risk of 6.57 x 10-6). ARARs developed for drinking water are not appropriate for exposure through the vegetable-consumption pathway. Therefore, the development of criteria based on the RA would be more appropriate.*"

Risk Based Exposure Calculation Groundwater (Offpost):

The EA stated that since consumption of water contained in vegetables was a very small percentage of total water consumption; the ARAR for Offpost groundwater should not be 5 ppb but a number that reflected the actual risk that vegetables posed to Offpost residents. **All homes exceeding the ARAR of 5 ppb of TCE had already been supplied with an alternate water supply.**

Page 6-13 states: "*Using the integrated results of the exposure assessment and risk characterization, the total risk due to consumption of home-produced vegetables in the DA is 2.90 x 10-6 (Table 5.1-17). Since the total risk due to all other pathways is 3.57 x 10-7, an acceptable risk level for the contaminants in the vegetable-consumption pathway would be 1.0 x 10-6 (all other risk is negligible).*

Therefore, 1.0 x 10-6 was used as the target CRL for each carcinogen present in groundwater offpost of the DA (two carcinogens present, 1,1-DCE and TCE).

Groundwater concentrations for 1,1-DCE and TCE can be calculated by applying the risk characterization equation, as follows:

CRL = CPF x Dose

where: CRL - cancer risk level (1.0 x 10-6),

CPF = cancer potency factor (from Sec. 2.0), and

$$\textit{Dose = vegetable-consumption dose } \frac{0.108\ \text{kg/day x F (L/kg) x Cw}}{70\ \text{kg}}$$

From this the EA developed a risk-based number reflective of a 10^{-6} excess Offpost Health Risk. The risk-based number was 27.4 ppb for TCE.

Soil to Groundwater Pathway:

The soil cleanup level was calculated from the representative soil concentrations chosen for the DA along with groundwater quality data for Wells 81-7, 81-8, and 82-1 (which are located downgradient of the contaminated soils and along the installation boundary).

The first step in the guideline preparation was to calculate a dilution factor that represents the change in concentrations from soils to groundwater at the boundary.

This dilution factor was then used to back-calculate an acceptable soil concentration starting with an acceptable groundwater concentration at the receptors.

The dilution factor was assumed to be a linear relationship that implicitly accounts for parameters such as adsorption, groundwater mixing, and groundwater diffusion because they cannot be quantified explicitly. Rather, the dilution was chosen as the simple ratio between concentrations observed in soil and concentrations observed in the wells. This simplistic approach may underestimate the dilution ratio and result in an overly conservative soil cleanup guideline. For example, groundwater contamination observed now at the boundary may have been generated as a leachate at a time in the past when soil concentrations may have been substantially higher than they are now.

Two compounds, 1,1-DCE and TCE, were identified in the EA as critical contaminants offpost of the DA (Sec. 6.2) and were used to develop soil criteria for the DA. Other compounds found in DA soils or groundwater were not chosen because they were not found to be of concern at the receptor point.

The representative concentrations in soil and groundwater are presented in Table 6.3-1. The groundwater concentrations were chosen as the maximum observed in any of the three wells (81-7, 81-8, or 82-1). The ratios of soil to groundwater concentrations were found to be 1 for l,1-DCE and 45 for TCE.

The EA divided the representative soil concentration (4,900 µg/kg) by the average groundwater standard at the boundary (average of the DCE and TCE content from wells 81-7, 81-8, and 82-1) to lead to a dilution/partitioning factor of 45. The number 45 was then multiplied by 27.4 (risk-based standard) to end up with 1,230 ppb.

Feasibility Study of the Southeastern Area at Letterkenny Army Depot First Operable Unit, Final Report, September 1988: This report contained the same TCE removal value as the EA.

Focused Feasibility Study of the Accelerated Remedial Actions at Letterkenny Army Depot, Final Report, August 1990: This report states that further discussions with EPA Region III and Pennsylvania Department of Environmental Resources indicated that the groundwater must be considered a potential drinking water source and associated risk levels and cleanup criteria must take into consideration an average adult groundwater consumption rate of 2 liters per day. Based on this consumption rate the maximum groundwater contamination level for TCE was recalculated to be 3 µg/L, which is below the state ARAR of 5 µg/L (Table 1.4-3). Using 5 µg/L as the groundwater standard for TCE, a soils cleanup level was estimated to be 235* µg/kg. The average concentration of TCE in the DA soils is 4,900 µg/kg, which exceeds the calculated soil criterion. Thus, cleanup of the soil in the DA to the acceptable soil concentration of 235* µg/kg is expected to result in acceptable groundwater concentrations for offpost receptors.

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* Note number in error. 45 X 5 = 225 not 235.

Table 6.3-1. Soil Cleanup Criteria Calculations

Compound	Acceptable Groundwater Criteria (µg/L)	Representative Soil Concentration (µg/kg)	Groundwater Concentration* (µg/L)	Dilution	Soil Cleanup Criteria (µg/kg)
1,1-Dichloroethylene (1,1-DCE)	0.72	2.0	1.83	1	+
Trichloroethylene (TCE)	27.4	4,900	109	45	1,230

*Maximum observed in Wells 87-1, 81-8, and 82-1, sampled spring 1987 (ESE, 1987b).

+No cleanup criteria given; 1,1-DCE assumed to be a breakdown product of TCE in soil and groundwater.

Source: ESE, 1988a.

Table 2.2-3 Cleanup Criteria for the SE Area Soils

Compound	Acceptable Groundwater Criteria (µg/L)	Representative Soil Concentration	Groundwater Concentration[a] (µg/L)	Dilution	Soil Cleanup Criteria (µg/kg)
1,1-DCE	0.94	2.0	1.83	1	+
TCE	5.0	4,900	109	45	235[b]

Note: DA = Disposal Area.
1,1-DCE = 1,1-dichloroethylene.
TCE = trichloroethylene.
µg/kg - microgram per kilogram.
µg/L - microgram per liter.

[a] Maximum observed in Wells 87-1, 81-8, and 82-1, sampled spring 1987 (ESE, 1987b).

[b] Note number in error. 45 X 5 = 225 not 235.

+No cleanup criteria given; 1,1-DCE assumed to be a breakdown product of TCE in soil and groundwater.

Source: ESE, 1988b.

Proposed Plan for the SE Area (FFS), Final September 1990: In this document, the 235 ppb number has been corrected to 225 ppb.

Public Meeting Letterkenny Army Depot Proposed Plans, 14 May 1991: The transcript of this document indicates that the correct value of 225 ppb was used in the presentation.

Question Two: Is the 225 ppb remedial standard contained in the SE OU 1 ROD protective of the environment?

The EA (pages 6-17 and 6-18) stated that: A guideline for DA soil cleanup can be estimated through use of available soil and groundwater data with the realization that this guideline has a high degree of uncertainty. The guideline was linked to the soil-to-groundwater pathway instead of other pathways because soil cleanup is not required for contamination transported by other routes. <u>This cleanup criterion is not expected to guarantee that groundwater concentrations will be acceptable at the receptor exposure points because of the level of uncertainty associated with this approach.</u>

Since the EA and ROD were signed it was determined that the K-1 Area was more contaminated than estimated. Up to 5.5% TCE contamination as opposed to 2%.

The groundwater in the DA is also more contaminated than identified in the EA/ROD.

Of the three monitoring wells used in the EA, only in well 82-1 has dye been consistently detected. This calls into question the interconnectivity of the other wells 87-1 and 81-8.

Updated Soil to Groundwater Pathway information.

As part of the EE/CA for the Spill Area in Area A (SE OU 5), the Army developed soil removal criteria that would be protective of site groundwater (5 ppb for TCE).

Pennsylvania Act Two Guidance allowed the Army to either use 100 times the MCL, or to use a state-wide standard for groundwater compliance. The calculated value was 171 ppb for TCE.

The Army selected 171 ppb for TCE because it is a more conservative number. Based on these calculations soil containing more than 171 ppb of TCE would cause the underlying groundwater to exceed 5 ppb. This indicates an estimated partitioning coefficient of 34. The EA and FFS had identified a dilution/partitioning factor of 45 for TCE.

It has to be remembered that the ROD value of 225 ppb was to meet ARARs at the LEAD boundary (location of monitoring wells 87-1, 81-8, and 82-1). As such, the ROD value of 45 is a dilution and partitioning factor, while the SE OU 5 EE/CA value of 171 for TCE represents a partitioning coefficient only. Calculations conducted by IT Corporation of Site–Specific Soil Screening Levels for the K-Areas yielded a removal standard of 780 ppb (see Appendix A).

Another factor to consider: The Removal Areas delineated in the K Areas were delineated to non-detect, not 225. This was done because the Army had no precise number to use and was concerned it would have to go back if later studies determined that 225 ppb was not sufficiently protective.

	Compound	Acceptable Groundwater Criteria (µg/L)	Representative Soil Concentration	Groundwater Concentration* (µg/L)	Partition Dilution Factor	Soil Cleanup Criteria (µg/kg)	Point of Compliance
ROD	TCE	5.0	4,900	109	45@*	225	Boundary
SE OU 5 EE/CA Site	TCE	5.0	NA	NA	34@	170!	Site
PADEP ACT 2 100 X	TCE	5.0			100	500!!	Site
SE OU 1 SSL	TCE	5.0			156	780&	Site

@: Partitioning Value

*: Dilution Value

!: Act Two Statewide Standard

&: (See Appendix A)

!!: Act Two Standard, 100 times MCL

Appendix A

Draft Determination of Site–Specific Soil Screening Level (SSL) Letterkenny Army Depot

28 January 2000
IT Corporation

Determination of Site–Specific Soil Screening Level (SSL)
Letterkenny Army Depot

Summary

A Soil Screening Level (SSL) of 780 micrograms per kilogram (µg/kg) was calculated for trichloroethene (TCE) in soil using a conceptual site model developed for Area K-1 in the Disposal Area (DA) at the Letterkenny Army Depot. The point of compliance is the groundwater at the K-Areas. This document provides a summary of the conceptual model, the SSL method, and the calculation results.

The SSL was calculated in accordance with the "Soil Screening Level Guidance" developed by USEPA (1996a and 1996b). The SSL was calculated for migration of TCE from the soil matrix to groundwater. The SSL is the estimated soil concentration that will result in an acceptable concentration in groundwater through leaching.

Conceptual Site Model

Area K-1 was a former solvent disposal lagoon with surface area dimensions of approximately 200 feet in the north-south direction and 100 feet in the east-west direction. In a Removal Action conducted in 1993, TCE-contaminated soils were excavated to the top of bedrock, which is present at a depth of between 20 and 30 feet below ground surface. TCE was removed from the excavated soils using Low Temperature Thermal Treatment, and treated soils were placed back into the excavation. The treatment standard was 0.050 mg/kg. Post–treatment soil sampling and analysis was conducted to demonstrate compliance with the treatment standard.

A karst aquifer is present at the site, which has developed in the limestone bedrock. Remedial investigations indicate the limestone has very little primary intergranular porosity. Secondary porosity has developed by solutioning, and is important for the storage and movement of groundwater. The effective aquifer thickness is approximately 120 feet based on the distribution of solution features measured in borehole logs for the DA. Solution channels are not common below this depth. Borehole logging in the DA indicates the secondary porosity, as the percentage of void space in the bedrock, is approximately 5%.

Groundwater flow is rapid due to the open flow conditions in the solution channels of the aquifer. The average groundwater flow rate was determined to be approximately 280 feet per day (ft/day) from dye tracer studies in the DA.

SSL Calculation Method

The following is a description of the SSL calculation method as summarized from the Soil Screening Guidance (USEPA 1996a).

As soil leachate moves through soil and groundwater, contaminant concentrations are attenuated by adsorption and degradation. In the aquifer, dilution by clean ground water further reduces concentrations before contaminants reach receptor points (i.e., drinking water wells downgradient of the LEAD boundary). This reduction in concentration can be expressed by a dilution attenuation factor (DAF), defined as the ratio of soil leachate concentration to receptor

point concentration. The Soil Screening Guidance addresses only one of the dilution-attenuation processes: contaminant dilution in ground water. Attenuation by adsorption and degradation are not included in this model.

A simple mixing zone equation is derived from a water-balance relationship, and is used to calculate a site-specific dilution factor. The dilution factor is determined by estimating the volume of leachate infiltrating through the soil via precipitation, and comparing the infiltration to the volume of groundwater flowing beneath the site.

The SSL is calculated as follows. First, a mixing-zone depth is calculated based on site-specific hydrogeologic conditions including aquifer thickness, hydraulic gradient, and hydraulic conductivity (Equation 1). As shown in Equation 1, mixing beneath Area K-1 is estimated by this calculation to be in the upper 11 feet of the aquifer. Next, a dilution factor is calculated based on the estimated rate of infiltration and the flow of groundwater (Equation 2). Chemical–specific characteristics are then used to determine the chemical-specific SSLs. The ground water standard (i.e., MCL) is multiplied by the dilution factor to obtain a target soil leachate concentration. Finally, the partition equation is used to calculate the total soil concentration corresponding to this soil leachate concentration. As shown in Table 3, the SSL calculated using this method is 0.780 mg/kg or 780 µg/kg.

The SSL calculation method assumes the exposure point is immediately downgradient of the waste disposal unit. Further dilution occurs as the contamination moves downgradient, however, and the above method does not account for the dilution as groundwater flows away from the unit.

References

USEPA, 1996a. Soil Screening Guidance: Users Guide. EPA/540/R-96/018.

USEPA, 1996b. Soil Screening Guidance: Technical Background Document. EPA/540/R-95/128.

Table 1

Estimation of Mixing Zone Depth

Equation 1: $d = [0.0112 * L * L]^{1/2} + b \{ 1 – \exp [(- L * I) / (K * I * b)] \}$

Parameter	Value	Reference
L = source length parallel to groundwater flow (ft)	100 ft	East-west dimension of Area K-1
I = infiltration rate (ft/day)	0.0046 ft/day	Assumed to be 50% of total annual rainfall of 40 inches
k = aquifer hydraulic conductivity (ft/day)	3,100 ft/day	From Darcy's Law, K = n * v / i
i = hydraulic gradient (ft/ft)	0.0045 ft/day	Average hydraulic gradient from DA to Rowe Spring
b = aquifer thickness (ft)	120 ft	Effective thickness based on geophysical logging in the DA
v = groundwater velocity	280 ft/day	Velocity obtained from dye trace studies in the DA
d = mixing zone depth (ft)	11 ft	Calculated from Equation 1

Table 2

Derivation of Dilution Factor

Equation 2: DF = 1 + [k*I*d / I*L]

Parameter	Value	Reference
k = aquifer hydraulic conductivity (ft/day)	3,100 ft/day	From Darcy's Law, k = n * v / i
i = hydraulic gradient (ft/ft)	0.0045	Average gradient from DA to Rowe Spring
I = infiltration rate (ft/day)	0.0046 ft/day	Assumed to be 50% of total annual rainfall of 40 inches
d = mixing zone depth (ft)	11 ft	Calculated from Equation 1
L = source length parallel to ground water flow	100 ft	East-west dimension of Area K-1
n = aquifer porosity	0.05	Average secondary porosity observed in boreholes drilled in DA
DF = dilution factor based on water –balance relationship	330	Calculated from Equation 2

Table 3

Soil Screening Level Partitioning Equation for Migration to Groundwater

Equation 3: SSL (mg/kg) = Cw { Kd + [(Ow + Oa * H') / Pb] }

Parameter	Value	Reference
DF = dilution factor derived from water balance relationship	330	Calculated from Equation 2
MCL = Maximum Contaminant Level (mg/L)	0.005 mg/L	USEPA 1996a, MCL for TCE
Cw = target soil leachate concentration (mg/L)	1.6 mg/L	MCL * DF
Kd = soil water partition coefficient (L/kg) = Koc * foc	0.19 L/kg	Koc * foc
Koc = soil organic carbon/water partition coefficient (L/kg)	94 L/kg	USEPA 1996b, Table 38 value for TCE
foc = fraction organic carbon (g/g)	0.002	USEPA 1996a, default value
Ow = water–filled soil porosity	0.30	USEPA 1996a, default value
Oa = air-filled soil porosity	0.0	USEPA 1996a, assumed saturated with water
Pb = dry soil bulk density (kg/L)	1.5	USEPA 1996a, default value
H' = Henry's Law constant (dimensionless)	0.42	USEPA 1996b, Table 36 value for TCE
SSL = Soil Screening Level, site-specific for TCE	0.780 mg/kg or 780 µg/kg	Calculated from Equation 3

APPENDIX C

COMMUNITY NOTICE: FIVE-YEAR REVIEW LETTERKENNY ARMY DEPOT

APPENDIX C

COMMUNITY NOTICE

FIVE-YEAR REVIEW LETTERKENNY ARMY DEPOT

- Letterkenny Army Depot, Chambersburg Pennsylvania, 17201-4150. http://leadenv.org/default.aspx
- The US Army conducted the second Five-Year Review of the National Priorities List Site, the Southeastern (SE) Area.
- The selected remedies for the various SE OU's are:

  K-areas (SE OU 1) – low temperature thermal treatment of excavated soils and subsequent backfilling on site with a residual waste cap.

  SE OU 2 – cleaning of sewer lines followed by abandonment of the sewers and drain lines at Building 37 and 57 to prevent future use of the existing sewers.

  Phase I and II BRAC Parcels (a portion of SE OU 8) – Land Use Controls. The Land Use Controls are referred to as institutional controls in the Phase I and II RODs. The Land Use Controls consist of deed restrictions restricting the type of reuse and access to soil/groundwater.

  SE OU 10 – Enhanced Biodegradation and Land Use Controls preventing access to the underlying groundwater.
- The soil and/or groundwater associated with SE OU's 1, 2, Phase I and II BRAC Parcels (a portion of OU 8) and OU 10 are contaminated with metals and/or degreasing solvents.
- Summary of results.

  K-areas (SE OU 1) –Continued maintenance of cap and signage.

  SE OU 2 – Preparation of Land Use Control Remedial Design.

  Phase I and II BRAC Parcels (a portion of SE OU 8) – Preparation of a deed of correction containing land use restrictions; Amendment of LUCAP MOA to replace Commander signature with BRAC Environmental Coordinator signature; and Create mechanism to ensure all subsequent deeds reference appropriate Land Use Controls.

  Multiple OU's – Amend Letterkenny Master Plan to reflect commercial/industrial restriction as applicable.
- Protectiveness Statement.

  SE OU 1, 2, Phase I & II Parcels (a portion of SE OU 8) – Remedies are still considered protective of human health and the environment.

  SE OU 10 – A protectiveness statement will be made once sufficient data has been collected allowing for a final determination regarding the overall effectiveness of the groundwater remediation as it relates to vapor intrusion.
- Documents reviewed included Land Use Control Annual Letter Report 1999-2007, site inspection forms, Land Use Control Action Plan, recorded deeds, desk files, and Administrative Record documents.
- The SE Five-Year Review will be placed in the Letterkenny Administrative Record. The public repository for the Administrative Record is located at the Coyle Free Library, 102

North Main Street, Chambersburg, PA 17201. The website for Letterkenny Administrative Record is: http://209.235.100.233/letterkennylibrary/

- For more information please contact Mr. Bryan Hoke, 717-267-9836 or Mr. Joe Petrasek, 717-267-8368.
- The next Five-Year Review will be due in June 2013, which is five years from the date of EPA concurrence of this second Five-Year Review.

APPENDIX D

SUMMARY OF LAND USE CONTROL INSPECTIONS

LETTERKENNY ARMY DEPOT
SUMMARY OF LAND USE CONTROL INSPECTIONS

Inspection Location	Date	Operable Unit	Reason for Inspection	Inspector(s)	Inspection Activities	Results and Findings	Inspection Report/Data Location
Building 53	February 25, 1999	SE OU 10	Construction of subgrade loading docks at Building 53.	Bryan Hoke	Physical observation and check of groundwater depth in area	No stained soil observed. Groundwater 27 feet bgs at Building 56.	Administrative Record - Regulatory Correspondence File, 1999 and Construction Inspection Office File, 1999.
Building 44	February 25, 1999	SE OU 10	Construction of subgrade loading docks at Building 44.	Bryan Hoke	Physical observation and check of groundwater depth in area	No stained soil observed. Groundwater 27 feet bgs at Building 56.	Administrative Record - Regulatory Correspondence File, 1999 and Construction Inspection Office File, 1999.
Building 8	February 25, 1999	SE OU 10	Removal of conveyor. Loading dock removed. External ground disturbance.	Bryan Hoke	Physical observation	No subsurface excavation	Administrative Record - Regulatory Correspondence File, 1999 and Construction Inspection Office File, 1999.
Building 500	February 25, 1999	SE OU 8	Construction for new front entrance.	Bryan Hoke	Physical observation	Excavation depth 4-6 feet bgs. No stained soil observed. No groundwater encountered.	Administrative Record - Regulatory Correspondence File, 1999 and Construction Inspection Office File, 1999.
Building 500	May 7, 1999	SE OU 8	Construction of elevator shaft.	Bryan Hoke	Physical observation. Spoke to construction contractor	Elevator shaft excavated to 26 ft bgs. No groundwater encountered.	Administrative Record - Regulatory Correspondence File, 1999 and Construction Inspection Office File, 1999.
Building 53	May 7, 1999	SE OU 10	Construction of subgrade loading docks at Building 53.	Bryan Hoke	Physical observation and check of groundwater depth in area	No stained soil observed. Groundwater 27 feet bgs	Administrative Record - Regulatory Correspondence File, 1999 and Construction Inspection Office File, 1999.
Building 54	December 6, 1999	SE OU 10	Construction of subgrade loading docks at Building 54. Connection made to stormwater sewer September.	Bryan Hoke and IRG Representative Justin Anderson	Physical Observation	Excavation depth 4-6 feet bgs for loading docks. Excavation depth 12 feet bgs for stormwater connection. No stained soil observed or groundwater encountered.	Administrative Record - Regulatory Correspondence File, 1999 and Construction Inspection Office File, 1999.
Building 34	December 6, 1999	SE OU 10	Construction of subgrade loading docks at Building 34.	Bryan Hoke and IRG Representative Justin Anderson	Physical Observation	Excavation depth 4-6 feet bgs. No stained soil observed. No groundwater encountered.	Administrative Record - Regulatory Correspondence File, 1999 and Construction Inspection Office File, 1999.
Building 53	December 6, 1999	SE OU 10	Construction of subgrade loading docks at Building 53.	Bryan Hoke	Physical Observation	Subgrade docs started in May completed.	Administrative Record - Regulatory Correspondence File, 1999 and Construction Inspection Office File, 1999.
Building 43	September 20, 2000	SE OU 10	Construction of subgrade loading docks at Building 43. Construction of trench and grinder pump for sanitary sewer. Construction of storm water drain.	Bryan Hoke and IRG Representative Justin Anderson	Physical Observation. Furnished copy of soil gas borings conducted in 1999 around Building 43.	In 1999 10 soil gas borings completed around the perimeter of Building 43, results ranged from 0.0 - 1.1 ppm. Excavation depths for loading dock and storm sewer was 4-6.5 bgs. No stained soil or groundwater encountered.	Administrative Record - Regulatory Correspondence File, 2000 and Construction Inspection Office File, 2000
Building 31	January 9, 2001	SE OU 10	Construction of subgrade loading docks at Building 31.	Bryan Hoke, IRG Representative Justin Anderson and LIDA rep John Van Horn.	Physical Observation	Excavation depth 6 feet bgs. No stained soil observed. No groundwater encountered.	Administrative Record - Regulatory Correspondence File, 2001 and Construction Inspection Office File, 2001
Parcel 29	April 11, 2002	PDO OU 6	Groundbreaking for construction of Warrior Roofing tar paper manufacturing plant. Topsoil was being scraped off. Monitoring well PDO-98-01 identified for action to be taken.	Bryan Hoke and LIDA representative John Van Horn	Physical Observation	Monitoring well PDO-98-01 is located within the proposed driveway of the plant. Well will be converted into a flush mounted well. NOTE: 7 soil borings completed in May 2002 for water line to plant, results range from 0.0 - 7.3 ppm.	Administrative Record - Regulatory Correspondence File, 2002 and Construction Inspection Office File, 2002

LETTERKENNY ARMY DEPOT
SUMMARY OF LAND USE CONTROL INSPECTIONS

Inspection Location	Date	Operable Unit	Reason for Inspection	Inspector(s)	Inspection Activities	Results and Findings	Inspection Report/Data Location
Parcel 7	January 21-23, 2004 (2003 Report)	SE OU 10	Construction of shell building by FCADC	Bryan Hoke and LIDA Real Property Manager Mike Whiteley	Interview and Physical Observation	Building constructed on concrete slab foundation. No stained soil or groundwater encountered.	Administrative Record - Regulatory Correspondence File, 2003 and Construction Inspection Office File, 2003
Parcel 1/2	January 21-23, 2004 (2003 Report)	SE OU 8	Burial of formerly overhead electrical utilities.	Bryan Hoke and LIDA Real Property Manager Mike Whiteley	Interview and Physical Observation	No stained soil or groundwater encountered.	Administrative Record - Regulatory Correspondence File, 2003 and Construction Inspection Office File, 2003
Building 2291	March 10, 2004	PDO OU 4	Installation of gas line from 2291 to Vehicle Road (gas main).	Bryan Hoke	Physical Observation	Trench depth is 3-4 bgs. No stained soil or groundwater encountered.	Administrative Record - Regulatory Correspondence File, 2004 and Construction Inspection Office File, 2004
Parcel 5	June 7, 2004	SE OU 10	Construction of Warehouse for Gabler Trucking	Bryan Hoke	Physical Observation	Concrete footers dug to 4 ft bgs. Fill brought in to raise eastern side of construction site. Groundwater height 31.2 ft bgs on 5/21/04. No stained soil or groundwater encountered.	Administrative Record - Regulatory Correspondence File, 2004 and Construction Inspection Office File, 2004
Coffey Avenue, former Gate 6 Guard Shack vicinity	June 25, 2004	SE OU 10	Repair of industrial wastewater sewer line.	Bryan Hoke	Physical Observation	Trench depth 5 ft bgs. Contaminated soil excavated and properly sampled and disposed.	Administrative Record - Regulatory Correspondence File, 2004 and Construction Inspection Office File, 2004
Parcels 1/2	June 25, 2004	SE OU 8	Construction of Stormwater Retention Ponds	Bryan Hoke/Martin & Martin representative Joe McDowell	Physical Observation and Interview	Bulldozer scraped soil to a depth of 3-4 bgs. Scraped soil used to create surface impoundments. No stained soil or groundwater encountered.	Administrative Record - Regulatory Correspondence File, 2004 and Construction Inspection Office File, 2004
Parcel 2-63 & 2-64	November/December 2005	SE OU 10	Installation of sewer line to replace industrial wastewater force main.	Bryan Hoke	Physical Observation	Excavation depths varied from 4-8 feet bgs for gravity line, manhole, and equalization tank. No stained soil or groundwater encountered.	Administrative Record - Regulatory Correspondence File, 2005 and Construction Inspection Office File, 2005
Building 419 (Parcel 23)	April 18, 2006	SE OU 10	Construction of shell building by LIDA.	Bryan Hoke	Physical Observation	Building constructed on concrete slab foundation. Utilities already present. No groundwater or stained soil encountered.	Administrative Record - Regulatory Correspondence File, 2006 and Construction Inspection Office File, 2006
Parcel 7	April 18, 2006	SE OU 10	Building out of previously constructed shell building. (See entry from January 2004 for Parcel 7)	Bryan Hoke	Physical Observation	Area cleared around building for parking. Water and electrical utilities installed. Trench depths vary from 2-4 ft. No groundwater or stained soil encountered.	Administrative Record - Regulatory Correspondence File, 2006 and Construction Inspection Office File, 2006
Parcel 1&2	April 18, 2006	SE OU 10	Construction of shell building by FCADC	Bryan Hoke	Physical Observation	FCADC constructing building on slab foundation. Minor utility work, trenches at 4 foot depths. No groundwater or stained soil encountered.	Administrative Record - Regulatory Correspondence File, 2006 and Construction Inspection Office File, 2006
Parcel 34	November 13, 2006	PDO OU 2	Construction of building for Bell Trucking.	Bryan Hoke and contractor R&D Contractors	Physical Observation and Interview	Construction of truck maintenance building with dispatch office on existing parking lot - footers 44" depth. Construction of detached loading dock - 4 foot depth. No evidence of stained soil or groundwater.	Administrative Record - Regulatory Correspondence File, 2006 and Construction Inspection Office File, 2006
Parcel 5	June 20, 2007	SE OU 10	Addition to Gabler Trucking, Building 20	Bryan Hoke and Tom Gabler, H.C. Gabler, Inc.	Physical Observation and Interview	Maintenance shop and fueling station being added to east end of Building 20-California Ave. Slab foundation with 4 foot footers. No groundwater or stained soil encountered.	2007 report will be added to the Administrative Record upon the conclusion of 2007.

