FINAL

PROPOSED PLAN FOR NO ACTION

Media Nike Missile Battery (PH-75/78) Control Area
Willistown Township, Chester County, Pennsylvania

FUDS Property: Former Media Nike Missile Battery (PH-75/78) Control Area

HTRW Project Number: C03PA0230

CERCLA Phase: Proposed Plan

Project Name: Media Nike Missile Battery (PH-75/78)

Prepared for:

U.S. Army Corps of Engineers
Baltimore District

US Army Corps of Engineers®
BUILDING STRONG®

Prepared by:

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October 2016

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1.0 INTRODUCTION

This **Proposed Plan** summarizes the reasons behind the proposed decision of **No Action** with regard to the chlorinated **solvents** present in the soil and **groundwater** at the former Media Nike Missile Battery (PH-75/78) Control Area, located in Chester County, Pennsylvania.

This Proposed Plan is being issued by the **United States Army Corps of Engineers** (USACE) Baltimore District for the U.S. Army as the **Department of Defense** (DoD) administrative agent for the **Defense Environmental Restoration Program** (DERP) - **Formerly Used Defense Site** (FUDS) program.

The USACE and the Pennsylvania Department of Environmental Protection (PADEP) encourage the public to review the **Remedial Investigation** Report (ERT, Inc. [ERT], 2014) to gain a better understanding of the site and the environmental investigation activities that led to the No Action decision. Information on how to participate in the decision-making process is presented in Section 7 of this Proposed Plan.

The Proposed Plan has been developed to fulfill requirements of U.S. Environmental Protection Agency (USEPA) **Comprehensive Environmental Response, Compensation, and Liability Act** (CERCLA) Section 117(a) and the **National Oil and Hazardous Substances Pollution Contingency Plan** (NCP) (USEPA, 1990), 40 Code of Federal Regulations § 300.430(f)(3), which require the issuance of a document that allows for public participation and review of the proposed No Action decision.

This Proposed Plan highlights the key information used to support the No Action decision. The documents used to support the No Action decision are available in the **Administrative Record/Information Repository** located at the Paoli Public Library, Paoli, PA.

The Proposed Plan summarizes the following:

- Site background and previous investigations (Section 2)
- Site characteristics (Section 3)
- Scope and role of response actions (Section 4)
- Site risks (Section 5)
- Preferred approach rationale (Section 6)
- Opportunities for public participation (Section 7)

A **public comment period** of no less than 30 days, as well as the opportunity to participate in a public meeting, are being provided to comply with CERCLA § 117(a) and NCP § 300.430(f)(3).

New information or recommendations that USACE Baltimore District receives during the public comment period and/or public meeting may result in a modification of the recommendation for No Action. This Proposed Plan for No Action and other supporting documents will be available for public review in the Administrative Record/Information Repository located at the Paoli Public Library in Paoli, PA.

MARK YOUR CALENDAR FOR THE PUBLIC COMMENT PERIOD

Public Comment Period:

17 October 2016 through 25 November 2016

Submit Written Comments: USACE will accept written comments submitted to the attention of the USACE Baltimore District Project Manager, Hamid Rafiee at:

Hamid Rafiee
USACE-Baltimore District
P.O. Box 1715
Baltimore, Maryland 21201

Attend Public Meeting:

27 October 2016 from 6:00 PM – 8:00 PM

Willistown Township, Chester County
688 Sugartown Road
Malvern, PA 19355

2.0 SITE BACKGROUND

The former Media Nike Missile Battery (PH-75/78) Control Area (also known as the site) is located in rural southeastern Pennsylvania in Willistown Township, Chester County (**Figure 1**). The site is 14.9 acres in size in which 12.2 acres is currently owned by the U.S. government (assigned to the National Park Service) and 2.7 acres is owned by a private resident. The private resident is located on the southwest portion of the site which is hydraulically up-gradient of identified groundwater contamination. There is another private residence to the north of the site. To the south of the site is a 2-acre parcel owned by the Pennsylvania Department of Transportation (PADOT) and used as a maintenance facility. To the west are Delchester Road and the Willistown Township municipal wastewater spray fields, and to the east are 16.5 acres of privately owned undeveloped land. This undeveloped land includes Okehocking Run and a man-made, unnamed pond.

The land for the former Media Nike Missile Battery PH-75/78 was acquired by the DoD in 1954 and used by the U.S. Army to construct a missile defense system for the city of Philadelphia during the Cold War Era.

The former Media Nike Missile Battery PH-75/78 covered a total of 59.9 acres; 14.9 acres consisted of the Control Area (i.e., the subject site for the Proposed Plan) and 43 acres of the Launch Area (USACE, 1987). The 43-acre Launch Area is currently owned by the U.S. Army Reserve, and is not eligible for investigation under DERP-FUDS and therefore, was not investigated under this project.

