DRAFT

FINDING OF SUITABILITY TO TRANSFER (FOST)

Wilson-Kramer U.S. Army Reserve Center (PA008)
2940 Airport Road
Bethlehem, Pennsylvania 18017

September 2015

FINDING OF SUITABILITY TO TRANSFER
(FOST)

Wilson – Kramer USAR Center
Bethlehem, Pennsylvania

1. PURPOSE

The purpose of this Finding of Suitability to Transfer (FOST) is to document the environmental suitability of property at the Wilson – Kramer United States Army Reserve Center (USARC), located at 2940 Airport Road, Bethlehem, Pennsylvania, for transfer to the City of Bethlehem Police Department for administrative/training reuse consistent with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 120(h) and Department of Defense (DOD) policy. In addition, the FOST includes an Access Provision, other Deed Provisions and the Environmental Protection Provisions (EPPs) necessary to protect human health or the environment after such transfer.

2. PROPERTY DESCRIPTION

The property consists of approximately 4.5 acres, which includes three permanent buildings: Administration Building, Organizational Maintenance Shop (OMS), and Storage Shed. The property was previously used for administrative, training, and vehicle and equipment maintenance. The property is intended to be transferred for reuse as training facilities for police, fire and health department per the Reuse Plan. A site map of the property is attached (Enclosure 1).

3. ENVIRONMENTAL DOCUMENTATION

A determination of the environmental condition of the property was made based upon the following documents:

- UST Closure Report, Wilson-Kramer USARC, November 1996,
- Range Cleanup – PA008, Wilson-Kramer USAR Center, May 2003
- Environmental Condition of Property (ECP) Report, Wilson-Kramer USAR Center, February, 2007
- ECP Update Report, Wilson-Kramer USAR Center, June 2012
- Asbestos Visual Inspection Report, Wilson-Kramer USAR Center, July 2012
- Indoor Firing Range Lead Sampling Report, Wilson-Kramer USAR Center, August 2012
- Indoor Firing Range After Action Report, Wilson-Kramer USAR Center, September 2012
- Radiological Survey July 2014
- ECP Recertification, August 2015

The information provided is a result of a search of agency files during the development of these environmental surveys. A list of documents providing information on environmental

conditions of the property is attached (Enclosure 2).

4. ENVIRONMENTAL CONDITION OF PROPERTY

The DOD Environmental Condition of Property (ECP) categories for the property are as follows:

ECP Category 2: Wilson – Kramer USAR Center (PA008); entire parcel including all building structures.

A summary of the ECP categories for specific buildings, parcels, or operable units and the ECP category definitions is provided in Table 1 – Description of Property (Enclosure 3).

4.1. Environmental Investigation/Remediation Sites

There was one investigation/remediation site located on the property. A summary of the environmental investigation/remediation sites on the property is as follows: Subsurface investigation as part of a 5,000-gallon No. 2 Fuel Oil UST Closure. Three soil samples were collected from the bottom of the excavation and one from the excavated material. Sample results detected low concentrations of POL products; however, all results were below regulatory action levels. All environmental soil and groundwater investigation/remediation activities on the property have been completed or are in place and operating properly and successfully. See *UST Closure Report, Wilson-Kramer USARC, November 1996* (in Appendix D of the 2007 ECP) and Section 3.5.2 of the 2007 ECP Report for additional information. A summary of the environmental investigation/remediation sites is provided in Table 1 – Description of Property (Enclosure 3).

4.2. Storage, Release, or Disposal of Hazardous Substances

There is no evidence that hazardous substances were stored, released or disposed of on the Property in excess of 40 CFR Part 373 reportable quantities. Refer to Section 3.3 of the 2007 ECP Report for additional information.

4.3. Petroleum and Petroleum Products

4.3.1. Underground and Above-Ground Storage Tanks (UST/AST)

- **Current UST/AST Sites** - There are no underground and/or no above ground petroleum storage tanks (UST/AST) on the Property.

- **Former UST/AST Sites** – There was one underground and one above-ground petroleum storage tanks that have been removed or closed in place. Petroleum product releases occurred at the following sites: 5,000-gallon No. 2 fuel oil UST. The release of these petroleum products was remediated at the time of the release or as part of UST/AST closure. See *UST Closure Report, Wilson-Kramer USARC, November 1996* (in Appendix D of 2007 ECP), for additional information.

A summary of the UST/AST petroleum product activities is provided in Table 2 – Notification of Petroleum Products Storage, Release, or Disposal (Enclosure 4).

4.3.2. Non-UST/AST Storage, Release, or Disposal of Petroleum Products

There is no evidence that non-UST/AST petroleum products in excess of 55 gallons were stored for one year or more on the property.

4.4. Polychlorinated Biphenyls (PCB)

The following potentially PCB-containing equipment is located on the property: three pole-mounted transformers along Airport Road, adjacent to the Administration Building. This equipment is operational, owned and operated by the local utility company, and has been determined not to be leaking. In 1991, the transformer contents were sampled and deemed to have levels of less than 1.0 parts per million PCBs. See Section 6.6 of the 2007 ECP Report for additional information.

4.5. Asbestos

There is known and presumed asbestos-containing material in the: Administration Building and OMS. The ACM includes friable ceiling tiles with grooves & pinholes, sheetrock/joint compound, and sheetrock wall panels and non-friable floor tile, mastic, coving, caulking, plaster, vault door, and roofing materials. See 2012 *Asbestos Visual Inspection Report* for additional information (Enclosure 8). Any remaining friable asbestos that has not been removed or encapsulated will not present an unacceptable risk to human health because the transferee will be notified that friable and non-friable asbestos has been found on the property and will assume responsibility for abatement or management of any ACM in accordance with applicable federal, state, and local requirements. The deed will include an asbestos warning and covenant (Enclosure 6).

4.6. Lead-Based Paint (LBP)

The following buildings are known or presumed to contain lead-based paint (LBP): Administration Building, OMS, and Storage Shed. See Section 6.7 of the 2007 ECP Report for additional information. The property was not used for residential purposes and the transferee does not intend to use the property for residential purposes in the future. The deed will include a lead-based paint warning and covenant (Enclosure 6).

4.7. Indoor Firing Ranges

The following buildings are known to contain lead-contaminated dust from a former indoor firing range: Administration Building. Lead-contaminated dust was remediated to concentrations below 200 µg/ft^2. See *Range Cleanup – PA008, Wilson-Kramer USAR Center, May 2003* (in Appendix D of the 2007 ECP); *Indoor Firing Range Lead Sampling Report Wilson-Kramer USAR Center, August 2012* (an attachment to the 2015 ECP Recertification); and *Indoor Firing Range*

After Action Report, Wilson-Kramer USAR Center, September 2012 (an attachment to the 2015 ECP Recertification) for additional information. The deed will include a lead-contaminated dust warning and covenant (Enclosure 6).

4.8. Radiological Materials

Low-level radioactive material was present in sealed sources incorporated as part of components or end products such as small arms gun sights, wrist watches, compasses, dials and gauges, RADIAC check sources, chemical agent monitors, chemical agent alarms, and night vision thermal imaging devices. There is no evidence of any release of radiological materials at the main Administration Building on the Property.

In July 2014, the Army finalized a radiological site assessment (RSA) of the Property in compliance with the accepted federal government protocol (MARSSIM Class 3). The RSA Report 2014 concluded that the property is suitable for unrestricted use from a radiological perspective. On July 30, 2014 the U.S. Army Office of the Chief of Staff for Installation Management (OACSIM) determined the site to be free of radiological concerns. See the *Final Radiological Site Assessment Report Wilson-Kramer USARC*, July 2014 (an attachment to the 2015 ECP Recertification), and the OACSIM Memorandum for Record, *Subject: Results of the Radiological Survey at the Wilson-Kramer USAR Center, Bethlehem, Pennsylvania*, July 2014 (at Enclosure 7) for additional information.

4.9. Radon

A radon survey was conducted at the USAR Center in 1989. Radon was detected at above the EPA residential action level of 4 picocuries per liter (pCi/L) in the following buildings: Administration Building. A soil depressurization radon mitigation system was installed at the USAR Center in 1997. See Section 6.8 of the 2007 ECP Report for additional information.

4.10. Munitions and Explosives of Concern (MEC)

Based on a review of existing records and available information, there is no evidence that Munitions and Explosives of Concern (MEC) are present on the property. In addition, the property has historically been used as an administrative and vehicle maintenance facility. The term "MEC" means military munitions that may pose unique explosives safety risks, including: (A) unexploded ordnance (UXO), as defined in 10 U.S.C. §101(e)(5); (B) discarded military munitions (DMM), as defined in 10 U.S.C. §2710(e)(2); or (C) munitions constituents (e.g., TNT, RDX), as defined in 10 U.S.C. §2710(e)(3), present in high enough concentrations to pose an explosive hazard.

4.11. Other Property Conditions

There are no other hazardous conditions on the property that present an unacceptable risk to human health and the environment.

5. ADJACENT PROPERTY CONDITIONS

The following other potentially hazardous conditions exist on adjacent properties: The Airport Garage, located at 3220 Airport Road and approximately 700 feet north of the USAR Center has a Leaking Underground Storage Tank (LUST) incident associated with it. According to the latest regulatory information, the LUST incident associated with the Airport Garage site received a "Cleanup Completed" status on May 19, 2010. A Cleanup Completed status is granted to those sites that either do not exhibit levels of contamination requiring clean-up, have been remediated to the satisfaction of the State of Pennsylvania, or are not suspected to represent a significant threat to human health or the environment. Therefore, the presence of these hazards on an adjacent property does not present an unacceptable risk to human health and the environment because all petroleum releases have been granted a NFA status by the lead regulatory agency.

6. ENVIRONMENTAL REMEDIATION AGREEMENTS

There are no environmental remediation orders or agreements applicable to the property being transferred. The deed will include a provision reserving the Army's right to conduct remediation activities if necessary in the future (Enclosure 5).

7. REGULATORY/PUBLIC COORDINATION

The U.S. EPA Region 3, the Pennsylvania Department of Environmental Protection (PADEP), and the public were notified of the initiation of this FOST. Regulatory/public comments received during the public comment period will be reviewed and incorporated, as appropriate. A copy of the regulatory/public comments and the Army Response will be included at Enclosure 9.

8. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE

The environmental impacts associated with the proposed transfer of the property have been analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis are documented in the Record of Environmental Consideration dated August 2015. There were no encumbrances or conditions identified in the NEPA analysis as necessary to protect human health or the environment.

9. FINDING OF SUITABILITY TO TRANSFER

Based on the above information, I conclude that all removal or remedial actions necessary to protect human health and the environment have been taken. In addition, all Department of Defense requirements to reach a finding of suitability to transfer have been met, subject to the terms and conditions set forth in the attached Environmental Protection Provisions that shall be included in the deed for the property. The deed will also include an Access Provision and Other Deed Provisions. Whereas no hazardous substances were stored for one year or more, known to have been released, or disposed of on the property, a hazardous substance notification is not required.

Christine M. Ploschke Date
Acting Chief
99th RSC Environmental Division

Enclosures

Encl 1 – Site Map of Property
Encl 2 – Environmental Documentation
Encl 3 – Table 1 – Description of Property
Encl 4 – Table 2 – Notification of Petroleum Product Storage, Release, or Disposal
Encl 5 – Access Provision and Other Deed Provisions
Encl 6 – Environmental Protection Provisions
Encl 7 – Radiological Survey Memo
Encl 8 – Asbestos Survey
Encl 9 – Regulatory/Public Comments and Army Response