APPENDIX E

CAP INSPECTION AND SIGNS

SE OU One (K Areas) Cap Inspection Form, K-1

Name: Paul R. Stone III

Title: CENAB-EN-HM Project Manager

Inspection Date: August 16,2007

Mark location on any deficiencies on enclosed Site Map

1. Erosion Present? None

2. Subsidence Present? No

3. Stressed Vegetative Cover? Vegetation is in very good shape despite the summer 2007 drought.

4. Burrowing Animal Damage? Groundhog burrows (five) at one location. There are two main burrows, and three escape burrows. No evidence that liner has been impacted.

5. Presence Of Plants (greater than two inches in diameter)? None.

6. Mowing/Trimming Satisfactory? Yes, grass is approximately 18 inches high.

7. Evidence of Unauthorized Access? None.

8. Evidence of Ponding? No

9. Additional Notes: Joseph Petrasek (LEAD ER,A) was present during inspection

Attachments:

Appendix A: Photos of K-1 taken during inspection

Appendix B: Drawing of K-1 showing location of groundhog burrows

Appendix C: Proposed K-1 Notification Sign

10. Signature Of Inspector: _____

LEAD IRA Program Manager Signature and Date:

_____

Inspection Follow Up Response Actions:
_____
_____

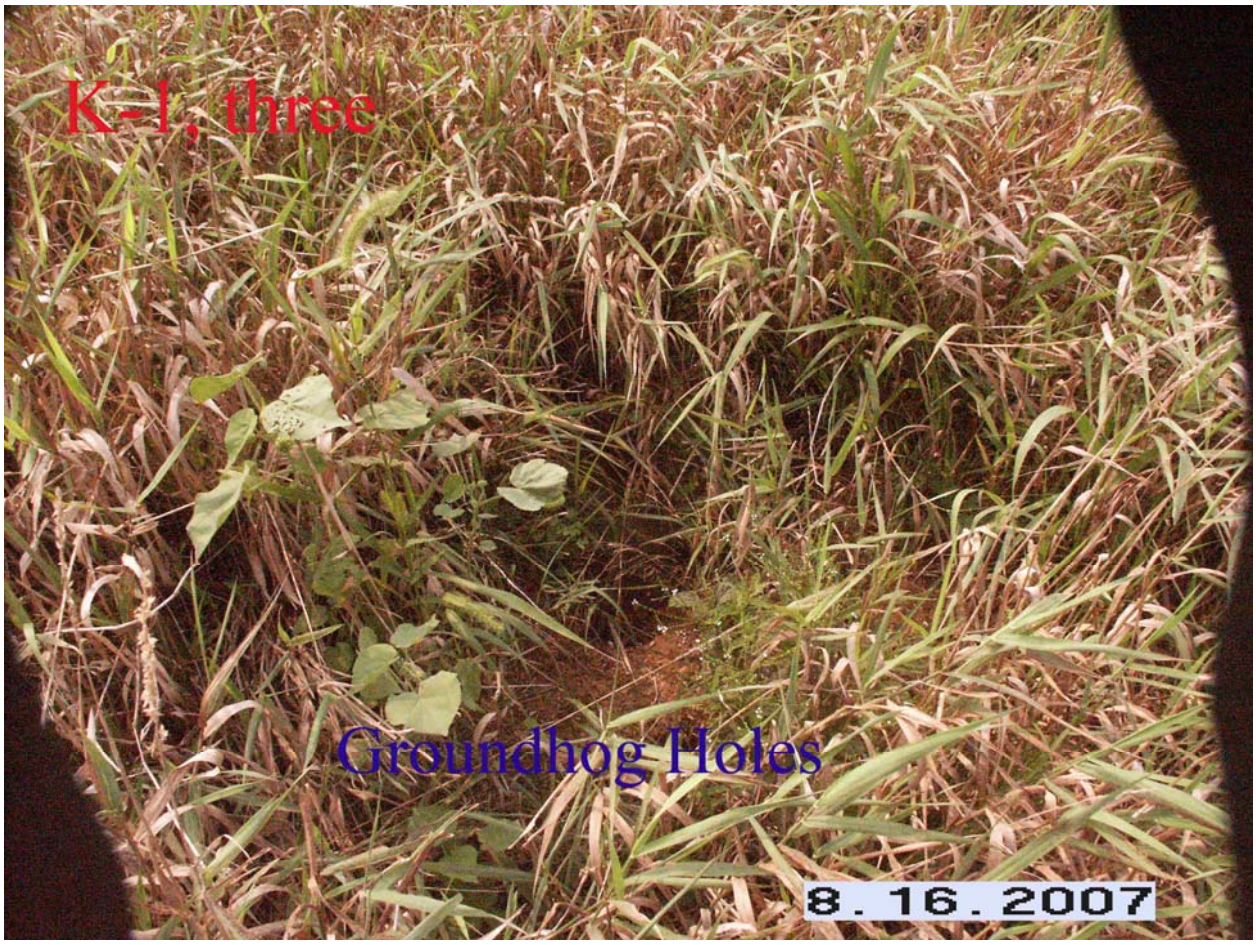
Inspection Response Actions Completed (date):

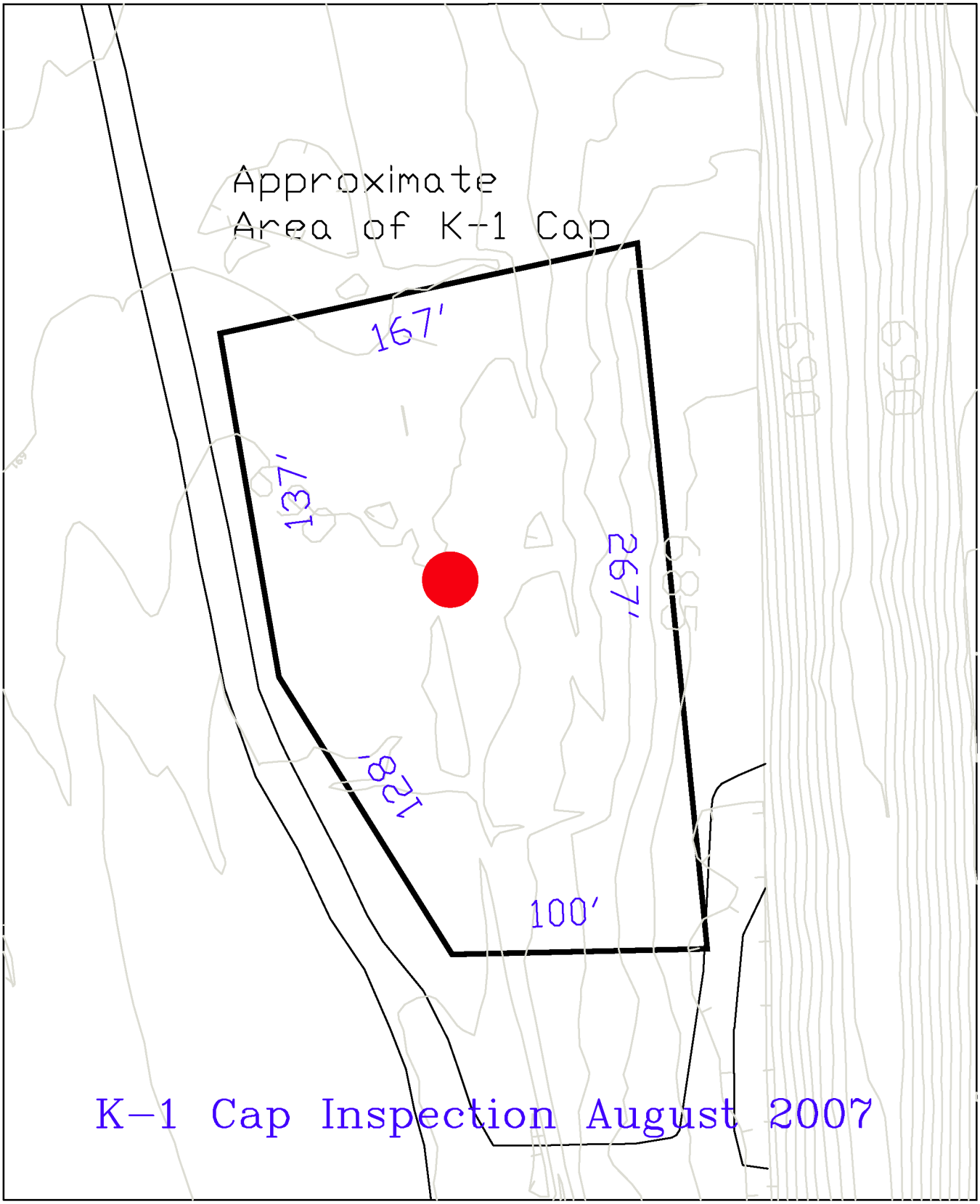
LEAD IRA Program Manager Signature and Date:

_____

K-1, one
H2O2 Injector
8.16.2007

K-1, two
Condition of Vegative Cover
8.16.2007


K-1, three
Groundhog Holes
8.16.2007



LEGEND:

- Groundhog Burrows
- Roads
- Contours
- Approximate Cap Boundary

0 50 100

Letterkenny Army Depot
Chambersburg, PA
U.S. Army Corps of Engineers
Baltimore District

Appendix B

Revision #

Date: 08-20-2007

SE OU 1 - K Area – K-1

200 ft x 50 ft CAPPED AREA

Capped area is constructed of a 40 - mil Geomembrane. The drainage layer consisted of a Geotextile over a Geonet layer.

PLEASE KEEP OFF

SE OU One (K Areas) Cap Inspection Form, K-2

Name: Paul R. Stone III

Title: CENAB-EN-HM Project Manager

Inspection Date: August 16,2007

Mark location on any deficiencies on enclosed Site Map

1. Erosion Present? None

2. Subsidence Present? No

3. Stressed Vegetative Cover? Vegetation is in very good shape despite the summer 2007 drought.

4. Burrowing Animal Damage? None.

5. Presence Of Plants (greater than two inches in diameter)? None.

6. Mowing/Trimming Satisfactory? Yes, grass approximately 18 inched tall.

7. Evidence of Unauthorized Access? No.

8. Evidence of Ponding? No

9. Additional Notes: Joseph Petrasek (LEAD ER,A) was present during inspection

Attachments:

Appendix D: Photos of K-2 taken during inspection

Appendix E: Drawing of K-1 showing location of groundhog burrows

Appendix F: Proposed K-2 Notification Sign

10. Signature Of Inspector: _____

LEAD IRA Program Manager Signature and Date:

_____

Inspection Follow Up Response Actions:

_____

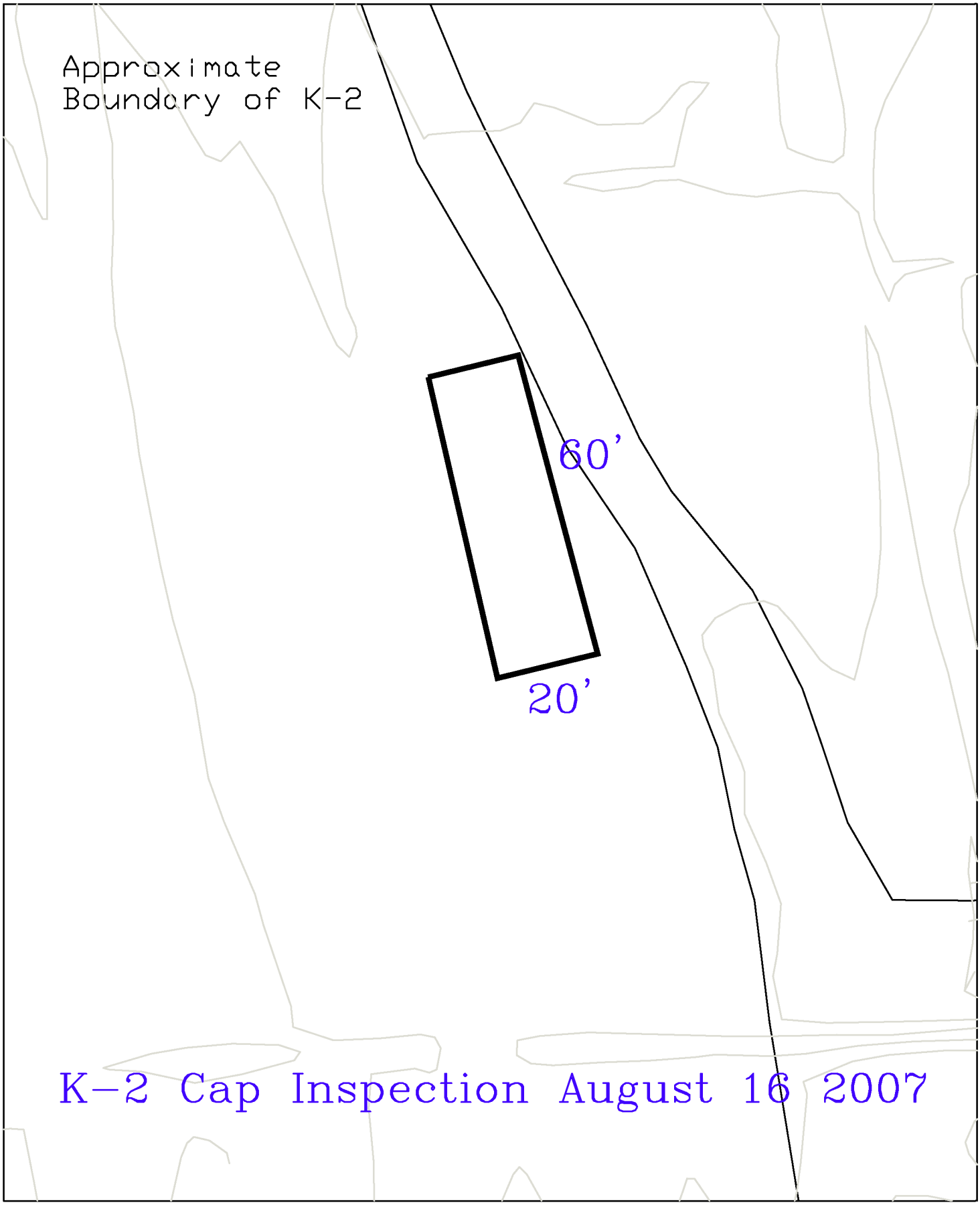
_____

Inspection Response Actions Completed (date):

LEAD IRA Program Manager Signature and Date:

_____

K-2
8. 16. 2007



LEGEND:

- Groundhog Burrows
- Roads
- Contours
- Approximate K-2 Boundary

0 25 50

N

Letterkenny Army Depot
Chambersburg, PA
U.S. Army Corps of Engineers
Baltimore District

L.E.A.D

Appendix E

Revision #

Date:
08-20-2007

SE OU 1 - K Area – K-2

60 ft x 20 ft CAPPED AREA

Capped area is constructed of a 40 - mil Geomembrane. The drainage layer consisted of a Geotextile over a Geonet layer.

PLEASE KEEP OFF

SE OU One (K Areas) Cap Inspection Form, K-3

Name: Paul R. Stone III

Title: CENAB-EN-HM Project Manager

Inspection Date: August 16,2007

Mark location on any deficiencies on enclosed Site Map

1. Erosion Present? None

2. Subsidence Present? No

3. Stressed Vegetative Cover? Vegetation is in very good shape despite the summer 2007 drought.

4. Burrowing Animal Damage? None.

5. Presence Of Plants (greater than two inches in diameter)? Vegetation at K3 has some woody plant growth (less than 2" in diameter). LEAD will cut K-3 in the fall.

6. Mowing/Trimming Satisfactory? Yes, grass approximately 18 inched tall.

7. Evidence of Unauthorized Access? There was a fresh set of tire tracks crossing the Cap of K-3. LEAD to cordon off only access point.

8. Evidence of Ponding? No

9. Additional Notes: Joseph Petrasek (LEAD ER,A) was present during inspection

Attachments:

Appendix G: Photos of K-3 taken during inspection

Appendix H: Drawing of K-3

Appendix I: Proposed K-3 Notification Sign

10. Signature Of Inspector: _____

LEAD IRA Program Manager Signature and Date:

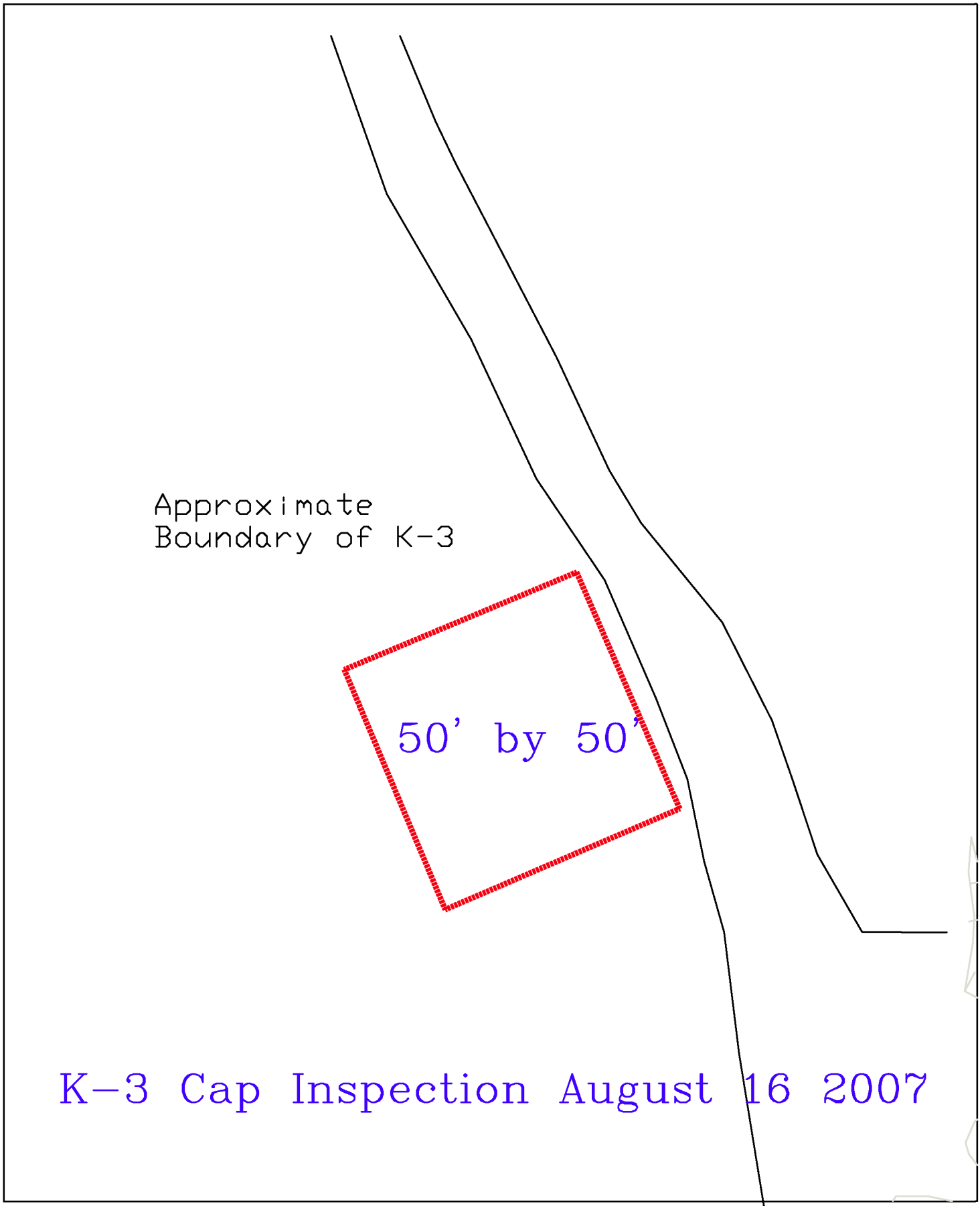
Inspection Follow Up Response Actions:

Inspection Response Actions Completed (date):

LEAD IRA Program Manager Signature and Date:

K-3
Tire Tracks
8. 16. 2007

K-3, two
Close up of Tire Tracks
8.16.2007



LEGEND:

- Groundhog Burrows
- Roads
- Contours
- Approximate K-2 Boundary

0 25 50

N

Letterkenny Army Depot
Chambersburg, PA
U.S. Army Corps of Engineers
Baltimore District

Appendix H

Revision # Date: 08-20-2007

SE OU 1 - K Area – K-3

50 ft x 50 ft CAPPED AREA

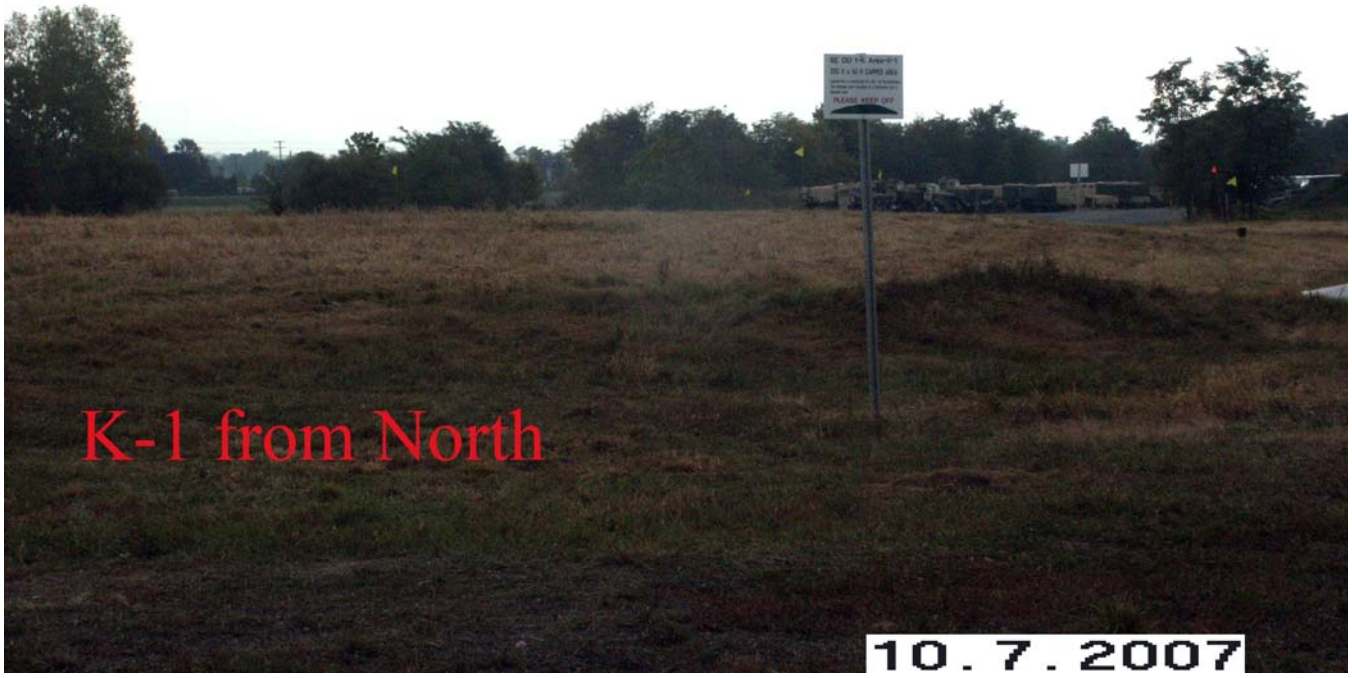
Capped area is constructed of a 40 - mil Geomembrane. The drainage layer consisted of a Geotextile over a Geonet layer.

PLEASE KEEP OFF

SE OU 1-K Area-K-1
200 ft x 50 ft CAPPED AREA
Capped area is constructed of a 40 - mil Geomembrane. The drainage layer consisted of a Geotextile over a Geonet layer.
PLEASE KEEP OFF

SE OU 1 - K Area - K-2
60 ft x 20 ft CAPPED AREA
Capped area is constructed of a 40 - mil Geomembrane. The drainage layer consisted of a Geotextile over a Geonet layer.
PLEASE KEEP OFF

SE OU 1 - K Area - K-3
50 ft x 50 ft CAPPED AREA
PLEASE KEEP OFF


K-1 from North
10.7.2007

K-1 from South
10.7.2007

K1 & K2 From South
K-1
K-2
10. 7. 2007

K-2 from North
10. 7. 2007

K-3
10.7.2007

APPENDIX F

DEED AND LEASE REVIEW LETTERS AND EXAMPLE DEEDS AND LEASES

DEPARTMENT OF THE ARMY
LETTERKENNY ARMY DEPOT
1 OVERCASH AVENUE
CHAMBERSBURG, PENNSYLVANIA 17201

REPLY TO
ATTENTION OF:

June 4, 2008

BRAC Environmental Office

U.S. Environmental Protection
Agency Region III
Hazardous Sites Cleanup Division (3HS11)
ATTN: Curtis N. Callahan
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Mr. Callahan:

The purpose of this letter is to submit a summary of the Phase I & II Transfer Parcels deed review as part of the Five-Year Review for the Southeastern Area National Priorities List site, Letterkenny Army Depot.

Attached is a table summarizing the review of Phase I & II Parcel deeds. This list is based on the May 30, 2007 notice from the Letterkenny Industrial Development Authority (LIDA) listing property owners. The table lists the Phase I or II Parcel, building, owner, whether the deed was reviewed and any comments applicable to the deed review.

All of the Phase I & II parcel deeds were reviewed for language referencing the restrictions from the Phase I & II quitclaim deeds. Nearly all of the successor deeds reviewed were between LIDA and transferee. All LIDA transferee deeds for both Phase I & II Parcels reference the Phase I or II quitclaim deeds using the following language: *"Parcel X is under and subject to those restrictions, requirements, notices, easements and covenants imposed on the Letterkenny Industrial Development Authority and its successors-in-interest as set forth in a Quitclaim Deed (Phase I or II) dated (November 6, 1998 or May 3, 2002) from the United States of America to the Letterkenny Industrial Development Authority and recorded in the Franklin County Recorder of Deeds Office in (Volume 1414, Page 204 or Volume 1904, Page 388) including, but not limited to, the stated Land Use Restrictions and CERCLA remediation covenants. Said restrictions, requirements notices, easements and covenants set forth in the (November 6, 1998 or May 3, 2002) Quitclaim Deed are incorporated by reference as though set forth in full herein.* This deed is enclosed as Example 1.

Only two parcels exist with a successor deed after being transferred from LIDA. Both of these parcels were transferred from LIDA to the Franklin County Area Development Corporation (FCADC) and follow the same format. However neither of these deeds references the restrictions in the Phase I Quitclaim Deed. A copy of FCADC deed is enclosed as Example 2.

Under the comments column on the summary table the deed is noted as: 1.) the parent Quitclaim deed, 2.) a successor deed from LIDA to another grantee that references the parent deed, and 3.) whether the deed contains language referencing the land use restrictions from deed Examples 1 or 2.

If there are any questions, please contact the undersigned at (717) 267-9836.