The former Control Area was used by the U.S. Army from 1954 until 1964 for radar tracking and communications. By 1978 the entire 12.2-acre area where the most prevalent DoD usage had occurred had been transferred to the General Services Administration. The General Services Administration turned the site over to the Great Valley School District for educational purposes in 1978. In 1988, the National Park Service accepted assignment of the former Control Area (USACE, 1996) for the purpose of conveying the property for park and recreational purposes to the Willistown Township under a public benefit conveyance. As of the date of publication of the Proposed Plan (ERT, 2016), the Federal Government has possession of this property and Willistown Township has not officially received the property for conversion to a township park.

The majority of the site is wooded and overgrown. There are no current zoning restrictions preventing the sale of the site for either recreational or residential use. There are no utilities present on the 12.2-acre parcel; however, active utilities are present on the private residence and at the PADOT property.

The land use of the surrounding properties includes a mixture of residential, recreational, and commercial use. These properties include one private residence, which is also partially used for horse rearing, and two commercial properties (the PADOT maintenance yard and the Willistown Township municipal wastewater spray fields). The PADOT maintenance yard is used for material stockpiling and minor vehicle maintenance. Recreational facilities Okehocking Run State Preserve Rushton Woods Preserve, Ridley Creek State Park and Tyler Arboretum are located less than one mile from the site.

Previous Investigations

A number of previous investigations were completed between 1987 and 2014. These investigations were conducted to determine if DoD activities at the site had released chemicals into the environment that may cause harm to people working on the site or living near the site. The results of the Remedial Investigation showed that sediment and surface water did not have any chemicals present that would cause harm. However, volatile organic compounds (VOCs) were found in groundwater at concentrations above their respective USEPA **Maximum Contaminant Levels** (USEPA, 2014) and PADEP **Medium Specific Concentrations** (PADEP, 2011).

Soil Vapor

Currently there are no existing occupied structures on the site and therefore there is no complete vapor intrusion (VI) pathway. However, if a building were to be constructed over the historically high concentrations of

VOCs which may still be present in deep subsurface soil then USACE acknowledges the potential for a VI risk.

Soil

Thirteen soil samples were collected as part of the Remedial Investigation activities. Soil investigation activities have adequately characterized the soil conditions at the former Nike Missile Battery (PH-75/78) Control Area. The Remedial Investigation concluded that soil was not adversely impacted by past DoD activities. Based on these results, soil was excluded as a medium of concern for the Remedial Investigation. However, concentrations of tetrachloroethylene (PCE) detected above USEPA Maximum Contaminant Level-based Protection of Groundwater Soil Screening Level (USEPA, 2014c) were considered as evidence of a possible former source area for groundwater contamination.

Sediment

There are no stream, rivers, ponds, or lakes and subsequently no sediment present on the former Nike Missile Battery (PH-75/78) Control Area (EA Engineering, Science and Technology, Inc. [EA], 1998). Offsite sediment sampling was conducted in 2003; two samples were collected from two offsite water bodies, including Okehocking Run and the unnamed tributary to the west of the site. No **volatile organic compounds (VOC)**, except for carbon disulfide (detected at low levels), were detected in the sediment samples. The sample results indicate that sediment was not impacted by past DoD activities (ARM Group Inc., 2004). Based on these results, sediment was excluded as a medium of concern for the Remedial Investigation.

Surface Water

There are no surface water bodies present on the former Nike Missile Battery (PH-75/78) Control Area (EA, 1998). Surface water sampling was also conducted in 2003 at the same offsite locations as the sediment samples discussed previously. Volatile organic compounds were not detected in the surface water samples. The sample results indicate that surface water adjacent to the site was not impacted by past DoD activities (ARM, 2004). Based on these results, surface water was excluded as a medium of concern for the Remedial Investigation.

Groundwater

Between 2010 and 2011, ERT conducted additional groundwater Remedial Investigation field activities and submitted the Remedial Investigation Report (ERT, 2014), which (1) summarized previously collected soil, soil gas, sediment, and surface water data; (2) confirmed the presences of previously identified chlorinated solvent concentrations in groundwater; (3) identified all site related contaminants and the limits of contaminated groundwater; (4) evaluated potential movement of the contamination in groundwater; and (5) evaluated potential risk to human health posed by the contamination identified in groundwater.

A total of 118 groundwater samples were collected from 31 groundwater **monitoring wells** as part of the Remedial Investigation activities conducted at the former Nike Missile Battery (PH-75/78) Control Area. Trichloroethylene (TCE) and tetrachloroethylene (PCE) were detected in groundwater at concentrations above their respective USEPA Maximum Contaminant Levels (USEPA, 2014c) and PADEP Medium Specific Concentrations (PADEP, 2011) of 5 micrograms per liter (or 5/1000th of a gram per liter) each.