ENCLOSURE 1
SITE MAP OF PROPERTY

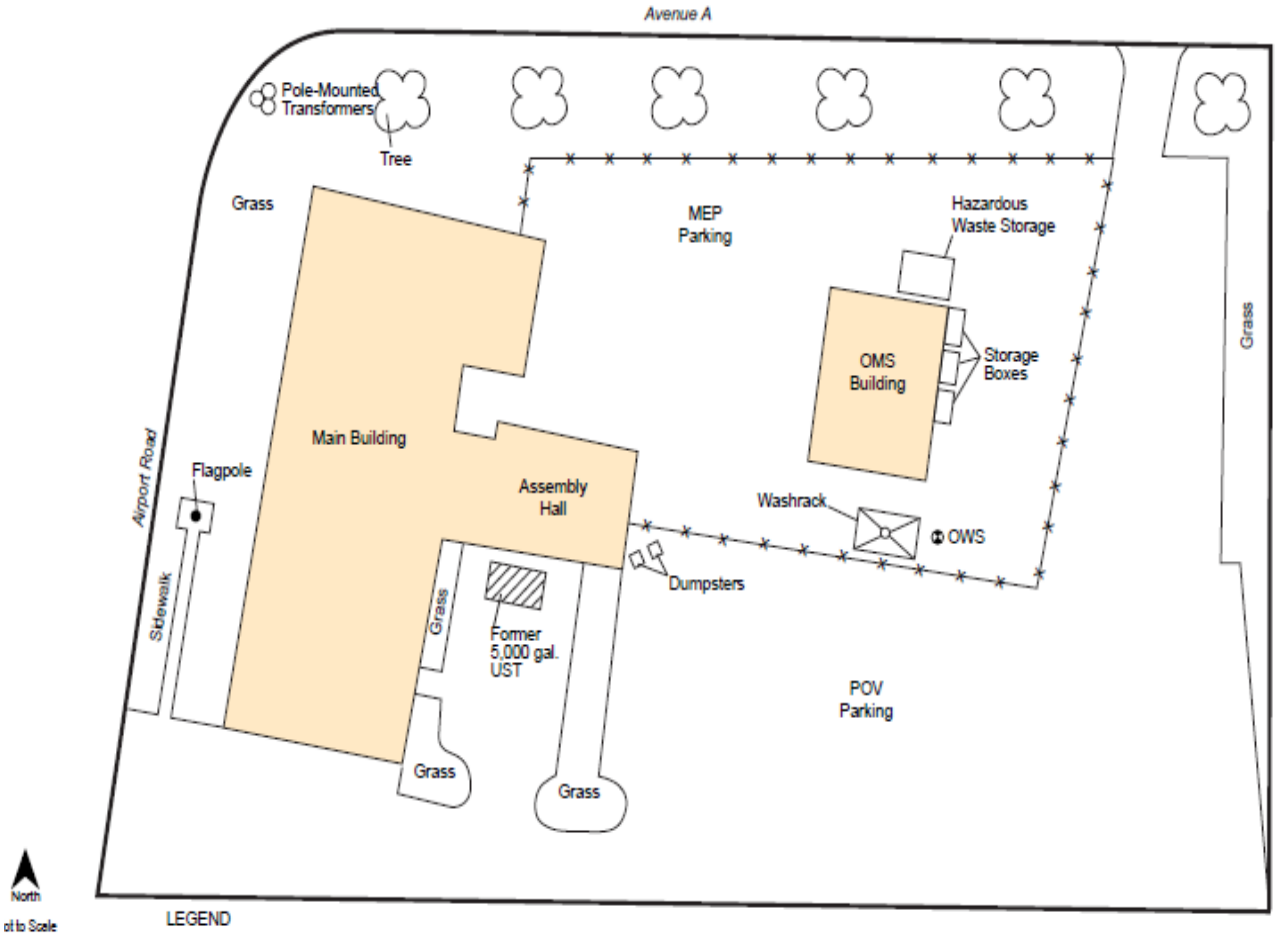

FIGURE 2
Site Layout Plan
Phase I ECP Report

ES062006013MKE Bethlehem\Figure_2_Site Layout Plan_v2 9-18-06 jwlcae

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HIS2

ENCLOSURE 2

ENVIRONMENTAL DOCUMENTATION

Document	Source
Environmental Condition of Property Report, Wilson-Kramer USAR Center, February 2007	99th RSC
ECP Update Report, Wilson-Kramer USAR Center, June 2012	99th RSC
ECP Recertification, Wilson-Kramer USARC, August 2015	99th RSC
Asbestos Visual Inspection Report, Wilson-Kramer USAR Center, August 2012	99th RSC
Record of Environmental Consideration, August 2015	99th RSC
Indoor Firing Range Lead Sampling Report, Wilson-Kramer USAR Center, August 2012	99th RSC
Indoor Firing Range After Action Report, Wilson-Kramer USAR Center, September 2012	99th RSC
Radiological Site Assessment Report, Wilson-Kramer USAR Center, July 2014	USACE
Memorandum – Results from the Radiological Survey at the Wilson-Kramer USARC in Bethlehem, Pennsylvania, July 2014	ACSIM

ENCLOSURE 3

TABLE 1 – DESCRIPTION OF PROPERTY

Building Number and Property Description	Condition Category	Remedial Actions
Administration Building – Former No. 2 Fuel Oil UST	2	None Required. Subsurface investigation as part of a 5,000-gallon No. 2 Fuel Oil UST Closure. Three soil samples were collected from the bottom of the excavation and one from the excavated material. Sample results detected low concentrations of POL products; however, all results were below regulatory action levels. See *UST Closure Report, Wilson-Kramer USARC, November 1996* and Section 3.5.2 of the 2007 ECP Report for additional information.
AMSA Shop – Former AST		None Required. A 1,000-gallon AST containing diesel fuel was removed from the property some time before 2007. No releases are associated with the former AST. See Section 6.1 of the 1007 ECP Report for additional information.
Administration Building – Former Indoor Firing Range		None Required. The following buildings are known to contain lead-contaminated dust from a former indoor firing range: Administration Building. Lead-contaminated dust was remediated to concentrations below 200 µg/ft^2. See *Range Cleanup – PA008, Wilson-Kramer USAR Center, May 2003, Indoor Firing Range Lead Sampling Report, Wilson-Kramer USAR Center, August 2012,* and *Indoor Firing Range After Action Report, Wilson-Kramer USAR Center, September 2012* for additional information.

Category 1: Areas where no release or disposal of hazardous substances or petroleum products has occurred. (including no migration of these substances from adjacent areas)
Category 2: Areas where only release or disposal of petroleum products has occurred.
Category 3: Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial response.
Category 4: Areas where release, disposal, and/or migration of hazardous substances has occurred, and all removal or remedial actions to protect human health and the environment have been taken).

ENCLOSURE 4

TABLE 2 – NOTIFICATION OF PETROLEUM PRODUCT STORAGE, RELEASE, OR DISPOSAL

Building Number	Name of Petroleum Product(s)	Date of Storage, Release, or Disposal	Remedial Actions
Administration Building	No. 2 Fuel Oil	~1957 to 1996	None Required. Subsurface investigation as part of a 5,000-gallon No. 2 Fuel Oil UST Closure. Three soil samples were collected from the bottom of the excavation and one from the excavated material. Sample results detected low concentrations of POL products; however, all results were below regulatory action levels. See *UST Closure Report, Wilson-Kramer USARC, November 1996* and Section 3.5.2 of the 2007 ECP Report for additional information.
OMS	Diesel	~1957 to 2007	None Required. A 1,000-gallon AST containing diesel fuel was removed from the property some time before 2007. No releases are associated with the former AST. See Section 6.1 of the 1007 ECP Report for additional information.

ENCLOSURE 5

ACCESS PROVISIONS AND OTHER DEED PROVISIONS

The following Access Provisions along with the Other Deed Provisions, will be placed in the deed in a substantially similar form to ensure protection of human health and the environment and to preclude any interference with ongoing or completed remediation activities.

I. Access Rights:

A. The United States retains and reserves a perpetual and assignable easement and right of access on, over, and through the property, to enter upon the property in any case in which an environmental response or corrective action is found to be necessary on the part of the United States, without regard to whether such environmental response or corrective action is on the property or on adjoining or nearby lands. Such easement and right of access includes, without limitation, the right to perform any environmental investigation, survey, monitoring, sampling, testing, drilling, boring, coring, testpitting, installing monitoring or pumping wells or other treatment facilities, response action, corrective action, or any other action necessary for the United States to meet its responsibilities under applicable laws and as provided for in this instrument. Such easement and right of access shall be binding on the Grantee and its successors and assigns and shall run with the land.

B. In exercising such easement and right of access, the United States shall provide the Grantee or its successors or assigns, as the case may be, with reasonable notice of its intent to enter upon the property and exercise its rights under this clause, which notice may be severely curtailed or even eliminated in emergency situations. The United States shall use reasonable means to avoid and to minimize interference with the Grantee's and the Grantee's successors' and assigns' quiet enjoyment of the property. At the completion of work, the work site shall be reasonably restored. Such easement and right of access includes the right to obtain and use utility services, including water, gas, electricity, sewer, and communications services available on the property at a reasonable charge to the United States. Excluding the reasonable charges for such utility services, no fee, charge, or compensation will be due the Grantee, nor its successors and assigns, for the exercise of the easement and right of access hereby retained and reserved by the United States.

C. In exercising such easement and right of access, neither the Grantee nor its successors and assigns, as the case may be, shall have any claim at law or equity against the United States or any officer, employee, agent, contractor of any tier, or servant of the United States based on actions taken by the United States or its officers, employees, agents, contractors of any tier, or servants pursuant to and in accordance with this clause. Provided, however, that nothing in this paragraph shall be considered as a waiver by the Grantee and its successors and assigns of any remedy available to them under the Federal Tort Claims Act.

II. OTHER DEED PROVISIONS:

A. "AS IS"

1. The Grantee acknowledges that it has inspected or has had the opportunity to inspect the Property and accepts the condition and state of repair of the subject Property. The Grantee understands and agrees that the Property and any part thereof is offered "AS IS" without any representation, warranty, or guaranty by the Grantor as to quantity, quality, title, character, condition, size, or kind, or that the same is in condition or fit to be used for the purpose(s) intended by the Grantee, and no claim for allowance or deduction upon such grounds will be considered.

2. No warranties, either express or implied, are given with regard to the condition of the Property, including, without limitation, whether the Property does or does not contain asbestos or lead-based paint. The Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any asbestos, lead-based paint, or other conditions on the Property. The failure of the Grantee to inspect or to exercise due diligence to be fully informed as to the condition of all or any portion of the Property offered, will not constitute grounds for any claim or demand against the United States.

3. Nothing in this "As Is" provision will be construed to modify or negate the Grantor's obligation under CERCLA or any other statutory obligations.

B. HOLD HARMLESS

1. To the extent authorized by law, the Grantee, its successors and assigns, covenant and agree to indemnify and hold harmless the Grantor, its officers, agents, and employees from (1) any and all claims, damages, judgments, losses, and costs, including fines and penalties, arising out of the violation of the NOTICES, USE RESTRICTIONS, AND RESTRICTIVE COVENANTS in this Deed by the Grantee, its successors and assigns, and (2) any and all any and all claims, damages, and judgments arising out of, or in any manner predicated upon, exposure to asbestos, lead-based paint, or other condition on any portion of the Property after the date of conveyance**.**

2. The Grantee, its successors and assigns, covenant and agree that the Grantor shall not be responsible for any costs associated with modification or termination of the NOTICES, USE RESTRICTIONS, AND RESTRICTIVE COVENANTS in this Deed, including without limitation, any costs associated with additional investigation or remediation of asbestos, lead-based paint, or other condition on any portion of the Property.

3. Nothing in this Hold Harmless provision will be construed to modify or negate the Grantor's obligation under CERCLA or any other statutory obligations.

C. POST-TRANSFER DISCOVERY OF CONTAMINATION

1. If an actual or threatened release of a hazardous substance or petroleum product is discovered on the Property after the date of conveyance, Grantee, its successors or assigns, shall be responsible for such release or newly discovered substance unless Grantee is able to demonstrate that such release or such newly discovered substance was due to Grantor's activities, use, or ownership of the Property. If the Grantee, it successors or assigns believe the discovered hazardous substance is due to Grantor's activities, use or ownership of the Property, Grantee will immediately secure the site and notify the Grantor of the existence of the hazardous substances, and Grantee will not further disturb such hazardous substances without the written permission of the Grantor.

2. Grantee, its successors and assigns, as consideration for the conveyance of the Property, agree to release Grantor from any liability or responsibility for any claims arising solely out of the release of any hazardous substance or petroleum product on the Property occurring after the date of the delivery and acceptance of this Deed, where such substance or product was placed on the Property by the Grantee, or its successors, assigns, employees, invitees, agents or contractors, after the conveyance. This paragraph shall not affect the Grantor's responsibilities to conduct response actions or corrective actions that are required by applicable laws, rules and regulations.

D. ENVIRONMENTAL PROTECTION PROVISIONS

1. The Environmental Protection Provisions are at Enclosure 6, which is attached hereto and made a part hereof. The Grantee shall neither transfer the property, lease the property, nor grant any interest, privilege, or license whatsoever in connection with the property without the inclusion of the Environmental Protection Provisions contained herein, and shall require the inclusion of the Environmental Protection Provisions in all further deeds, easements, transfers, leases, or grant of any interest, privilege, or license.

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ENCLOSURE 6

ENVIRONMENTAL PROTECTION PROVISIONS

The following conditions, restrictions, and notifications will be attached, in a substantially similar form, as an exhibit to the deed and be incorporated therein by reference in order to ensure protection of human health and the environment.

1. NOTICE OF THE PRESENCE OF ASBESTOS AND COVENANT

A. The Grantee is hereby informed and does acknowledge that friable and non-friable asbestos or asbestos containing material "ACM" has been found on the Property. The Property may also contain improvements, such as buildings, facilities, equipment, and pipelines, above and below the ground, that contain friable and non-friable asbestos or ACM. The Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency have determined that unprotected or unregulated exposure to airborne asbestos fibers increases the risk of asbestos-related diseases, including certain cancers that can result in disability or death.

B. The following building(s) on the Property has (have) been determined to contain friable asbestos: Administration Building, OMS, and Storage Shed. The Grantee agrees to undertake any and all asbestos abatement or remediation in the aforementioned buildings that may be required under applicable law or regulation at no expense to the Grantor. The Grantor has agreed to transfer said buildings to the Grantee, prior to remediation or abatement of asbestos hazards, in reliance upon the Grantee's express representation and covenant to perform the required asbestos abatement or remediation of these buildings.

C. The Grantee covenants and agrees that its use and occupancy of the Property will be in compliance with all applicable laws relating to asbestos. The Grantee agrees to be responsible for any future remediation or abatement of asbestos found to be necessary on the Property to include ACM in or on buried pipelines that may be required under applicable law or regulation.

D. The Grantee acknowledges that it has inspected or has had the opportunity to inspect the Property as to its asbestos and ACM condition and any hazardous or environmental conditions relating thereto. The Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any asbestos or ACM hazards or concerns.

2. NOTICE OF THE PRESENCE OF LEAD-BASED PAINT (LBP) AND COVENANT AGAINST THE USE OF THE PROPERTY FOR RESIDENTIAL PURPOSE

A. The Grantee is hereby informed and does acknowledge that all buildings on the Property, which were constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. Every purchaser of any interest in Residential Real Property on which a residential dwelling was built prior to 1978 is notified that there is a risk of exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning.

B. The Grantee covenants and agrees that it shall not permit the occupancy or use of any buildings or structures on the Property as Residential Property, as defined under 24 Code of Federal Regulations Part 35, without complying with this section and all applicable federal, state, and local laws and regulations pertaining to lead-based paint and/or lead-based paint hazards. Prior to permitting the occupancy of the Property where its use subsequent to sale is intended for residential habitation, the Grantee specifically agrees to perform, at its sole expense, the Army's abatement requirements under Title X of the Housing and Community Development Act of 1992 (Residential Lead-Based Paint Hazard Reduction Act of 1992).