Sincerely,

Bryan Hoke
BRAC Environmental Coordinator

LETTERKENNY ARMY DEPOT
SOUTHEASTERN AREA 5-YEAR REVIEW
DEED REVIEW SUMMARY
JUNE 2008

Parcel Number	Property	Deed Owner	Deed Reviewed	Comments
Parcels 1, 2, 2-35, 2-77	Parcels 1, 2, 2-35, 2-77	FCADC	YES	Deed references Phase I Quit Claim Deed, Vol 2003, Page 118 - EXAMPLE 1
Parcels 1, 2, 2-77 (Lot 3)	Parcels 1, 2, 2-77 (Lot 3)	Bentley World Packaging	YES	Deed indirectly references Phase I Quit Claim Deed, but not restrictions by referencing previous deed (Vol 2003, Page 118), Vol 3412, Page 211 - EXAMPLE 2
Parcel 2 (Lot 4)	Parcel 2 (Lot 4)	5K Logistics	YES	Deed indirectly references Phase I Quit Claim Deed, but not restrictions by referencing previous deed (Vol 2003, Page 118), Vol 3411, Page 471 - EXAMPLE 2
Parcel 3	Building 9	Letterkenny Industrial Development Authority	YES	Phase I Quit Claim Deed, Vol 1414, Page 204
Parcel 4	Building 6	Tom James Co.	YES	Deed references Phase I Quit Claim Deed, Vol 1576, Page 471 - EXAMPLE 1
Parcel 5	Parcels # 5 (Gabler Bldg. 20)	H.C. Gabler, Inc.	YES	Deed references Phase I Quit Claim Deed, Vol 2004, Page 060 - EXAMPLE 1
Parcel 6	Parcel 6	H.C. Gabler, Inc.	YES	Deed references Phase I Quit Claim Deed, Vol 2004, Page 060 - EXAMPLE 1
Parcel 7	Parcel 7(1/2 parcel)	H.C. Gabler, Inc.	YES	Deed references Phase I Quit Claim Deed, Vol 2837, Page 527 - EXAMPLE 1
Parcel 7	Parcel 7(1/2 parcel)	Bentley World Packaging	YES	Deed references Phase I Quit Claim Deed, Vol 2004, Page 060 - EXAMPLE 1
Parcel 8	Parcel 8	H.C. Gabler, Inc.	YES	Deed references Phase I Quit Claim Deed, Vol 1589, Page 573 - EXAMPLE 1
Parcel 9	Parcel 9	H.C. Gabler, Inc.	YES	Deed references Phase I Quit Claim Deed, Vol 1589, Page 573 - EXAMPLE 1
Parcel 10	Dock 36	Letterkenny Business Park	YES	Deed references Phase I Quit Claim Deed, Vol 1444, Page 208 - EXAMPLE 1
Parcel 11	Dock 35	Letterkenny Business Park	YES	Deed references Phase I Quit Claim Deed, Vol 1444, Page 208 - EXAMPLE 1
Parcel 12	Parcel 12	Ingersoll Rand	YES	Deed references Phase I Quit Claim Deed, Vol 2785, Page 405 - EXAMPLE 1
Parcel 13	Dock 45	Letterkenny Business Park	YES	Deed references Phase I Quit Claim Deed, Vol 1444, Page 208 - EXAMPLE 1
Parcel 16	Building 34	Letterkenny Business Park	YES	Deed references Phase I Quit Claim Deed, Vol 1444, Page 208 - EXAMPLE 1
Parcel 17	Building 44	Cargill	YES	Deed references Phase I Quit Claim Deed, Vol 1426, Page 551 - EXAMPLE 1
Parcel 18	Building 43S	Letterkenny Business Park	YES	Deed references Phase I Quit Claim Deed, Vol 1444, Page 208 - EXAMPLE 1
Parcel 18	Building 43N	Letterkenny Business Park	YES	Deed references Phase I Quit Claim Deed, Vol 1444, Page 208 - EXAMPLE 1
Parcel 19	Building 54	Letterkenny Business Park	YES	Deed references Phase I Quit Claim Deed, Vol 1444, Page 208 - EXAMPLE 1
Parcel 20	Building 53	Applegate	YES	Deed references Phase I Quit Claim Deed, Vol 1432, Page 295 - EXAMPLE 1
Parcel 21	Building 52N	Letterkenny Business Park	YES	Deed references Phase I Quit Claim Deed, Vol 1444, Page 208 - EXAMPLE 1
Parcel 21	Building 52S	Letterkenny Business Park	YES	Deed references Phase I Quit Claim Deed, Vol 1444, Page 208 - EXAMPLE 1
Parcel 22	Railroad Tracks	Letterkenny Industrial Development Authority	YES	Phase I Quit Claim Deed, Vol 1414, Page 204
Parcel 23	Buildings 412, 416, 417, 418	Letterkenny Industrial Development Authority	YES	Phase I Quit Claim Deed, Vol 1414, Page 204
Parcel 24	Building 500	Letterkenny Industrial Development Authority	YES	Phase I Quit Claim Deed, Vol 1414, Page 204
Parcel 25	Building 19	H.C. Gabler, Inc.	YES	Deed references Phase I Quit Claim Deed, Vol 1453, Page 475 - EXAMPLE 1
Parcel 26	Parcel 26	Letterkenny Industrial Development Authority	YES	Phase I Quit Claim Deed, Vol 1414, Page 204
Parcel 27	Parcel 27	Letterkenny Industrial Development Authority	YES	Phase I Quit Claim Deed, Vol 1414, Page 204
Parcel 28	Building 524	Letterkenny Industrial Development Authority	YES	Phase I Quit Claim Deed, Vol 1414, Page 204
Parcel 31	Railroad Tracks	Letterkenny Industrial Development Authority	YES	Phase I Quit Claim Deed, Vol 1414, Page 204
Parcel 2-35	Parcel 2-35	FCADC	YES	Deed references Phase II Quit Claim Deed, Vol 2003, Page 118 - EXAMPLE 1
Parcel 2-36	Railroad Tracks	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-37	Parcel 2-37	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-38	Building 7	American Stair	YES	Deed references Phase II Quit Claim Deed, Vol 1991, Page 503 - EXAMPLE 1
Parcel 2-39	Building 5	American Stair	YES	Deed references Phase II Quit Claim Deed, Vol 2602, Page 359 - EXAMPLE 1
Parcel 2-40	Building 8	LamTech, Inc.	YES	Deed references Phase II Quit Claim Deed, Vol 2095, Page 469 - EXAMPLE 1
Parcel 2-41	Building 9 Railroad Tracks	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-42	Building 33	Letterkenny Business Park	YES	Deed references Phase II Quit Claim Deed, Vol 2027, Page 613 - EXAMPLE 1
Parcel 2-43	Building 32	Letterkenny Business Park	YES	Deed references Phase II Quit Claim Deed, Vol 2027, Page 613 - EXAMPLE 1
Parcel 2-44	Building 31	Letterkenny Business Park	YES	Deed references Phase II Quit Claim Deed, Vol 2027, Page 613 - EXAMPLE 1
Parcel 2-45	Building 42	Woods Co.	YES	Deed references Phase II Quit Claim Deed, Vol 2004, Page 32 - EXAMPLE 1
Parcel 2-46	Building 41	Letterkenny Business Park	YES	Deed references Phase II Quit Claim Deed, Vol 2027, Page 613 - EXAMPLE 1
Parcel 2-47	Building 247, Parcel 2-47	JSH Industries	YES	Deed references Phase II Quit Claim Deed, Vol 2052, Page 396 - EXAMPLE 1
Parcel 2-48	Golf Course	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-49	Building 503	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-50	Building 18	H.C. Gabler, Inc.	YES	Deed references Phase I Quit Claim Deed, Vol 2004, Page 060 - EXAMPLE 1
Parcel 2-51	Golf Course	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-52	Golf Course	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-53	Golf Course	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388

LETTERKENNY ARMY DEPOT
SOUTHEASTERN AREA 5-YEAR REVIEW
DEED REVIEW SUMMARY
JUNE 2008

Parcel Number	Property	Deed Owner	Deed Reviewed	Comments
Parcel 2-54	Golf Course	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-55	Building 436	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-56	Building 426	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-57	Building 424	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-58	Parcel 2-58	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-59	Parcel 2-59	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-60	Building 441	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-61	Building 431	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-62	Building 421	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-63	Parcel 2-63	Letterkenny Business Park	YES	Deed references Phase II Quit Claim Deed, Vol 2027, Page 613 - EXAMPLE 1
Parcel 2-64	Parcel 2-64	Letterkenny Business Park	YES	Deed references Phase II Quit Claim Deed, Vol 2027, Page 613 - EXAMPLE 1
Parcel 2-65	Dock 36	Letterkenny Business Park	YES	Deed references Phase II Quit Claim Deed, Vol 2027, Page 613 - EXAMPLE 1
Parcel 2-66	Dock 46	Ingersoll Rand	YES	Deed references Phase II Quit Claim Deed, Vol 2785, Page 405 - EXAMPLE 1
Parcel 2-67	Building 56	Ingersoll Rand	YES	Deed references Phase II Quit Claim Deed, Vol 2785, Page 405 - EXAMPLE 1
Parcel 2-68	Building 55	Letterkenny Business Park	YES	Deed references Phase II Quit Claim Deed, Vol 2027, Page 613 - EXAMPLE 1
Parcel 2-69	Parcel 2-69	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-70	Building 521	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcel 2-77	Railroad Tracks	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388
Parcels 2R-80, 81, 84, 85	Roads	Greene Township	YES	Deed references Phase II Quit Claim Deed, Vol 1981, Page 397. However deed does not reference the Phase II deed restrictions. Corrective deed is being prepared.
Parcels 2R-82, 83	Roads	Letterkenny Industrial Development Authority	YES	Phase II Quit Claim Deed, Vol 1904, Page 388

DIST NO.___ MAP NO. ___ BLOCK ___ LOT ___

QUITCLAIM DEED

72102

This Deed is made the 21st day of November, 2002.

Between LETTERKENNY INDUSTRIAL DEVELOPMENT AUTHORITY, a Pennsylvania non-profit municipal industrial authority, with its principal offices at 220A Coffey Avenue, Chambersburg, Pennsylvania 17201, hereinafter referred to as the Grantor;

AND

FRANKLIN COUNTY AREA DEVELOPMENT CORPORATION, a Pennsylvania non-profit industrial development corporation, with its principal office at 1900 Wayne Road, Chambersburg, Pennsylvania 17201, hereinafter referred to as the Grantee.

Witnesseth

THAT IN CONSIDERATION of Five Hundred Thousand Dollars ($500,000.00) in hand paid, the receipt whereof is hereby acknowledged, Grantor does hereby release and quitclaim to Grantee, its successors and assigns, the following two parcels:

Parcel 1

ALL THAT CERTAIN tract of land known as Parcel 1 as shown on a Master Plan, prepared by the U.S. Army Engineer District, Baltimore, Maryland, recorded in the Franklin County Recorder of Deeds Office in Plat Book 288G, Page 1066, Part I through VI, said tract located in the Township of Greene, County of Franklin and Commonwealth of Pennsylvania, bounded and described as set forth on Exhibit A hereof.

BEING A PART OF THE SAME PREMISES which the United States of America by a Quitclaim Deed dated November 6, 1998, and recorded in the Franklin County Recorder of Deeds Office in Volume 1414, Page 204, granted and conveyed unto the Letterkenny Industrial Development Authority, its successors and assigns.

Parcel 2

ALL THAT CERTAIN tract of land known as Parcel 2 as shown on a Master Plan, prepared by the U.S. Army Engineer District, Baltimore, Maryland, recorded in the Franklin

County Recorder of Deeds Office in Plat Book 288G, Page 1066, Part I through VI, said tract located in the Township of Greene, County of Franklin and Commonwealth of Pennsylvania, bounded and described as set forth on Exhibit A hereof.

BEING A PART OF THE SAME PREMISES which the United States of America by a Quitclaim Deed dated November 6, 1998, and recorded in the Franklin County Recorder of Deeds Office in Volume 1414, Page 204, granted and conveyed unto the Letterkenny Industrial Development Authority, its successors and assigns.

PARCEL 1 AND PARCEL 2 ARE UNDER AND SUBJECT to those restrictions, requirements, notices, easements and covenants imposed on the Letterkenny Industrial Development Authority and its successors-in-interest as set forth in a Quitclaim Deed dated November 6, 1998 from the United States of America to the Letterkenny Industrial Development Authority and recorded in the Franklin County Recorder of Deeds Office in Volume 1414, Page 204 including, but not limited to, the stated Land Use Restrictions and CERCLA remediation covenants. Said restrictions, requirements notices, easements and covenants set forth in the November 6, 1998 Quitclaim Deed are incorporated by reference as though set forth in full herein.

PARCEL 1 AND PARCEL 2 ARE UNDER AND SUBJECT to a Declaration of Easements dated May 3, 1999, and recorded in the Franklin County Recorder of Deeds Office in Volume 1430, Page 298, as amended by a First Amendment to Declaration of Easements dated September 29, 1999, and recorded in the Recorder's Office aforesaid in Volume 1453, Page 421.

AND ALL OF GRANTOR'S RIGHT, TITLE AND INTEREST in and to a vertical distance beginning at a point eight (8) feet below the surface and extending skyward in, and over, the following two parcels:

Parcel 2-1B

ALL THAT CERTAIN tract of land known as Parcel 2-1B as shown on a Final Land Subdivision Plan prepared by Best Angle Associates, last revised January 14, 2002 and recorded in the Franklin County Recorder of Deeds Office in Plat Book 288H, Page 881 (Parts 1 through 87), said tract located in the Township of Greene, County of Franklin and Commonwealth of Pennsylvania, bounded and described as set forth on Exhibit A hereof.

BEING A PART OF THE SAME PREMISES which the United States of America by a Quitclaim Deed dated May 3, 2002, and recorded in the Franklin County Recorder of Deeds

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Office in Volume 1904, Page 388, granted and conveyed unto the Letterkenny Industrial Development Authority, its successors and assigns.

Parcel 2-2B

ALL THAT CERTAIN tract of land known as Parcel 2-2B as shown on a Final Land Subdivision Plan prepared by Best Angle Associates, last revised January 14, 2002 and recorded in the Franklin County Recorder of Deeds Office in Plat Book 288H, Page 881 (Parts 1 through 87), said tract located in the Township of Greene, County of Franklin and Commonwealth of Pennsylvania, bounded and described as set forth on Exhibit A hereof.

BEING A PART OF THE SAME PREMISES which the United States of America by a Quitclaim Deed dated May 3, 2002, and recorded in the Franklin County Recorder of Deeds Office in Volume 1904, Page 388, granted and conveyed unto the Letterkenny Industrial Development Authority, its successors and assigns.

PARCEL 2-1B AND PARCEL 2-2B ARE UNDER AND SUBJECT to those restrictions, requirements, notices, easements and covenants imposed on the Letterkenny Industrial Development Authority and its successors-in-interest as set forth in a Quitclaim Deed dated May 3, 2002 from the United States of America to the Letterkenny Industrial Development Authority and recorded in the Franklin County Recorder of Deeds Office in Volume 1904, Page 388 including, but not limited to, the stated Land Use Restrictions and CERCLA remediation covenants. Said restrictions, requirements notices, easements and covenants set forth in the May 3, 2002 Quitclaim Deed are incorporated by reference as though set forth in full herein.

PARCEL 2-1B AND PARCEL 2-2B ARE UNDER AND SUBJECT to a Declaration of Easements dated July 22, 2002, and recorded in the Franklin County Recorder of Deeds Office in Volume 1922, Page 483, as amended.

PARCEL 1, PARCEL 2, PARCEL 2-1B AND PARCEL 2-2B ARE UNDER AND SUBJECT to a Declaration of Covenants, Conditions and Restrictions for the Cumberland Valley Business Park dated January 13, 1999, and recorded in the Franklin County Recorder of Deeds Office in Volume 1414, Page 294, as supplemented by a First Supplemental Declaration of Covenants, Conditions, and Restrictions dated July 22, 2002, and recorded in the Recorder's Office aforesaid in Volume 1922, Page 487.

PARCEL 1, PARCEL 2, PARCEL 2-1B AND PARCEL 2-2B ARE UNDER AND SUBJECT to such other restrictions, easements, rights-of-way or conditions to the extent legal

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3125.00
3125.00

5487

SPECIAL WARRANTY DEED

MADE the 1st day of March, 2007

BETWEEN

FRANKLIN COUNTY AREA DEVELOPMENT CORPORATION, a Pennsylvania non-profit corporation, and certified Pennsylvania industrial development agency, having its principal office at 1900 Wayne Road, Chambersburg, PA 17201, hereinafter called GRANTOR,

AND

PA OSP, LLC, a Wisconsin limited liability company, having its principal office at 8600 West Bradley Road, Milwaukee, Wisconsin, hereinafter called the GRANTEE,

WITNESSETH, that in consideration of **THREE HUNDRED TWELVE THOUSAND FIVE HUNDRED ($312,500.00) DOLLARS** in hand paid, the receipt whereof is hereby acknowledged, the said Grantor hereby remises, releases and quit claims it's right, title and interest, to said Grantee, in and to:

ALL the following described real estate lying and being situate in Greene Township, Franklin County, Pennsylvania, bounded and described as follows:

BEGINNING at an iron pin at corner of Lot No. 2 and the western edge of Sunset Pike (SR 0433), as shown on the hereinafter referred to subdivision plan; thence along the western edge of Sunset Pike (SR 0433), North 08 degrees 59 minutes 46 seconds East, 381.77 feet to a point; thence along the same, on a curve to the left, having a radius of 1248.33 feet, an arc length of 98.04 feet, a chord bearing North 06 degrees 44 minutes 46 seconds East and a chord length of 98.02 feet to a point; thence along the same, on a curve to the left, having a radius of 929.93 feet , an arc length of 288.35 feet, a chord bearing North 04 degrees 23 minutes 13 seconds West and a chord length of 287.19 feet to an iron pin at the southern edge of Coffey Avenue; thence along Coffey Avenue, South 64 degrees 02 minutes 56 seconds West, 577.88 feet to a point; thence along the same, on a curve to the right, having a radius of 1730.00 feet, an arc length of 232.67 feet, a chord bearing South 67 degrees 54 minutes 07 seconds West and a chord length of 232.50 feet to an iron pin at corner of Lot No. 4; thence along Lot No. 4, South 25 degrees 23 minutes 58 seconds East, 446.85 feet to an iron pin at corner common to Lot No. 4 and Lot No. 2; thence along Lot No. 2, North 63 degrees 40 minutes 31 seconds East, 105.00 feet to an iron pin; thence along the same, South 81 degrees 00 minutes 14 seconds

EXAMPLE 2

East, 404.99 feet to an iron pin at the western edge of Sunset Pike (SR 0433), the place of BEGINNING, containing 8.5001 acres.

BEING Lot No. 3, as shown on a Master Subdivision Plan, for Franklin County Area Development Corporation, prepared by Martin & Martin Incorporated, dated August 17, 2006, which together with the necessary municipal approvals is recorded in Franklin County, Pa., Plan Book Volume 288J, Page 558, Parts 1-4.

BEING part of the same real estate which the Letterkenny Industrial Development Authority, by their deed dated November 21, 2002, recorded in Franklin County Record Book Volume 2003, Page 118, conveyed to Franklin County Area Development Corporation, Grantor herein.

SUBJECT TO any and all notes, restrictions, rights of way, easements and/or conditions that may appear on the above referenced subdivision plan.

SUBJECT ALSO TO the covenants, conditions and restrictions created by Letterkenny Industrial Development Authority as recorded in Franklin County, Pa., Record Book Volume 1430, Page 298.

AND the said Grantor will warrant title specially the property hereby conveyed.

IN WITNESS WHEREOF, said Grantor hereunto set its hand and seal the day and year first above written.

ATTEST:

FRANKLIN COUNTY AREA DEVELOPMENT CORPORATION

By _____
L. Michael Ross, President

DEPARTMENT OF THE ARMY
LETTERKENNY ARMY DEPOT
1 OVERCASH AVENUE
CHAMBERSBURG, PENNSYLVANIA 17201

REPLY TO
ATTENTION OF:

June 6, 2008

BRAC Environmental Office

U.S. Environmental Protection
Agency Region III
Hazardous Sites Cleanup Division (3HS11)
ATTN: Curtis N. Callahan
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Mr. Callahan:

The purpose of this letter is to submit a summary of the Phase I & II Transfer Parcels lease review as part of the Southeastern Area National Priorities List site Five-Year Review, Letterkenny Army Depot.

Attached is a summary table listing current leases of Phase I & II Parcels. This list is based on the May 30, 2007 notice from the Letterkenny Industrial Development Authority (LIDA) listing property owners and leases. The table lists the Phase I or II Parcel, building, owner, lessee, whether the lease was reviewed and any comments applicable to the lease review.

It is noted in the comments column of the summary table that LIDA uses a template for all of its leases. The 5th paragraph of the lease template references both of the Phase I & II deeds. In addition Paragraph 2.6 of the lease template states the following: *"All restrictive provisions contained in the MOA and the Army Deeds which are applicable to the Premises shall be binding upon the Tenant and the Tenant shall comply with all applicable terms thereof."* The LIDA lease template is attached as Enclosure 1.

If you have any questions, please contact the undersigned at (717) 267-9836.

Sincerely,

Bryan Hoke
BRAC Environmental Coordinator

LETTERKENNY ARMY DEPOT
SOUTHEASTERN AREA 5-YEAR REVIEW
PHASE I II PARCELS
LEASE REVIEW SUMMARY
June 2008

Parcel Number	Building/Property	Owner	Lessee	Lease Reviewed	Comments
Parcels 1, 2, 2-35, 2-77	Parcels 1, 2, 2-35, 2-77	FCADC	Ramtech, Lower Tier Project Office	YES	Lease does not reference parent quit claim deed.
Parcels 1, 2, 2-77	Parcels 1, 2, 2-77	FCADC	Meyer Distribution	YES	Lease does not reference parent quit claim deed.
Parcel 3	Building 9	Letterkenny Industrial Development Authority	Lamtech	YES[1]	See Footnote 1 below.
Parcel 10	Docks 36	Letterkenny Business Park	Dominion Resources, Inc.	NO	Copy of lease requested 2/11/08
Parcel 11	Docks 35	Letterkenny Business Park	Letterkenny	NO	Copy of lease requested 2/11/08
Parcel 13	Dock 45	Letterkenny Business Park	Ingersoll Rand	NO	Copy of lease requested 2/11/08
Parcel 16	Building 34	Letterkenny Business Park	U.S. Army Reserves	NO	Copy of lease requested 2/11/08
Parcel 18	Building 43S	Letterkenny Business Park	Dominion Resources, Inc.	NO	Copy of lease requested 2/11/08
Parcel 19	Building 54	Letterkenny Business Park	American Promotional Events, Inc.	NO	Copy of lease requested 2/11/08
Parcel 21	Building 52N	Letterkenny Business Park	Letterkenny Army Depot	YES	Lease does not reference parent quit claim deed.
Parcel 21	Building 52S	Letterkenny Business Park	BAE	NO	Copy of lease requested 2/11/08
Parcel 22 & 31	Railroad	Letterkenny Industrial Development Authority	PA and Southern Railway	YES[1]	See Footnote 1 below.
Parcel 23	Building 412	Letterkenny Industrial Development Authority	Army - US Army Reserves	YES[1]	See Footnote 1 below.
Parcel 23	Building 416	Letterkenny Industrial Development Authority	Nutrient Control Systems, Inc.	YES[1]	See Footnote 1 below.
Parcel 23	Building 417	Letterkenny Industrial Development Authority	Rausch Electronics, USA	YES[1]	See Footnote 1 below.
Parcel 23	Building 418	Letterkenny Industrial Development Authority	Ramtech Machining and Fabrication	YES[1]	See Footnote 1 below.
Parcel 23	Building 419 A	Letterkenny Industrial Development Authority	Ramtech Machining and Fabrication	YES[1]	See Footnote 1 below.
Parcel 23	Building 419 B	Letterkenny Industrial Development Authority	Nutrient Control Systems, Inc.	YES[1]	See Footnote 1 below.
Parcel 24	Building 500	Letterkenny Industrial Development Authority	Multiple	YES[1]	See Footnote 1 below.
Parcel 28	Building 524	Letterkenny Industrial Development Authority	Legal Aid Society	YES[1]	See Footnote 1 below.
Parcels 2-36, 2-37, 2-58	Railroad	Letterkenny Industrial Development Authority	PA and Southern Railway	YES[1]	See Footnote 1 below.
Parcel 2-41	Building 211	Letterkenny Industrial Development Authority	PA and Southern Railway	YES[1]	See Footnote 1 below.
Parcel 2-42	Building 33N	Letterkenny Business Park	Letterkenny Army Depot	NO	Copy of lease requested 2/11/08
Parcel 2-42	Building 33S	Letterkenny Business Park	Advanced Recycling Technology	NO	Copy of lease requested 2/11/08
Parcel 2-43	Building 32	Letterkenny Business Park	American Promotional Events, Inc.	NO	Copy of lease requested 2/11/08
Parcel 2-44	Building 31	Letterkenny Business Park	National Book Network	NO	Copy of lease requested 2/11/08
Parcel 2-46	Building 41	Letterkenny Business Park	P.O.D.S.	NO	Copy of lease requested 2/11/08
Parcels 2-47, 48, 49, 51, 52, 53, 54	Golf Course	Letterkenny Industrial Development Authority	C.V. Golf, Inc.	YES[1]	See Footnote 1 below.
Parcel 2-55	Building 436	Letterkenny Industrial Development Authority	Rausch Electronics, USA	YES[1]	See Footnote 1 below.
Parcel 2-56	Building 426	Letterkenny Industrial Development Authority	Franklin County	YES[1]	See Footnote 1 below.
Parcel 2-57	Building 424	Letterkenny Industrial Development Authority	Woodpile	YES[1]	See Footnote 1 below.
Parcel 2-60	Building 441	Letterkenny Industrial Development Authority	Squires Appliances	YES[1]	See Footnote 1 below.
Parcel 2-62	Building 421	Letterkenny Industrial Development Authority	Professional Billing	YES[1]	See Footnote 1 below.
Parcel 2-63	Parcel 2-63	Letterkenny Business Park	Letterkenny Army Depot	NO	Copy of lease requested 2/11/08
Parcel 2-64	Parcel 2-64	Letterkenny Business Park	Letterkenny Army Depot	NO	Copy of lease requested 2/11/08

1. Letterkenny Industrial Development Authority uses a boiler plate template for all leases. Template language references Phase I & II Quitclaim Deeds.

LEASE AGREEMENT

This Lease Agreement (the "Lease") is made as of the _____ day of _____, _____, by and between LETTERKENNY INDUSTRIAL DEVELOPMENT AUTHORITY ("LIDA"), a Pennsylvania non-profit municipal industrial development authority, having its principal office at 5121A Coffey Avenue, Chambersburg, Pennsylvania 17201, and _____, a _____, with its principal office at _____ ("Tenant").

WITNESSETH THAT

WHEREAS, pursuant to the Defense Base Closure and Realignment Act of 1990, the military installation known as the Letterkenny Army Depot, Chambersburg, Pennsylvania ("LEAD"), is scheduled to be realigned; and

WHEREAS, it is the intention of the United States, acting by and through the Department of the Army ("Army"), to retain certain portions of LEAD in order to complete the Army's ongoing mission ("Retained Property"); and

WHEREAS, pursuant to a letter dated August 2, 1997 from the Office of the Under Secretary of Defense, LIDA was granted the authority to oversee and implement the civilian reuse of those portions of LEAD scheduled to be realigned and transferred ("Transfer Parcels"); and

WHEREAS, pursuant to the terms of a Memorandum of Agreement dated November 5, 1998, the terms and conditions of the transfer of the Transfer Parcels to LIDA were established. (The Memorandum of Agreement together with all exhibits attached thereto is hereinafter referred to as the "MOA.") A copy of the MOA is on file at the offices of LIDA and available for review by Tenant; and

WHEREAS, pursuant to the terms of (i) a quitclaim deed dated November 6, 1998 and recorded in the Recorder's Office in and for Franklin County, Pennsylvania in Record Book 1414, Page 204, (ii) a quitclaim deed dated May 3, 2002 and recorded in the Recorder's Office aforesaid in Record Book 1904, Page 388, and (iii) a quitclaim deed dated March 15, 2004 and recorded in the Recorder's Office aforesaid in Record Book 2424, Page 440 (collectively, the "Army Deeds"), LIDA has acquired from the Army certain parcels of land within the Transfer Parcels, with buildings and improvements thereon (said land, buildings and improvements being collectively referred to as the "LIDA Premises"); and

WHEREAS, LIDA intends to lease a portion of the LIDA Premises ("Premises") to the Tenant pursuant to the terms and conditions hereinafter set forth.

NOW, THEREFORE, for good and valuable consideration, the parties hereto agree as follows:

Section 1. Definitions

1.1 Definitions

The terms set forth below, as used in the Lease, shall have the following meanings:

(a) Original Address of LIDA

5121A Coffey Avenue
Chambersburg, Pennsylvania 17201

(b) Original Address of Tenant

_____
_____

(c) Permitted Uses

_____, and for no other purpose whatsoever.

(d) Base Rent

_____

(e) Premises

_____ as more fully shown on Exhibit A.

(f) Tenant

_____

(g) Term

_____, beginning on the Term Commencement Date and ending at 12:00 midnight on the Termination Date.

(h) Term Commencement Date

_____

(i) Termination Date

_____ years from the Date of Occupancy, unless the Lease is terminated pursuant to the terms hereof.

Section 2. Premises, Lease Term, and Incorporation of MOA and Army Deeds

2.1 Premises

LIDA does hereby lease to the Tenant, and the Tenant does hereby lease from LIDA, the Premises, in accordance with the terms of this Lease.

2.2 Term

The Tenant shall have and hold the Premises for the Term commencing on the Date of Occupancy, as defined in Section 2.3 below, and ending on the Termination Date, unless sooner terminated pursuant to the terms hereof.

2.3 Date of Occupancy

The Date of Occupancy shall be the Term Commencement Date, unless said date is modified by written agreement of LIDA and Tenant.

2.4 Work by LIDA

Prior to the Date of Occupancy, LIDA shall perform such construction, renovation and finishing work as is identified on Exhibit B. LIDA shall not be liable to Tenant for any delay in completion of its work resulting from any casualty, labor trouble, material or energy shortage, act of God, failure of Tenant to furnish LIDA with plans and specifications concerning Tenant's interior layouts or to perform any of Tenant's work necessary for completion of LIDA's work, or for any other cause beyond the control of LIDA. No change shall be made in the work to be done by LIDA, except upon written change order signed by LIDA and Tenant. All such work shall be done in a good and workmanlike manner and in accordance with all applicable federal, state and local requirements.

2.5 Tenant Improvements

The Tenant shall perform such construction, renovation and finishing work as is identified on Exhibit C. All such work shall be done in a good and workmanlike manner and in accordance with all applicable federal, state and local requirements.

2.6 Incorporation of Terms of the MOA and the Army Deeds

All restrictive provisions contained in the MOA and the Army Deeds which are applicable to the Premises shall be binding upon the Tenant and the Tenant shall comply with all applicable terms thereof.

Section 3. Rent

3.1 Commencement of Obligation to Pay Base Rent

The obligation of the Tenant to pay the Base Rent shall commence on the Date of Occupancy.