Based on historical information and data collected as part of groundwater Remedial Investigation activities, TCE and PCE were assessed for site-wide groundwater contamination and further evaluated in the **human health risk assessment**. TCE and PCE contamination in groundwater has been associated with other former Nike Missile Battery sites and is believed to be related to former DoD activities at the Nike Media site. No specific evidence of TCE or PCE use by the DoD at this site has been found. Additionally, site-related constituents have not been detected in the two nearby residential wells.

Results of the human health risk assessment, assuming potential future residential land use, concluded there are no human health concerns for exposure to groundwater.

3.0 SITE CHARACTERISTICS

The former Nike Missile Battery (PH-75/78) Control Area included housing barracks, pump houses, radar control buildings, administrative buildings, maintenance buildings, a mess hall, radar towers, and two underground storage tanks for fuel. Various former structures known to have been present on the site include two target tracking radar towers, an acquisition radar tower, a control building, two missile tracking towers, and a frequency changer/generator building (**Figure 2**). Nike battery control area operations that may have released chemicals to the site may have included underground storage tanks, transformers and associated diesel generators, sewage disposal, and maintenance activities such as painting and radar maintenance.

The site has remained mostly undeveloped since past DoD use, with the exception of some areas on the site. These areas contain a parking lot, abandoned buildings, remnant foundations, a residence, and a Willistown Township staging area for soil and gravel.

4.0 SCOPE AND ROLE OF RESPONSE

In accordance with DERP-FUDS, USACE considers remedial actions for sites that have confirmed unacceptable risk to human health or the environment from historical DoD activities at the site. The Remedial Investigation concluded that there is no unacceptable risk to human health or the environment associated with the former Media Nike Missile Battery (PH-75/78) Control Area. The conclusion took into consideration the following:

- the site is primarily undeveloped,
- an approximate one acre portion of the site used by the municipality of Willistown Township as a staging area for sand and gravel,
- a residential property exists on a portion of the site,
- land use of surrounding properties includes a mixture of residential, recreational, and commercial use,
- groundwater contamination is at a depth of between 5 to 40 feet below ground surface,
- groundwater contamination is confined to a small area and the limits of groundwater contamination have been determined,
- the anticipated future use of the adjacent property would continue to be for residential purposes,
- the anticipated future use of the undeveloped portion of the site is commercial/industrial and recreational, and
- cancer risk levels for the current and anticipated future **receptors** were below the acceptable carcinogenic risk range of 10^{-6} to 10^{-4} and **hazard index** of 1.

Therefore, no **remedial action objectives** were developed nor were remedial alternatives considered. The extent of TCE and PCE in groundwater is presented in **Figure 3** and **Figure 4**.

5.0 SUMMARY OF SITE RISK

Conceptual Site Model

During the Remedial Investigation, a **conceptual site model** was developed that identified ways that receptors could come into contact with chemicals in groundwater under residential land use. Based on the conceptual site model, potential ecological receptors were not considered to exhibit a complete pathway for exposure to contaminated groundwater.

In determining reasonable potential future receptors, residential land use adjacent to the site and evidence of groundwater movement were taken into account. The following complete exposure pathways were evaluated:

- drinking of groundwater as a water supply,
- skin contact with groundwater, and
- breathing of volatile organic compounds while showering (resident adult only).

Human Health Risk Assessment

In accordance with USEPA Guidance, DERP - FUDS program requirements, and in consideration of PADEP Act 2 Guidance, a human health risk assessment was conducted to determine potential risks to humans associated with exposure to groundwater through drinking and touching groundwater and breathing in groundwater vapors while showering. Residential exposure to groundwater through a

drinking water supply by future resident adult and child receptors was considered.

The **non-carcinogenic** hazard index for exposure to **weathered bedrock** groundwater was calculated to be 0.5 for the adult residents and 0.7 for the child residents, which are both below the acceptable USEPA threshold of 1 for the adult residents and child residents. **Carcinogenic risks** for the resident adult and child combined were calculated to be within the USEPA acceptable carcinogenic risk range of between $1x10^{-6}$ and $1x10^{-4}$.

The total non-carcinogenic hazard index for adult resident exposure to **fractured bedrock** groundwater as drinkable water was calculated to be equal to the acceptable USEPA threshold. The total non-carcinogenic hazard index for child resident exposure to deep groundwater was calculated to be 2, slightly above the USEPA threshold; however, a breakdown of non-carcinogenic risk to resident children's organs known to be affected by the contaminants determined that the hazard index is not greater than the USEPA threshold.

The fractured bedrock groundwater lifetime carcinogenic risk for the resident (adult and child combined) was found to be within the USEPA acceptable carcinogenic risk range of between $1x10^{-6}$ and $1x10^{-4}$.