C. The Grantee acknowledges that it has inspected or has had the opportunity to inspect the Property as to its lead-based paint content and condition and any hazardous or environmental conditions relating thereto. The Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any lead-based paint hazards or concerns.

3. NOTICE AND COVENANT OF LEAD-CONTAMINATED DUST FROM FORMER USE AS AN INDOOR FIRING RANGE

The Administration Building on the Property was formerly used as an indoor firing range. Lead-contaminated dust was remediated, and confirmation sampling indicates lead concentrations below 200 $\mu g/ft^2$. The Grantee, its successors and assigns are hereby notified and acknowledge that additional lead-contaminated dust remediation may be necessary for a particular use or to comply with applicable law. All costs for any additional remediation for lead-contaminated dust shall be at the sole expense of Grantee, its successor or assigns, and not the United States. Furthermore, the remediation of lead contaminated dust inside buildings is not within the scope of releases that make a response action necessary under CERCLA Section 120(h)(3)(A).

4. PESTICIDE NOTIFICATION AND COVENANT

A. The Grantee is hereby notified and acknowledges that registered pesticides have been applied to the property conveyed herein and may continue to be present thereon. The Grantee further acknowledges that where a pesticide was applied by the Grantor or at the Grantor’s direction, the pesticide was applied in accordance with its intended purpose and consistently with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)(7 U.S.C. § 136, et seq.) and other applicable laws and regulations.

B. The Grantee covenants and agrees that if the Grantee takes any action with regard to the property, including demolition of structures or any disturbance or removal of soil that may expose, or cause a release of, a threatened release of, or an exposure to, any such pesticide, Grantee assumes all responsibility and liability therefore.

ENCLOSURE 7

RADIOLOGICAL MEMO

DEPARTMENT OF THE ARMY
ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
600 ARMY PENTAGON
WASHINGTON, DC 20310-0600

DAIM-ODB

30 July 2014

MEMORANDUM FOR RECORD

SUBJECT: Results from the Radiological Survey at the Wilson-Kramer U.S. Army Reserve Center (USARC) in Bethlehem, Pennsylvania

1. On 30 July 2014, the final survey work for the radiological release at the Wilson-Kramer USARC was completed in compliance with the accepted federal government protocol (MARSSIM Class 3). The enclosed Radiological Survey Report provides an evaluation of radiological materials used and the summary of finings and results. The report concludes that no further action is required with respect to the radioactive devices or materials identified. The site is free of radiological concerns.

2. The point of contact for questions or comments is Mr. Hans Honerlah, Health Physicist, U.S. Army Corps of Engineers, Baltimore District, 410-962-4400, electronic mail hans,b,honerlah@usace.army.mil

Encl

Thomas E. Lederle
Chief, BRAC Division

FINAL

RADIOLOGICAL SITE ASSESSMENT REPORT

Wilson-Kramer U.S. Army Reserve Center (PA099)

2940 Airport Road

Bethlehem, Pennsylvania

Prepared For:

The Assistant Chief of Staff for Installation Management
Base Realignment and Closure Office Arlington, Virginia

Prepared by:

The U.S. Army Corps of Engineers - Baltimore
Baltimore, Maryland

July 2014

FINAL

RADIOLOGICAL SITE ASSESSMENT REPORT

Wilson-Kramer U.S. Army Reserve Center (PA099)

2940 Airport Road

Bethlehem, Pennsylvania

Authored By: _____

Christopher Hallam, Health Physicist

Independent Technical Review By: _____

David Watters, CHP

Reviewed / Approved By: _____

Hans Honerlah, Chief, Radiation Safety Office

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LIST OF ACRONYMS

ACSIM	Assistant Chief of Staff for Installation Management
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
BRAC	Base Realignment and Closure
BRRM	Base Redevelopment and Realignment Manual
CAM	Chemical Agent Monitor cpm count(s) per minute
DCGL	Derived Concentration Guideline Level
DOD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation dpm disintegration(s) per minute
ECP	Environmental Condition of Property
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
FTL	Field Team Leader
ALS	ALS Environmental Laboratory
HAZMAT	Hazardous Materials
HP	Health Physicist
IH	Industrial Hygienist
ISO	International Organization of Standards
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
NaI	Sodium Iodide
NIST	National Institute of Standards and Technology
NORM	Naturally Occurring Radioactive Material
NQA-1	Nuclear Quality Assurance Level 1
NRC	Nuclear Regulatory Commission
NUREG	NRC report designation (Nuclear Regulatory Commission)
OMS	organizational maintenance shop
PM	Project Manager
POC	Point of Contact
QA	Quality Assurance
QSM	Quality Systems Manual
RADIAC	Radiation Detection, Indication, and Computation
RSA	Radiological Site Assessment
RSAR	Radiological Site Assessment Report
µRem	microRem
USACE	U.S. Army Corps of Engineers
USARC	U.S. Army Reserve Center
USGS	U.S. Geological Survey

1.0 EXECUTIVE SUMMARY

As part of the Base Realignment and Closure (BRAC) 2005 process, the Army is required to assess and document the environmental condition of all transferable property. To meet this responsibility, the Army conducted evaluations to determine if potential onsite environmental hazards existed at the sites scheduled for closure or transfer under the BRAC Program. Pursuant to Department of Defense (DOD) policy, set forth in the Base Redevelopment and Realignment Manual (DOD 4165.66-M, March 1, 2006), evaluations were conducted at each site and documented in an Environmental Condition of Property (ECP) report. The ECP process included a review of the onsite use of military radioactive commodities and limited radiological surveys; however, it was later determined that more detailed radiological assessments were needed, including the performance of on-site surveys.

The U.S. Army Corps of Engineers, Baltimore District (USACE-Baltimore) was tasked by the Assistant Chief of Staff for Installation Management (ACSIM) Base Realignment and Closure (BRAC) Office, Arlington, Virginia, to perform a radiological site assessment (RSA) at Wilson-Kramer USARC, located in Bethlehem, Pennsylvania. This Report provides documentation, conclusions, and recommendations associated with the radiological assessment of the Wilson-Kramer site.

Assessment of the Wilson-Kramer site by USACE-Baltimore began with a review of available historical information prior to conducting field work, and, upon arrival at the site, the team performed visual inspections and conducted personnel interviews in order to obtain additional information to refine the survey approach. Any new information was incorporated into the survey design to ensure an accurate assessment of the potential for radiological contamination, residual radioactive materials, or other radiological anomalies at the site.

Once the survey approach was finalized, the field team conducted radiological surveys for gamma and alpha/beta contamination, and obtained smear/wipe samples at various locations across the site to determine the presence of removable alpha and beta radioactivity, including low energy beta activity from tritium and nickel-63. The on-site assessment activities were performed by USACE Baltimore personnel on November 20-21, 2013 and April 2, 2014. The surveys included 61 direct alpha/beta, and gamma radiation measurements, 60 smear samples for alpha and beta radioactivity, and thirteen (13) smear samples for tritium and nickel-63. Each room was visually inspected and gamma dose rate surveys were performed to verify that no radioactive commodities were present at the site.

All assessment results support the finding that the Wilson-Kramer site does not contain radioactive materials or residual radioactivity above the NRC Regulatory Guide (Reg Guide) 1.86 limits. Based on the results of this Radiological Site Assessment Report (RSAR) no further investigation or remediation of residual radioactivity is recommended, and the Wilson-Kramer USARC is suitable for unrestricted use from a radiological perspective.

2.0 SITE HISTORY, LOCATION AND FEATURES

Historically, the Wilson-Kramer site primarily functioned as an administrative and educational facility, with limited maintenance of military vehicles and equipment occurring in the Organizational Maintenance Shop (OMS) building. Activities inside the OMS building include general vehicle servicing such as performing oil changes and preventative maintenance checks.

The USARC is located on a 4.5-acre parcel in Lehigh County on the northwestern side of Bethlehem, Pennsylvania, at 2940 Airport Road (Figure 2-1). Access to the property is from Avenue A on the northern side of the facility. On the eastern side lies a manufacturing facility; a Pennsylvania State Police post is situated on the southern side. State Highway 22 lies 0.25 mile to the south, and the Lehigh Valley International Airport is on the other side of Airport Road on the western side of the Property.
The USAR Center contains two permanent structures and two parking lots. Construction of both the 26,890-square-foot administration building and the 2,521-square-foot OMS building was completed in 1961. In 1975, additional administrative, classroom, and unit storage spaces were constructed onto the original building. Both structures are on concrete foundations and consist of concrete block walls covered with a brick veneer. A military equipment parking (MEP) area and a privately owned vehicle (POV) parking area also are contained within the Property. The land and buildings are owned by the U. S. Government. The site layout is presented in Figure 2-2.

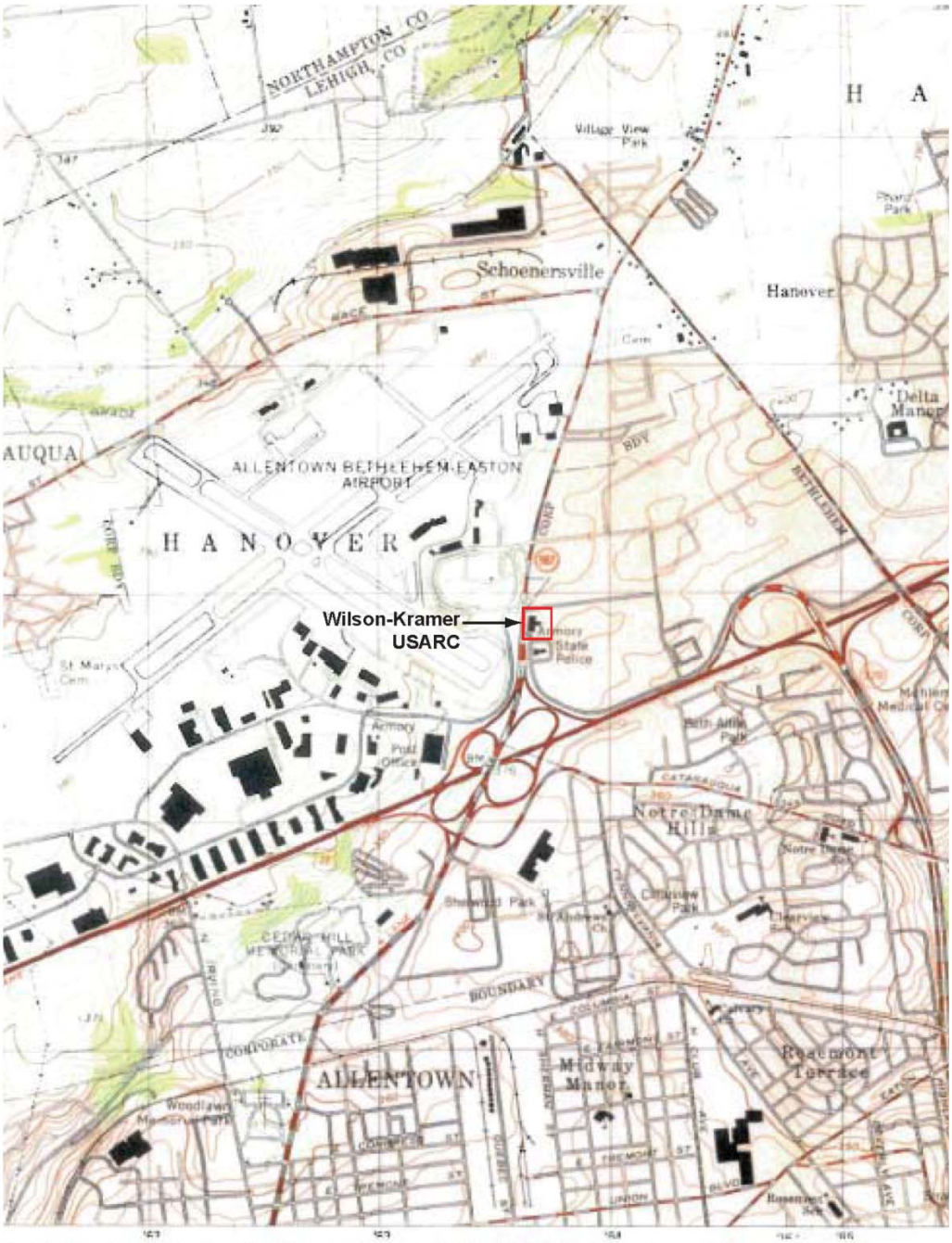
Main Building

The main building is an irregular-shaped, single-story masonry structure, with a two-story drill hall connected by an enclosed corridor. The building's interior consists of office space, classrooms, kitchen area, storage, former indoor firing range, and the drill hall. An arms vault is located at the northern portion of the building and was used to store rifles and pistols. In addition, on the northern portion of the building, is a former firing range. The southern portion of the main building consists of administrative offices, storage, and restrooms. A boiler room with a former coal storage room is located on the eastern side of the main building adjacent to the assembly hall. The boiler room is lower in elevation than the first floor and houses the building's utilities.

OMS Building

The OMS building was originally constructed in 1961 and is without alteration except for an interior partition added to provide a separate administrative area within the work bays. It is located at the eastern portion of the Property and consists of a one-story, rectangular-shaped steel and brick building with two maintenance bays, each with manually operated roll-up sectional doors. Storage and office spaces are located at the east end of the building. An addition to the north side provides additional storage for hazardous materials. A small (~6-ft x 9-ft) connex box on the south side of the OMS which served as a portable work shop was present at the time of the initial radiological survey conducted by USACE-Baltimore; the connex box has since been removed.