3.2 Rent Amount

The Tenant agrees to pay and LIDA agrees to accept the Base Rent for the Premises. Except as hereinafter provided, the Base Rent shall be payable in twelve (12) equal monthly installments due and payable in advance on the first day of each calendar month during the Term of the Lease.

The monthly installments of Base Rent shall be prorated with respect to any fractional month during the Term. Any extension of time for the payment of any monthly installment of Base Rent, or the acceptance of Rent after the time at which it is payable, shall not be a waiver of the rights of LIDA to insist on prompt payment of Rent at any time thereafter. The Base Rent plus all additional rent and other sums payable by Tenant hereunder are together referred to as the "Rent."

3.3 Late Payment of Rent

If any installment of Base Rent is not received in full within ten (10) days of its due date, then, in addition to any other rights or remedies of LIDA hereunder, the Tenant shall pay a late payment charge equal to the greater of 7% of such installment or $250. If any Rent is not paid in full within thirty (30) days after it is due, interest on the unpaid balance shall accrue and be payable at the rate of eighteen percent (18%) per annum until paid in full.

3.4 Place of Payment of Rent

All payments of Rent shall be made by the Tenant to LIDA without notice or demand at such place as LIDA may from time to time designate in writing. The initial place for payment of Rent shall be Letterkenny Industrial Development Authority, 5121A Coffey Avenue, Chambersburg, Pennsylvania 17201.

3.5 Security Deposit

The Tenant agrees to pay to LIDA prior to the Date of Occupancy as a security deposit a sum equal to one (1) month Base Rent ("Security Deposit"). Upon the occurrence of a Default, as said term is defined in Section 11 hereof, LIDA may apply the Security Deposit, or any part thereof, including any interest then accrued thereon, towards the curing of any such Default and/or towards compensating LIDA for any loss or damage arising from any such Default.

LIDA may commingle the Security Deposit with other funds of LIDA, but shall not be liable to the Tenant for the payment of interest thereon or profits therefrom. LIDA may assign the Security Deposit to any subsequent lessee or owner of the Premises and thereafter LIDA shall have no further liability to the Tenant with respect thereto. As soon as reasonably practicable after the Termination Date, LIDA shall: (a) inspect the Premises; (b) make such payment from the Security Deposit as may be required to cure any outstanding Defaults hereunder; and (c) if no Default is then continuing, pay the balance of the Security Deposit to the Tenant.

Section 4. Utilities, Services, Taxes and Other Expenses

4.1 Utilities

Water and sewer services for the Premises are provided by the Franklin County General Authority ("FCGA"). The Tenant agrees to pay directly to FCGA prior to the due date therefore all charges for such water and sewer services in accordance with the schedule of rates from time to time adopted by FCGA.

Electric service to the Premises is provided by LIDA through Allegheny Power pursuant to the terms of an Operating Agreement between Allegheny Power and LIDA dated December 14, 1998. For the duration of the Operating Agreement, the electric service provider for the Premises shall continue to be LIDA through Allegheny Power. Electric service shall be submetered by LIDA and billed to Tenant by LIDA at such schedule of rates and facility charges as LIDA shall adopt from time to time, which such rates and facility charges shall not grant any unreasonable preference or advantage as to all properties serviced thereby. Tenant acknowledges that it will have no choice of an alternative electric generation supplier during the term of the Lease.

The Tenant shall be responsible for reimbursing LIDA upon demand as additional rent for any utility charge, user fee, etc., as may be related to the provision of utility services to the Premises for which LIDA is billed or charged directly or indirectly, and shall comply with any utility agreements or contracts in relation thereto.

LIDA shall not be liable to Tenant for any interruption of, or failure to provide, electrical services, heating, air conditioning, or other utility service which is due to any energy shortage,

power failure, or other cause beyond the control of LIDA, or is reasonably required in order to enable LIDA to perform maintenance or repairs within the Premises or elsewhere in LIDA Premises, or which occurs during any period when Tenant is in default in payment of any sum due or to become due LIDA hereunder.

4.2 Municipal Services

Certain municipal services shall be provided by the Army in accordance with the terms and conditions of the MOA. If and to the extent the Army imposes a charge for such services, the cost thereof as reasonably determined by LIDA shall be reimbursed by Tenant to LIDA, as additional rent, with the next installment of rent due following notice of such cost delivered by LIDA to Tenant.

4.3 Industrial Wastewater Treatment

The Tenant agrees that the treatment of any industrial waste generated by the Tenant that requires pre-treatment prior to entering the sanitary sewer system will be the responsibility of the Tenant, and Tenant shall comply with all laws, statutes and regulations applicable to the treatment thereof. The Tenant further agrees that the Army Industrial Wastewater Treatment Facility will not be available to the Tenant for pretreatment purposes, and that the Tenant will have to provide such treatment through the use of on-site facilities approved by LIDA.

4.4 Taxes

The Tenant agrees to pay all property taxes, user charges, payments in lieu of taxes, other local or state assessments on or against the Premises, including, without limitation, all improvements thereto, income generated therefrom, and personal property contained therein, during the Term of the Lease. To the extent any such taxes or charges are not assessed against the Premises separately, but are assessed against the LIDA Premises as a whole, the Tenant shall pay its proportionate share of such taxes or charges, said share to be determined by LIDA and based on the square footage of the Premises as a percentage of the square footage of the LIDA Premises, including a proportionate share of all common areas and facilities within the LIDA Premises attributable to the Premises. With regard to taxes and charges assessed directly against the Tenant, the Tenant shall pay the appropriate taxing authority directly, and with regard to the Tenant's proportionate share of taxes or charges as calculated by LIDA, the Tenant shall pay said proportionate share to LIDA as additional rent.

4.5 Net Lease

The Base Rent and all other sums payable by Tenant to LIDA hereunder shall be absolutely net to LIDA. LIDA shall not be required to pay any expense of any kind with respect to the Premises during the term of the Lease, except as specifically hereinafter set forth. In spite of the failure of this Lease to mention specifically that a particular item of expense shall be paid

by Tenant during the term of the Lease, the Tenant shall relieve LIDA of and pay, as additional rent hereunder, all costs, charges and expenses of every kind whatsoever which may be incurred or result from or be incidental to the ownership, operation and maintenance of the Premises and the improvements thereon or to be placed thereon. Without limiting the obligations of Tenant by the following enumeration, it is understood by the parties that Tenant shall pay all taxes, sewer rents, water charges, assessments and other impositions and levies of every kind and nature whatsoever applicable to any period during the term of this Lease, which may hereafter be imposed, charged, assessed or levied upon, against or with respect to the Premises or which may become due and payable with respect to any improvements placed thereon or any activity conducted thereon or which may be imposed, assessed, charged or levied upon, against or with respect to the leasehold estate hereby created or upon the reversionary estate of LIDA under and by virtue of any present or future law, rule, requirement, order, direction, ordinance or regulation of any governmental or other lawful authority whatsoever and which shall become due and payable during the term of this Lease. LIDA shall promptly notify and forward to Tenant all bills, notices and other communications pertaining to all taxes, sewer rents, water charges, assessments and other impositions and levies of every kind and nature whatsoever, general or specific, ordinary or extraordinary, applicable to any period during the term of this Lease. Nothing herein contained shall be deemed to require the Tenant to pay or discharge any liens or mortgages of any kind whatsoever which may hereafter be placed upon the Premises by the affirmative act of LIDA.

4.6 No Set-Off

Payments made by the Tenant pursuant to any provision of Section 4 shall in no event be considered additional rent or be set-off against Base Rent due to LIDA hereunder.

Section 5. Use of Premises

5.1 Permitted Uses of the Premises

The Tenant covenants and agrees to use the Premises only for the Permitted Uses and for no other purpose. Any change in such use shall require the prior written approval of LIDA, provided that any use of the Premises must conform with all applicable requirements of, and regulations promulgated under the authority of, the MOA. In addition, Tenant shall at all times comply with all covenants, conditions and restrictions set forth in the Declaration of Covenants, Conditions and Restrictions recorded in the Recorder's Office in and for Franklin County, Pennsylvania in Volume 1414, Page 294.

5.2 Use of Common Facilities

If and to the extent LIDA incurs costs and expenses in connection with the operation and maintenance of any common areas of the Cumberland Valley Business Park or any other portions of the LIDA Premises which are used in common by Tenant and other tenants or

occupants of the LIDA Premises, Tenant shall pay to LIDA, as additional rent, a common area maintenance charge to reimburse LIDA for such costs and expenses, such common area maintenance charge to be reasonably determined from time to time by LIDA and payable with the first monthly installment of Base Rent due after notice of the amount thereof has been delivered by LIDA to Tenant.

5.3 Limitations on Use

The Tenant will not make or permit any occupancy or use of any part of the Premises for any hazardous, offensive, dangerous, noxious, or unlawful occupation, trade, business or purpose which is contrary to any federal or state law, rule, regulation, permit or license, or which is contrary to the MOA, and will not cause, maintain or permit any nuisance in, at or on the Premises.

5.4 No Waste

The Tenant will not cause or permit any waste, overloading, stripping, damage, disfigurement, or injury of or to the Premises, or any part thereof, or to the LIDA Premises, except for the purposes of renovating or altering the Premises as set forth herein. The Tenant will repair promptly at its own expense any damage to the Premises and, upon demand, shall reimburse LIDA as additional rent for the cost of the repair of any damage to the LIDA Premises caused by or arising from the actions or omissions of the Tenant, its agents, contractors, employees and invitees.

5.5 Quiet Enjoyment

LIDA hereby warrants and covenants that upon payment of the Rent, and upon the performance by Tenant of all the terms and covenants of this Lease, the Tenant shall have peaceful and quiet use and possession of the Premises without hindrance or interruption on the part of (a) LIDA, (b) any other person(s) for whose actions LIDA is legally responsible, or (c) any person claiming by, through or under LIDA, except as herein provided and as provided in the MOA.

5.6 Entry for Inspections and Repairs

LIDA or its agents may at reasonable times enter the Premises to make repairs and view the Premises. LIDA shall give the Tenant a minimum of twenty-four (24) hours notice of such visits, provided, however, that LIDA may enter the Premises at any hour and without twenty-four (24) hours notice in the case of an emergency affecting the Premises, the LIDA Premises or adjacent sites.

LIDA or its agents may enter to show the Premises to prospective tenants or prospective purchasers of the Premises only after a minimum of twenty-four (24) hours notice to the Tenant.

Section 6. Maintenance, Repairs, and Alterations of the Premises

6.1 Representations

LIDA has made no representations, warranties or undertakings as to the present or future condition of the Premises or the fitness or suitability of the Premises for any particular use, and shall not be liable in any way, or be required to improve or alter the Premises to make it suitable for the current or future use by the Tenant. The Tenant acknowledges that the Premises may not currently be in compliance with applicable building codes, the Americans with Disabilities Act or other applicable federal, state or local law and regulations, and Tenant shall, at its sole expense, undertake to cause the Premises to comply with such provisions. The Tenant shall not occupy the Premises until a Certificate of Occupancy has been issued by the appropriate local official. Tenant agrees to take the Premises in as-is condition.

6.2 LIDA's and Tenant's Maintenance Obligations

(a) Tenant shall keep the Premises and all improvements thereon, whether structural or nonstructural, including all utility systems serving the Premises exclusively, in good order, condition and repair, at its expense making all repairs, alterations, replacements and modifications thereto. At the expiration or earlier termination of the term of this Lease, Tenant shall surrender the Premises in the same condition as when received, except ordinary wear and tear and damage by fire or other casualty of the kind insured against in standard policies of fire insurance with extended coverage.

(b) Tenant shall keep the Premises in a neat, clean and sanitary condition at all times. Tenant shall keep all walkways and stairways intended for pedestrian use free of ice and snow. If Tenant shall at any time fail to maintain the exterior portion of the Premises as required herein, LIDA, at its option, may provide such maintenance and the cost thereof, at the regular rates from time to time established by LIDA for such services, shall be additional rent due and payable upon demand by LIDA.

(c) LIDA shall provide snow removal to any paved parking areas located on the Premises, if and to the extent such snow is plowable. In addition, LIDA shall provide such lawn mowing and other lawn care to the Premises as LIDA determines reasonably necessary.

(d) Except in the event of casualty, LIDA shall have no obligation to repair, maintain, alter or modify the Premises or any part thereof. Tenant shall give notice to LIDA of any defect in, or need for repair of, the Premises which it is LIDA's obligation to correct. LIDA shall not be obligated to perform any maintenance or repair otherwise required of LIDA, unless notice of the need thereof has been given by Tenant to LIDA. LIDA shall not be liable to Tenant or any person claiming through or under Tenant, for any bodily injury or damage to property resulting from the failure to make any repair or replacement, unless the damage or bodily injury results

from the negligent failure or refusal of LIDA to make a bona fide effort to make such repair within a reasonable time following notice by Tenant of the need for such repair.

6.3 Glass

The Tenant shall be responsible for the prompt replacement of broken plate and other glass in the Premises, regardless of the source of such breakage.

6.4 Cleaning Services; Trash Removal

The Tenant shall be responsible for securing and contracting for janitorial and cleaning services for the Premises. The Tenant shall be responsible for and pay for the regular collection and removal of all trash generated by its operations on the Premises.

6.5 Signs

The Tenant shall seek and receive the written approval of LIDA prior to erecting signs of any size on the exterior of the Premises, or on the LIDA Premises, including all common areas. The Tenant shall, in addition, be required to comply with all other applicable laws, regulations and permits relating to the erection and approval of signs.

6.6 Alterations and Additions

After Tenant shall have completed any work required to be performed at the commencement of the Term, Tenant shall not make any substantial alterations, additions or improvements to the Premises unless it shall first obtain from LIDA written approval of the plans, design, layout and specifications therefore.

All floor, ceiling and wallcoverings, wall and ceiling light fixtures, interior partitions and doors, kitchen and lavatory fixtures, built-in counters, shelving and cabinetry, plumbing, wiring and other utility systems installed by Tenant in the Premises shall become the property of LIDA upon expiration or earlier termination of the Lease. In addition, all furniture, equipment and trade fixtures provided by LIDA for Tenant's use shall continue to be the property of LIDA. LIDA shall keep a list of all such furniture, equipment and trade fixtures in Tenant's possession in its central offices.

All furniture, equipment and trade fixtures installed by Tenant in the Premises shall remain the property of Tenant and may be removed at the expiration or earlier termination of this Lease, provided Tenant shall not at such time be in default under any covenant or condition contained herein and provided, further, that in the event of such removal, Tenant shall repair the damage caused by such removal and restore the Premises to its original order and condition. Any property of Tenant remaining on the Premises following expiration or termination of this Lease may, at LIDA's sole option, be deemed abandoned by Tenant and Landlord may dispose of any such property without liability to Tenant of any kind whatsoever.

Section 7. Tenant's Covenants

7.1 Rent

The Tenant agrees to pay promptly, in the time periods set forth herein, Rent due hereunder.

7.2 Compliance with Applicable Law

The Tenant shall comply with all applicable laws, bylaws, orders and regulations of federal, state, county, local and other governmental authorities, including, without limitation, any of LIDA's rules and regulations which are from time to time provided to the Tenant in writing, with regard to the Tenant's use and occupancy of the Premises.

7.3 Removal of Liens

The Tenant shall not cause or allow any liens of any kind to be filed or placed against the Premises or the LIDA Premises. If any liens are so filed, the Tenant shall, as soon as is reasonably possible, but not later than thirty (30) days after receiving written notice of such lien, at its sole cost and expense, take whatever action is necessary to cause the satisfaction and discharge of such lien or the release of such lien by bond. The Tenant further agrees to pay promptly when due all taxes, fees or charges which may be imposed on the Tenant's real or personal property located on the Premises.

7.4 Hazardous Substances

The Tenant (a) shall not use or allow the Premises to be used for the release, storage, use, treatment, disposal or other handling of any hazardous substance, material, waste or oil, as said terms are defined by Section 101(14) of the Comprehensive Environmental Response, Compensation Liability Act (42 U.S.C. sec. 9601(14)), Section 3001(a) of the Resource Conservation and Recovery Act (42 U.S.C. §6921(a)), the Hazardous Sites Cleanup Act (HSCA), 35 P.S. Section 6020 101 et seq., and regulations promulgated pursuant thereto ("Hazardous Substance"), without the prior written consent of LIDA, (b) shall give prompt written notice to LIDA and all appropriate regulatory authorities of any such release or threatened release of any Hazardous Substances on the Premises, the LIDA Premises or LEAD caused by or related to the activity of the Tenant, its agents, employees, contractors or invitees, and (c) at its own expense, shall promptly contain and remediate any such release in accordance with applicable law and regulation. In this regard, the Tenant specifically agrees to comply with all provisions of the MOA regarding environmental matters.

7.5 Assignment and Subleasing

The Tenant shall not assign, sublet, mortgage, pledge or encumber (collectively referred to herein as "Transfer") this Lease without LIDA's prior written consent. As used herein, the

term "assign" shall be deemed to include, without limitation, any transfer of the Tenant's interest in the Lease by operation of law. Consent by LIDA, whether express or implied, to any Transfer shall not constitute a waiver of LIDA's right to prohibit any subsequent Transfer; nor shall such consent be deemed a waiver of any of LIDA's rights under this Lease upon any subsequent Transfer.

If the Tenant intends to enter into a Transfer which requires LIDA's consent, the Tenant shall so notify LIDA in writing, stating:

(a) the name of the proposed transferee;

(b) a current financial statement of the proposed transferee;

(c) the exact terms of the Transfer; and

(d) a precise description of the portion of the Premises intended to be subject thereto.

Within thirty (30) days of receipt of such writing, LIDA shall either consent to or deny the request for such Transfer, stating in writing its reason therefor.

If LIDA consents to such Transfer, the Tenant shall:

(a) enter into such Transfer on the exact terms described to LIDA within thirty (30) days of LIDA's consent or comply again with the terms of this section; and

(b) remain liable for the payment and performance of the terms and covenants of this Lease.

If the Tenant enters into such a Transfer, the Tenant shall pay to LIDA when received the excess, if any, of amounts received in respect of such Transfer over the Rent.

7.6 <u>Surrender</u>

The Tenant shall, on the Termination Date or on the date of an earlier termination of the Lease, remove all of the Tenant's goods and effects from the Premises. The Tenant shall peaceably vacate and surrender to LIDA the Premises and deliver all keys, locks thereto and other fixtures connected thereto, unless LIDA requests removal of the same, and all alterations and additions made to or upon the Premises, in the same condition as they were on the Date of Occupancy, or as they were put in during the Term hereof, reasonable wear and tear or taking or condemnation by public authority only excepted. In the event of the Tenant's failure to remove any of the Tenant's property from the Premises, LIDA is hereby authorized at its sole option, without liability to the Tenant for loss or damage, and at the sole risk of the Tenant, (a) to remove and store any of the property at the Tenant's expense, or (b) to retain said property under

LIDA's control or (c) to sell at public or private sale, after ten (10) days notice to the Tenant at its address last known to LIDA, any or all of the property not so removed, and to apply the net proceeds of such sale to the payment of any sum due hereunder, (d) to destroy such property, or (e) to otherwise lawfully deal with such property.

7.7 Acceptance of Surrender

No surrender to LIDA of the Lease or of the Premises or any part thereof or of any interest therein by the Tenant shall be valid or effective unless required by the provisions of the Lease or unless agreed to and accepted in writing by LIDA. No act on the part of any representative or agent of LIDA, and no act on the part of LIDA, other than the acceptance of such a written agreement by LIDA as provided above shall constitute or be deemed an acceptance of any such surrender.

7.8 Holding Over

If the Tenant or anyone claiming under the Tenant shall remain in possession of the Premises or any part thereof after the expiration of the Term, without any agreement in writing between LIDA and the Tenant with respect thereto, the person remaining in possession shall be deemed a tenant at sufferance and shall pay two (2) times the monthly Base Rent provided herein for use and occupancy. Such person remaining in possession shall be deemed a tenant from month to month, subject to the provisions of this Lease, insofar as the same may be made applicable to a tenant from month to month.

7.9 Tenant's Estoppel

The Tenant shall, at any time and from time to time during the Term of this Lease, after receipt of prior written notice from LIDA or LIDA's then current or prospective mortgagee, execute, acknowledge and deliver a written statement certifying that this Lease is in full force and effect subject only to such modifications as may be set out; and that the Tenant is in possession of the Premises and is paying Rent as provided in this Lease; and the date the Rent is paid; and that there are not any uncured defaults on the part of LIDA, or specifying such defaults if they are claimed. Any such statement may be relied upon by any prospective transferee or mortgagee of all or any portion of the Premises, or any assignee of any such persons. If the Tenant fails to deliver such statement in a timely manner, the Tenant shall be deemed to have acknowledged that this Lease is in full force and effect, without modification, except as may be represented by LIDA, and that there are no uncured defaults in LIDA's performance.

Section 8. Fire, Casualty, and Eminent Domain

8.1 Casualty to Premises

If, during the Term of this Lease, the building shall be damaged by fire, storm, act of God, or other casualty, in such manner that the Premises are rendered untenantable in whole or in part, LIDA shall promptly commence and diligently proceed to restore the building at its expense to its condition prior to the occurrence of such casualty (exclusive of any alterations or additions to the Premises made by the Tenant); provided, however, that in the event that the damage to the building cannot be repaired within ninety (90) days from the occurrence of the casualty, LIDA, at its option, by notice to Tenant, may terminate the Lease as of the date of such casualty. In such case, Tenant shall pay the Rent and other sums due hereunder, apportioned to the date of the casualty, and shall immediately surrender the Premises to LIDA. If the damage caused by such casualty can be repaired within ninety (90) days thereafter, this Lease shall not be affected, except that Rent for the Premises shall abate until the damage is restored. If the Premises are rendered wholly untenantable by reason of such casualty, the Rent shall abate in full. However, if by reason of such casualty, only a portion of the Premises is rendered untenantable, Rent shall abate in proportion to the portion of the Premises rendered untenantable.

Notwithstanding the foregoing, LIDA shall have no obligation to expend funds for such restoration in excess of insurance proceeds available therefore. In addition, LIDA's restoration obligation shall be subject to all applicable federal, state and local statutes, laws and ordinances which may limit or prohibit restoration of the building as it previously existed. LIDA shall not under any circumstances, be obligated to restore any fixtures, alterations or additions installed in the Premises by Tenant. Notwithstanding any other provisions of this Lease, if any such damage to the Premises or LIDA Premises is the result of the negligence or willful misconduct of the Tenant, its officers, assignees, agents, contractors, subtenants, employees or invitees, the payment of Rent shall not be abated hereunder.

8.2 Eminent Domain

If any public authority shall, by the exercise of the power of eminent domain or under the threat of exercise of such power, take or acquire all or any part of the building or the Premises, or take or acquire a portion of the land area so as to render the remainder unusable by Tenant, this Lease shall terminate as of the date when Tenant shall be legally compelled to surrender possession, and shall do so. In the event of such taking, Tenant waives all claims as against LIDA and as against the condemning authority or party, and it is agreed that Tenant will make no claim by reason of the complete or partial taking of the Premises except in compensation recoverable in Tenant's own right for (i) removal or moving expenses, (ii) business dislocation damages as defined in the Pennsylvania Eminent Domain Code or any federal statute or rule containing substantially similar provisions, and (iii) loss or taking of fixtures installed by Tenant in the Premises.

Section 9. Indemnification of LIDA

9.1 Indemnification Obligations

Tenant shall indemnify, defend and hold LIDA harmless from any claims, damages, liabilities and expenses (including attorneys' fees and costs) for damage or injury to any person or any property arising from any breach or default on the part of Tenant in the performance or observation of any term of this Lease or out of the activities conducted by Tenant in the Premises or occurring in, on or about the Premises, or arising directly or indirectly from any act or omission of Tenant or any employee, agent or licensee of Tenant.

Section 10. Insurance

10.1 LIDA's Insurance

During the term of this Lease, LIDA shall maintain the following insurance policies:

(a) Comprehensive public liability insurance, including insurance against the assumed or contractual liability of LIDA hereunder, to afford protection to the limit for each occurrence of not less than $1,500,000 combined single limit for bodily injury, death and property damage; and

(b) Fire and extended coverage insurance on the Premises. Such insurance shall be in the amount of $_____. Tenant may request LIDA to increase the amount of such insurance upon sixty (60) days prior notice given by Tenant to LIDA and LIDA shall provide such increased coverage, if and to the extent such increased coverage is reasonably obtainable at commercially reasonable rates. Such insurance may be maintained under a blanket insurance policy covering the Premises and other real property owned or controlled by LIDA.

Tenant shall reimburse LIDA, on demand and as additional rent, for all premiums of such insurance (or in the case of insurance maintained under any blanket policy, for such portion of the premiums as LIDA reasonably determines is allocable to the Premises).

10.2 Tenant's Insurance

(a) During the term of this Lease, Tenant shall maintain comprehensive public liability insurance, including insurance against the assumed or contractual liability of Tenant hereunder, to afford protection to the limit for each occurrence of not less than $1,500,000 combined single limit for bodily injury, death and property damage. Such policy shall name LIDA as an additional insured, and such policy shall also contain a provision by which the insurer agrees that such policy shall not be canceled except after thirty (30) days written notice to LIDA. Such certificate thereof, shall be deposited with LIDA by Tenant not later than such date as Tenant or its agents, employees or contractors shall enter the Premises. Prior to the expiration

or termination of such policy, Tenant shall deliver to LIDA a new or renewal policy (or a certificate thereof).

(b) All personal property of Tenant on the Premises, and all fixtures and additions placed on the Premises by Tenant, shall be and remain at Tenant's sole risk, and LIDA shall not be liable for any damage to, or loss of such personal property arising from any cause whatsoever, unless such liability has been expressly assumed by LIDA hereunder.

10.3 Waiver of Subrogation

LIDA and Tenant, for themselves and their respective assignees, subrogees, successors and assigns, each hereby waive the right of recovery against the other, and the other's directors, officers, employees, and business guests, and any managing agent engaged by LIDA, and their respective heirs, administrators, executors, successors and assigns, for such loss or damage to the Premises, to any improvements situate thereon and to any personal property located therein as is caused by fire or by those casualties which are described in the extended coverage provisions of the insurance contracts maintained by LIDA or Tenant, as the case may be, or in the absence of such provisions in said contracts, by those casualties which commonly are described in the extended coverage provisions of such insurance contracts. The waiver of rights herein shall not be enforceable against a party if not permitted under the terms of the policies of insurance carried by the party. Each party agrees to request the consent of its insurer to the waiver herein contained, if such consent is required.

10.4 Actions of Tenant With Respect to Insurance

The Tenant shall not permit any use of the Premises which will make voidable any insurance on the property of which the Premises are a part, or on the contents of said property, or which shall be contrary to any law or regulation from time to time established relating to the use of the Premises for the purposes described in the Lease. The Tenant shall, on demand, reimburse LIDA, in full for all extra insurance premiums, if any, caused by the Tenant's use of the Premises. In the event the Tenant shall violate this section, LIDA shall give written notice of the reason for such violation to the Tenant and such violation shall be treated as a default under Section 11.1 hereof.

Section 11. Default

11.1 Defaults and Events of Default by Tenant

Each of the following shall constitute defaults ("Defaults"), or events of default ("Events of Default") hereunder:

(a) Monetary Default

If the Tenant shall default in the performance of any of its obligations to pay the Rent or any charge hereunder within ten (10) days after it is due;

(b) Non-Monetary Default

If the Tenant defaults in the fulfillment of any covenant or non-monetary obligation under the Lease and the Tenant has failed to cure such default within fifteen (15) days of receiving written notice from LIDA specifying such default (or, for those failures of obligations or covenants which are incapable of being cured within such fifteen (15) day period, if the Tenant has failed to commence diligently to correct the default specified or has not thereafter diligently pursued such correction to completion);

(c) Other Defaults

(i) If any assignment shall be made by the Tenant or any guarantor of the Tenant for the benefit of creditors;

(ii) If the Tenant's leasehold interest shall be taken on execution;

(iii) If a lien or other involuntary encumbrance is filed against the Tenant's leasehold interest or the Tenant's other property, and is not discharged within sixty (60) days thereafter;

(iv) If a petition is filed by the Tenant or any guarantor of the Tenant for adjudication as a bankrupt, or for reorganization or any arrangement under any of the provisions of any bankruptcy, receivership, insolvency or debtor relief law; or

(v) If an involuntary petition under any of the provisions of any bankruptcy, receivership, insolvency or debtor relief law is filed against the Tenant, or any guarantor of the Tenant, and such involuntary petition is not dismissed within sixty (60) days thereafter.

11.2 Remedies of LIDA

Upon the occurrence of an Event of Default, LIDA, in addition to any other remedies available to it in law or in equity, shall have the right to do any or all of the following:

(a) Terminate this Lease and all of Tenant's rights hereunder; provided, however, that such termination shall not relieve Tenant of liability for any amount due or accrued to LIDA, or for damages caused to LIDA by reason of Tenant's default, and such termination shall not affect or impair LIDA's other rights in the event of Default. Upon termination, Tenant shall immediately quit and surrender to LIDA the Premises, and LIDA may then, or at any time thereafter, with or without resort to process of any court, and by force or otherwise, enter into and repossess the Premises. If LIDA elects to terminate the Lease as aforesaid, Tenant expressly

waives the right to any notice required pursuant to Pennsylvania Landlord and Tenant Act, as amended, or as may otherwise be provided by law. LIDA shall be obligated to give only such notice as may specifically be required pursuant to the terms of this Lease.

(b) Declare immediately due and payable all rent for the balance of the then current term of the Lease, and any renewal term elected for in writing by Tenant.

(c) In the event of Default in the payment of Base Rent or additional rent by Tenant, or any breach of any covenant to pay any amount due or become due LIDA, Tenant does hereby empower any attorney of any court of record to appear for Tenant to confess money judgment against Tenant and in favor of LIDA for the sum of the Base Rent and additional rent then due and for the sum due by reason of any breach of any covenant by Tenant, with costs of suit and an attorney's commission of ten (10) percent for collection, and to issue execution thereon with release of all errors and without stay of execution. Such authority shall not be exhausted by one exercise thereof but judgment may be confessed as aforesaid from time to time as often as any default in the payment of any such sum shall occur.

(d) In the event of any Default by Tenant and the failure of Tenant to cure such default within the time provided herein, or at the expiration of the term of this Lease, Tenant hereby authorizes and empowers any attorney of any court of record to appear for Tenant and confess judgment against Tenant and in favor of LIDA in an amicable action of ejectment for the Premises with cost of suit, and to issue writs of execution and possession thereon with release of all errors and without stay of execution. Such authority shall not be exhausted by one exercise thereof but judgments in ejectment may be confessed as aforesaid from time to time as often as it be necessary for LIDA to obtain possession of the Premises in accordance with any provisions of this Lease.

11.2.1 <u>Damages for Tenant's Default</u>

If this Lease shall be terminated by reason of Default, LIDA shall use reasonable efforts to relet the whole, or any part of the Premises; provided, however, that such reletting may be for a period equal to, or greater or less than the remainder of the term of this Lease, at such rental and upon such terms and conditions as LIDA shall deem reasonable, to any tenant or tenants which it may deem suitable and satisfactory and for any use and purpose for which it may deem appropriate. In no event shall LIDA be liable to Tenant in any respect for failure to relet the Premises, or in the event of such reletting, for failure to collect the rent thereunder. Any sums received by LIDA on reletting in excess of the rent described in this Lease shall belong to LIDA. As damages for default resulting in termination, Tenant agrees to pay to LIDA, in addition to all amounts due at or before termination, the following:

(a) All reasonable expenses, including attorney's fees, incurred by LIDA in enforcing this Lease and recovering possession of the Premises;

(b) All reasonable costs and charges for the care of the Premises while vacant;

(c) All reasonable expenses incurred by LIDA in connection with the reletting of the Premises or any part thereof, including without limitation commissions, advertising expenses and the costs of restoring the Premises to its condition at the time of delivery of possession to Tenant;

(d) An amount equal to the Base Rent and additional rent required to be paid by Tenant under this Lease, less the rent, if any, collected by LIDA on reletting the Premises. All damages due by reason of expenses incurred by LIDA shall be due and paid by Tenant at such times as the expenses shall be incurred by LIDA. All other amounts specified in this subparagraph (d) hereof shall be due and payable by Tenant on the several days on which the Base Rent and additional rent would have become due and payable (any rent accelerated hereunder by reason of Tenant's Default being deemed due and payable on the date of acceleration) had this Lease not been terminated by reason of Tenant's Default.

11.3 LIDA's Right to Cure

At any time and without notice, LIDA may, but need not, cure any failure by the Tenant to perform its obligations under this Lease. Whenever LIDA chooses to do so, all costs and expenses incurred by LIDA in curing any such failure, including, without limitation, reasonable attorneys' fees together with interest on the amount of costs and expenses so incurred at an annual rate equal to eighteen percent (18%) or five percent (5%) over the prime rate of interest as published from time to time in the Wall Street Journal, whichever is greater, shall be paid by the Tenant to LIDA on demand and shall be recoverable as additional rent.

11.4 Surrender

Upon any termination of this Lease as the result of a Default, the Tenant shall quit and peacefully surrender the Premises to LIDA. Upon or at any time after any such termination, LIDA may have, hold, and enjoy the Premises and the right to receive all rental income of and from the same.

11.5 Right to Relet

At any time and from time to time after any such termination, LIDA may relet the Premises or any part thereof, in the name of LIDA or otherwise, for such term or terms (which may be greater or less than the period which would otherwise have constituted the balance of the Term) and on such conditions (which may include concessions or free rent) as LIDA, in its reasonable discretion, may determine, and may collect and receive rents therefor. LIDA shall in no way be responsible or liable for any failure to relet the Premises or any part thereof, provided LIDA exercised good faith efforts and reasonable diligence to do so, or for any failure to collect any rent due upon any such reletting.

11.6 Survival of Covenants

No such termination of this Lease shall relieve the Tenant of its liability and obligations under this Lease and all such liability and obligations shall survive such termination. Tenant shall defend, indemnify and hold LIDA harmless from all loss, cost, expense, damage or liability arising out of or in connection with such termination.

11.7 Right of Equitable Relief

If there shall occur a Default or threatened Default, LIDA shall be entitled to enjoin such Default or threatened Default and shall have the right to invoke any right and remedy allowed at law or in equity or by statute or otherwise as though re-entry, summary proceeding, and other remedies were provided for in this Lease.

11.8 Defaults and Events of Default by LIDA

In the event LIDA breaches any of LIDA's covenants, agreements, conditions, or warranties in this Lease, which default remains uncured after thirty (30) days written notice from the Tenant specifying such default (or, for those failures of obligations or covenants which are incapable of being cured in a thirty (30) day period, if LIDA has failed to commence diligently to correct the default specified or has not thereafter diligently pursued such correction to completion), it shall be deemed a default hereunder by LIDA.

11.9 Remedies of Tenant

Upon the occurrence of an event of default by LIDA which remains uncured beyond all applicable notice and grace periods, the Tenant shall have the right to seek monetary damages from LIDA, but shall not have the right to terminate this Lease.

11.10 Notice to Mortgagee

No act or failure to act on the part of LIDA which would entitle the Tenant under the terms of this Lease or by law to be relieved of the Tenant's obligations hereunder shall result in a release or termination of such obligations unless:

(a) the Tenant shall have first given written notice of LIDA's act or failure to act to LIDA's mortgagees of record, if any, specifying the act or failure to act on the part of LIDA; and

(b) such mortgagees, after receipt of such notice, have had the opportunity to cure such default(s) within a reasonable time thereafter;

but nothing contained in this section shall be deemed to impose any obligation on any such mortgagees to correct or cure any such condition. "Reasonable time" as used above shall mean a

period of not less than sixty (60) business days and shall include (but not be limited to) a reasonable time to obtain possession of the Premises if the mortgagee elects to do so and a reasonable time to correct or cure the defaults if such defaults are determined to exist. Notwithstanding the foregoing, Tenant shall have no obligation to provide the notice required hereunder unless and until LIDA or the mortgagee has given notice to Tenant of the existence of any such mortgagee and the address thereof.

11.11 Bind and Inure; Limitation of LIDA's Liability

The obligations of this Lease shall run with the land, and this Lease shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns. No individual, officer, director, agent, or employee of LIDA shall be personally liable under this Lease and the Tenant shall look solely to LIDA's interest in the Premises in pursuit of its remedies upon a default beyond applicable notice and grace periods of LIDA hereunder, and the general assets of LIDA, its directors, officers, agents, and employees shall not be subject to levy, execution, or other enforcement procedure for the satisfaction of the remedies of the Tenant.

Section 12. Miscellaneous

12.1 Amendments to Lease

None of the covenants, agreements, provisions, terms and conditions of this Lease shall in any manner be amended, changed, altered, waived or abandoned except by a written instrument, signed, sealed and mutually agreed upon by the parties hereto. Such instrument shall not be void for want of consideration. Furthermore, the parties agree that following the acquisition in fee of the LIDA Premises by LIDA, LIDA in good faith may make reasonable and necessary adjustments to this Lease to reflect this changed ownership status, including, without limitation, adjustments regarding the provision of services and utility services to the Premises, and Tenant hereby agrees to execute LIDA's written instrument evidencing the same.

12.2 Subordination

This Lease shall be subject and subordinate to any and all mortgages granted now or at any time hereafter constituting a lien or liens on the property of which the Premises are a part and to each advance made or hereafter to be made under any mortgage, and to all renewals, modifications, consolidations, replacements, and extensions thereof and all substitutes therefor. The Tenant shall, when requested, execute and deliver such written instruments as shall be necessary to show the subordination of this Lease to the mortgage(s), provided that the holder thereof executes and delivers to the Tenant an instrument reasonably satisfactory to the Tenant and to the effect that the holder shall not disturb the Tenant's possession of the Premises under this Lease so long as the Tenant is not in default hereunder.

12.3 Force Majeure

Except in the case of payment of Rent, in any case where either party hereto is required to do any act, delays caused by or resulting from war or other national emergency, fire, flood or other casualty, unusually severe weather or other causes beyond such party's reasonable control, shall not be counted in determining the time during which such act shall be completed, whether such time be designated by a fixed date, a fixed time or "a reasonable time," and such time shall be deemed to be extended by the period of the delay.

12.4 Notices

All notices, demands, requests and other instruments which may or are required to be given by either party to the other under the Lease shall be in writing, and shall be deemed to have been properly given if (a) delivered by hand, or facsimile, if a receipt therefore is obtained, or (b) sent by United States certified mail, return receipt requested, postage prepaid, addressed to LIDA or the Tenant at the addresses contained herein, or at such other address or addresses as LIDA or the Tenant from time to time may have designated by written notice to the other party.

12.5 Successors and Assigns

The Lease shall be binding upon and shall inure to the benefit of the parties hereto and their respective representatives, successors and assigns.

12.6 Integrated Agreement

The Lease incorporates all discussions and negotiations between LIDA and the Tenant concerning the matters included herein. No such discussions or negotiations shall limit, modify or otherwise affect the provisions hereof.

12.7 Partial Invalidity

If any provision of the Lease is held to be invalid or unenforceable by a court of competent jurisdiction, all of the other provisions hereof shall remain in full force and effect and shall be liberally construed in favor of LIDA in order to effect the provisions of the Lease.

12.8 Choice of Law; Jurisdiction

The Lease shall be governed, construed and enforced under the laws of the Commonwealth of Pennsylvania. Furthermore, the Tenant agrees that any and all legal actions hereunder or related to the Lease shall be pursued in the courts located in the Commonwealth of Pennsylvania and agrees to submit to the jurisdiction of the courts of the Commonwealth of Pennsylvania for such purposes.

12.9 Headings

The use of headings is for convenience of reference only and does not alter the meaning of any section.

12.10 Anti-Waiver Clause

No delays or omissions by LIDA or the Tenant in exercising or enforcing any of LIDA's or the Tenant's rights and remedies shall constitute a wavier of or otherwise impair any such right or remedy, nor shall it be construed to be a waiver of any such default or an acquiescence therein. A waiver on one occasion shall not operate as a bar to or waiver of any such right or remedy on any future occasion, nor shall it be deemed a continuing waiver. No single or partial exercise of LIDA's or the Tenant's rights or remedies, and no other agreement or transaction of whatever nature entered into between LIDA and the Tenant at any time, whether before, during or after the date hereof, precludes any other or further exercise of LIDA's or the Tenant's rights and remedies.

12.11 Cumulative Nature of Rights

All of LIDA's or the Tenant's rights hereunder shall be cumulative and not exclusive of any rights or remedies it would otherwise have and LIDA or the Tenant, as the case may be, may exercise such rights or remedies at any such time or times and in such order of preference as LIDA or the Tenant, in its sole discretion, may determine.

12.12 Counterparts

The Lease may be executed in any number of counterparts and by the parties hereto in separate counterparts, each of which when so executed shall be deemed an original, but all counterparts together shall constitute one and the same instrument.

12.13 Reservations of Rights under the Interagency Agreement

The parties acknowledge the existence of the LEAD Interagency Agreement ("IAG"). The parties agree that should any conflict arise between the terms of the IAG, as it presently exists or may be amended, and the provisions of this Lease, the terms of the IAG will take precedence.

12.14 Exhibits and Riders

The Exhibits attached hereto are made a part of the Lease for all purposes.

12.15 Brokerage

The parties acknowledge that no brokerage commission is due to any person in connection with this Lease.

12.16 Waiver of Trial by Jury and Counterclaims

The parties hereto shall and they do hereby waive trial by jury in any action, proceeding or counterclaim brought by either of the parties hereto against the other on any matters whatsoever arising out of or in any way connected with this Lease, the relationship of LIDA and Tenant, Tenant's use or occupancy of the Premises, and/or any claim of injury or damage. In the event LIDA commences any proceedings for the non-payment of rent, Tenant will not interpose any counterclaim of whatever nature or description in any such proceedings except such as arise from any claim of breach or non-performance by LIDA or any related party of any provision of this Lease. This shall not, however, be construed as a waiver of Tenant's right to assert such claims in any separate action or actions brought by Tenant.

12.17 Third Party Beneficiary

Nothing contained in this Lease shall be construed so as to confer upon any other party the rights of a third party beneficiary except rights contained herein for the benefit of a mortgagee.

12.18 Financial Information

Within seven (7) days of receipt of a written request by LIDA to Tenant, Tenant shall submit to LIDA current financial information of Tenant, the general partners of Tenant (if Tenant is a general or limited partnership), and any guarantor of the Lease. Such financial information shall include a balance sheet, profit and loss statement, cash flow projection and such other financial information as LIDA shall reasonably request.

All such financial information shall be prepared in accordance with generally accepted accounting principals and practices consistently applied. If such financial information is not prepared and certified by a certified public accountant, it shall be certified as true and correct by the applicable party to which such information relates. Landlord may provide such financial information to any current or proposed mortgagee of the Premises.

12.19 Economic Development Administration ("EDA") Provisions

The Tenant acknowledges that the Premises has been or may be improved, in part, with funding from the United States Economic Development Administration, Project No. 01-49-03885, and agrees to use the Premises in a manner consistent with the authorized general and special purpose of the EDA grant.

To comply with the terms and conditions of the EDA grant, the Tenant agrees as follows:

(a) Tenant shall provide services without discrimination to all persons without regard to their age, race, color, religion, sex, handicap or national origin. If and to the extent required by LIDA or the EDA, Tenant shall execute a certification in such form as may be required by the EDA to certify such compliance.

(b) Tenant shall comply with any and all applicable federal, state and local environmental statutes, rules, executive orders and regulations during the term of this Lease.

IN WITNESS WHEREOF, this Lease is executed on the above date.

LETTERKENNY INDUSTRIAL
DEVELOPMENT AUTHORITY

By:_____

Attest:_____

_____

By:_____

Attest:_____

EXHIBIT A

Description of the Premises

EXHIBIT B

Leasehold Improvements - LIDA Responsibilities

EXHIBIT C

Leasehold Improvements - Tenant Responsibilities

June 4, 2008

Mr. Bryan Hoke
BRAC Environmental Coordinator
Letterkenny Army Depot
ATTN: DAIM-BO-N-LE, Building 14
1 Overcash Avenue
Chambersburg, PA 17201-4150

Re: Letterkenny Industrial Development Authority Lease Provisions

Dear Mr. Hoke:

Pursuant to your request, I have attached a copy of both the general lease format and sublease format used by LIDA in connection with the lease and sublease of transfer parcels acquired from the Army pursuant to the Memorandum of Agreement.

With respect to the Lease Agreement, you will note that the fourth recital references the Memorandum of Agreement and the fifth recital references the three quitclaim deeds from the Army and defines them collectively as the "Army Deeds." Section 2.6 of the Lease provides that the provisions of both the MOA and the Army Deeds are binding upon the tenant and obligates the tenant to comply with all of the applicable provisions of such documents. Accordingly, the Lease Agreement incorporates by reference restrictions set forth in the Army Deeds.

With respect to the Sublease, you will note that the fourth recital incorporates the Memorandum of Agreement. Section 2.6 of the Sublease provides that the provisions of the MOA are binding upon the subtenant and obligates the subtenant to comply with all of the applicable provisions thereof. In addition, this section further provides that all provisions of the Lease in Furtherance of Conveyance are binding upon the subtenant and the subtenant agrees to comply with such terms.

Please let me know if you require any further clarification.

With kind regards,

Very truly yours,

LETTERKENNY INDUSTRIAL
DEVELOPMENT AUTHORITY

John M. Van Horn
Executive Director

2237535.1

LEASE AGREEMENT

This Lease Agreement (the "Lease") is made as of the _____ day of _____, _____, by and between LETTERKENNY INDUSTRIAL DEVELOPMENT AUTHORITY ("LIDA"), a Pennsylvania non-profit municipal industrial development authority, having its principal office at 5121A Coffey Avenue, Chambersburg, Pennsylvania 17201, and _____, a _____, with its principal office at _____ ("Tenant").

WITNESSETH THAT

WHEREAS, pursuant to the Defense Base Closure and Realignment Act of 1990, the military installation known as the Letterkenny Army Depot, Chambersburg, Pennsylvania ("LEAD"), is scheduled to be realigned; and

WHEREAS, it is the intention of the United States, acting by and through the Department of the Army ("Army"), to retain certain portions of LEAD in order to complete the Army's ongoing mission ("Retained Property"); and

WHEREAS, pursuant to a letter dated August 2, 1997 from the Office of the Under Secretary of Defense, LIDA was granted the authority to oversee and implement the civilian reuse of those portions of LEAD scheduled to be realigned and transferred ("Transfer Parcels"); and

WHEREAS, pursuant to the terms of a Memorandum of Agreement dated November 5, 1998, the terms and conditions of the transfer of the Transfer Parcels to LIDA were established. (The Memorandum of Agreement together with all exhibits attached thereto is hereinafter referred to as the "MOA.") A copy of the MOA is on file at the offices of LIDA and available for review by Tenant; and

WHEREAS, pursuant to the terms of (i) a quitclaim deed dated November 6, 1998 and recorded in the Recorder's Office in and for Franklin County, Pennsylvania in Record Book 1414, Page 204, (ii) a quitclaim deed dated May 3, 2002 and recorded in the Recorder's Office aforesaid in Record Book 1904, Page 388, and (iii) a quitclaim deed dated March 15, 2004 and recorded in the Recorder's Office aforesaid in Record Book 2424, Page 440 (collectively, the "Army Deeds"), LIDA has acquired from the Army certain parcels of land within the Transfer Parcels, with buildings and improvements thereon (said land, buildings and improvements being collectively referred to as the "LIDA Premises"); and

WHEREAS, LIDA intends to lease a portion of the LIDA Premises ("Premises") to the Tenant pursuant to the terms and conditions hereinafter set forth.

NOW, THEREFORE, for good and valuable consideration, the parties hereto agree as follows:

Section 1. Definitions

1.1 Definitions

The terms set forth below, as used in the Lease, shall have the following meanings:

(a) Original Address of LIDA

5121A Coffey Avenue
Chambersburg, Pennsylvania 17201

(b) Original Address of Tenant

_____
_____

(c) Permitted Uses

_____, and for no other purpose whatsoever.

(d) Base Rent

_____

(e) Premises

_____ as more fully shown on Exhibit A.

(f) Tenant

_____

(g) Term

_____, beginning on the Term Commencement Date and ending at 12:00 midnight on the Termination Date.

(h) Term Commencement Date

_____

(i) Termination Date

_____ years from the Date of Occupancy, unless the Lease is terminated pursuant to the terms hereof.

Section 2. Premises, Lease Term, and Incorporation of MOA and Army Deeds

2.1 Premises

LIDA does hereby lease to the Tenant, and the Tenant does hereby lease from LIDA, the Premises, in accordance with the terms of this Lease.

2.2 Term

The Tenant shall have and hold the Premises for the Term commencing on the Date of Occupancy, as defined in Section 2.3 below, and ending on the Termination Date, unless sooner terminated pursuant to the terms hereof.

2.3 Date of Occupancy

The Date of Occupancy shall be the Term Commencement Date, unless said date is modified by written agreement of LIDA and Tenant.

2.4 Work by LIDA

Prior to the Date of Occupancy, LIDA shall perform such construction, renovation and finishing work as is identified on Exhibit B. LIDA shall not be liable to Tenant for any delay in completion of its work resulting from any casualty, labor trouble, material or energy shortage, act of God, failure of Tenant to furnish LIDA with plans and specifications concerning Tenant's interior layouts or to perform any of Tenant's work necessary for completion of LIDA's work, or for any other cause beyond the control of LIDA. No change shall be made in the work to be done by LIDA, except upon written change order signed by LIDA and Tenant. All such work shall be done in a good and workmanlike manner and in accordance with all applicable federal, state and local requirements.

2.5 Tenant Improvements

The Tenant shall perform such construction, renovation and finishing work as is identified on Exhibit C. All such work shall be done in a good and workmanlike manner and in accordance with all applicable federal, state and local requirements.

2.6 Incorporation of Terms of the MOA and the Army Deeds

All restrictive provisions contained in the MOA and the Army Deeds which are applicable to the Premises shall be binding upon the Tenant and the Tenant shall comply with all applicable terms thereof.

Section 3. Rent

3.1 Commencement of Obligation to Pay Base Rent

The obligation of the Tenant to pay the Base Rent shall commence on the Date of Occupancy.

3.2 Rent Amount

The Tenant agrees to pay and LIDA agrees to accept the Base Rent for the Premises. Except as hereinafter provided, the Base Rent shall be payable in twelve (12) equal monthly installments due and payable in advance on the first day of each calendar month during the Term of the Lease.

The monthly installments of Base Rent shall be prorated with respect to any fractional month during the Term. Any extension of time for the payment of any monthly installment of Base Rent, or the acceptance of Rent after the time at which it is payable, shall not be a waiver of the rights of LIDA to insist on prompt payment of Rent at any time thereafter. The Base Rent plus all additional rent and other sums payable by Tenant hereunder are together referred to as the "Rent."

3.3 Late Payment of Rent

If any installment of Base Rent is not received in full within ten (10) days of its due date, then, in addition to any other rights or remedies of LIDA hereunder, the Tenant shall pay a late payment charge equal to the greater of 7% of such installment or $250. If any Rent is not paid in full within thirty (30) days after it is due, interest on the unpaid balance shall accrue and be payable at the rate of eighteen percent (18%) per annum until paid in full.

3.4 Place of Payment of Rent

All payments of Rent shall be made by the Tenant to LIDA without notice or demand at such place as LIDA may from time to time designate in writing. The initial place for payment of Rent shall be Letterkenny Industrial Development Authority, 5121A Coffey Avenue, Chambersburg, Pennsylvania 17201.

3.5 Security Deposit

The Tenant agrees to pay to LIDA prior to the Date of Occupancy as a security deposit a sum equal to one (1) month Base Rent ("Security Deposit"). Upon the occurrence of a Default, as said term is defined in Section 11 hereof, LIDA may apply the Security Deposit, or any part thereof, including any interest then accrued thereon, towards the curing of any such Default and/or towards compensating LIDA for any loss or damage arising from any such Default.

LIDA may commingle the Security Deposit with other funds of LIDA, but shall not be liable to the Tenant for the payment of interest thereon or profits therefrom. LIDA may assign the Security Deposit to any subsequent lessee or owner of the Premises and thereafter LIDA shall have no further liability to the Tenant with respect thereto. As soon as reasonably practicable after the Termination Date, LIDA shall: (a) inspect the Premises; (b) make such payment from the Security Deposit as may be required to cure any outstanding Defaults hereunder; and (c) if no Default is then continuing, pay the balance of the Security Deposit to the Tenant.

Section 4. Utilities, Services, Taxes and Other Expenses

4.1 Utilities

Water and sewer services for the Premises are provided by the Franklin County General Authority ("FCGA"). The Tenant agrees to pay directly to FCGA prior to the due date therefore all charges for such water and sewer services in accordance with the schedule of rates from time to time adopted by FCGA.

Electric service to the Premises is provided by LIDA through Allegheny Power pursuant to the terms of an Operating Agreement between Allegheny Power and LIDA dated December 14, 1998. For the duration of the Operating Agreement, the electric service provider for the Premises shall continue to be LIDA through Allegheny Power. Electric service shall be submetered by LIDA and billed to Tenant by LIDA at such schedule of rates and facility charges as LIDA shall adopt from time to time, which such rates and facility charges shall not grant any unreasonable preference or advantage as to all properties serviced thereby. Tenant acknowledges that it will have no choice of an alternative electric generation supplier during the term of the Lease.

The Tenant shall be responsible for reimbursing LIDA upon demand as additional rent for any utility charge, user fee, etc., as may be related to the provision of utility services to the Premises for which LIDA is billed or charged directly or indirectly, and shall comply with any utility agreements or contracts in relation thereto.

LIDA shall not be liable to Tenant for any interruption of, or failure to provide, electrical services, heating, air conditioning, or other utility service which is due to any energy shortage,

power failure, or other cause beyond the control of LIDA, or is reasonably required in order to enable LIDA to perform maintenance or repairs within the Premises or elsewhere in LIDA Premises, or which occurs during any period when Tenant is in default in payment of any sum due or to become due LIDA hereunder.

4.2 Municipal Services

Certain municipal services shall be provided by the Army in accordance with the terms and conditions of the MOA. If and to the extent the Army imposes a charge for such services, the cost thereof as reasonably determined by LIDA shall be reimbursed by Tenant to LIDA, as additional rent, with the next installment of rent due following notice of such cost delivered by LIDA to Tenant.

4.3 Industrial Wastewater Treatment

The Tenant agrees that the treatment of any industrial waste generated by the Tenant that requires pre-treatment prior to entering the sanitary sewer system will be the responsibility of the Tenant, and Tenant shall comply with all laws, statutes and regulations applicable to the treatment thereof. The Tenant further agrees that the Army Industrial Wastewater Treatment Facility will not be available to the Tenant for pretreatment purposes, and that the Tenant will have to provide such treatment through the use of on-site facilities approved by LIDA.

4.4 Taxes

The Tenant agrees to pay all property taxes, user charges, payments in lieu of taxes, other local or state assessments on or against the Premises, including, without limitation, all improvements thereto, income generated therefrom, and personal property contained therein, during the Term of the Lease. To the extent any such taxes or charges are not assessed against the Premises separately, but are assessed against the LIDA Premises as a whole, the Tenant shall pay its proportionate share of such taxes or charges, said share to be determined by LIDA and based on the square footage of the Premises as a percentage of the square footage of the LIDA Premises, including a proportionate share of all common areas and facilities within the LIDA Premises attributable to the Premises. With regard to taxes and charges assessed directly against the Tenant, the Tenant shall pay the appropriate taxing authority directly, and with regard to the Tenant's proportionate share of taxes or charges as calculated by LIDA, the Tenant shall pay said proportionate share to LIDA as additional rent.

4.5 Net Lease

The Base Rent and all other sums payable by Tenant to LIDA hereunder shall be absolutely net to LIDA. LIDA shall not be required to pay any expense of any kind with respect to the Premises during the term of the Lease, except as specifically hereinafter set forth. In spite of the failure of this Lease to mention specifically that a particular item of expense shall be paid

by Tenant during the term of the Lease, the Tenant shall relieve LIDA of and pay, as additional rent hereunder, all costs, charges and expenses of every kind whatsoever which may be incurred or result from or be incidental to the ownership, operation and maintenance of the Premises and the improvements thereon or to be placed thereon. Without limiting the obligations of Tenant by the following enumeration, it is understood by the parties that Tenant shall pay all taxes, sewer rents, water charges, assessments and other impositions and levies of every kind and nature whatsoever applicable to any period during the term of this Lease, which may hereafter be imposed, charged, assessed or levied upon, against or with respect to the Premises or which may become due and payable with respect to any improvements placed thereon or any activity conducted thereon or which may be imposed, assessed, charged or levied upon, against or with respect to the leasehold estate hereby created or upon the reversionary estate of LIDA under and by virtue of any present or future law, rule, requirement, order, direction, ordinance or regulation of any governmental or other lawful authority whatsoever and which shall become due and payable during the term of this Lease. LIDA shall promptly notify and forward to Tenant all bills, notices and other communications pertaining to all taxes, sewer rents, water charges, assessments and other impositions and levies of every kind and nature whatsoever, general or specific, ordinary or extraordinary, applicable to any period during the term of this Lease. Nothing herein contained shall be deemed to require the Tenant to pay or discharge any liens or mortgages of any kind whatsoever which may hereafter be placed upon the Premises by the affirmative act of LIDA.

4.6 No Set-Off

Payments made by the Tenant pursuant to any provision of Section 4 shall in no event be considered additional rent or be set-off against Base Rent due to LIDA hereunder.

Section 5. Use of Premises

5.1 Permitted Uses of the Premises

The Tenant covenants and agrees to use the Premises only for the Permitted Uses and for no other purpose. Any change in such use shall require the prior written approval of LIDA, provided that any use of the Premises must conform with all applicable requirements of, and regulations promulgated under the authority of, the MOA. In addition, Tenant shall at all times comply with all covenants, conditions and restrictions set forth in the Declaration of Covenants, Conditions and Restrictions recorded in the Recorder's Office in and for Franklin County, Pennsylvania in Volume 1414, Page 294.