Figure 2-1
Wilson-Kramer USARC Site Location

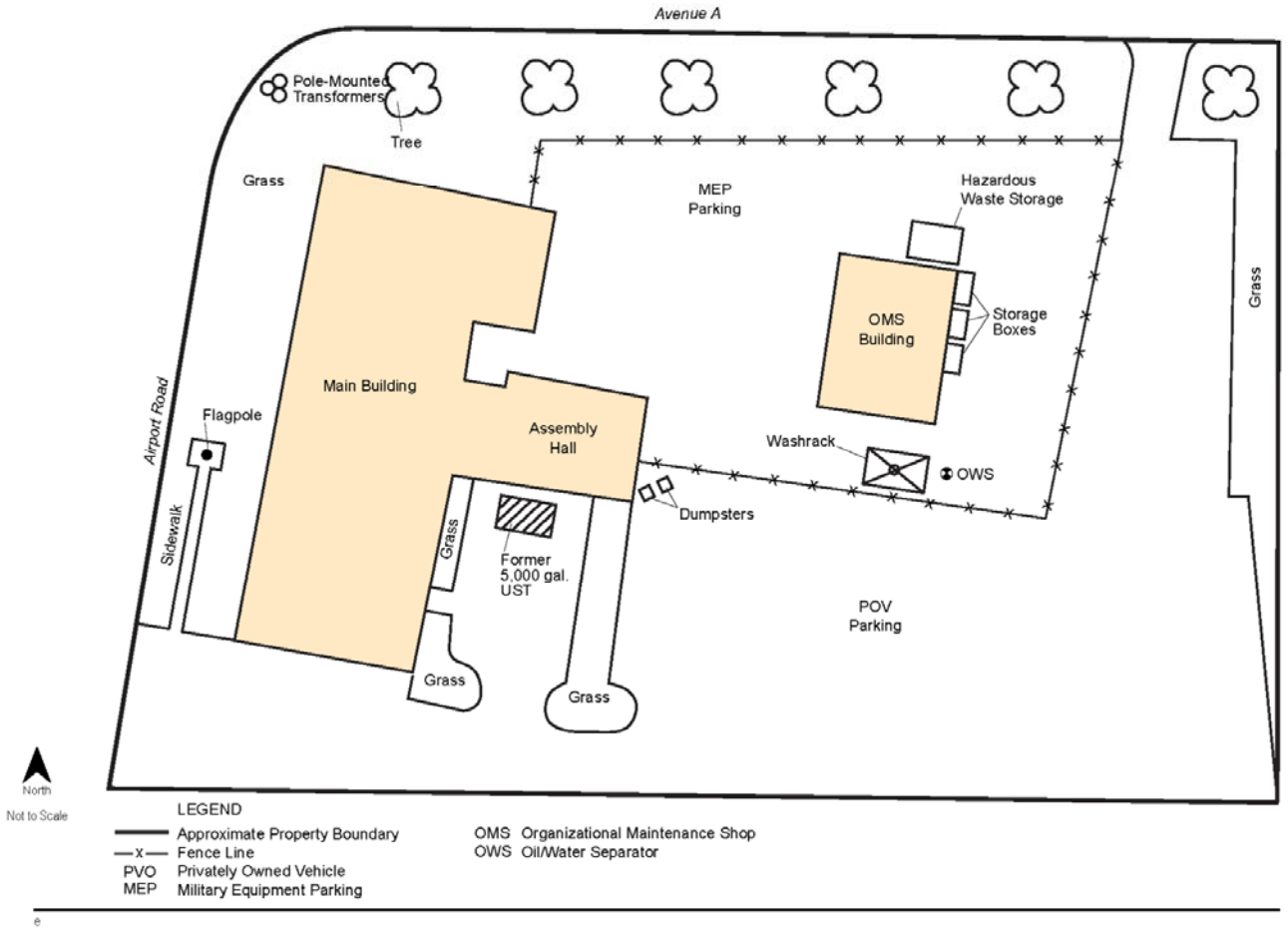


EDR INQUIRY# 1714247.250 TARGET QUAD: CATASAUQUA YEAR: 1999 Series: 7.5' Scale: 1:24,000

North

FIGURE 8
1999 USGS 7.5-Minute Topographic Map
Catasauqua, Pennsylvania
Phase I ECP Report

Figure 2-2
Wilson-Kramer USARC Site Layout



3.0 PROJECT ORGANIZATION

An Environmental Condition of Property Report was prepared for the USACE in 2007 (CH2M Hill, 2007) to address all environmental concerns in preparation for the property transfer, including performance of radiological surveys. However, a thorough review of the data collected showed that the effort was not sufficient to provide the negative radiological data necessary to support the property transfer, although all other environmental concerns deemed to be sufficiently addressed for transfer. Subsequently, USACE-Baltimore was tasked by the ACSIM-BRAC Office, to perform a radiological site assessment at the Wilson-Kramer U.S. Army Reserve Center located in Bethlehem, Pennsylvania. At the time the site survey was conducted, the Facility Manager maintained an office in the main building of the USARC.

The project was performed by USACE, Baltimore District, under tasking from the ACSIM-BRAC Office to conduct the Wilson-Kramer RSA. Key personnel were selected based on their expertise, credentials, DOD and radioactive materials experience, communication skills, flexibility, and history/institutional knowledge.

The initial USACE field personnel consisted of a senior Health Physicist and an Industrial Hygiene technician with a strong health physics background; follow-on surveys were conducted by the senior Health Physicist from the Baltimore District. The field personnel were supported by additional project personnel in the Baltimore District office. Lines of authority and responsibilities for this project are provided below, while Table 3-1 provides a list of project personnel.

USACE Project Manager (PM) – The USACE PM or designee had overall management responsibility for the project. The PM was responsible for consistent quality of performance and deliverables while meeting all schedules within budget, and reviewed completed data sheets and other documentation for accuracy and completeness.

USACE Field Team Leader (FTL)/Health Physicist (HP) – The USACE FTL/HP: reported to the PM; served as on-site Radiation Safety Officer (RSO); ensured completion of Site Radiological Assessment procedure requirements; evaluated and classified the site as potentially impacted or non-impacted; ensured the appropriate application of the MARSSIM guidance; conducted and directed site assessment activities; delegated activities where appropriate; completed corresponding data sheets and report narratives; collected data and generated report narratives; and ensured samples were controlled and shipped in accordance with regulatory requirements.

USACE Safety/Industrial Hygienist (IH) – The USACE IH served as overall Site Safety & Health Officer; provided support to the FTL/HP by conducting site assessment activities; and performed other duties as assigned by the FTL/HP.

U.S. Army Reserves BRAC Facility Manager – The BRAC Facility Manager for the Wilson-Kramer site provided access to the site and ensured security protocols were followed.

Table 3-1
Project Personnel

Name	Position/Role	Relevant Experience (Years)
Chris Hallam	Project Manager, Field Team Lead, Health Physicist	29
Wayne Rathbun	Industrial Hygiene Technician, Site Safety Manager	35
Dave Watters, CHP	Independent Technical Reviewer, Health Physicist	20
Salvatore Zangari	USARC BRAC Facility Manager, Site Security	N/

4.0 PROJECT OBJECTIVE

USACE-Baltimore was tasked by the ACSIM-BRAC Office, Arlington, Virginia, to perform a RSA to determine the presence or document the absence of radioactive materials or contamination at the Wilson-Kramer site.

4.1 RADIOLOGICAL SITE ASSESSMENT METHODOLOGY

USACE-Baltimore selected the guidance found in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG 1575, Revision 1, to conduct the Wilson-Kramer RSA. The MARSSIM provides information on planning, conducting, evaluating, and documenting building surface and surface soil final status radiological surveys.

After review of the Wilson-Kramer site ECP and any available related historical documents, personnel interviews, and site visual inspections, USACE-Baltimore determined that there was no evidence that radioactive material potentially used at the Wilson-Kramer site ever leaked or otherwise resulted in contamination on site. The Wilson-Kramer site was therefore expected to qualify for the simplified assessment procedure of MARSSIM, Appendix B, for certain users of sealed sources to demonstrate regulatory compliance for decommissioning, avoiding complex final status surveys.

Sites that qualify for simplified decommissioning procedures include those where radioactive materials have been used or stored only in the form of non-leaking, sealed sources. The user of a site that may qualify for implementation of the Appendix B simplified procedure should provide the regulatory authority with a minimum of:

(1) Certification that no residual radioactive contamination attributable to the user's activities is detectable by generally accepted survey methods for decommissioning. To certify that absence of radioactive contamination at the Wilson-Kramer site, the USACE-Baltimore would need to perform the following: (a) document the amounts, kinds and uses of radionuclides as well as the processes involved; (b) conduct a radiation survey of the site; and, (c) generate a report on this survey.

(2) Documentation on the disposal of nuclear materials. The Wilson-Kramer site does not have a history of nuclear material disposal, and the only sources of radioactivity potentially in use at the Wilson-Kramer site were from sealed source commodities. Therefore, to satisfy this requirement USACE-Baltimore would need to conduct a site assessment to confirm no commodities remain on the site.

Contamination surveys would be conducted at the Wilson-Kramer site and compared to the values from the NRC Policy and Guidance Directive FC 83-23 / Regulatory Guide 1.86 as conservative action levels for further investigation. Dose/dose rate surveys results would be compared to twice background levels for similar material types and using professional judgment in the field for source-to-probe geometry. The specific site assessment criteria and survey design are presented in Section 5.

4.2 RADIOLOGICAL SITE ASSESSMENT SCOPE

The RSA included an historical site assessment and scoping surveys that were performed in accordance with the MARSSIM guidance; specifically, the RSA included performance of the following:

- Historical due diligence/data review;Personnel interviews;
- Visual inspections;
- General area dose rate surveys;
- Static measurements for contamination;
- Scan surveys for contamination;
- Smear and swipe samples for contamination;
- Analysis of samples; and,
- Evaluation/interpretation of all survey/analytical results

5.0 PROJECT ACTIVITIES

The RSA activities are presented in this report in four phases: (1) Pre-Mobilization Activities, (2) Field Activities, (3) Quality Assurance/Quality Control, (4) Laboratory Data Generation and Review, and (5) Survey/Sample Results and Data Assessment.

5.1 PRE-MOBILIZATION ACTIVITIES

Pre-mobilization activities include those actions that must be taken in order to ensure the team is fully prepared to perform their job tasks upon arrival at the project site. The USACE separated the pre-mobilization phase into the following activities:

- Historical Due Diligence
- Procurement Actions
- Survey Design

5.1.1 Historical Due Diligence

USACE conducted a thorough review of available historical and current information for the Wilson-Kramer site, including the ECP Report produced in 2007 under contract to the U.S. Army Corps of Engineers, Louisville District. The ECP Report was prepared in conformance with primary Department of Defense and Army guidance, the Department of Defense's Base Redevelopment and Realignment Manual, DoD 4165.77-M (BRRM), Army regulations and the American Society for Testing and Materials (ASTM) Designation D 6008-96 (2005), *Standard Practice for Conducting Environmental Baseline Surveys,* as secondary guidance

when it was not inconsistent with the primary guidance.

The ECP Report details the history of the property, including the U.S. Army Reserve and any prior tenant uses of the Site and the resulting environmental condition of the property. A site visit and records review on behalf of the ECP assessment was conducted and identified the historical presence of sealed sources used for Nuclear/Biological/ Chemical (NBC) agent detectors. The ECP Report also concluded that facility personnel indicated that to their knowledge there was never a NRC License granted specifically to the Wilson-Kramer site.

However, most USARC facilities possess some additional low-level radioactive materials/commodities associated with various types of military equipment (e.g., watch dials, compasses, aiming circles, etc); these items are controlled under broader NRC Licenses issued to U.S. Army commands. There is no evidence to suggest that any radioactive commodities were ever improperly managed at the site, and there is no history of radiological releases, accidents, or radioactive waste disposal related to these radioactive commodities, or related to any other activities at Wilson-Kramer USARC.

The USACE also reviewed available Army literature regarding radioactive commodity type, use, and storage locations, and performed additional interviews of personnel who were familiar with the Wilson-Kramer site history and activities. The current Facility Manager identified several locations in which NBC detection equipment was stored, as well as the storage locations for small arms which may have employed tritiated sights. Table 5-1 presents typical radioactive commodities and their respective isotopes found in the Army inventory that may have been present at the Wilson-Kramer.

Table 5-1
Typical Army Commodities / Isotopes for Wilson-Kramer Site Activities

Nomenclature	Isotope(s)
M4 Front Sight Post Assembly	H-3
Wrist Watches	H-3
Compasses	H-3, Ra-226
Chemical Agent Monitor (CAM)	Ni-63
MX 7338 RADIAC Check Source/Other Check Sources	Kr-85, Ra-226
M16A1 Front Sight Post Assembly	Pm-147
Dials	Ra-226
Night Vision Devices	Th-232
Chemical Agent Alarm	Am-241

Any commodities such as compasses, watches, night vision devices, CAMs, RADIACs, chemical agent alarms and similar equipment that may have been present at the USARC were likely stored in the main building.

M4 and M186A1 front sight posts and other commodities associated with small arms would have been stored in the vaulted arms room, but would have been removed periodically for training and possibly used at the indoor range located in the administrative building. No current or historical evidence exists for outdoor range/target areas on the Wilson-Kramer

site.
There is a remote possibility that radium dials may have been present in some of the vehicles maintained at the Wilson-Kramer site. If radium dials were present and removed from the vehicle for any reason, they would most likely be found in the vehicle maintenance shop areas of the OMS.

5.1.2 Procurement Actions

USACE selected ALS Environmental laboratory (ALS) to analyze the samples collected from Wilson-Kramer site, including:

- Direct counting of dry smears for gross alpha/beta via gas flow proportional counter
- Liquid scintillation counting of wet wipes for tritium with an extended window for Ni-63

ALS's DoD ELAP certifications can be found in Appendix G.

5.1.3 Survey Design

The survey design is the simplified survey design provided in MARSSIM Appendix B for users of sealed sources. Action levels for the site assessment surveys include derived concentration guideline levels (DCGLs) used to demonstrate the site is acceptable for unrestricted release. The screening levels from the U.S. Nuclear Regulatory Commission (NRC) Regulatory Guide (RG) 1.86 were selected for DCGLs for alpha and beta radiation. Since RG 1.86 does not specify a criteria for tritium, the 10 CFR 835 removable activity criteria of 10,000 dpm/100cm2 was selected as the DCGL for tritium.

The USACE Field Team was equipped with portable field instruments to perform direct measurements for contamination and dose rates. Survey instruments were selected based on the radiations of concern and the project action levels. The RadEye PRD-ER (RadEye) was selected to check for gamma radiation sources that could still be present at a site. The RadEye would not be used to evaluate any DCGLs. The Ludlum Model 43-93 alpha/beta scintillation detector connected to a Ludlum Model 2360 scaler/ratemeter was selected for alpha and beta measurements. The types of measurements, instrumentation, and detection methods for on-site radiological surveys are presented in Table 5-2 below.

Table 5-2
Portable Instrumentation for Wilson-Kramer Site

Type of Measurement	Type of Instrument	Detection Method
Direct measurements for total contamination	Ludlum Model 2360 rate meter with Ludlum Model 43-89 probe	Plastic Scintillator
Wipe test (screen) for loose contamination	Ludlum Model 2360 rate meter with Ludlum Model 43-89 probe	Plastic Scintillator
Low-level radiation dose rate survey	RadEye PRD-ER dose rate meter	Tissue-Equivalent Nal Scintillator

Scan measurements for beta radiation would be performed on horizontal surfaces in areas potentially impacted by radiological activities in areas with the highest potential for residual radioactivity. Areas to be scanned included:

- Floors in doorways accessing storage areas,
- Floors in front of storage lockers or storage shelves,
- Floors in front of work benches,
- Working surfaces where instruments or commodities containing radioactive materials were used or locations where maintenance was performed, and
- Shelves where instruments or commodities containing radioactive materials were stored.

The minimum detectable concentration (MDC) is the concentration or activity level that a specific instrument and measurement technique can be expected to detect 95% of the time (MARSSIM 2000). The scan MDC estimate is based on two levels of indication: noting an increased level of counts during the scan (continuous monitoring) and then pausing to decide whether to take further measurements or continue with the scan (stationary sampling).

For continuous monitoring the probe is in continuous movement with a brief interval to measure potential sources when the detector was moved over the source. The response to identification of a potential radiation source is to pause and determine the possible presence of contamination, the rationale being that the only "cost" of pausing where no contamination is present is a little time. Once scanning is paused, the detector is held stationary to compare the reading to background, providing greater sensitivity by using a longer observation interval.

Since scanning is divided into two stages, it was necessary to consider the survey's scan sensitivity for each of the stages. Typically, the minimum detectable count rate (MDCR) associated with the first scanning stage is greater due to the brief observation intervals of continuous monitoring. The observation intervals during the first stage are assumed to be one second, while the second stage pause is approximately 30 seconds long. The greater value of MDCR from each of the scan stages was used to determine the scan sensitivity. The scan MDC and MDCR calculations for the Model 43-93 detector are provided below.

The MDCR was determined for the Ludlum Model 43-93 detector using equation 6-9 from MARSSIM.

$$MDCR = S_i \times \frac{60}{i}$$

Where:

MDCR= Minimum Detectable Count Rate

S_i = minimum detectable number of net source counts in the observation interval (assumes a scan speed of one detector width per second)

i = observation interval (one per second)

S_i was calculated using equation 6-8 from MARSSIM:

$$S_i = d\sqrt{b_i}$$

Where:

d = index of sensitivity, dependent on the selected decision errors for Type I (alpha) and Type II (beta) errors (value of 1.38 selected from MARSSIM Table 6.5)

b_i = number of background counts in the observation interval

The background count rate for the Ludlum Model 43-93 is estimated to be 200 cpm. Experience on similar projects has reported backgrounds ranging from 100 cpm to 300 cpm depending on media being measured. The calculated MDCR for this instrument is 151 cpm above background.

MARSSIM equation 6-10 was used to calculate the beta scan MDC:

$$MDC = \frac{MDCR}{(\sqrt{p} \times E \times \frac{Area}{100\,cm^2})}$$

Where:

MDC = Minimum Detectable Concentration

p = surveyor efficiency (0.5, based on MARSSIM)

E = total efficiency, which is the product of instrument efficiency (0.20) and the surface efficiency (0.5, based on MARSSIM)

Area = detector active area (100 cm^2)

p = surveyor efficiency (0.5, based on MARSSIM)

Using the above equation, the standard beta scan MDC for the 43-93 is 2,135 dpm/100 cm^2.

Total contamination survey by direct scan measurement of a 1 m^2 area using a 2-minute integrated count (integrated scan survey) would also be performed in locations as determined by the surveyor. These locations were also selected on the basis of professional judgment and would provide an average activity value over each 1 m^2 surveyed.

Static measurements will be performed at random and bias locations in all areas potentially impacted by radiological activities. Selection of bias static measurement locations would be similar to the process for selecting locations for scan measurements. Static MDC values were estimated for the Ludlum Model 43-93 detector using the following equation.

$$\text{MDC} = \frac{3 + 3.29\sqrt{R_b \cdot t_s(1 + t_S / t_B)}}{E * t_S * ACF}$$

Where:

MDC = Minimum Detectable Concentration

R_b = background count rate (assumed as 2 cpm for alpha and 200 cpm for beta)

t_s = sample count time (2 minutes)

t_B = background count time (10 minutes)

E = total efficiency, which is the detector efficiency (assumed to be 0.15 for alpha and 0.20 for beta) multiplied by the surface efficiency (assumed to be 0.5 for both alpha and beta)

ACF = area correction factor (to 100 cm^2 nominal)

Using the above equation, the alpha static measurement MDC for the 43-93 is 32 dpm/100 cm^2, and the beta static measurement MDC for the 43-93 is 188 dpm/100 cm^2.

A posteriori calculations for static measurement MDCs are presented in the survey results of Appendix D.

5.2 FIELD ACTIVITIES

USACE-Baltimore conducted the following field activities for the Wilson-Kramer site:

- Mobilization
- Visual Inspection of Site
- Finalize the Survey Approach
- Radiation/Contamination Surveys
- Sample Collection

5.2.1 Mobilization

On November 20-21, 2012, USACE-Baltimore performed radiological surveys at the

Wilson-Kramer site. The USACE brought the following equipment, materials and supplies to the Wilson-Kramer site to conduct the RSA:

- RadEye PRD-ER (RadEye) dose rate survey meter
- Ludlum Model 2360 Dual Alpha/Beta rate meter with logging capabilities
- Instrumentation check sources (Th-230, Tc-99, SrY-90, and Cs-137)
- Support tools (i.e. hand-tools, flashlights, etc)
- Personnel Protective Equipment
- Sampling equipment/supplies

All radioactive check sources were transported in full compliance with 49 CFR Part 173.

The field team chose a low-background location, Room 140 of the Main building, as a temporary base of operations to conduct instrument quality control checks and prepare smear/wipe samples.

5.2.2 Site Visual Inspection

Upon arrival on-site, the USACE Team Lead met with the Facility Manager to gather/verify background information regarding the site, as well as to receive any site specific training/indoctrination. The team conducted a visual inspection of the site to identify any radioactive commodities, radiation use areas, or locations where radiation could be present. No radioactive material or equipment indicative of the presence of radioactive material was identified during the course of the inspection, although several rooms/cages were identified as NBC equipment storage areas or retained postings for storage of radioactive materials.

5.2.3 Finalize Survey Approach

Through the use of historical due diligence reviews, visual inspections, and interviews, the Field Team Leader finalized the survey strategy that was utilized at the Wilson-Kramer site. A combination of systematic and biased surveys was selected to evaluate the site.

5.2.4 Survey Measurements

The Main building and the OMS were broken into separate survey units; the Main building was designated Survey Unit 1 (SU01) and the OMS Survey Unit 2 (SU02). Locations in the each survey unit were selected for radiological evaluation as follows:

General area gamma dose rate surveys were conducted in each room and while walking throughout the building using the RadEye meter to assure that no radium commodities or other significant gamma emitters were present at the site. Gamma dose rate levels were compared to site ambient background levels.

Total contamination survey by direct static measurement of a 100 cm^2 area would be conducted in a minimum of 30 locations: measurements at 14 locations were collected in systematic (e.g., triangular) pattern established using a randomly generated starting point; the remaining locations were selected on the basis of professional judgment and were

biased to the those locations with the highest potential for residual radioactivity.

Total contamination survey by direct scan measurement would be performed in locations as determined by the surveyor. These locations were also selected on the basis of professional judgment and were biased to those locations with the highest potential for residual radioactivity with consideration for the use of a particular room and the configuration of any cabinets, workbenches or other furniture.

Total contamination survey by direct scan measurement of a 1 m^2 area using a 2-minute integrated count (integrated scan survey) would be performed in locations as determined by the surveyor. These locations were also selected on the basis of professional judgment and would provide an average activity value over each 1 m^2 surveyed.

5.2.5 Sample Collection

After each of the first 30 static measurements was performed, a 100 cm^2 dry smear was taken at each of the same locations. The smears were field screened for alpha/beta and would be sent to ALS for gross alpha/beta analysis.

A total of thirteen (13) wet swipes were obtained between the two survey units; the first seven locations in SU01 and the first six locations in SU02 were selected for the wet swipes. The wet swipes would be analyzed by ALS via liquid scintillation counting for tritium and nickel-63; both of these isotopes emit weak beta particles that are very difficult to measure in the field and quantitative measurement using the portable instrumentation was not feasible.

All gross alpha/beta smear samples were placed in glassine envelopes and sealed within a Ziploc plastic bag. Tritium smears were placed in glass vials containing five milliliters of de-ionized water; the vials were in turn placed inside Ziploc plastic bags to ensure the smears remained moist during transit. All of the samples were then packaged in a cooler for shipment via FedEx to ALS for analysis. Preservation and holding times did not apply to these samples.

Wet and dry smears were shipped overnight to the selected laboratory (ALS) for quantitative radiological analysis. Since the sample media was not suspected of being a hazardous material per DOT, the shipment was handled as non-regulated sample media and turned over to FedEx.

5.3 QUALITY ASSURANCE/QUALITY CONTROL

5.3.1 Instrument Use / Handling

In order to maintain consistency in application of field requirements, the team performed their field activities in accordance with USACE procedures and policies, as well as the corresponding training that was provided prior to mobilization of the team. The team was issued survey instruments, each of which was calibrated by a qualified calibration facility using NIST traceable sources. Copies of the calibration certificates for this project are

included as Appendix C.

5.3.2 Sample Numbering System

A unique sample numbering system was used to identify each sample collected and submitted for laboratory analysis. This system provided a tracking procedure that enabled data retrieval and use and ensured that the sample numbers were not duplicated. Each sample was tracked/controlled on a Chain of Custody (CoC) form and properly labeled. CoC forms are presented in Appendix E.

5.4 LABORATORY DATA GENERATION

5.4.1 Analytical Methods

ALS analyzed samples for the following parameters:

- Tritium by Liquid Scintillation
- Ni-63 by Liquid Scintillation
- Gross Alpha/Beta by Gas-Flow Proportional Counting

5.4.2 ALS Quality Assurance and Data Review

ALS Environmental laboratory has a mature Quality Assurance (QA) program that has been audited and certified by DoD QSM Environmental Laboratory Accreditation Program (ELAP) and ISO/IEC Guide 17025. The high standards built as part of ALS's QA program were directly applied to the handling, analysis, and data reporting associated with the smear samples generated by this project.

In addition, USACE personnel reviewed all data packages to ensure the completeness and accuracy of each of the sample reports. This review was performed with the express goal to ensure that the sample results received accurately and completely matched the parameters of the site's sample locations.

5.5 SURVEY/SAMPLE RESULTS AND DATA ASSESSMENT

This section provides a summary of field and laboratory observations, results, data, and interpretation of results associated with the site assessment.

5.5.1 Gamma Dose Rate Survey Results

General area gamma dose rate measurements were performed at waist height in all rooms and hallways of the Main building, the OMS and associated outbuildings, and the parking lot areas of the USARC. All results were consistently in the range of 4-6 microRem/hour and are indicative of normal background levels.

5.5.2 Total and Removable Alpha/Beta Survey Results

Tables 5-3 and 5-4 provide a summary of results for direct measurements of total alpha and beta contamination as collected in the field, as well as ALS Environmental laboratory results

for removable alpha and beta contamination as measured by gas flow proportional counting from each of the locations surveyed. Complete results for direct measurements are provided in Appendix D. Complete results for removable contamination are provided in Appendix F. The results for 2-minute integrated scan surveys performed over 1m^2 areas were all well below the RG 1.86 criteria for average total contamination and are presented in Appendix D.

The direct/total and removable contamination results in Tables 5-3 and 5-4 were compared to the values from the Nuclear Regulatory Commission Policy and Guidance Directive FC 83-23 / Regulatory Guide 1.86 as conservative action levels for further investigation. Tritium results were compared to the criteria set forth in 10 CFR 835, Appendix D. Table 5-5 provides the complete site assessment criteria from RG 1.86 and 10 CFR 835. Table 5-6 presents typical Army commodities that may have been present at the Wilson-Kramer site at some point in its history along with the corresponding isotopes and their respective assessment criteria for contamination as taken from RG 1.86 and 10 CFR 835.

All results for the Main building (SU01) for both total and removable alpha and beta contamination were very low and in no case did the results exceed the RG 1.86 criteria.