5.2 Use of Common Facilities

If and to the extent LIDA incurs costs and expenses in connection with the operation and maintenance of any common areas of the Cumberland Valley Business Park or any other portions of the LIDA Premises which are used in common by Tenant and other tenants or

occupants of the LIDA Premises, Tenant shall pay to LIDA, as additional rent, a common area maintenance charge to reimburse LIDA for such costs and expenses, such common area maintenance charge to be reasonably determined from time to time by LIDA and payable with the first monthly installment of Base Rent due after notice of the amount thereof has been delivered by LIDA to Tenant.

5.3 Limitations on Use

The Tenant will not make or permit any occupancy or use of any part of the Premises for any hazardous, offensive, dangerous, noxious, or unlawful occupation, trade, business or purpose which is contrary to any federal or state law, rule, regulation, permit or license, or which is contrary to the MOA, and will not cause, maintain or permit any nuisance in, at or on the Premises.

5.4 No Waste

The Tenant will not cause or permit any waste, overloading, stripping, damage, disfigurement, or injury of or to the Premises, or any part thereof, or to the LIDA Premises, except for the purposes of renovating or altering the Premises as set forth herein. The Tenant will repair promptly at its own expense any damage to the Premises and, upon demand, shall reimburse LIDA as additional rent for the cost of the repair of any damage to the LIDA Premises caused by or arising from the actions or omissions of the Tenant, its agents, contractors, employees and invitees.

5.5 Quiet Enjoyment

LIDA hereby warrants and covenants that upon payment of the Rent, and upon the performance by Tenant of all the terms and covenants of this Lease, the Tenant shall have peaceful and quiet use and possession of the Premises without hindrance or interruption on the part of (a) LIDA, (b) any other person(s) for whose actions LIDA is legally responsible, or (c) any person claiming by, through or under LIDA, except as herein provided and as provided in the MOA.

5.6 Entry for Inspections and Repairs

LIDA or its agents may at reasonable times enter the Premises to make repairs and view the Premises. LIDA shall give the Tenant a minimum of twenty-four (24) hours notice of such visits, provided, however, that LIDA may enter the Premises at any hour and without twenty-four (24) hours notice in the case of an emergency affecting the Premises, the LIDA Premises or adjacent sites.

LIDA or its agents may enter to show the Premises to prospective tenants or prospective purchasers of the Premises only after a minimum of twenty-four (24) hours notice to the Tenant.

Section 6. Maintenance, Repairs, and Alterations of the Premises

6.1 Representations

LIDA has made no representations, warranties or undertakings as to the present or future condition of the Premises or the fitness or suitability of the Premises for any particular use, and shall not be liable in any way, or be required to improve or alter the Premises to make it suitable for the current or future use by the Tenant. The Tenant acknowledges that the Premises may not currently be in compliance with applicable building codes, the Americans with Disabilities Act or other applicable federal, state or local law and regulations, and Tenant shall, at its sole expense, undertake to cause the Premises to comply with such provisions. The Tenant shall not occupy the Premises until a Certificate of Occupancy has been issued by the appropriate local official. Tenant agrees to take the Premises in as-is condition.

6.2 LIDA's and Tenant's Maintenance Obligations

(a) Tenant shall keep the Premises and all improvements thereon, whether structural or nonstructural, including all utility systems serving the Premises exclusively, in good order, condition and repair, at its expense making all repairs, alterations, replacements and modifications thereto. At the expiration or earlier termination of the term of this Lease, Tenant shall surrender the Premises in the same condition as when received, except ordinary wear and tear and damage by fire or other casualty of the kind insured against in standard policies of fire insurance with extended coverage.

(b) Tenant shall keep the Premises in a neat, clean and sanitary condition at all times. Tenant shall keep all walkways and stairways intended for pedestrian use free of ice and snow. If Tenant shall at any time fail to maintain the exterior portion of the Premises as required herein, LIDA, at its option, may provide such maintenance and the cost thereof, at the regular rates from time to time established by LIDA for such services, shall be additional rent due and payable upon demand by LIDA.

(c) LIDA shall provide snow removal to any paved parking areas located on the Premises, if and to the extent such snow is plowable. In addition, LIDA shall provide such lawn mowing and other lawn care to the Premises as LIDA determines reasonably necessary.

(d) Except in the event of casualty, LIDA shall have no obligation to repair, maintain, alter or modify the Premises or any part thereof. Tenant shall give notice to LIDA of any defect in, or need for repair of, the Premises which it is LIDA's obligation to correct. LIDA shall not be obligated to perform any maintenance or repair otherwise required of LIDA, unless notice of the need thereof has been given by Tenant to LIDA. LIDA shall not be liable to Tenant or any person claiming through or under Tenant, for any bodily injury or damage to property resulting from the failure to make any repair or replacement, unless the damage or bodily injury results

from the negligent failure or refusal of LIDA to make a bona fide effort to make such repair within a reasonable time following notice by Tenant of the need for such repair.

6.3 Glass

The Tenant shall be responsible for the prompt replacement of broken plate and other glass in the Premises, regardless of the source of such breakage.

6.4 Cleaning Services; Trash Removal

The Tenant shall be responsible for securing and contracting for janitorial and cleaning services for the Premises. The Tenant shall be responsible for and pay for the regular collection and removal of all trash generated by its operations on the Premises.

6.5 Signs

The Tenant shall seek and receive the written approval of LIDA prior to erecting signs of any size on the exterior of the Premises, or on the LIDA Premises, including all common areas. The Tenant shall, in addition, be required to comply with all other applicable laws, regulations and permits relating to the erection and approval of signs.

6.6 Alterations and Additions

After Tenant shall have completed any work required to be performed at the commencement of the Term, Tenant shall not make any substantial alterations, additions or improvements to the Premises unless it shall first obtain from LIDA written approval of the plans, design, layout and specifications therefore.

All floor, ceiling and wallcoverings, wall and ceiling light fixtures, interior partitions and doors, kitchen and lavatory fixtures, built-in counters, shelving and cabinetry, plumbing, wiring and other utility systems installed by Tenant in the Premises shall become the property of LIDA upon expiration or earlier termination of the Lease. In addition, all furniture, equipment and trade fixtures provided by LIDA for Tenant's use shall continue to be the property of LIDA. LIDA shall keep a list of all such furniture, equipment and trade fixtures in Tenant's possession in its central offices.

All furniture, equipment and trade fixtures installed by Tenant in the Premises shall remain the property of Tenant and may be removed at the expiration or earlier termination of this Lease, provided Tenant shall not at such time be in default under any covenant or condition contained herein and provided, further, that in the event of such removal, Tenant shall repair the damage caused by such removal and restore the Premises to its original order and condition. Any property of Tenant remaining on the Premises following expiration or termination of this Lease may, at LIDA's sole option, be deemed abandoned by Tenant and Landlord may dispose of any such property without liability to Tenant of any kind whatsoever.

Section 7. Tenant's Covenants

7.1 Rent

The Tenant agrees to pay promptly, in the time periods set forth herein, Rent due hereunder.

7.2 Compliance with Applicable Law

The Tenant shall comply with all applicable laws, bylaws, orders and regulations of federal, state, county, local and other governmental authorities, including, without limitation, any of LIDA's rules and regulations which are from time to time provided to the Tenant in writing, with regard to the Tenant's use and occupancy of the Premises.

7.3 Removal of Liens

The Tenant shall not cause or allow any liens of any kind to be filed or placed against the Premises or the LIDA Premises. If any liens are so filed, the Tenant shall, as soon as is reasonably possible, but not later than thirty (30) days after receiving written notice of such lien, at its sole cost and expense, take whatever action is necessary to cause the satisfaction and discharge of such lien or the release of such lien by bond. The Tenant further agrees to pay promptly when due all taxes, fees or charges which may be imposed on the Tenant's real or personal property located on the Premises.

7.4 Hazardous Substances

The Tenant (a) shall not use or allow the Premises to be used for the release, storage, use, treatment, disposal or other handling of any hazardous substance, material, waste or oil, as said terms are defined by Section 101(14) of the Comprehensive Environmental Response, Compensation Liability Act (42 U.S.C. sec. 9601(14)), Section 3001(a) of the Resource Conservation and Recovery Act (42 U.S.C. §6921(a)), the Hazardous Sites Cleanup Act (HSCA), 35 P.S. Section 6020 101 et seq., and regulations promulgated pursuant thereto ("Hazardous Substance"), without the prior written consent of LIDA, (b) shall give prompt written notice to LIDA and all appropriate regulatory authorities of any such release or threatened release of any Hazardous Substances on the Premises, the LIDA Premises or LEAD caused by or related to the activity of the Tenant, its agents, employees, contractors or invitees, and (c) at its own expense, shall promptly contain and remediate any such release in accordance with applicable law and regulation. In this regard, the Tenant specifically agrees to comply with all provisions of the MOA regarding environmental matters.

7.5 Assignment and Subleasing

The Tenant shall not assign, sublet, mortgage, pledge or encumber (collectively referred to herein as "Transfer") this Lease without LIDA's prior written consent. As used herein, the

term "assign" shall be deemed to include, without limitation, any transfer of the Tenant's interest in the Lease by operation of law. Consent by LIDA, whether express or implied, to any Transfer shall not constitute a waiver of LIDA's right to prohibit any subsequent Transfer; nor shall such consent be deemed a waiver of any of LIDA's rights under this Lease upon any subsequent Transfer.

If the Tenant intends to enter into a Transfer which requires LIDA's consent, the Tenant shall so notify LIDA in writing, stating:

(a) the name of the proposed transferee;

(b) a current financial statement of the proposed transferee;

(c) the exact terms of the Transfer; and

(d) a precise description of the portion of the Premises intended to be subject thereto.

Within thirty (30) days of receipt of such writing, LIDA shall either consent to or deny the request for such Transfer, stating in writing its reason therefor.

If LIDA consents to such Transfer, the Tenant shall:

(a) enter into such Transfer on the exact terms described to LIDA within thirty (30) days of LIDA's consent or comply again with the terms of this section; and

(b) remain liable for the payment and performance of the terms and covenants of this Lease.

If the Tenant enters into such a Transfer, the Tenant shall pay to LIDA when received the excess, if any, of amounts received in respect of such Transfer over the Rent.

7.6 <u>Surrender</u>

The Tenant shall, on the Termination Date or on the date of an earlier termination of the Lease, remove all of the Tenant's goods and effects from the Premises. The Tenant shall peaceably vacate and surrender to LIDA the Premises and deliver all keys, locks thereto and other fixtures connected thereto, unless LIDA requests removal of the same, and all alterations and additions made to or upon the Premises, in the same condition as they were on the Date of Occupancy, or as they were put in during the Term hereof, reasonable wear and tear or taking or condemnation by public authority only excepted. In the event of the Tenant's failure to remove any of the Tenant's property from the Premises, LIDA is hereby authorized at its sole option, without liability to the Tenant for loss or damage, and at the sole risk of the Tenant, (a) to remove and store any of the property at the Tenant's expense, or (b) to retain said property under

LIDA's control or (c) to sell at public or private sale, after ten (10) days notice to the Tenant at its address last known to LIDA, any or all of the property not so removed, and to apply the net proceeds of such sale to the payment of any sum due hereunder, (d) to destroy such property, or (e) to otherwise lawfully deal with such property.

7.7 Acceptance of Surrender

No surrender to LIDA of the Lease or of the Premises or any part thereof or of any interest therein by the Tenant shall be valid or effective unless required by the provisions of the Lease or unless agreed to and accepted in writing by LIDA. No act on the part of any representative or agent of LIDA, and no act on the part of LIDA, other than the acceptance of such a written agreement by LIDA as provided above shall constitute or be deemed an acceptance of any such surrender.

7.8 Holding Over

If the Tenant or anyone claiming under the Tenant shall remain in possession of the Premises or any part thereof after the expiration of the Term, without any agreement in writing between LIDA and the Tenant with respect thereto, the person remaining in possession shall be deemed a tenant at sufferance and shall pay two (2) times the monthly Base Rent provided herein for use and occupancy. Such person remaining in possession shall be deemed a tenant from month to month, subject to the provisions of this Lease, insofar as the same may be made applicable to a tenant from month to month.

7.9 Tenant's Estoppel

The Tenant shall, at any time and from time to time during the Term of this Lease, after receipt of prior written notice from LIDA or LIDA's then current or prospective mortgagee, execute, acknowledge and deliver a written statement certifying that this Lease is in full force and effect subject only to such modifications as may be set out; and that the Tenant is in possession of the Premises and is paying Rent as provided in this Lease; and the date the Rent is paid; and that there are not any uncured defaults on the part of LIDA, or specifying such defaults if they are claimed. Any such statement may be relied upon by any prospective transferee or mortgagee of all or any portion of the Premises, or any assignee of any such persons. If the Tenant fails to deliver such statement in a timely manner, the Tenant shall be deemed to have acknowledged that this Lease is in full force and effect, without modification, except as may be represented by LIDA, and that there are no uncured defaults in LIDA's performance.

Section 8. Fire, Casualty, and Eminent Domain

8.1 Casualty to Premises

If, during the Term of this Lease, the building shall be damaged by fire, storm, act of God, or other casualty, in such manner that the Premises are rendered untenantable in whole or in part, LIDA shall promptly commence and diligently proceed to restore the building at its expense to its condition prior to the occurrence of such casualty (exclusive of any alterations or additions to the Premises made by the Tenant); provided, however, that in the event that the damage to the building cannot be repaired within ninety (90) days from the occurrence of the casualty, LIDA, at its option, by notice to Tenant, may terminate the Lease as of the date of such casualty. In such case, Tenant shall pay the Rent and other sums due hereunder, apportioned to the date of the casualty, and shall immediately surrender the Premises to LIDA. If the damage caused by such casualty can be repaired within ninety (90) days thereafter, this Lease shall not be affected, except that Rent for the Premises shall abate until the damage is restored. If the Premises are rendered wholly untenantable by reason of such casualty, the Rent shall abate in full. However, if by reason of such casualty, only a portion of the Premises is rendered untenantable, Rent shall abate in proportion to the portion of the Premises rendered untenantable.

Notwithstanding the foregoing, LIDA shall have no obligation to expend funds for such restoration in excess of insurance proceeds available therefore. In addition, LIDA's restoration obligation shall be subject to all applicable federal, state and local statutes, laws and ordinances which may limit or prohibit restoration of the building as it previously existed. LIDA shall not under any circumstances, be obligated to restore any fixtures, alterations or additions installed in the Premises by Tenant. Notwithstanding any other provisions of this Lease, if any such damage to the Premises or LIDA Premises is the result of the negligence or willful misconduct of the Tenant, its officers, assignees, agents, contractors, subtenants, employees or invitees, the payment of Rent shall not be abated hereunder.

8.2 Eminent Domain

If any public authority shall, by the exercise of the power of eminent domain or under the threat of exercise of such power, take or acquire all or any part of the building or the Premises, or take or acquire a portion of the land area so as to render the remainder unusable by Tenant, this Lease shall terminate as of the date when Tenant shall be legally compelled to surrender possession, and shall do so. In the event of such taking, Tenant waives all claims as against LIDA and as against the condemning authority or party, and it is agreed that Tenant will make no claim by reason of the complete or partial taking of the Premises except in compensation recoverable in Tenant's own right for (i) removal or moving expenses, (ii) business dislocation damages as defined in the Pennsylvania Eminent Domain Code or any federal statute or rule containing substantially similar provisions, and (iii) loss or taking of fixtures installed by Tenant in the Premises.

Section 9. Indemnification of LIDA

9.1 Indemnification Obligations

Tenant shall indemnify, defend and hold LIDA harmless from any claims, damages, liabilities and expenses (including attorneys' fees and costs) for damage or injury to any person or any property arising from any breach or default on the part of Tenant in the performance or observation of any term of this Lease or out of the activities conducted by Tenant in the Premises or occurring in, on or about the Premises, or arising directly or indirectly from any act or omission of Tenant or any employee, agent or licensee of Tenant.

Section 10. Insurance

10.1 LIDA's Insurance

During the term of this Lease, LIDA shall maintain the following insurance policies:

(a) Comprehensive public liability insurance, including insurance against the assumed or contractual liability of LIDA hereunder, to afford protection to the limit for each occurrence of not less than $1,500,000 combined single limit for bodily injury, death and property damage; and

(b) Fire and extended coverage insurance on the Premises. Such insurance shall be in the amount of $_____. Tenant may request LIDA to increase the amount of such insurance upon sixty (60) days prior notice given by Tenant to LIDA and LIDA shall provide such increased coverage, if and to the extent such increased coverage is reasonably obtainable at commercially reasonable rates. Such insurance may be maintained under a blanket insurance policy covering the Premises and other real property owned or controlled by LIDA.

Tenant shall reimburse LIDA, on demand and as additional rent, for all premiums of such insurance (or in the case of insurance maintained under any blanket policy, for such portion of the premiums as LIDA reasonably determines is allocable to the Premises).

10.2 Tenant's Insurance

(a) During the term of this Lease, Tenant shall maintain comprehensive public liability insurance, including insurance against the assumed or contractual liability of Tenant hereunder, to afford protection to the limit for each occurrence of not less than $1,500,000 combined single limit for bodily injury, death and property damage. Such policy shall name LIDA as an additional insured, and such policy shall also contain a provision by which the insurer agrees that such policy shall not be canceled except after thirty (30) days written notice to LIDA. Such certificate thereof, shall be deposited with LIDA by Tenant not later than such date as Tenant or its agents, employees or contractors shall enter the Premises. Prior to the expiration

or termination of such policy, Tenant shall deliver to LIDA a new or renewal policy (or a certificate thereof).

(b) All personal property of Tenant on the Premises, and all fixtures and additions placed on the Premises by Tenant, shall be and remain at Tenant's sole risk, and LIDA shall not be liable for any damage to, or loss of such personal property arising from any cause whatsoever, unless such liability has been expressly assumed by LIDA hereunder.

10.3 Waiver of Subrogation

LIDA and Tenant, for themselves and their respective assignees, subrogees, successors and assigns, each hereby waive the right of recovery against the other, and the other's directors, officers, employees, and business guests, and any managing agent engaged by LIDA, and their respective heirs, administrators, executors, successors and assigns, for such loss or damage to the Premises, to any improvements situate thereon and to any personal property located therein as is caused by fire or by those casualties which are described in the extended coverage provisions of the insurance contracts maintained by LIDA or Tenant, as the case may be, or in the absence of such provisions in said contracts, by those casualties which commonly are described in the extended coverage provisions of such insurance contracts. The waiver of rights herein shall not be enforceable against a party if not permitted under the terms of the policies of insurance carried by the party. Each party agrees to request the consent of its insurer to the waiver herein contained, if such consent is required.

10.4 Actions of Tenant With Respect to Insurance

The Tenant shall not permit any use of the Premises which will make voidable any insurance on the property of which the Premises are a part, or on the contents of said property, or which shall be contrary to any law or regulation from time to time established relating to the use of the Premises for the purposes described in the Lease. The Tenant shall, on demand, reimburse LIDA, in full for all extra insurance premiums, if any, caused by the Tenant's use of the Premises. In the event the Tenant shall violate this section, LIDA shall give written notice of the reason for such violation to the Tenant and such violation shall be treated as a default under Section 11.1 hereof.

Section 11. Default

11.1 Defaults and Events of Default by Tenant

Each of the following shall constitute defaults ("Defaults"), or events of default ("Events of Default") hereunder:

(a) Monetary Default

If the Tenant shall default in the performance of any of its obligations to pay the Rent or any charge hereunder within ten (10) days after it is due;

(b) Non-Monetary Default

If the Tenant defaults in the fulfillment of any covenant or non-monetary obligation under the Lease and the Tenant has failed to cure such default within fifteen (15) days of receiving written notice from LIDA specifying such default (or, for those failures of obligations or covenants which are incapable of being cured within such fifteen (15) day period, if the Tenant has failed to commence diligently to correct the default specified or has not thereafter diligently pursued such correction to completion);

(c) Other Defaults

(i) If any assignment shall be made by the Tenant or any guarantor of the Tenant for the benefit of creditors;

(ii) If the Tenant's leasehold interest shall be taken on execution;

(iii) If a lien or other involuntary encumbrance is filed against the Tenant's leasehold interest or the Tenant's other property, and is not discharged within sixty (60) days thereafter;

(iv) If a petition is filed by the Tenant or any guarantor of the Tenant for adjudication as a bankrupt, or for reorganization or any arrangement under any of the provisions of any bankruptcy, receivership, insolvency or debtor relief law; or

(v) If an involuntary petition under any of the provisions of any bankruptcy, receivership, insolvency or debtor relief law is filed against the Tenant, or any guarantor of the Tenant, and such involuntary petition is not dismissed within sixty (60) days thereafter.

11.2 Remedies of LIDA

Upon the occurrence of an Event of Default, LIDA, in addition to any other remedies available to it in law or in equity, shall have the right to do any or all of the following:

(a) Terminate this Lease and all of Tenant's rights hereunder; provided, however, that such termination shall not relieve Tenant of liability for any amount due or accrued to LIDA, or for damages caused to LIDA by reason of Tenant's default, and such termination shall not affect or impair LIDA's other rights in the event of Default. Upon termination, Tenant shall immediately quit and surrender to LIDA the Premises, and LIDA may then, or at any time thereafter, with or without resort to process of any court, and by force or otherwise, enter into and repossess the Premises. If LIDA elects to terminate the Lease as aforesaid, Tenant expressly

waives the right to any notice required pursuant to Pennsylvania Landlord and Tenant Act, as amended, or as may otherwise be provided by law. LIDA shall be obligated to give only such notice as may specifically be required pursuant to the terms of this Lease.

(b) Declare immediately due and payable all rent for the balance of the then current term of the Lease, and any renewal term elected for in writing by Tenant.

(c) In the event of Default in the payment of Base Rent or additional rent by Tenant, or any breach of any covenant to pay any amount due or become due LIDA, Tenant does hereby empower any attorney of any court of record to appear for Tenant to confess money judgment against Tenant and in favor of LIDA for the sum of the Base Rent and additional rent then due and for the sum due by reason of any breach of any covenant by Tenant, with costs of suit and an attorney's commission of ten (10) percent for collection, and to issue execution thereon with release of all errors and without stay of execution. Such authority shall not be exhausted by one exercise thereof but judgment may be confessed as aforesaid from time to time as often as any default in the payment of any such sum shall occur.

(d) In the event of any Default by Tenant and the failure of Tenant to cure such default within the time provided herein, or at the expiration of the term of this Lease, Tenant hereby authorizes and empowers any attorney of any court of record to appear for Tenant and confess judgment against Tenant and in favor of LIDA in an amicable action of ejectment for the Premises with cost of suit, and to issue writs of execution and possession thereon with release of all errors and without stay of execution. Such authority shall not be exhausted by one exercise thereof but judgments in ejectment may be confessed as aforesaid from time to time as often as it be necessary for LIDA to obtain possession of the Premises in accordance with any provisions of this Lease.

11.2.1 <u>Damages for Tenant's Default</u>

If this Lease shall be terminated by reason of Default, LIDA shall use reasonable efforts to relet the whole, or any part of the Premises; provided, however, that such reletting may be for a period equal to, or greater or less than the remainder of the term of this Lease, at such rental and upon such terms and conditions as LIDA shall deem reasonable, to any tenant or tenants which it may deem suitable and satisfactory and for any use and purpose for which it may deem appropriate. In no event shall LIDA be liable to Tenant in any respect for failure to relet the Premises, or in the event of such reletting, for failure to collect the rent thereunder. Any sums received by LIDA on reletting in excess of the rent described in this Lease shall belong to LIDA. As damages for default resulting in termination, Tenant agrees to pay to LIDA, in addition to all amounts due at or before termination, the following:

(a) All reasonable expenses, including attorney's fees, incurred by LIDA in enforcing this Lease and recovering possession of the Premises;

(b) All reasonable costs and charges for the care of the Premises while vacant;

(c) All reasonable expenses incurred by LIDA in connection with the reletting of the Premises or any part thereof, including without limitation commissions, advertising expenses and the costs of restoring the Premises to its condition at the time of delivery of possession to Tenant;

(d) An amount equal to the Base Rent and additional rent required to be paid by Tenant under this Lease, less the rent, if any, collected by LIDA on reletting the Premises. All damages due by reason of expenses incurred by LIDA shall be due and paid by Tenant at such times as the expenses shall be incurred by LIDA. All other amounts specified in this subparagraph (d) hereof shall be due and payable by Tenant on the several days on which the Base Rent and additional rent would have become due and payable (any rent accelerated hereunder by reason of Tenant's Default being deemed due and payable on the date of acceleration) had this Lease not been terminated by reason of Tenant's Default.

11.3 LIDA's Right to Cure

At any time and without notice, LIDA may, but need not, cure any failure by the Tenant to perform its obligations under this Lease. Whenever LIDA chooses to do so, all costs and expenses incurred by LIDA in curing any such failure, including, without limitation, reasonable attorneys' fees together with interest on the amount of costs and expenses so incurred at an annual rate equal to eighteen percent (18%) or five percent (5%) over the prime rate of interest as published from time to time in the Wall Street Journal, whichever is greater, shall be paid by the Tenant to LIDA on demand and shall be recoverable as additional rent.

11.4 Surrender

Upon any termination of this Lease as the result of a Default, the Tenant shall quit and peacefully surrender the Premises to LIDA. Upon or at any time after any such termination, LIDA may have, hold, and enjoy the Premises and the right to receive all rental income of and from the same.

11.5 Right to Relet

At any time and from time to time after any such termination, LIDA may relet the Premises or any part thereof, in the name of LIDA or otherwise, for such term or terms (which may be greater or less than the period which would otherwise have constituted the balance of the Term) and on such conditions (which may include concessions or free rent) as LIDA, in its reasonable discretion, may determine, and may collect and receive rents therefor. LIDA shall in no way be responsible or liable for any failure to relet the Premises or any part thereof, provided LIDA exercised good faith efforts and reasonable diligence to do so, or for any failure to collect any rent due upon any such reletting.

11.6 Survival of Covenants

No such termination of this Lease shall relieve the Tenant of its liability and obligations under this Lease and all such liability and obligations shall survive such termination. Tenant shall defend, indemnify and hold LIDA harmless from all loss, cost, expense, damage or liability arising out of or in connection with such termination.

11.7 Right of Equitable Relief

If there shall occur a Default or threatened Default, LIDA shall be entitled to enjoin such Default or threatened Default and shall have the right to invoke any right and remedy allowed at law or in equity or by statute or otherwise as though re-entry, summary proceeding, and other remedies were provided for in this Lease.

11.8 Defaults and Events of Default by LIDA

In the event LIDA breaches any of LIDA's covenants, agreements, conditions, or warranties in this Lease, which default remains uncured after thirty (30) days written notice from the Tenant specifying such default (or, for those failures of obligations or covenants which are incapable of being cured in a thirty (30) day period, if LIDA has failed to commence diligently to correct the default specified or has not thereafter diligently pursued such correction to completion), it shall be deemed a default hereunder by LIDA.

11.9 Remedies of Tenant

Upon the occurrence of an event of default by LIDA which remains uncured beyond all applicable notice and grace periods, the Tenant shall have the right to seek monetary damages from LIDA, but shall not have the right to terminate this Lease.

11.10 Notice to Mortgagee

No act or failure to act on the part of LIDA which would entitle the Tenant under the terms of this Lease or by law to be relieved of the Tenant's obligations hereunder shall result in a release or termination of such obligations unless:

(a) the Tenant shall have first given written notice of LIDA's act or failure to act to LIDA's mortgagees of record, if any, specifying the act or failure to act on the part of LIDA; and

(b) such mortgagees, after receipt of such notice, have had the opportunity to cure such default(s) within a reasonable time thereafter;

but nothing contained in this section shall be deemed to impose any obligation on any such mortgagees to correct or cure any such condition. "Reasonable time" as used above shall mean a

period of not less than sixty (60) business days and shall include (but not be limited to) a reasonable time to obtain possession of the Premises if the mortgagee elects to do so and a reasonable time to correct or cure the defaults if such defaults are determined to exist. Notwithstanding the foregoing, Tenant shall have no obligation to provide the notice required hereunder unless and until LIDA or the mortgagee has given notice to Tenant of the existence of any such mortgagee and the address thereof.

11.11 Bind and Inure; Limitation of LIDA's Liability

The obligations of this Lease shall run with the land, and this Lease shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns. No individual, officer, director, agent, or employee of LIDA shall be personally liable under this Lease and the Tenant shall look solely to LIDA's interest in the Premises in pursuit of its remedies upon a default beyond applicable notice and grace periods of LIDA hereunder, and the general assets of LIDA, its directors, officers, agents, and employees shall not be subject to levy, execution, or other enforcement procedure for the satisfaction of the remedies of the Tenant.

Section 12. Miscellaneous

12.1 Amendments to Lease

None of the covenants, agreements, provisions, terms and conditions of this Lease shall in any manner be amended, changed, altered, waived or abandoned except by a written instrument, signed, sealed and mutually agreed upon by the parties hereto. Such instrument shall not be void for want of consideration. Furthermore, the parties agree that following the acquisition in fee of the LIDA Premises by LIDA, LIDA in good faith may make reasonable and necessary adjustments to this Lease to reflect this changed ownership status, including, without limitation, adjustments regarding the provision of services and utility services to the Premises, and Tenant hereby agrees to execute LIDA's written instrument evidencing the same.

12.2 Subordination

This Lease shall be subject and subordinate to any and all mortgages granted now or at any time hereafter constituting a lien or liens on the property of which the Premises are a part and to each advance made or hereafter to be made under any mortgage, and to all renewals, modifications, consolidations, replacements, and extensions thereof and all substitutes therefor. The Tenant shall, when requested, execute and deliver such written instruments as shall be necessary to show the subordination of this Lease to the mortgage(s), provided that the holder thereof executes and delivers to the Tenant an instrument reasonably satisfactory to the Tenant and to the effect that the holder shall not disturb the Tenant's possession of the Premises under this Lease so long as the Tenant is not in default hereunder.

12.3 Force Majeure

Except in the case of payment of Rent, in any case where either party hereto is required to do any act, delays caused by or resulting from war or other national emergency, fire, flood or other casualty, unusually severe weather or other causes beyond such party's reasonable control, shall not be counted in determining the time during which such act shall be completed, whether such time be designated by a fixed date, a fixed time or "a reasonable time," and such time shall be deemed to be extended by the period of the delay.

12.4 Notices

All notices, demands, requests and other instruments which may or are required to be given by either party to the other under the Lease shall be in writing, and shall be deemed to have been properly given if (a) delivered by hand, or facsimile, if a receipt therefore is obtained, or (b) sent by United States certified mail, return receipt requested, postage prepaid, addressed to LIDA or the Tenant at the addresses contained herein, or at such other address or addresses as LIDA or the Tenant from time to time may have designated by written notice to the other party.

12.5 Successors and Assigns

The Lease shall be binding upon and shall inure to the benefit of the parties hereto and their respective representatives, successors and assigns.

12.6 Integrated Agreement

The Lease incorporates all discussions and negotiations between LIDA and the Tenant concerning the matters included herein. No such discussions or negotiations shall limit, modify or otherwise affect the provisions hereof.

12.7 Partial Invalidity

If any provision of the Lease is held to be invalid or unenforceable by a court of competent jurisdiction, all of the other provisions hereof shall remain in full force and effect and shall be liberally construed in favor of LIDA in order to effect the provisions of the Lease.

12.8 Choice of Law; Jurisdiction

The Lease shall be governed, construed and enforced under the laws of the Commonwealth of Pennsylvania. Furthermore, the Tenant agrees that any and all legal actions hereunder or related to the Lease shall be pursued in the courts located in the Commonwealth of Pennsylvania and agrees to submit to the jurisdiction of the courts of the Commonwealth of Pennsylvania for such purposes.

12.9 Headings

The use of headings is for convenience of reference only and does not alter the meaning of any section.

12.10 Anti-Waiver Clause

No delays or omissions by LIDA or the Tenant in exercising or enforcing any of LIDA's or the Tenant's rights and remedies shall constitute a wavier of or otherwise impair any such right or remedy, nor shall it be construed to be a waiver of any such default or an acquiescence therein. A waiver on one occasion shall not operate as a bar to or waiver of any such right or remedy on any future occasion, nor shall it be deemed a continuing waiver. No single or partial exercise of LIDA's or the Tenant's rights or remedies, and no other agreement or transaction of whatever nature entered into between LIDA and the Tenant at any time, whether before, during or after the date hereof, precludes any other or further exercise of LIDA's or the Tenant's rights and remedies.

12.11 Cumulative Nature of Rights

All of LIDA's or the Tenant's rights hereunder shall be cumulative and not exclusive of any rights or remedies it would otherwise have and LIDA or the Tenant, as the case may be, may exercise such rights or remedies at any such time or times and in such order of preference as LIDA or the Tenant, in its sole discretion, may determine.

12.12 Counterparts

The Lease may be executed in any number of counterparts and by the parties hereto in separate counterparts, each of which when so executed shall be deemed an original, but all counterparts together shall constitute one and the same instrument.

12.13 Reservations of Rights under the Interagency Agreement

The parties acknowledge the existence of the LEAD Interagency Agreement ("IAG"). The parties agree that should any conflict arise between the terms of the IAG, as it presently exists or may be amended, and the provisions of this Lease, the terms of the IAG will take precedence.

12.14 Exhibits and Riders

The Exhibits attached hereto are made a part of the Lease for all purposes.

12.15 Brokerage

The parties acknowledge that no brokerage commission is due to any person in connection with this Lease.

12.16 Waiver of Trial by Jury and Counterclaims

The parties hereto shall and they do hereby waive trial by jury in any action, proceeding or counterclaim brought by either of the parties hereto against the other on any matters whatsoever arising out of or in any way connected with this Lease, the relationship of LIDA and Tenant, Tenant's use or occupancy of the Premises, and/or any claim of injury or damage. In the event LIDA commences any proceedings for the non-payment of rent, Tenant will not interpose any counterclaim of whatever nature or description in any such proceedings except such as arise from any claim of breach or non-performance by LIDA or any related party of any provision of this Lease. This shall not, however, be construed as a waiver of Tenant's right to assert such claims in any separate action or actions brought by Tenant.

12.17 Third Party Beneficiary

Nothing contained in this Lease shall be construed so as to confer upon any other party the rights of a third party beneficiary except rights contained herein for the benefit of a mortgagee.

12.18 Financial Information

Within seven (7) days of receipt of a written request by LIDA to Tenant, Tenant shall submit to LIDA current financial information of Tenant, the general partners of Tenant (if Tenant is a general or limited partnership), and any guarantor of the Lease. Such financial information shall include a balance sheet, profit and loss statement, cash flow projection and such other financial information as LIDA shall reasonably request.

All such financial information shall be prepared in accordance with generally accepted accounting principals and practices consistently applied. If such financial information is not prepared and certified by a certified public accountant, it shall be certified as true and correct by the applicable party to which such information relates. Landlord may provide such financial information to any current or proposed mortgagee of the Premises.

12.19 Economic Development Administration ("EDA") Provisions

The Tenant acknowledges that the Premises has been or may be improved, in part, with funding from the United States Economic Development Administration, Project No. 01-49-03885, and agrees to use the Premises in a manner consistent with the authorized general and special purpose of the EDA grant.

To comply with the terms and conditions of the EDA grant, the Tenant agrees as follows:

(a) Tenant shall provide services without discrimination to all persons without regard to their age, race, color, religion, sex, handicap or national origin. If and to the extent required by LIDA or the EDA, Tenant shall execute a certification in such form as may be required by the EDA to certify such compliance.

(b) Tenant shall comply with any and all applicable federal, state and local environmental statutes, rules, executive orders and regulations during the term of this Lease.

IN WITNESS WHEREOF, this Lease is executed on the above date.

LETTERKENNY INDUSTRIAL
DEVELOPMENT AUTHORITY

By:_____

Attest:_____

_____

By:_____

Attest:_____

EXHIBIT A

Description of the Premises

EXHIBIT B

Leasehold Improvements - LIDA Responsibilities

EXHIBIT C

Leasehold Improvements - Tenant Responsibilities

SUBLEASE

THIS SUBLEASE is made as of the _____ day of _____, _____, by and between LETTERKENNY INDUSTRIAL DEVELOPMENT AUTHORITY ("LIDA"), a Pennsylvania non-profit municipal industrial development authority, having its principal office at 5121A Coffey Avenue, Chambersburg, Pennsylvania 17201, and _____, a _____, with its principal office at _____ ("Tenant").

WITNESSETH THAT

WHEREAS, pursuant to the Defense Base Closure and Realignment Act of 1990, the military installation known as the Letterkenny Army Depot, Chambersburg, Pennsylvania ("LEAD"), is scheduled to be realigned; and

WHEREAS, it is the intention of the United States, acting by and through the Department of the Army ("Army"), to retain certain portions of LEAD in order to complete the Army's ongoing mission ("Retained Property"); and

WHEREAS, pursuant to a letter dated August 2, 1997 from the Office of the Under Secretary of Defense, LIDA was granted the authority to oversee and implement the civilian reuse of those portions of LEAD scheduled to be realigned and transferred ("Transfer Parcels"); and

WHEREAS, pursuant to the terms of a Memorandum of Agreement dated November 5, 1998, the terms and conditions of the lease and transfer of the Transfer Parcels to LIDA were established (the Memorandum of Agreement together with all exhibits attached thereto is hereinafter referred to as "MOA"). A copy of the MOA is on file at the offices of LIDA and available for review by Tenant; and

WHEREAS, LIDA has leased from the Army certain parcels of land within the Transfer Parcels, with buildings and improvements thereon (said land, buildings and improvements being collectively referred to as the "LIDA Lease Premises"); and

WHEREAS, LIDA intends to sublease a portion of the LIDA Lease Premises to the Tenant pursuant to the terms and conditions hereinafter set forth ("Sublease Premises").

NOW, THEREFORE, for good and valuable consideration, the parties hereto agree as follows:

Section 1. Definitions

1.1 1.1 Definitions

The terms set forth below, as used in the Sublease, shall have the following meanings:

(a) Original Address of LIDA

5121A Coffey Avenue
Chambersburg, Pennsylvania 17201

(b) Original Address of Tenant

_____
_____

(c) Permitted Uses

_____ and for no other purpose whatsoever.

(d) Base Rent

_____ per year.

(e) Sublease Premises

Building ____ as more fully shown on Exhibit A.

(f) Tenant

_____.

(g) Term

_____ years, beginning on the Term Commencement Date and ending at 12:00 midnight on the Termination Date.

(h) Term Commencement Date

_____, _____.

(i) Termination Date

_____ years from the Date of Occupancy, unless the Sublease is terminated pursuant to the terms hereof or otherwise extended by written agreement of the parties.

Section 2. Sublease Premises, Sublease Term, and Incorporation of Army Lease

2.1 Sublease Premises

LIDA does hereby sublease to the Tenant, and the Tenant does hereby sublease from LIDA, the Sublease Premises, in accordance with the terms of this Sublease.

2.2 Term

The Tenant shall have and hold the Sublease Premises for the Term commencing on the Date of Occupancy, as defined in Subsection 2.3 below, and ending on the Termination Date, unless sooner terminated pursuant to the terms hereof.

2.3 Date of Occupancy

The Date of Occupancy shall be the Term Commencement Date, unless said date is modified by written agreement of LIDA and Tenant.

2.4 Work by LIDA

Prior to the Date of Occupancy, LIDA shall perform such construction, renovation and finishing work as is identified on Exhibit B. LIDA shall not be liable to Tenant for any delay in completion of its work resulting from any casualty, labor trouble, material or energy shortage, act of God, failure of Tenant to furnish LIDA with plans and specifications concerning Tenant's interior layouts, or to perform any of Tenant's work necessary for completion of LIDA's work, or for any other cause beyond the control of LIDA. No change shall be made on the work to be done by LIDA, except upon written change order signed by LIDA and Tenant. All such work shall be done in a good and workmanlike manner and in accordance with all applicable federal, state and local requirements.

2.5 Tenant Improvements

The Tenant shall perform such construction, renovation and finishing work as is identified on Exhibit C. All such work shall be done in accordance with the provisions of the Army Lease, including, without limitation, Section 17(a)(iii) thereof.

2.6 Incorporation of Terms of the MOA and the Army Lease

All restrictive provisions contained in the MOA which are applicable to the Sublease Premises shall be binding upon the Tenant and the Tenant shall comply with all applicable terms thereof.

All applicable provisions contained in the lease of the LIDA Lease Premises between the Army and LIDA dated _____ ("Army Lease"), shall be binding upon the Tenant, and the Tenant hereby agrees to comply with said terms; and in case of any breach thereof by Tenant, LIDA shall have all the rights against Tenant as would be available to the lessor against the lessee under the Army Lease if such breach were by the lessee thereunder. However, LIDA shall not be responsible for any breach by the Army of its responsibilities under the Army Lease, but shall use its best reasonable efforts to ensure compliance by the Army of its obligations under the Army Lease. LIDA assumes no liability for any interference with Tenant's business operations resulting from implementation of the LEAD Federal Facilities Agreement (also known as the Inter-Agency Agreement). A copy of the Army Lease is on file at the offices of LIDA and available for review by Tenant. In the event of a conflict or discrepancy between the terms, conditions and covenants of the Army Lease and this Sublease, the applicable provisions in the Army Lease shall be given precedence.

The parties recognize that LIDA intends to purchase the LIDA Lease Premises from the Army pursuant to the terms of the MOA. Upon the acquisition of the LIDA Lease Premises by LIDA, the parties hereto shall be bound as Landlord and Tenant directly, pursuant to the terms of this Sublease.

Section 3. Rent

3.1 Commencement of Obligation to Pay Base Rent

The obligation of the Tenant to pay the Base Rent shall commence on the Date of Occupancy.

3.2 Rent Amount

The Tenant agrees to pay and LIDA agrees to accept the Base Rent for the Sublease Premises. Except as hereinafter provided, the Base Rent shall be payable in twelve (12) equal monthly installments due and payable in advance on the first day of each calendar month during the Term of the Sublease.

The monthly installments of Base Rent shall be prorated with respect to any fractional month during the Term. Any extension of time for the payment of any monthly installment of Base Rent, or the acceptance of Rent after the time at which it is payable, shall not be a waiver of the rights of LIDA to insist on prompt payment of Rent at any time thereafter. The Base Rent

plus all additional rent and other sums payable by Tenant hereunder are together referred to as the "Rent."

3.3 Late Payment of Rent

If any installment of Base Rent is not received in full within ten (10) days of its due date, then, in addition to any other rights or remedies of LIDA hereunder, the Tenant shall pay a late payment charge equal to the greater of 7% of such installment or $250. If any Rent is not paid in full within thirty (30) days after it is due, interest on the unpaid balance shall accrue and be payable at the rate of eighteen percent (18%) per annum until paid in full.

3.4 Place of Payment of Rent

All payments of Rent shall be made by the Tenant to LIDA without notice or demand at such place as LIDA may from time to time designate in writing. The initial place for payment of Rent shall be Letterkenny Industrial Development Authority, 5121A Coffey Avenue, Chambersburg, Pennsylvania 17201.

3.5 Security Deposit

The Tenant agrees to pay to LIDA prior to the Date of Occupancy as a security deposit a sum equal to one month Base Rent ("Security Deposit"). Upon the occurrence of a Default, as said term is defined in Section 11 hereof, LIDA may apply the Security Deposit, or any part thereof, including any interest then accrued thereon, towards the curing of any such Default and/or towards compensating LIDA for any loss or damage arising from any such Default.

LIDA may commingle the Security Deposit with other funds of LIDA, but shall not be liable to the Tenant for the payment of interest thereon or profits therefrom. LIDA may assign the Security Deposit to any subsequent lessee or owner of the Sublease Premises and thereafter LIDA shall have no further liability to the Tenant with respect thereto. As soon as reasonably practicable after the Termination Date, LIDA shall: (a) inspect the Sublease Premises; (b) make such payment from the Security Deposit as may be required to cure any outstanding Defaults hereunder; and (c) if no Default is then continuing, pay the balance of the Security Deposit to the Tenant.

Section 4. Utilities, Services, Taxes and Other Expenses

4.1 Utilities

Water and sewer services for the Sublease Premises are provided by the Franklin County General Authority ("FCGA"). The Tenant agrees to pay directly to FCGA prior to the due date therefore all charges for such water and sewer services in accordance with the schedule of rates from time to time adopted by FCGA.

Electric service to the Sublease Premises is provided by LIDA so long as LIDA continues to own the electrical distribution system servicing the Sublease Premises. Electric service shall be submetered by LIDA and billed to Tenant by LIDA at such schedule of rates and facility charges as LIDA shall adopt from time to time, which such rates and facility charges shall not grant any unreasonable preference or advantage as to all properties serviced thereby. Tenant acknowledges that, as a customer of LIDA for electric service to the Sublease Premises, Tenant does not have the choice of an alternative electric generation supplier.

The Tenant shall be responsible for reimbursing LIDA upon demand as additional rent for any utility charge, user fee, etc., as may be related to the provision of utility services to the Sublease Premises for which LIDA is billed or charged directly or indirectly, and shall comply with any utility agreements or contracts in relation thereto.

LIDA shall not be liable to Tenant for any interruption of, or failure to provide, electrical services, heating, air conditioning, or other utility service which is due to any energy shortage, power failure, or other cause beyond the control of LIDA, or is reasonably required in order to enable LIDA to perform maintenance or repairs within the Sublease Premises or elsewhere in LIDA Lease Premises, or which occurs during any period when Tenant is in default beyond any applicable grace period in payment of any sum due or to become due LIDA hereunder.

4.2 Municipal Services

Certain municipal services may be provided by the Army in accordance with the terms and conditions of the MOA and/or the Army Lease. If and to the extent the Army imposes a charge for such services, the cost thereof as reasonably determined by LIDA shall be reimbursed by Tenant to LIDA, as additional rent, with the next installment of rent due following written notice of such cost delivered by LIDA to Tenant.

4.3 Industrial Wastewater Treatment

The Tenant agrees that the treatment of any industrial waste generated by the Tenant that requires pre-treatment prior to entering the sanitary sewer system will be the responsibility of the Tenant, and Tenant shall comply with all laws, statutes and regulations applicable to the treatment thereof. The Tenant further agrees that the Army Industrial Wastewater Treatment Facility will not be available to the Tenant for pretreatment purposes, and that the Tenant will have to provide such treatment through the use of on-site facilities approved by LIDA.

4.4 Taxes

The Tenant agrees to pay all property taxes, user charges, payments in lieu of taxes, other local or state assessments on or against the Sublease Premises, including, without limitation, all improvements thereto, income generated therefrom, and personal property contained therein, during the Term of the Sublease. To the extent any such taxes or charges are not assessed

against the Sublease Premises separately, but are assessed against the LIDA Lease Premises as a whole, the Tenant shall pay its proportionate share of such taxes or charges, said share to be determined by LIDA and based on the square footage of the Sublease Premises as a percentage of the square footage of the LIDA Lease Premises, including a proportionate share of all common areas and facilities within the LIDA Lease Premises attributable to the Sublease Premises. With regard to taxes and charges assessed directly against the Tenant, the Tenant shall pay the appropriate taxing authority directly, and with regard to the Tenant's proportionate share of taxes or charges as calculated by LIDA, the Tenant shall pay said proportionate share to LIDA as additional rent.

4.5 Net Lease

The Base Rent and all other sums payable by Tenant to LIDA hereunder shall be absolutely net to LIDA. LIDA shall not be required to pay any expense of any kind with respect to the Sublease Premises during the term of the Sublease, except as specifically hereinafter set forth. In spite of the failure of this Sublease to mention specifically that a particular item of expense shall be paid by Tenant during the term of the Sublease, the Tenant shall relieve LIDA of and pay, as additional rent hereunder, all costs, charges and expenses of every kind whatsoever which may be incurred or result from or be incidental to the ownership, operation and maintenance of the Sublease Premises and the improvements thereon or to be placed thereon. Without limiting the obligations of Tenant by the following enumeration, it is understood by the parties that Tenant shall pay all taxes, sewer rents, water charges, assessments and other impositions and levies of every kind and nature whatsoever applicable to any period during the term of this Sublease, which may hereafter be imposed, charged, assessed or levied upon, against or with respect to the Sublease Premises or which may become due and payable with respect to any improvements placed thereon or any activity conducted thereon or which may be imposed, assessed, charged or levied upon, against or with respect to the leasehold estate hereby created or upon the reversionary estate of LIDA under and by virtue of any present or future law, rule, requirement, order, direction, ordinance or regulation of any governmental or other lawful authority whatsoever and which shall become due and payable during the term of this Sublease. LIDA shall promptly notify and forward to Tenant all bills, notices and other communications pertaining to all taxes, sewer rents, water charges, assessments and other impositions and levies of every kind and nature whatsoever, general or specific, ordinary or extraordinary, applicable to any period during the term of this Sublease. Nothing herein contained shall be deemed to require the Tenant to pay or discharge any liens or mortgages of any kind whatsoever which may hereafter be placed upon the Sublease Premises by the affirmative act of LIDA.

4.6 No Set-Off

Payments made by the Tenant pursuant to any provision of Section 4 shall in no event be considered additional rent or be set-off against Base Rent due to LIDA hereunder.

Section 5. Use of Sublease Premises

5.1 Permitted Uses of the Sublease Premises

The Tenant covenants and agrees to use the Sublease Premises only for the Permitted Uses and for no other purpose. Any change in such use shall require the prior written approval of LIDA, provided that any use of the Sublease Premises must conform with all applicable requirements of, and regulations promulgated under the authority of, the MOA. In addition, Tenant shall at all times comply with all covenants, conditions and restrictions set forth in the Declaration of Covenants, Conditions and Restrictions recorded in the Recorder's Office in and for Franklin County, Pennsylvania in Volume 1414, Page 294.

5.2 Use of Common Facilities

If and to the extent LIDA incurs costs and expenses in connection with the operation and maintenance of any common areas of the Cumberland Valley Business Park or any other portions of the LIDA Lease Premises which are used in common by Tenant and other tenants or occupants of the Cumberland Valley Business Park or the LIDA Lease Premises, Tenant shall pay to LIDA, as additional rent, a common area maintenance charge to reimburse LIDA for such costs and expenses, such common area maintenance charge to be reasonably determined from time to time by LIDA and payable with the first monthly installment of Base Rent due after notice of the amount thereof has been delivered by LIDA to Tenant.

5.3 Limitations on Use

The Tenant will not make or permit any occupancy or use of any part of the Sublease Premises for any hazardous, offensive, dangerous, noxious, or unlawful occupation, trade, business or purpose which is contrary to any federal or state law, rule, regulation, permit or license, or which is contrary to the MOA or the Army Lease, and will not cause, maintain or permit any nuisance in, at or on the Sublease Premises.

5.4 No Waste

The Tenant will not cause or permit any waste, overloading, stripping, damage, disfigurement, or injury of or to the Sublease Premises, or any part thereof, or to the LIDA Lease Premises, except for the purposes of renovating or altering the Sublease Premises as set forth herein and except for ordinary wear and tear. The Tenant will repair promptly at its own expense any damage to the Sublease Premises and, upon demand, shall reimburse LIDA as additional rent for the cost of the repair of any damage to the LIDA Lease Premises caused by or arising from the actions or omissions of the Tenant, its agents, contractors, employees and invitees.

5.5 Quiet Enjoyment

LIDA hereby warrants and covenants that upon payment of the Rent, and upon the performance by Tenant of all the terms and covenants of this Sublease, the Tenant shall have peaceful and quiet use and possession of the Sublease Premises without hindrance or interruption on the part of (a) LIDA, (b) any other person(s) for whose actions LIDA is legally responsible, (c) any person claiming by, through or under LIDA, except as herein provided and as provided in the MOA or the Army Lease.

5.6 Entry for Inspections and Repairs

LIDA or its agents may at reasonable times during normal business hours enter the Sublease Premises to make repairs and view the Sublease Premises. LIDA shall give the Tenant a minimum of twenty-four (24) hours notice of such visits, provided, however, that LIDA may enter the Sublease Premises at any hour and without twenty-four (24) hours notice in the case of an emergency affecting the Sublease Premises, the LIDA Lease Premises or adjacent sites.

LIDA or its agents may enter to show the Sublease Premises to prospective tenants or prospective purchasers of the Sublease Premises only after a minimum of twenty-four (24) hours notice to the Tenant.

Section 6. Maintenance, Repairs, and Alterations of the Sublease Premises

6.1 Representations

LIDA has made no representations, warranties or undertakings as to the present or future condition of the Sublease Premises or the fitness or suitability of the Sublease Premises for any particular use, and shall not be liable in any way, or be required to improve or alter the Sublease Premises to make it suitable for the current or future use by the Tenant. The Tenant acknowledges that the Sublease Premises may not currently be in compliance with applicable building codes, the Americans with Disabilities Act or other applicable federal, state or local law and regulations, and Tenant shall, at its sole expense, undertake to cause the Sublease Premises to comply with such provisions. The Tenant shall not occupy the Sublease Premises until a Certificate of Occupancy has been issued by the appropriate local official. Tenant agrees to take the Sublease Premises in as-is condition.

6.2 LIDA's and Tenant's Maintenance Obligations

(a) Tenant shall keep the Sublease Premises and all improvements thereon, whether structural or nonstructural, including all utility systems serving the Sublease Premises exclusively, in good order, condition and repair, at its expense making all repairs, alterations, replacements and modifications thereto. At the expiration or earlier termination of the term of this Sublease, Tenant shall surrender the Sublease Premises in the same condition as when

received, except ordinary wear and tear and damage by fire or other casualty of the kind insured against in standard policies of fire insurance with extended coverage.

(b) Tenant shall keep the Sublease Premises in a neat, clean and sanitary condition at all times. Tenant shall keep all walkways and stairways intended for pedestrian use free of ice and snow. If Tenant shall at any time fail to maintain the exterior portion of the Sublease Premises as required herein, LIDA, following ten (10) days prior written notice, may provide such maintenance and the cost thereof, at the regular rates from time to time reasonably established by LIDA for such services, shall be additional rent due and payable upon demand by LIDA.

(c) Except in the event of casualty, LIDA shall have no obligation to repair, maintain, alter or modify the Sublease Premises or any part thereof. Tenant shall give notice to LIDA of any defect in, or need for repair of, the Sublease Premises which it is LIDA's obligation to correct. LIDA shall not be obligated to perform any maintenance or repair otherwise required of LIDA, unless notice of the need thereof has been given by Tenant to LIDA. LIDA shall not be liable to Tenant or any person claiming through or under Tenant, for any bodily injury or damage to property resulting from the failure to make any repair or replacement, unless the damage or bodily injury results from the negligent failure or refusal of LIDA to make a bona fide effort to make such repair within a reasonable time following notice by Tenant of the need for such repair.

6.3 Glass

The Tenant shall be responsible for the prompt replacement of broken plate and other glass in the Sublease Premises, regardless of the source of such breakage.

6.4 Cleaning Services; Trash Removal

The Tenant shall be responsible for securing and contracting for janitorial and cleaning services for the Sublease Premises. The Tenant shall be responsible for and pay for the regular collection and removal of all trash generated by its operations on the Sublease Premises.

6.5 Signs

The Tenant shall seek and receive the written approval of LIDA prior to erecting signs of any size on the exterior of the Sublease Premises, or on the LIDA Lease Premises, including all common areas. The Tenant shall, in addition, be required to comply with all other applicable laws, regulations and permits relating to the erection and approval of signs, including any requirements set forth in the MOA or the Army Lease.

6.6 Alterations and Additions

After Tenant shall have completed any work required to be performed at the commencement of the Term, Tenant shall not make any substantial alterations, additions or improvements to the Sublease Premises unless it shall first obtain from LIDA written approval of the plans, design, layout and specifications therefore. All such improvements shall be done in accordance with Section 17(a)(iii) of the Army Lease and shall be subject to all applicable restrictive covenants now or hereafter imposed by LIDA and all applicable municipal zoning ordinances and building codes.

All floor, ceiling and wallcoverings, wall and ceiling light fixtures, interior partitions and doors, kitchen and lavatory fixtures, built-in counters, shelving and cabinetry, plumbing, wiring and other utility systems installed by Tenant in the Sublease Premises shall become the property of LIDA upon expiration or earlier termination of the Sublease. In addition, all furniture, equipment and trade fixtures provided by LIDA for Tenant's use shall continue to be the property of LIDA. LIDA shall keep a list of all such furniture, equipment and trade fixtures in Tenant's possession in its central offices.

All furniture, equipment and trade fixtures installed by Tenant in the Sublease Premises shall remain the property of Tenant and may be removed at the expiration or earlier termination of this Sublease, provided Tenant shall not at such time be in default beyond any applicable grace period under any covenant or condition contained herein and provided, further, that in the event of such removal, Tenant shall repair the damage caused by such removal and restore the Sublease Premises to substantially its original order and condition. Any property of Tenant remaining on the Sublease Premises following expiration or termination of this Sublease may, at LIDA's sole option, be deemed abandoned by Tenant and Landlord may dispose of any such property without liability to Tenant of any kind whatsoever.

Section 7. Tenant's Covenants

7.1 Rent

The Tenant agrees to pay promptly, in the time periods set forth herein, Rent due hereunder.

7.2 Compliance with Applicable Law

The Tenant shall comply with all applicable laws, bylaws, orders and regulations of federal, state, county, local and other governmental authorities, including, without limitation, any of LIDA's rules and regulations which are from time to time provided to the Tenant in writing, with regard to the Tenant's use and occupancy of the Sublease Premises, which rules and regulations shall not unreasonably interfere with Tenant's permitted use of the Sublease Premises.