Results for the OMS building and associated outbuildings (SU02) for removable alpha and beta contamination results were acceptable for all surveyed locations. Total alpha and beta contamination results for SU02 were satisfactory with one exception: the floor of the mobile workshop adjacent to the OMS building was found to have an isolated area of elevated activity (hotspot) with a maximum beta result of 11,857 dpm/100 cm^2, thereby exceeding the RG 1.86 criteria for average total contamination of 5,000 dpm/100cm^2 for beta, but still less than the maximum criteria of 15,000 dpm/100cm^2. A minor increase in directly measured alpha activity was noted at the hotspot (80 dpm/100 cm2), but well below the assessment criteria.

This hotspot location was found after determining an adjacent location (SU02-015) had nearly exceeded the average criteria (returning a result of 4,919 dpm/100 cm^2), whereupon the surveyor repeatedly searched for a higher count rate in the area. The repeated scan surveys determined the total area of impact exceeding the average criteria was ~ 50 cm^2, and the initial static measurement had caught the edge of the hotspot. Lesser increases in activity were noted over a total area of ~ 900 cm^2 (1 ft^2).

A conservative dry wipe at SU02-015 was performed to include the entire hotspot and returned negligible results (non-detect) for both gross alpha and gross beta. A 2-minute integrated scan over 1 m^2 inclusive of the entire 900 cm^2 exhibiting elevated activity returned an average result of 1,420 dpm/100 cm^2 over the 1 m^2 area containing the fixed contamination, well below the RG 1.86 criteria of 5,000 dpm/100 cm^2.

The contact gamma dose rate at the hotspot was measured as 10 microRem/hour which is approximately twice background for the Wilson-Kramer site. However, as the impacted area was very isolated, the dose rate dropped off to background levels within 40 centimeters.

Due to the results found in the mobile workshop, the survey team performed a 100%

alpha/beta scan of all horizontal surfaces in and adjacent to the workshop, and increased alpha/beta scans to 20% coverage for all rooms which had been designated for survey in both SU01 and SU02, concentrating on horizontal surfaces. No other anomalous results were detected during the scan surveys and all results were within the range of background. The mobile workshop has been removed from the Wilson-Kramer USARC by the 99th Regional Support Command as part of the site closeout.

Table 5-3
Summary Results
Survey Unit 01

Survey Location Number	Survey Results			
	Direct / Total (dpm/100cm2)		Removable / Smear +/- total propagated error (dpm/100cm2)	
	Alpha	Beta	Alpha	Beta
SU01-001	61.1	187	-0.4 +/- 1.3	-0.8 +/- 1.6
SU01-002	48.7	325	-0.1 +/- 1.3	2.0 +/- 2.5
SU01-003	54.9	264	0.7 +/- 1.3	-0.4 +/- 2.0
SU01-004	36.2	99.1	0.7 +/- 1.3	-0.1 +/- 2.1
SU01-005	58.0	95.6	0.3 +/- 1.3	0.7 +/- 2.2
SU01-006	29.9	162	1.2 +/- 1.5	0.2 +/- 2.1
SU01-007	20.6	- 84.7	0.3 +/- 1.3	-0.7 +/- 1.8
SU01-008	58.0	117	1.4 +/- 1.7	2.3 +/- 2.7
SU01-009	45.5	470	0.3 +/- 1.3	-0.5 +/- 1.9
SU01-010	29.9	475	0.3 +/- 1.3	1.4 +/- 2.4
SU01-011	17.5	83.3	-0.4 +/- 1.3	0.9 +/- 2.1
SU01-012	20.6	190	-0.4 +/- 1.3	2.3 +/- 2.4
SU01-013	29.9	356	1.2 +/- 1.5	0.3 +/- 2.1
SU01-014	61.1	-111	0 +/- 1.3	-0.3 +/- 1.8
SU01-015	36.2	78.1	-0.5 +/- 1.3	-1.0 +/- 1.8
SU01-016	23.7	304	0.7 +/- 1.3	-0.4 +/- 2.0
SU01-017	23.7	-72.5	-0.4 +/- 1.3	0.8 +/- 2.3
SU01-018	26.8	23.8	-0.1 +/- 1.3	-0.3 +/- 1.9
SU01-019	33.1	358	0.1 +/- 1.3	1.8 +/- 2.4
SU01-020	58.0	516	0.3 +/- 1.3	-1.2 +/- 1.6
SU01-021	29.9	164	0.3 +/- 1.3	1.5 +/- 2.4
SU01-022	42.4	379	0.7 +/- 1.3	-0.1 +/- 2.1
SU01-023	33.1	311	0 +/- 1.3	-0.6 +/- 1.9
SU01-024	26.8	65.8	0 +/- 1.3	1.8 +/- 2.4
SU01-025	70.5	409	1.5 +/- 1.7	1.2 +/- 2.3
SU01-026	39.3	311	0.8 +/- 1.3	-1.5 +/- 1.7
SU01-027	42.4	393	0.3 +/- 1.3	0.5 +/- 2.1
SU01-028	48.7	337	0.1 +/- 1.3	-0.7 +/- 1.7
SU01-029	17.5	6.30	0.3 +/- 1.3	-0.1 +/- 1.8
SU01-030	48.7	309	-0.1 +/- 1.3	0.3 +/- 2.1

ND – Analyte was analyzed for but not detected above the detection limit. Detection limit is lower than the site assessment criteria from Reg Guide 1.86. All removable samples were U flagged indicating the result is less than the sample-specific MDC

Negative values represent a portion of the statistical distribution of negative and positive values around zero for samples containing very little or no detectable radioactivity.

Table 5-4
Summary Results
Survey Unit 02

Survey Location Number	Survey Results			
	Direct / Total (dpm/100cm2)		Removable / Smear +/- total propagated error (dpm/100cm2)	
	Alpha	Beta	Alpha	Beta
SU02-001	23.7	145	-0.4 +/- 1.3	1.1 +/- 2.1
SU02-002	17.5	223	0 +/- 1.3	0.3 +/- 2.0
SU02-003	17.5	211	0.1 +/- 1.3	1.2 +/- 2.2
SU02-004	14.3	178	-0.4 +/- 1.3	1.6 +/- 2.2
SU02-005	29.9	201	-0.1 +/- 1.3	0.5 +/- 2.2
SU02-006	17.5	-169	-0.1 +/- 1.3	1.0 +/- 2.3
SU02-007	17.5	-109	-0.1 +/- 1.3	-1.3 +/- 1.8
SU02-008	8.11	-262	0.3 +/- 1.3	0.4 +/- 2.1
SU02-009	17.5	85.1	0.8 +/- 1.3	0.9 +/- 2.2
SU02-010	8.11	201	0.3 +/- 1.3	1.0 +/- 2.2
SU02-011	4.99	-70.7	-0.4 +/- 1.3	-0.7 +/- 1.9
SU02-012	11.2	-265	-0.4 +/- 1.3	0.8 +/- 2.2
SU02-013	14.3	-32.2	0 +/- 1.3	1.2 +/- 2.3
SU02-014	1.87	148	0 +/- 1.3	1.1 +/- 2.2
SU02-015	14.3	4,919	0.7 +/- 1.3	0.3 +/- 2.0
SU02-016	4.99	-4.20	0.4 +/- 1.3	1.9 +/- 2.5
SU02-017	17.5	103	-0.4 +/- 1.3	-0.9 +/- 1.6
SU02-018	11.2	-115	0.4 +/- 1.3	2.4 +/- 2.5
SU02-019	4.99	-127	-0.4 +/- 1.3	1.4 +/- 2.2
SU02-020	8.11	272	-0.5 +/- 1.3	0.8 +/- 2.2
SU02-021	8.11	148	0.8 +/- 1.3	0.9 +/- 2.2
SU02-022	11.2	183	-0.4 +/- 1.3	0.3 +/- 2.0
SU02-023	8.11	227	0.7 +/- 1.3	0.9 +/- 2.3
SU02-024	8.11	208	0 +/- 1.3	-0.5 +/- 1.9
SU02-025	8.11	272	0 +/- 1.3	0.4 +/- 2.1
SU02-026	11.2	258	0.4 +/- 1.3	0.3 +/- 2.0
SU02-027	4.99	204	0 +/- 1.3	1.8 +/- 2.3
SU02-028	8.11	211	0 +/- 1.3	0.5 +/- 2.1
SU02-029	8.11	206	-0.4 +/- 1.3	1.5 +/- 2.3
SU02-030	14.34	-209	0.5 +/- 1.3	-1.3 +/- 1.6
SU02-031	79.8	11,857	N/A	N/A

ND – Analyte was analyzed for but not detected above the detection limit. Detection limit is lower than the site assessment criteria from Reg Guide 1.86. All removable samples were U flagged indicating the result is less than the sample-specific MDC

Negative values represent a portion of the statistical distribution of negative and positive values around zero for samples containing very little or no detectable radioactivity.

N/A – No smear taken

Table 5-5
Site Assessment Criteria

Dose / Dose Rate Criteria		
Parameter	**Unit**	**Action / Investigation Level**
Gamma	(µRem/hr)	> 2 x Background

Acceptable Surface Contamination Levels per Reg Guide 1.86 and 10 CFR 835, App. D			
NUCLIDE [a]	**AVERAGE [b c] dpm/100 cm2**	**MAXIMUM [b d] dpm/100 cm2**	**REMOVABLE [b e] dpm/100 cm2**
U-nat, U-235, U-238 and associated decay products	5,000	15,000	1,000
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100	300	20
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000	3,000	200
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.	5000	15,000	1,000
Tritium	Footnote [f]	Footnote [f]	10,000

[a] Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently.

[b] as used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[c] Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each object.

[d] the maximum contamination level applies to an area of not more than 100 cm2.

[e] The amount of removable radioactive material per 100 cm2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

[f] The amount of removable radioactive tritium contamination may diffuse into the volume or matrix of materials. Evaluation of surface contamination shall consider the extent to which such contamination may migrate to the surface in order to ensure the surface contamination value provided in this appendix is not exceeded. Once this contamination migrates to the surface, it may be removable, not fixed; therefore, a ‘‘Total’’ value does not apply. In certain cases, a ‘‘Total’’ value of 10,000 dpm/100 cm 2 may be applicable either to metals, of the types which form insoluble special tritium compounds that have been exposed to tritium; or to bulk materials to which particles of insoluble special tritium compound are fixed to a surface.

Table 5-6
Typical Army Commodities / Isotopes / Contamination Limits

Contamination Limits				
Nomenclature	**Isotope(s)**	**AVERAGE* dpm/100 cm2**	**MAXIMUM* dpm/100 cm2**	**REMOVABLE* dpm/100 cm2**
M4 Front Sight Post Assembly	H-3	N/A**	N/A**	10,000
Wrist Watches	H-3	N/A**	N/A**	10,000
Compasses	H-3	N/A**	N/A**	10,000
	Ra-226	100	300	20
Chemical Agent Monitor (CAM)	Ni-63	5000	15,000	1,000
MX 7338 RADIAC Check Source / Other Check Sources	Kr-85	5000	15,000	1,000
	Ra-226	100	300	20
M16A1 Front Sight Post Assembly	Pm-147	5000	15,000	1,000
Dials	Ra-226	100	300	20
Night Vision Devices	Th-232	1,000	3,000	200
Chemical Agent Alarm	Am-241	100	300	20

*Values taken from NRC Policy and Guidance Directive FC 83-23 / NRC Regulatory Guide 1.86 and 10 CFR 835
**Not applicable

5.5.3 Low Energy Beta Wipe Results

Table 5-7 provides a summary of results for tritium and Ni-63 analysis via liquid scintillation counting from the 13 locations surveyed. Due to overlapping regions of interest during scintillation counting for the tritium and nickel-63 isotopes, differentiation between the two isotopes was problematic. To provide a conservative bound, tritium and nickel-63 results were calculated separately using the assumption that all counts detected in each result were solely due to the radionuclide of interest.

For example, if a total of 100 counts per minute were detected from the liquid scintillation process, tritium results were calculated by assuming all 100 counts were from tritium alone and dividing the counts per minute by the efficiency of the counter for tritium; then the nickel-63 results were calculated by assuming all of the same 100 counts were due to nickel-63 and dividing the counts per minute by the efficiency of the counter for nickel-63.

Quenching had no impact on calculations for sample results as all analyses returned low values, and the results were within the acceptable range for the laboratory blank analysis indicating there was no measurable increase above background. Complete results for low energy beta wipes are presented in Appendix F.

Table 5-7
Summary of Tritium and Ni-63 Results

Sample ID	Location	Tritium (dpm/100cm2)	Nickel-63 (dpm/100cm2)
WK-SU01-001	Room 132, 8-inch tile floor	56.0 (U)	33.3 (U)
WK-SU01-002	Room 132, 8-inch tile floor	62.0 (U)	36.9 (U)
WK-SU01-003	Room 121, poured concrete floor	62.0 (U)	36.9 (U)
WK-SU01-004	Room 121, poured concrete floor	70.0 (U)	41.7 (U)
WK-SU01-005	Room 114, poured concrete floor	78.0 (U)	46.4 (U)
WK-SU01-006	Room 114, poured concrete floor	60.0 (U)	35.7 (U)
WK-SU01-007	Room 114, poured concrete floor	34.0 (U)	20.2 (U)
WK-SU02-001	OMS building, concrete block wall	56.0 (U)	33.3 (U)
WK-SU02-002	OMS building, poured concrete floor	46.0 (U)	27.4 (U)
WK-SU02-003	OMS building, poured concrete floor	54.0 (U)	32.1 (U)
WK-SU02-004	OMS building, poured concrete floor	58.0 (U)	34.5 (U)
WK-SU02-005	OMS building, poured concrete floor	54.0 (U)	32.1 (U)
WK-SU02-006	OMS building, drywall	44.0 (U)	26.2 (U)

Detection limit is lower than the site assessment criteria from Reg Guide 1.86.
All removable samples were U flagged indicating the result is less than the sample-specific MDC.