7.3 Removal of Liens

The Tenant shall not cause or allow any liens of any kind to be filed or placed against the Sublease Premises or the LIDA Lease Premises. If any liens are so filed, the Tenant shall, as soon as is reasonably possible, but not later than thirty (30) days after receiving written notice of such lien, at its sole cost and expense, take whatever action is necessary to cause the satisfaction and discharge of such lien or the release of such lien by bond. The Tenant further agrees to pay promptly when due all taxes, fees or charges which may be imposed on the Tenant's real or personal property located on the Sublease Premises.

7.4 Hazardous Substances

The Tenant (a) shall not use or allow, in violation of any applicable laws, the Sublease Premises to be used for the release, storage, use, treatment, disposal or other handling of any hazardous substance, material, waste or oil, as said terms are defined by Section 101(14) of the Comprehensive Environmental Response, Compensation Liability Act (42 U.S.C. sec. 9601(14)), Section 3001(a) of the Resource Conservation and Recovery Act (42 U.S.C. ∋6921(a)), the Hazardous Sites Cleanup Act (HSCA), 35 P.S. Section 6020 101 et seq., and regulations promulgated pursuant thereto ("Hazardous Substance"), without the prior written consent of LIDA, (b) shall give prompt written notice to LIDA and all appropriate regulatory authorities of any such release or threatened release of any Hazardous Substances on the Sublease Premises, the LIDA Lease Premises or LEAD caused by or related to the activity of the Tenant, its agents, employees, contractors or invitees, and (c) at its own expense, shall promptly contain and remediate any such release in accordance with applicable law and regulation. In this regard, the Tenant specifically agrees to comply with all provisions of the MOA and the Army Lease regarding environmental matters.

7.5 Assignment and Subleasing

The Tenant shall not assign, sublet, mortgage, pledge or encumber (collectively referred to herein as "Transfer") this Sublease without LIDA's prior written consent. As used herein, the term "assign" shall be deemed to include, without limitation, any transfer of the Tenant's interest in the Sublease by operation of law. Consent by LIDA, whether express or implied, to any Transfer shall not constitute a waiver of LIDA's right to prohibit any subsequent Transfer; nor shall such consent be deemed a waiver of any of LIDA's rights under this Sublease upon any subsequent Transfer.

If the Tenant intends to enter into a Transfer which requires LIDA's consent, the Tenant shall so notify LIDA in writing, stating:

(a) the name of the proposed transferee;

(b) a current financial statement of the proposed transferee;

(c) the exact terms of the Transfer; and

(d) a precise description of the portion of the Sublease Premises intended to be subject thereto.

Within thirty (30) days of receipt of such writing, LIDA shall either consent to or deny the request for such Transfer, stating in writing its reason therefor.

If LIDA consents to such Transfer, the Tenant shall:

(a) enter into such Transfer on the exact terms described to LIDA within thirty (30) days of LIDA's consent or comply again with the terms of this subsection; and

(b) remain liable for the payment and performance of the terms and covenants of this Sublease.

If the Tenant enters into a Transfer, the Tenant shall pay to LIDA when received the excess, if any, of amounts received in respect of such Transfer over the Rent.

7.6 <u>Surrender</u>

The Tenant shall, on the Termination Date or on the date of an earlier termination of the Sublease, remove all of the Tenant's goods and effects from the Sublease Premises. The Tenant shall peaceably vacate and surrender to LIDA the Sublease Premises and deliver all keys, locks thereto and other fixtures connected thereto, unless LIDA requests removal of the same, and all alterations and additions made to or upon the Sublease Premises, in the same condition as they were on the Date of Occupancy, or as they were put in during the Term hereof, reasonable wear and tear or taking or condemnation by public authority only excepted. In the event of the Tenant's failure to remove any of the Tenant's property from the Sublease Premises, LIDA is hereby authorized at its sole option, without liability to the Tenant for loss or damage, and at the sole risk of the Tenant, (a) to remove and store any of the property at the Tenant's expense, or (b) to retain said property under LIDA's control or (c) to sell at public or private sale, after ten (10) days notice to the Tenant at its address last known to LIDA, any or all of the property not so removed, and to apply the net proceeds of such sale to the payment of any sum due hereunder, (d) to destroy such property, or (e) to otherwise lawfully deal with such property.

7.7 <u>Acceptance of Surrender</u>

No surrender to LIDA of the Sublease or of the Sublease Premises or any part thereof or of any interest therein by the Tenant shall be valid or effective unless required by the provisions of the Sublease or unless agreed to and accepted in writing by LIDA. No act on the part of any

representative or agent of LIDA, and no act on the part of LIDA, other than the acceptance of such a written agreement by LIDA as provided above shall constitute or be deemed an acceptance of any such surrender.

7.8 Holding Over

If the Tenant or anyone claiming under the Tenant shall remain in possession of the Sublease Premises or any part thereof after the expiration of the Term, without any agreement in writing between LIDA and the Tenant with respect thereto, the person remaining in possession shall be deemed a tenant at sufferance and shall pay two (2) times the monthly Base Rent provided herein for use and occupancy. Such person remaining in possession shall be deemed a tenant from month to month, subject to the provisions of this Sublease, insofar as the same may be made applicable to a tenant from month to month.

7.9 Tenant's Estoppel

The Tenant shall, at any time and from time to time during the Term of this Sublease, after receipt of prior written notice from LIDA or LIDA's then current or prospective mortgagee, execute, acknowledge and deliver a written statement certifying that this Sublease is in full force and effect subject only to such modifications as may be set out; and that the Tenant is in possession of the Sublease Premises and is paying Rent as provided in this Sublease; and the date the Rent is paid; and that there are not any uncured defaults on the part of LIDA, or specifying such defaults if they are claimed. Any such statement may be relied upon by any prospective transferee or mortgagee of all or any portion of the Sublease Premises, or any assignee of any such persons. If the Tenant fails to deliver such statement in a timely manner, the Tenant shall be deemed to have acknowledged that this Sublease is in full force and effect, without modification, except as may be represented by LIDA, and that there are no uncured defaults in LIDA's performance.

Section 8. Fire, Casualty, and Eminent Domain

8.1 Casualty to Sublease Premises

If, during the Term of this Sublease, the building shall be damaged by fire, storm, act of God, or other casualty, in such manner that the Sublease Premises are rendered untenantable in whole or in part, LIDA shall promptly commence and diligently proceed to restore the building at its expense to its condition prior to the occurrence of such casualty (exclusive of any alterations or additions to the Sublease Premises made by the Tenant); provided, however, that in the event that the damage to the building cannot be repaired within ninety (90) days from the occurrence of the casualty, LIDA, at its option, by notice to Tenant, or Tenant may, at its option, by notice to LIDA terminate the Sublease as of the date of such casualty. In such case, Tenant shall pay the Rent and other sums due hereunder, apportioned to the date of the casualty, and

shall immediately surrender the Sublease Premises to LIDA. If the damage caused by such casualty can be repaired within ninety (90) days thereafter, this Sublease shall not be affected, except that Rent for the Sublease Premises shall abate until the damage is restored. If the Sublease Premises are rendered wholly untenantable by reason of such casualty, the Rent shall abate in full. However, if by reason of such casualty, only a portion of the Sublease Premises is rendered untenantable, Rent shall abate in proportion to the portion of the Sublease Premises rendered untenantable.

Notwithstanding the foregoing, LIDA shall have no obligation to expend funds for such restoration in excess of insurance proceeds available therefor. In addition, LIDA's restoration obligation shall be subject to all applicable federal, state and local statutes, laws and ordinances which may limit or prohibit restoration of the building as it previously existed. LIDA shall not under any circumstances, be obligated to restore any fixtures, alterations or additions installed in the Sublease Premises by Tenant. Notwithstanding any other provisions of this Sublease, if any such damage to the Sublease Premises or LIDA Lease Premises is the result of the negligence or willful misconduct of the Tenant, its officers, assignees, agents, contractors, subtenants, employees or invitees, the payment of Rent shall not be abated hereunder.

8.2 Eminent Domain

If any public authority shall, by the exercise of the power of eminent domain or under the threat of exercise of such power, take or acquire all or any part of the building or the Sublease Premises, or take or acquire a portion of the land area so as to render the remainder unusable by Tenant, this Sublease shall terminate as of the date when Tenant shall be legally compelled to surrender possession, and shall do so. In the event of such taking, Tenant waives all claims as against LIDA and as against the condemning authority or party, and it is agreed that Tenant will make no claim by reason of the complete or partial taking of the Sublease Premises except in compensation recoverable in Tenant's own right for (i) removal or moving expenses, (ii) business dislocation damages as defined in the Pennsylvania Eminent Domain Code or any federal statute or rule containing substantially similar provisions, and (iii) loss or taking of fixtures installed by Tenant in the Sublease Premises.

Section 9. Indemnification

9.1 Indemnification Obligations

Tenant shall indemnify, defend and hold LIDA harmless from any claims, damages, liabilities and actual expenses (including reasonable attorneys' fees and costs) for damage or injury to any person or any property arising from any breach or default on the part of Tenant in the performance or observation of any term of this Sublease or out of the activities conducted by Tenant in the Sublease Premises or occurring in, on or about the Sublease Premises, or arising

directly or indirectly from any act or omission of Tenant or any employee, agent or licensee of Tenant.

Section 10. Insurance

10.1 LIDA's Insurance

During the term of this Sublease, LIDA shall maintain the following insurance policies:

(a) Comprehensive public liability insurance, including insurance against the assumed or contractual liability of LIDA hereunder, to afford protection to the limit for each occurrence of not less than $1,500,000 combined single limit for bodily injury, death and property damage; and

(b) Fire and extended coverage insurance on the Sublease Premises. Such insurance shall be in the amount of $_____. Tenant may require LIDA to increase the amount of such insurance upon sixty (60) days prior notice given by Tenant to LIDA. Such insurance may be maintained under a blanket insurance policy covering the Sublease Premises and other real property owned or controlled by LIDA. Tenant shall reimburse LIDA, on demand and as additional rent, for all premiums of such insurance (or in the case of insurance maintained under any blanket policy, for such portion of the premiums as LIDA reasonably determines is allocable to the Sublease Premises).

10.2 Tenant's Insurance

(a) During the term of this Sublease, Tenant shall maintain comprehensive public liability insurance, including insurance against the assumed or contractual liability of Tenant hereunder, to afford protection to the limit for each occurrence of not less than $1,500,000 combined single limit for bodily injury, death and property damage. Such policy shall name LIDA as an additional insured, and such policy shall also contain a provision by which the insurer agrees that such policy shall not be canceled except after thirty (30) days written notice to LIDA. Such certificate thereof, shall be deposited with LIDA by Tenant not later than such date as Tenant or its agents, employees or contractors shall enter the Sublease Premises. Prior to the expiration or termination of such policy, Tenant shall deliver to LIDA a new or renewal policy (or a certificate thereof).

(b) All personal property of Tenant on the Sublease Premises, and all fixtures and additions placed on the Sublease Premises by Tenant, shall be and remain at Tenant's sole risk, and LIDA shall not be liable for any damage to, or loss of such personal property arising from any cause whatsoever, unless such liability has been expressly assumed by LIDA hereunder.

10.3 Waiver of Subrogation

LIDA and Tenant, for themselves and their respective assignees, subrogees, successors and assigns, each hereby waive the right of recovery against the other, and the other's directors, officers, employees, and business guests, and any managing agent engaged by LIDA, and their respective heirs, administrators, executors, successors and assigns, for such loss or damage to the Sublease Premises, to any improvements situate thereon and to any personal property located therein as is caused by fire or by those casualties which are described in the extended coverage provisions of the insurance contracts maintained by LIDA or Tenant, as the case may be, or in the absence of such provisions in said contracts, by those casualties which commonly are described in the extended coverage provisions of such insurance contracts. The waiver of rights herein shall not be enforceable against a party if not permitted under the terms of the policies of insurance carried by the party. Each party agrees to request the consent of its insurer to the waiver herein contained, if such consent is required.

10.4 Actions of Tenant With Respect to Insurance

The Tenant shall not permit any use of the Sublease Premises which will make voidable any insurance on the property of which the Sublease Premises are a part, or on the contents of said property, or which shall be contrary to any law or regulation from time to time established relating to the use of the Sublease Premises for the purposes described in the Sublease. The Tenant shall, on demand, reimburse LIDA, in full for all extra insurance premiums, if any, caused by the Tenant's use of the Sublease Premises. In the event the Tenant shall violate this subsection, LIDA shall give written notice of the reason for such violation to the Tenant and such violation shall be treated as a default under Subsection 11.1 hereof.

Section 11. Default

11.1 Defaults and Events of Default by Tenant

Each of the following shall constitute defaults ("Defaults"), or events of default ("Events of Default") hereunder:

(a) Monetary Default

If the Tenant shall default in the performance of any of its obligations to pay the Rent or other charges hereunder within ten (10) days after it is due;

(b) Non-Monetary Default

If the Tenant defaults in the fulfillment of any covenant or non-monetary obligation under the Sublease and the Tenant has failed to cure such default within fifteen (15) days of receiving written notice from LIDA specifying such default (or, for those failures of

obligations or covenants which are incapable of being cured within such fifteen (15) day period, if the Tenant has failed to commence diligently to correct the default specified or has not thereafter diligently pursued such correction to completion):

(c) Other Defaults

(i) If any assignment shall be made by the Tenant or any guarantor of the Tenant for the benefit of creditors;

(ii) If the Tenant's subleasehold interest shall be taken on execution;

(iii) If a lien or other involuntary encumbrance is filed against the Tenant's subleasehold interest or the Tenant's other property, and is not discharged within sixty (60) days thereafter;

(iv) If a petition is filed by the Tenant for adjudication as a bankrupt, or for reorganization or any arrangement under any of the provisions of any bankruptcy, receivership, insolvency or debtor relief law; or

(v) If an involuntary petition under any of the provisions of any bankruptcy, receivership, insolvency or debtor relief law is filed against the Tenant, or any guarantor of the Tenant, and such involuntary petition is not dismissed within sixty (60) days thereafter.

11.2 Remedies of LIDA

Upon the occurrence of an Event of Default, LIDA, in addition to any other remedies available to it in law or in equity, shall have the right to do any or all of the following:

(a) Terminate this Sublease and all of Tenant's rights hereunder; provided, however, that such termination shall not relieve Tenant of liability for any amount due or accrued to LIDA, or for damages caused to LIDA by reason of Tenant's default, and such termination shall not affect or impair LIDA's other rights in the event of Default. Upon termination, Tenant shall immediately quit and surrender to LIDA the Sublease Premises, and LIDA may then, or at any time thereafter, with or without resort to process of any court, and by force or otherwise, enter into and repossess the Sublease Premises. If LIDA elects to terminate the Sublease as aforesaid, Tenant expressly waives the right to any notice required pursuant to Pennsylvania Landlord and Tenant Act, as amended, or as may otherwise be provided by law. LIDA shall be obligated to give only such notice as may specifically be required pursuant to the terms of this Sublease.

(b) Declare immediately due and payable all rent for the balance of the then current term of the Sublease, and any renewal term elected for in writing by Tenant.

(c) In the event of Default in the payment of Base Rent or additional rent by Tenant, or any breach of any covenant to pay any amount due or become due LIDA, Tenant does hereby empower any attorney of any court of record to appear for Tenant to confess money judgment against Tenant and in favor of LIDA for the sum of the Base Rent and additional rent then due and for the sum due by reason of any breach of any covenant by Tenant, with costs of suit and an attorney's commission of ten (10) percent for collection, and to issue execution thereon with release of all errors and without stay of execution. Such authority shall not be exhausted by one exercise thereof but judgment may be confessed as aforesaid from time to time as often as any default in the payment of any such sum shall occur.

(d) In the event of any Default by Tenant and the failure of Tenant to cure such default within the time provided herein, or at the expiration of the term of this Sublease, Tenant hereby authorizes and empowers any attorney of any court of record to appear for Tenant and confess judgment against Tenant and in favor of LIDA in an amicable action of ejectment for the Sublease Premises with cost of suit, and to issue writs of execution and possession thereon with release of all errors and without stay of execution. Such authority shall not be exhausted by one exercise thereof but judgments in ejectment may be confessed as aforesaid from time to time as often as it be necessary for LIDA to obtain possession of the Sublease Premises in accordance with any provisions of this Sublease.

11.2.1 <u>Damages for Tenant's Default</u>

If this Sublease shall be terminated by reason of Default, LIDA shall use reasonable efforts to relet the whole, or any part of the Sublease Premises; provided, however, that such reletting may be for a period equal to, or greater or less than the remainder of the term of this Sublease, at such rental and upon such terms and conditions as LIDA shall deem reasonable, to any tenant or tenants which it may deem suitable and satisfactory and for any use and purpose for which it may deem appropriate. In no event shall LIDA be liable to Tenant in any respect for failure to relet the Sublease Premises, or in the event of such reletting, for failure to collect the rent thereunder. Any sums received by LIDA on reletting in excess of the rent described in this Sublease shall belong to LIDA. As damages for default resulting in termination, Tenant agrees to pay to LIDA, in addition to all amounts due at or before termination, the following:

(a) All reasonable expenses, including attorneys' fees, incurred by LIDA in enforcing this Sublease and recovering possession of the Sublease Premises;

(b) All reasonable costs and charges for the care of the Sublease Premises while vacant;

(c) All reasonable expenses incurred by LIDA in connection with the reletting of the Sublease Premises or any part thereof, including without limitation commissions, advertising expenses and the costs of restoring the Sublease Premises to its condition at the time

of delivery of possession to Tenant;

(d) An amount equal to the Base Rent and additional rent required to be paid by Tenant under this Sublease, less the rent, if any, collected by LIDA on reletting the Sublease Premises. All damages due by reason of expenses incurred by LIDA shall be due and paid by Tenant at such times as the expenses shall be incurred by LIDA. All other amounts specified in this subparagraph (d) hereof shall be due and payable by Tenant on the several days on which the Base Rent and additional rent would have become due and payable (any rent accelerated hereunder by reason of Tenant's Default being deemed due and payable on the date of acceleration) had this Sublease not been terminated by reason of Tenant's Default.

11.3 LIDA's Right to Cure

Following ten (10) days prior written notice to Tenant, LIDA may, but need not, cure any failure by the Tenant to perform its obligations under this Sublease. Whenever LIDA chooses to do so, all costs and expenses incurred by LIDA in curing any such failure, including, without limitation, reasonable attorneys' fees together with interest on the amount of costs and expenses so incurred at an annual rate equal to eighteen percent (18%) or five percent (5%) over the prime rate of interest as published from time to time in the Wall Street Journal, whichever is greater, shall be paid by the Tenant to LIDA on demand and shall be recoverable as additional rent.

11.4 Surrender

Upon any termination of this Sublease as the result of a Default, the Tenant shall quit and peacefully surrender the Sublease Premises to LIDA. Upon or at any time after any such termination, LIDA may have, hold, and enjoy the Sublease Premises and the right to receive all rental income of and from the same.

11.5 Right to Relet

At any time and from time to time after any such termination, LIDA may relet the Sublease Premises or any part thereof, in the name of LIDA or otherwise, for such term or terms (which may be greater or less than the period which would otherwise have constituted the balance of the Term) and on such conditions (which may include concessions or free rent) as LIDA, in its reasonable discretion, may determine, and may collect and receive rents therefor. LIDA shall in no way be responsible or liable for any failure to relet the Sublease Premises or any part thereof, provided LIDA exercised good faith efforts and reasonable diligence to do so, or for any failure to collect any rent due upon any such reletting.

11.6 Survival of Covenants

No such termination of this Sublease shall relieve the Tenant of its liability and obligations under this Sublease and all such liability and obligations shall survive such

termination. Tenant shall defend, indemnify and hold LIDA harmless from all loss, cost, expense, damage or liability arising out of or in connection with such termination.

11.7 Right of Equitable Relief

If there shall occur a Default or threatened Default, LIDA shall be entitled to enjoin such Default or threatened Default and shall have the right to invoke any right and remedy allowed at law or in equity or by statute or otherwise as though re-entry, summary proceeding, and other remedies were provided for in this Sublease.

11.8 Defaults and Events of Default by LIDA

In the event LIDA breaches any of LIDA's covenants, agreements, conditions, or warranties in this Sublease, which default remains uncured after thirty (30) days written notice from the Tenant specifying such default (or, for those failures of obligations or covenants which are incapable of being cured in a thirty (30) day period, if LIDA has failed to commence diligently to correct the default specified or has not thereafter diligently pursued such correction to completion), it shall be deemed a default hereunder by LIDA.

11.9 Remedies of Tenant

Upon the occurrence of an event of default by LIDA which remains uncured beyond all applicable notice and grace periods, the Tenant shall have the right to seek monetary damages from LIDA, but shall not have the right to terminate this Sublease.

11.10 Notice to Mortgagee

No act or failure to act on the part of LIDA which would entitle the Tenant under the terms of this Sublease or by law to be relieved of the Tenant's obligations hereunder shall result in a release or termination of such obligations unless:

(a) the Tenant shall have first given written notice of LIDA's act or failure to act to LIDA's mortgagees of record, if any, specifying the act or failure to act on the part of LIDA; and

(b) such mortgagees, after receipt of such notice, have had the opportunity to cure such default(s) within a reasonable time thereafter;

but nothing contained in this subsection shall be deemed to impose any obligation on any such mortgagees to correct or cure any such condition. "Reasonable time" as used above shall mean a period of not less than sixty (60) business days and shall include (but not be limited to) a reasonable time to obtain possession of the Sublease Premises if the mortgagee elects to do so and a reasonable time to correct or cure the defaults if such defaults are determined to exist.

Notwithstanding the foregoing, Tenant shall have no obligation to provide the notice required hereunder unless and until LIDA or the mortgagee has given notice to Tenant of the existence of any such mortgagee and the address thereof.

11.11 Bind and Inure; Limitation of LIDA's Liability

The obligations of this Sublease shall run with the land, and this Sublease shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns. No individual, officer, director, agent, or employee of LIDA shall be personally liable under this Sublease and the Tenant shall look solely to LIDA's interest in the Sublease Premises in pursuit of its remedies upon a default beyond applicable notice and grace periods of LIDA hereunder, and the general assets of LIDA, its directors, officers, agents, and employees shall not be subject to levy, execution, or other enforcement procedure for the satisfaction of the remedies of the Tenant.

Section 12. Miscellaneous

12.1 Amendments to Sublease

None of the covenants, agreements, provisions, terms and conditions of this Sublease shall in any manner be amended, changed, altered, waived or abandoned except by a written instrument, signed, sealed and mutually agreed upon by the parties hereto. Such instrument shall not be void for want of consideration. Furthermore, the parties agree that following the acquisition in fee of the LIDA Lease Premises by LIDA, LIDA in good faith may make reasonable and necessary adjustments to this Sublease to reflect this changed ownership status, including, without limitation, adjustments regarding the provision of services and utility services to the Sublease Premises, and Tenant hereby agrees to execute LIDA's written instrument evidencing the same.

12.2 Subordination

This Sublease shall be subject and subordinate to any and all mortgages granted now or at any time hereafter constituting a lien or liens on the property of which the Sublease Premises are a part and to each advance made or hereafter to be made under any mortgage, and to all renewals, modifications, consolidations, replacements, and extensions thereof and all substitutes therefor. The Tenant shall, when requested, execute and deliver such written instruments as shall be necessary to show the subordination of this Sublease to the mortgage(s), provided that the holder thereof executes and delivers to the Tenant an instrument reasonably satisfactory to the Tenant and to the effect that the holder shall not disturb the Tenant's possession of the Sublease Premises under this Sublease so long as the Tenant is not in default hereunder.

12.3 Force Majeure

Except in the case of payment of Rent, in any case where either party hereto is required to do any act, delays caused by or resulting from war or other national emergency, fire, flood or other casualty, unusually severe weather or other causes beyond such party's reasonable control, shall not be counted in determining the time during which such act shall be completed, whether such time be designated by a fixed date, a fixed time or "a reasonable time," and such time shall be deemed to be extended by the period of the delay.

12.4 Notices

All notices, demands, requests and other instruments which may or are required to be given by either party to the other under the Sublease shall be in writing, and shall be deemed to have been properly given if (a) delivered by hand, or facsimile, if a receipt therefore is obtained, or (b) sent by United States certified mail, return receipt requested, postage prepaid, addressed to LIDA or the Tenant at the addresses contained herein, or at such other address or addresses as LIDA or the Tenant from time to time may have designated by written notice to the other party.

12.5 Successors and Assigns

The Sublease shall be binding upon and shall inure to the benefit of the parties hereto and their respective representatives, successors and assigns.

12.6 Integrated Agreement

The Sublease incorporates all discussions and negotiations between LIDA and the Tenant concerning the matters included herein. No such discussions or negotiations shall limit, modify or otherwise affect the provisions hereof.

12.7 Partial Invalidity

If any provision of the Sublease is held to be invalid or unenforceable by a court of competent jurisdiction, all of the other provisions hereof shall remain in full force and effect and shall be liberally construed in favor of LIDA in order to effect the provisions of the Sublease.

12.8 Choice of Law; Jurisdiction

The Sublease shall be governed, construed and enforced under the laws of the Commonwealth of Pennsylvania. Furthermore, the Tenant agrees that any and all legal actions hereunder or related to the Sublease shall be pursued in the courts located in the Commonwealth of Pennsylvania and agrees to submit to the jurisdiction of the courts of the Commonwealth of Pennsylvania for such purposes.

12.9 Headings

The use of headings is for convenience of reference only and does not alter the meaning of any section.

12.10 Anti-Waiver Clause

No delays or omissions by LIDA or the Tenant in exercising or enforcing any of LIDA's or the Tenant's rights and remedies shall constitute a wavier of or otherwise impair any such right or remedy, nor shall it be construed to be a waiver of any such default or an acquiescence therein. A waiver on one occasion shall not operate as a bar to or waiver of any such right or remedy on any future occasion, nor shall it be deemed a continuing waiver. No single or partial exercise of LIDA's or the Tenant's rights or remedies, and no other agreement or transaction of whatever nature entered into between LIDA and the Tenant at any time, whether before, during or after the date hereof, precludes any other or further exercise of LIDA's or the Tenant's rights and remedies.

12.11 Cumulative Nature of Rights

All of LIDA's or the Tenant's rights hereunder shall be cumulative and not exclusive of any rights or remedies it would otherwise have and LIDA or the Tenant, as the case may be, may exercise such rights or remedies at any such time or times and in such order of preference as LIDA or the Tenant, in its sole discretion, may determine.

12.12 Counterparts

The Sublease may be executed in any number of counterparts and by the parties hereto in separate counterparts, each of which when so executed shall be deemed an original, but all counterparts together shall constitute one and the same instrument.

12.13 Reservations of Rights under the Interagency Agreement

The parties acknowledge the existence of the LEAD Interagency Agreement ("IAG"). The parties agree that should any conflict arise between the terms of the IAG, as it presently exists or may be amended, and the provisions of this Sublease, the terms of the IAG will take precedence.

12.14 Exhibits and Riders

The Exhibits attached hereto are made a part of the Sublease for all purposes.

12.15 Brokerage

The parties acknowledge that no brokerage commission is due to any person in connection with this Sublease.

12.16 Waiver of Trial by Jury and Counterclaims

The parties hereto shall and they do hereby waive trial by jury in any action, proceeding or counterclaim brought by either of the parties hereto against the other on any matters whatsoever arising out of or in any way connected with this Sublease, the relationship of LIDA and Tenant, Tenant's use or occupancy of the Sublease Premises, and/or any claim of injury or damage. In the event LIDA commences any proceedings for the non-payment of rent, Tenant will not interpose any counterclaim of whatever nature or description in any such proceedings except such as arise from any claim of breach or non-performance by LIDA or any related party of any provision of this Sublease. This shall not, however, be construed as a waiver of Tenant's right to assert such claims in any separate action or actions brought by Tenant.

12.17 Third Party Beneficiary

Nothing contained in this Sublease shall be construed so as to confer upon any other party the rights of a third party beneficiary except rights contained herein for the benefit of a mortgagee.

12.18 Financial Information

Within seven (7) days of receipt of a written request by LIDA to Tenant, Tenant shall submit to LIDA current financial information of Tenant. Such financial information shall include a balance sheet, profit and loss statement, cash flow projection and such other financial information as LIDA shall reasonably request.

All such financial information shall be prepared in accordance with generally accepted accounting principals and practices consistently applied. If such financial information is not prepared and certified by a certified public accountant, it shall be certified as true and correct by the applicable party to which such information relates. Landlord may provide such financial information to any current or proposed mortgagee of the Sublease Premises.

IN WITNESS WHEREOF, this Lease is executed on the above date.

LETTERKENNY INDUSTRIAL
DEVELOPMENT AUTHORITY

By:_____

Attest:_____

_____

By:_____

EXHIBIT A

Sketch of the Sublease Premises

EXHIBIT B

Leasehold Improvements – LIDA Responsibilities

EXHIBIT C

Leasehold Improvements - Tenant Responsibilities

1. Water and sewer connections in accordance with plans and specifications previously reviewed and initialed by the parties shall be installed by Tenant. Tenant shall pay all costs associated therewith, including payment of all connection and tapping fees and other charges related thereto.