5.5.4 Background Data Collection

Natural background radiation from cosmic, cosmogenic, and terrestrial sources can contribute significantly to field measurements and must therefore be accounted for in the measurement calculations via background subtraction. Surveyors must also be aware of the potential for material-specific increases in background radiation, and if necessary, account for the impact of these materials on survey results. Ambient background input for direct contamination measurements was taken from a total of five periodic 5-minute background checks conducted before during and after the direct measurement surveys; total count time for background was therefore 25 minutes. The ambient measurements were taken by simply holding the probe in the air for the duration of the measurement instead of positioning the probe against any surface.

Removable contamination surveys results are reported without consideration for background (no background measurements performed or subtracted). Background data is summarized in Table 5-8.

Table 5-8
Background Data Summary

	Alpha (cpm)	Beta (cpm)	General Area Dose Rate (µRem/hr)
Ambient	0.2	203.2	5

6.0 CONCLUSIONS

All assessment results support the conclusion that the Wilson-Kramer site does not contain radioactive materials or residual radioactivity above the 10 CFR 835 limits for tritium or the NRC Regulatory Guide 1.86 limits. This information supports the conclusion that the Wilson-Kramer site is considered radiologically non-impacted with respect to the MARSSIM guidance.

7.0 RECOMMENDATIONS

USACE-Baltimore recommends using the results of this Radiological Site Assessment as evidence that the Wilson-Kramer USARC site is free of radiological contamination and radioactive material, and no further investigation or remediation of residual radioactivity is recommended, and the Wilson-Kramer USARC is suitable for unrestricted use from a radiological perspective.

8.0 REFERENCES

Environmental Condition of Property Report, Wilson-Kramer U.S. Army Reserve Center (PA008), 2940 Airport Road, Bethlehem, PA 18017, February 2007.

USACE 385-1-80, Radiation Protection Manual, Effective 30 May 1997

DOD, DOE, USEPA, and Nuclear Regulatory Commission (NRC), 2000, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG-1575, Rev.1, EPA 402-R-97-016, Rev. 1, DOE/EH-0624, Rev. 1, August.

NUREG 1505, Rev. 1, A Nonparametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys, June 1998.

NRC Policy and Guidance Direction FC 83-23: Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material, May 1987.

U.S. Atomic Energy Commission Regulatory Guide, NRC Reg Guide 1.86, TERMINATION OF OPERATING LICENSESFOR NUCLEAR REACTORS, June 1974

Base Redevelopment and Realignment Manual, DOD 4165.66-M, March 1, 2006

Base Redevelopment and Realignment Manual, DoD 4165.77-M (BRRM), Army regulations and the American Society for Testing and Materials (ASTM) Designation D 6008-96 (2005), *Standard Practice for Conducting Environmental Baseline Surveys.*

ENCLOSURE 8

ASBESTOS VISUAL INSPECTION REPORT, 2012

ASBESTOS VISUAL INSPECTION REPORT

99TH REGIONAL SUPPORT COMMAND
UNITED STATES ARMY RESERVE
FORT DIX, NEW JERSEY

WILSON - KRAMER
US ARMY RESERVE CENTER

BETHLEHEM, PENNSYLVANIA

(USAR FACID: PA008- SITE CODE: 42805)

July 2012

ASBESTOS VISUAL INSPECTION REPORT

WILSON - KRAMER US ARMY RESERVE CENTER
(PA008) - (42805)
2940 AIRPORT ROAD
BETHLEHEM, PENNSYLVANIA,

Prepared By

Small Business Group, Inc.
10179 Highway 78
Ladson, South Carolina 29456

Submitted to

United States Army Corps of Engineers
Savannah District

Prepared for

99TH REGIONAL SUPPORT COMMAND
UNITED STATES ARMY RESERVE
FORT DIX, NEW JERSEY

1. SUMMARY:

Asbestos Building Inspector from the Small Business Group (SBG) of Ladson, SC conducted a visual inspection to identify suspect asbestos containing material (ACM) located at the Wilson-Kramer US Army Reserve Center located at 2940 Airport Road in Bethlehem, PA. The inspection was conducted on July 19, 2012 utilizing modified Asbestos Hazard Emergency Response Act (AHERA) guidelines. The results of the inspections provide an inventory of assumed suspect ACM in the buildings at this site. No sampling was conducted during this visual inspection.

The Inspector is certified by an EPA accredited training center under AHERA guidelines as a Building Inspector and licensed as required by the state of Pennsylvania. A copy of the inspector's license is located in the back of this report.

2. FINDINGS:

Twenty-three suspect materials were identified in the three structures located at this site. The structures are listed below. The assumed ACM located at this site is listed in the Summary Table as Appendix A. Appendix B contains drawings showing the floor plan of each building containing suspect materials.

3. STRUCTURES:

- Building 1: Main Administrative Building is an approximately 26,420 square foot concrete block structure with brick exterior and flat EDPM (rubber coated) roofing, constructed in 1961.
- Building 2: Maintenance Shop is an approximately 2,525 square foot concrete block structure with brick exterior and tar & gravel roofing, constructed in 1961.
- Building 3: Storage Building is a 200 square foot metal-framed structure with metal siding and corrugated asphaltic roof panels.

4. OBSERVATIONS:

Although the reserve center was occupied, Rooms 115 & 122 were inaccessible at the time of inspection. All accessible insulation observed in this building was fiberglass. Building room numbers were either assigned by the inspector during the inspection or taken from actual rooms and are shown on the attached drawing (Appendix B). A thorough and diligent inspection was conducted of this structure but some unidentified or inaccessible materials may still be present (i.e. wall voids, pipe chases, etc.). If previously unidentified suspect materials are found during renovation/demolition activities, samples should be taken to verify asbestos content prior to disturbance. Material quantities in this report are estimated and should be verified prior to any abatement activities.

5. SITE BUILDING PHOTOS:

Building 1: Main Admin Building

Building 2: Maintenance Shop

Building 3: Storage Building

Intentionally

Left

Blank

MATERIAL SUMMARY TABLE

		Building 1 - Main Administrative Building					
HA#	**Material Description**	**Friability**	**Total Quantity**	**Condition**	**Potential for Contact**	**Locations**	**Status**
1	12" blue floor tile w/white marbling/mastic	NF	3,060 SF	Good	High	Rooms 128, Entry E-001, Halls H-100, H-101, H-102, H-105, H-106 & H-107	**Assumed ACM**
2	6" black coving/mastic	NF	2,000 LF	Good	Moderate	Rooms 101B, 101G, 102, 106, 110, 128, 132, Entry E-001, Halls H-100, H-101, H-102, H-103, H-105, H-106 & H-107	**Assumed ACM**
3	White door caulking	NF	490 LF	Good	Moderate	Rooms 124, 126, 127, 128, 129, 136, 141, Entry E-001, Halls H-100, H-102, H-103, H-104, H-105, H-107 and exterior side of building entrance doors	**Assumed ACM**
4	Gray caulking	NF	1,380 LF	Good	Moderate	Rooms 113, 113A, 121, 132, 138, 139, 140, 140A, 141A, 142, 146, Halls, H-100, H-106, H-107 and exterior side of windows	**Assumed ACM**
5	Ceiling tiles w/grooves & pinholes	F	9,450 SF	Good	High	Throughout the building	**Assumed ACM**
6	9" black floor tile w/white streaks/mastic	NF	1,400 SF	Good	High	In checkerboard pattern with H-7 floor tile in Rooms 132, 138, 139, 140, 140A, 146 & Hall H-103	**Assumed ACM**
7	9" gray floor tile w/black & white streaks/mastic	NF	1,685 LF	Good	High	In Room 120 and in a checkerboard pattern with H-6 floor tile in Rooms 132, 138, 139, 140, 140A, 146 & Hall H-103	**Assumed ACM**

HA = Homogeneous Area N F= Non-friable
F= Friable SF = Square Feet LF = linear Feet

APPENDIX A

MATERIAL SUMMARY TABLE

Building 1 - Main Administrative Building (Cont.)

HA#	Material Description	Friability	Total Quantity	Condition	Potential for Contact	Locations	Status
8	4" black coving/mastic	NF	1, 015 LF	Good	Moderate	Rooms101A, 101C, 101D, 101E, 101F, 102, 103, 105, 105A, 105B, 106, 112, 114, 114A, 140, 140A, 141A, 146, & Hall H-104	**Assumed ACM**
9	Sheetrock wall panels	F	1,880 SF	Good	High	Rooms 101A, 101B, 101C, 101G, 124A, 146A, 146B, Halls H-103 & H-105	**Assumed ACM**
10	12" beige floor tile w/white marbling/mastic	NF	4,565 SF	Good	High	Rooms 101A, 101B, 101C, 101D, 101E, 101F, 101G, 102, 106, 111, 141A, Halls H-104 & H-105	**Assumed ACM**
11	Sheetrock/joint compound	F	14,750 SF	Good	High	Throughout the building	**Assumed ACM**
12	Tan carpet mastic	NF	3,060 SF	Good	Low	Rooms 101A, 101C, 101D, 101E, 101F, 112, 114, 114A, 140, 140A, 141A & 146	**Assumed ACM**
13	Brown window caulking	NF	985 LF	Good	Moderate	Interior side of windows in Rooms 101A, 101B, 101C, 101D, 101E, 101G, 102, 105, 106, 107, 110, 111, 123, 124, 124A, 126, 127, 139, 140 & 146	**Assumed ACM**
14	Ceiling tiles w/large & small pinholes	F	95 SF	Good	Moderate	Room 101E & Hall H-101	**Assumed ACM**

HA = Homogeneous Area N F= Non-friable
F= Friable SF = Square Feet LF = linear Feet

MATERIAL SUMMARY TABLE

Building 1 - Main Administrative Building (Cont.)

HA#	Material Description	Friability	Total Quantity	Condition	Potential for Contact	Locations	Status
15	12" white floor tile w/light blue marbling/mastic	NF	620 SF	Good	High	Rooms 105, 105A, 105B, 106	**Assumed ACM**
16	Plaster	NF	2,900 SF	Good	Moderate	Rooms 107, 110, 127, 129, 135 & 136	**Assumed ACM**
17	Vault door	NF	2 each	Good	Low	Room 113A & 115	**Assumed ACM**
18	Black roof mastic	NF	700 LF	Good	Low	On some seams and penetrations on the roof	**Assumed ACM**

Building 2 - Maintenance Shop

HA#	Material Description	Friability	Total Quantity	Condition	Potential for Contact	Locations	Status
4	Gray door caulking	NF	140 LF	Good	Moderate	Around exterior side of entry doors and bay door bollards	**Assumed ACM**
5	Ceiling tiles w/grooves & pinholes	F	205 SF	Good	Moderate	Rooms 101 & 102	**Assumed ACM**
8	4" black coving/mastic	NF	150 LF	Good	Moderate	Rooms 100, 101 & 102	**Assumed ACM**
11	Sheetrock/joint compound	F	725 SF	Good	High	Rooms 100, 101 & 102	**Assumed ACM**
13	Brown window caulking	NF	110 LF	Good	Low	Interior windows in Rooms 101 & 102, and exterior side of windows	**Assumed ACM**
19	Roofing tar	NF	2,525	Good	Low	Roof	**Assumed ACM**
20	Roofing flashing mastic	NF	12 LF	Good	Low	Around roof penetrations	**Assumed ACM**

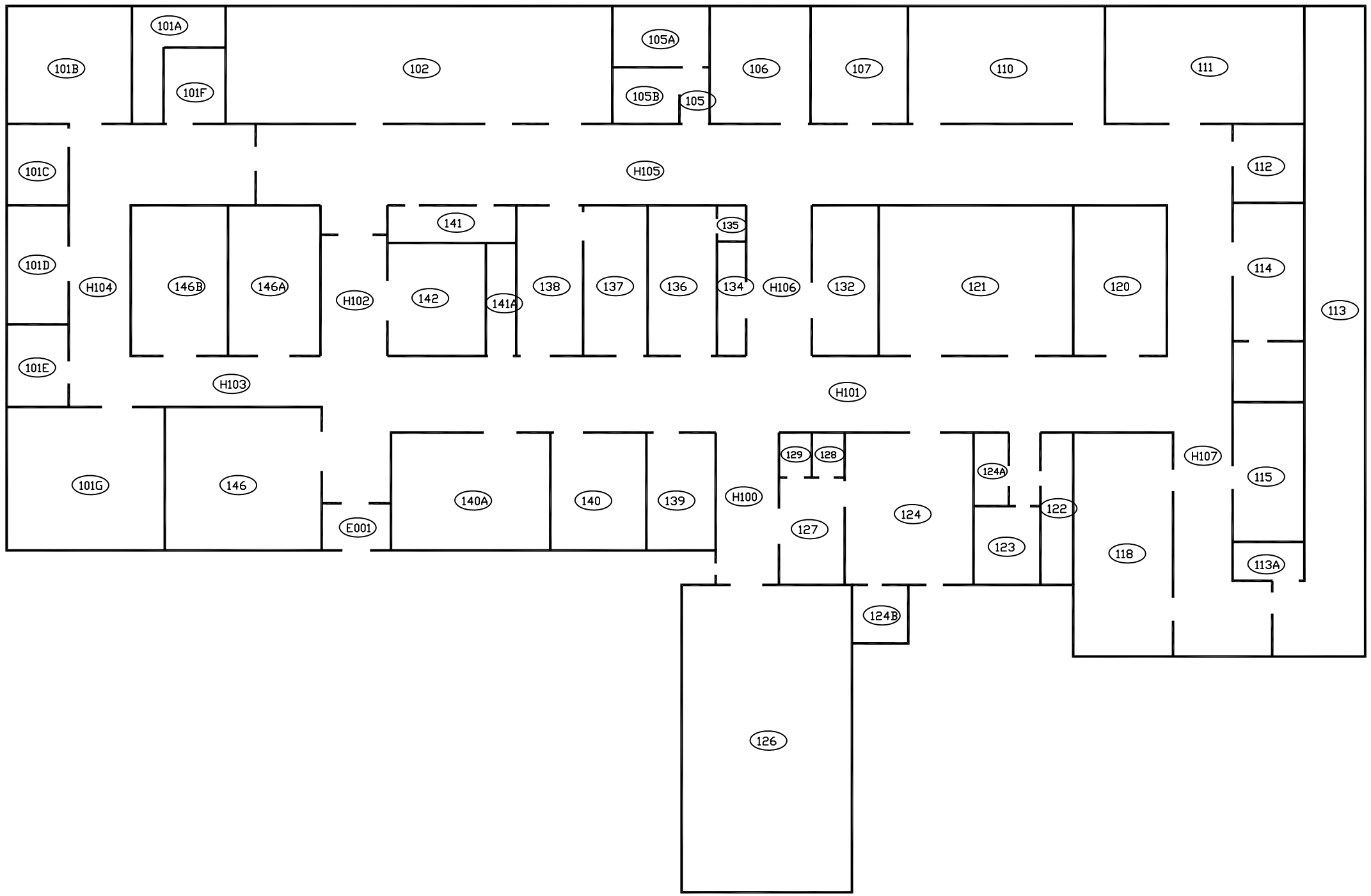
HA = Homogeneous Area N F= Non-friable
F= Friable SF = Square Feet LF = linear Feet

MATERIAL SUMMARY TABLE

Building 3 - Storage Shed

HA#	Material Description	Friability	Total Quantity	Condition	Potential for Contact	Locations	Status
21	Red coorugated asphaltic roof panels	NF	195 SF	Good	Low	Roof	**Assumed ACM**
22	White roof caulking	NF	10 LF	Good	Low	Roof	**Assumed ACM**
23	Black roof caulking	NF	5 LF	Good	Low	Roof	**Assumed ACM**

HA = Homogeneous Area N F= Non-friable
F= Friable SF = Square Feet LF = linear Feet



LEGEND

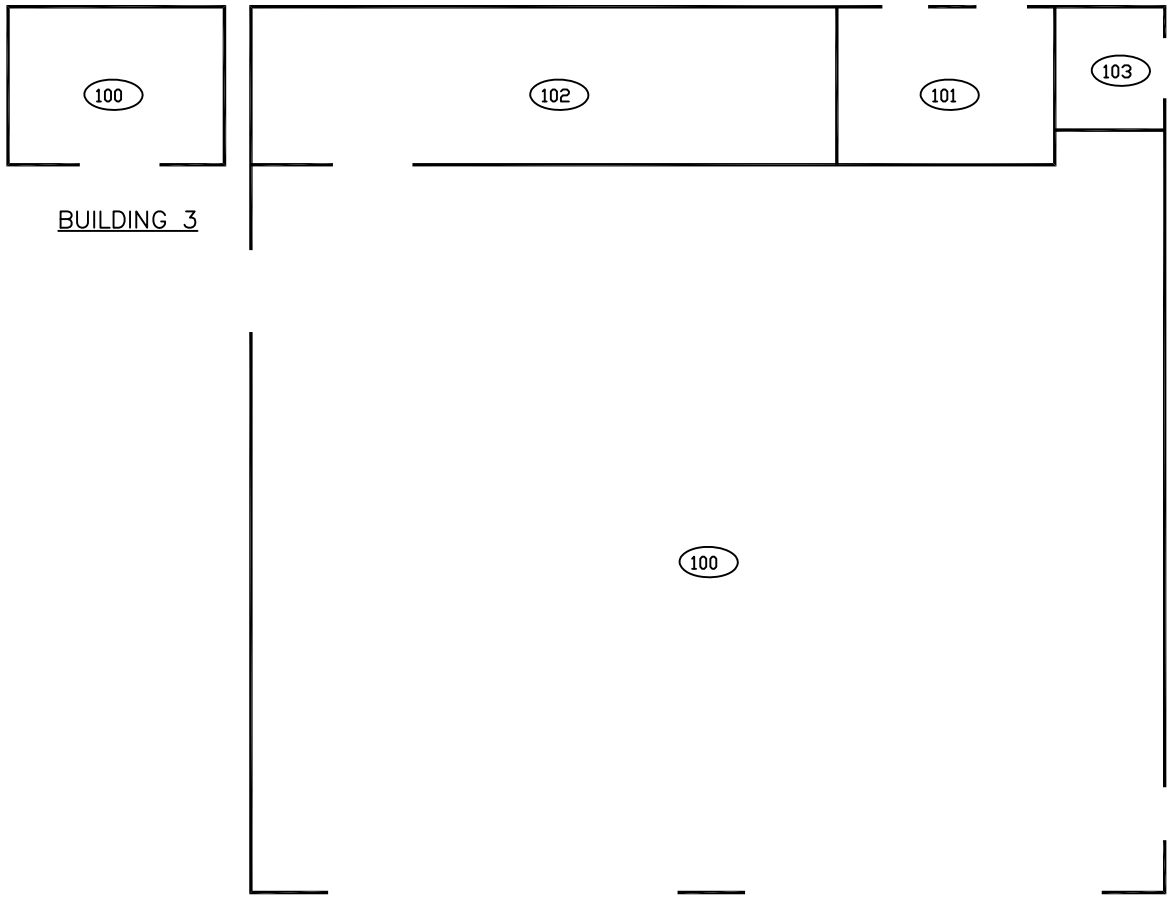
(XXX) — Indicates unique room number assigned by inspector

SBG-EEG

7301 RIVERS AVE., SUITE 245
N. CHARLESTON SC 29406-4643
(843) 573-7140

APPENDIX B
ASBESTOS SAMPLE LOCATIONS
BUILDING 1
ARC WILSON-KRAMER (PA008)
BETHLEHAM, PENNSLVANIA

DATE	PREPARED BY	DRAWN BY	REV
AUG 2012	M. MOLTZEN	L. C. DIASIO	–
SCALE NONE	DWG NUMBER SBG_PA008-B1_07-2012	SHEET 1 OF 2	



LEGEND

(XXX) — Indicates unique room number assigned by inspector

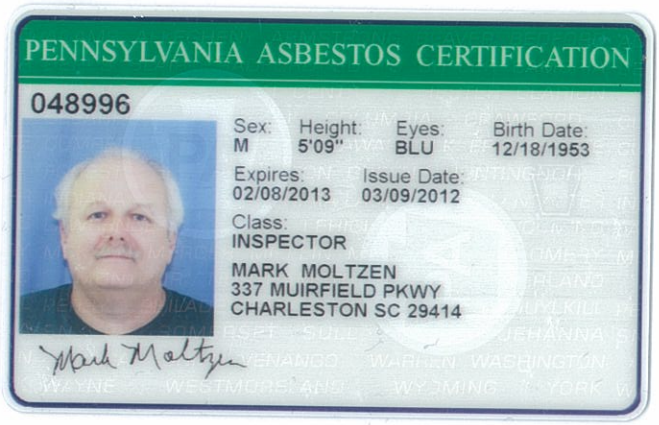
SBG-EEG
7301 RIVERS AVE., SUITE 245
N. CHARLESTON SC 29406-4643
(843) 573-7140

APPENDIX B
ASBESTOS SAMPLE LOCATIONS
BUILDING 2 & BUILDING 3
ARC WILSON-KRAMER (PA008)
BETHLEHAM, PENNSLVANIA

DATE	PREPARED BY	DRAWN BY	REV
AUG 2012	M. MOLTZEN	L. C. DIASIO	–

SCALE	DWG NUMBER	SHEET
NONE	SBG_PA008-B2_07-2012	2 OF 2

STATE ASBESTOS INSPECTOR LICENSE



PENNSYLVANIA ASBESTOS CERTIFICATION

048996

Sex: M
Height: 5'09"
Eyes: BLU
Birth Date: 12/18/1953

Expires: 02/08/2013
Issue Date: 03/09/2012

Class: INSPECTOR

MARK MOLTZEN
337 MUIRFIELD PKWY
CHARLESTON SC 29414

Mark Moltzen

ENCLOSURE 9

REGULATORY/PUBLIC COMMENTS & ARMY RESPONSE

This section will be updated when the 30 day public review and comment period is completed

- The Notice of Availability was placed in the The Morning Call and the Draft FOST was placed at the Bethlehem Area Public Library in Bethlehem, PA from 25 September 2015 to 25 October 2015.

- The Draft FOST was sent to PADEP on 25 September 2015.

- The Draft FOST was sent to US EPA Region 3 on 25 September 2015.

NOTICE OF 30-DAY PUBLIC COMMENT PERIOD

The Department of the Army proposes to dispose of the Wilson Kramer United States Army Reserve Center located at 2940 Airport Road Bethlehem, Pennsylvania 18017 and transfer the property the Bethlehem Police Department. In compliance with Section 120(h) of the Comprehensive Environmental Response, Compensation and Liability Act, the Army has prepared a draft Finding of Suitability for Transfer (FOST) in support of this project. It is the intent of the Army to sign the FOST in order to facilitate the property transfer.

The draft FOST and support materials will be available for public review at the Bethlehem Area Public Library at 11 W Church St, Bethlehem, PA 18018. The FOST can also be viewed electronically at http://www.hqda.pentagon.mil/acsimweb/brac/. Written comments on the FOST shall be received and considered up to 30 days from the publication of this notice, and should be directed to: Ms. Christine Ploschke via e-mail, Christine.m.ploschke.civ@mail.mil or at the following address: 99th RSC-DPW-ENV, 5231 South Scott Plaza, Joint Base M-D-L NJ, 08640.

DEPARTMENT OF THE ARMY
HEADQUARTERS, 99TH REGIONAL SUPPORT COMMAND
5231 SOUTH SCOTT PLAZA
JOINT BASE MCGUIRE-DIX-LAKEHURST, NEW JERSEY 08640-5000

25 September 2015

Bethlehem Area Public Library
11 W Church St
Bethlehem, PA 18018

To Whom It May Concern,

Thank you for allowing the United States Army Reserve, 99th Regional Support Command the opportunity to place the following document in your library's legal notice section. The Department of the Army proposes to dispose of the Wilson Kramer U.S Army Reserve Center in Bethlehem, PA via a public benefit conveyance to the Bethlehem Police Department. In compliance with Section 120(h) of the Comprehensive Environmental Response, Compensation and Liability Act, the Army has prepared a draft Finding of Suitability for Transfer (FOST) in support of this project. It is the intent of the Army to sign the FOST in order to facilitate the property transfer.

The FOST provides a description of the property to be transferred, identifies the property's suitability for the intended future use, and concludes the property is transferable under 42 U.S.C. Section 9620(h) (Enclosure 1). The FOST also indentifies the requisite notification and restrictions to protect human health and the environment. The enclosed CD has a copy of the 2007 Environmental Condition of Property Report (ECP), 2012 ECP Update, and 2015 ECP Recertification.

Written comments on the FOST shall be received and considered up to 30 days from the date of this letter and should be directed to: Ms. Christine Ploschke via e-mail, Christine.m.ploschke.civ@mail.mil, or at the following address: 99th RSC, 5231 South Scott Plaza, Joint Base MDL, NJ 08640.

Sincerely,

Christine Ploschke
Acting Chief, Environmental Division

Enclosures
1. Draft Finding of Suitability to Transfer
2. CD, supporting documentation

DEPARTMENT OF THE ARMY
HEADQUARTERS, 99TH REGIONAL SUPPORT COMMAND
5231 SOUTH SCOTT PLAZA
JOINT BASE MCGUIRE-LIX-LAKEHURST, NEW JERSEY 08640-5000

25 September 2015

Mr. Kenneth Beard
Chief, Federal Facilities
Division of Remediation Services
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building
400 Market Street
Harrisburg, PA 17105

Mr. Beard,

The Department of the Army proposes to dispose of the Wilson Kramer United States Army Reserve Center in Bethlehem, PA via a public benefit conveyance to the Bethlehem Police Department. In compliance with Section 120(h) of the Comprehensive Environmental Response, Compensation and Liability Act, the Army has prepared a draft Finding of Suitability for Transfer (FOST) in support of this project. It is the intent of the Army to sign the FOST in order to facilitate the property transfer.

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Sincerely,

Christine Ploschke
Acting Chief, Environmental Division

Enclosures
1. Draft Finding of Suitability to Transfer
2. CD, supporting documentation

DEPARTMENT OF THE ARMY
HEADQUARTERS, 99TH REGIONAL SUPPORT COMMAND
5231 SOUTH SCOTT PLAZA
JOINT BASE MCGUIRE-DIX-LAKEHURST, NEW JERSEY 08640-5000

25 September 2015

Mr. Ben Mykijewyzc
Office of Federal Facility Remediation and Site Assessment
EPA Region 3
3HS11
1650 Arch Street
Philadelphia, PA 19103-2029

Mr. Ben Mykijewyzc,

The Department of the Army proposes to dispose of the Wilson Kramer United States Army Reserve Center in Bethlehem, PA via a public benefit conveyance to the Bethlehem Police Department. In compliance with Section 120(h) of the Comprehensive Environmental Response, Compensation and Liability Act, the Army has prepared a draft Finding of Suitability for Transfer (FOST) in support of this project. It is the intent of the Army to sign the FOST in order to facilitate the property transfer.

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Sincerely,

Christine Ploschke
Acting Chief, Environmental Division

Enclosures
1. Draft Finding of Suitability to Transfer
2. CD, supporting documentation