6.0 PREFERRED APPROACH

As a result of the Remedial Investigation completed for the former Media Nike Missile Battery (PH-75/78) Control Area, there is no unacceptable risk to human health or the environment at the site. Therefore, as part of the CERCLA process in the Proposed Plan for the FUDS site, the No Action determination is recommended by USACE.

A community relations program is being conducted for the former Media Nike Missile Battery (PH-75/78) Control Area. Public input is a key element in the decision-making process. USACE has provided information regarding the investigation of the former Media Nike Missile Battery (PH-75/78) Control Area through the Administrative Record file for the site at the Paoli Public Library and is available for review.

This Proposed Plan fulfills the public participation requirements of CERCLA Section 117(a), which specifies that the lead agency (i.e., USACE) must publish a plan outlining any remedial alternatives evaluated for the site and identifying the proposed decision. All documents referenced in this Proposed Plan are available for public review as part of the Administrative Record file located at the library.

The public comment period for the Proposed Plan for No Action is an opportunity to provide input regarding the No Action determination for the former Media Nike Missile Battery (PH-75/78) Control Area. The public comment period will be held from 17 October to 25 November. All interested parties are encouraged to attend the open public meeting to learn more about the former Media Nike Missile Battery (PH-75/78) Control Area. The public meeting will provide an additional opportunity to submit comments to the USACE on the Proposed Plan.

The insert page (found within this Proposed Plan) may be used to provide comments to USACE, although the use of this form is not required. Comments must be postmarked no later than 25 November 2016. On the basis of comments or new information, the USACE may modify the proposed decision or choose another alternative, if appropriate. The USACE will summarize and respond to comments in a **Responsiveness Summary**, a document that summarizes USACE's responses to comments received during the public comment period. The Responsiveness Summary will become part of the official **Decision Document**. After the public comment period, USACE will determine whether the Proposed Plan should be modified on the basis of comments received. After modification, or if no modification is necessary, the Decision Document will be signed by the USACE.

The human health risk assessment determined there is no unacceptable risk to human health from exposure to chemicals in groundwater either now or in the future. Therefore, in accordance with the CERCLA process, USACE has determined that No Action is warranted for groundwater at the site. This determination is supported by the conclusions and recommendations of the Remedial Investigation

Report (ERT, 2014). PADEP provided concurrence with the Remedial Investigation Report in November 2014 (PADEP, 2014).

USACE acknowledges that the soil sample data from 2001 and 2003 and groundwater data reported in the Remedial Investigation Report may indicate the presence of a potential source area for a future vapor intrusion (VI) pathway. Currently there are no existing structures overlying the historically high concentrations of VOCs in soil therefore there is no complete vapor intrusion pathway. However, if a building were to be constructed over the historically high concentrations of VOCs, which may still be present in deep subsurface soil, then USACE acknowledges the potential for a cumulative VI risk resulting from contamination in soil and groundwater on the former DoD property. In accordance with current DoD policy governing potential VI risks on FUDS properties without existing structures, USACE will provide notice of a potential VI risk to the current property owner in writing and also include such a notice in the final Decision Document.

USACE is proposing No Action at the site. If this recommendation is ultimately selected by USACE after consideration of all public comments received and documented in the Decision Document, no additional environmental investigation or remediation will be performed and USACE's environmental actions for the site will be considered complete.

7.0 COMMUNITY PARTICIPATION

Public input is important to the decision-making process. Interested parties are encouraged by USACE and PADEP to use the comment period to review the Proposed Plan for No Action and to provide their comments to USACE.

A notice will be published via local news media to announce the availability of this Proposed Plan for No Action for public review and comment.

As previously stated and in accordance with CERCLA Section 117(a), a public comment period of no less than 30 days for this Proposed Plan for No Action has been provided, and a public meeting regarding the Proposed Plan for No Action has been scheduled to be held during the public comment period.

Community acceptance of the Proposed Plan for No Action will be evaluated after the public comment period ends and the public meeting has been held. Following the public comment period, USACE will provide responses to all comments received in a Responsiveness Summary which will be part of the final Decision Document. The final Decision Document will provide a record of the official decision for the site.

MARK YOUR CALENDAR FOR THE PUBLIC COMMENT PERIOD

Public Comment Period:

17 October through 25 November 2016

Submit Written Comments: USACE will accept written comments submitted to the attention of the USACE Baltimore District Project Manager, at:

Hamid Rafiee
USACE-Baltimore District
P.O. Box 1715
Baltimore, Maryland 21201

Attend Public Meeting:

27 October 2016 from 6:00 PM – 8:00 PM

Willistown Township, Chester County
688 Sugartown Road
Malvern, PA 19355

Location of the Administrative Record/Information Repository

This Proposed Plan for No Action and any additional supporting documents are available to the public at the location of the Administrative Record/Information Repository located at:

Paoli Public Library
18 Darby Road
Paoli, PA 19301
(610) 296-7996

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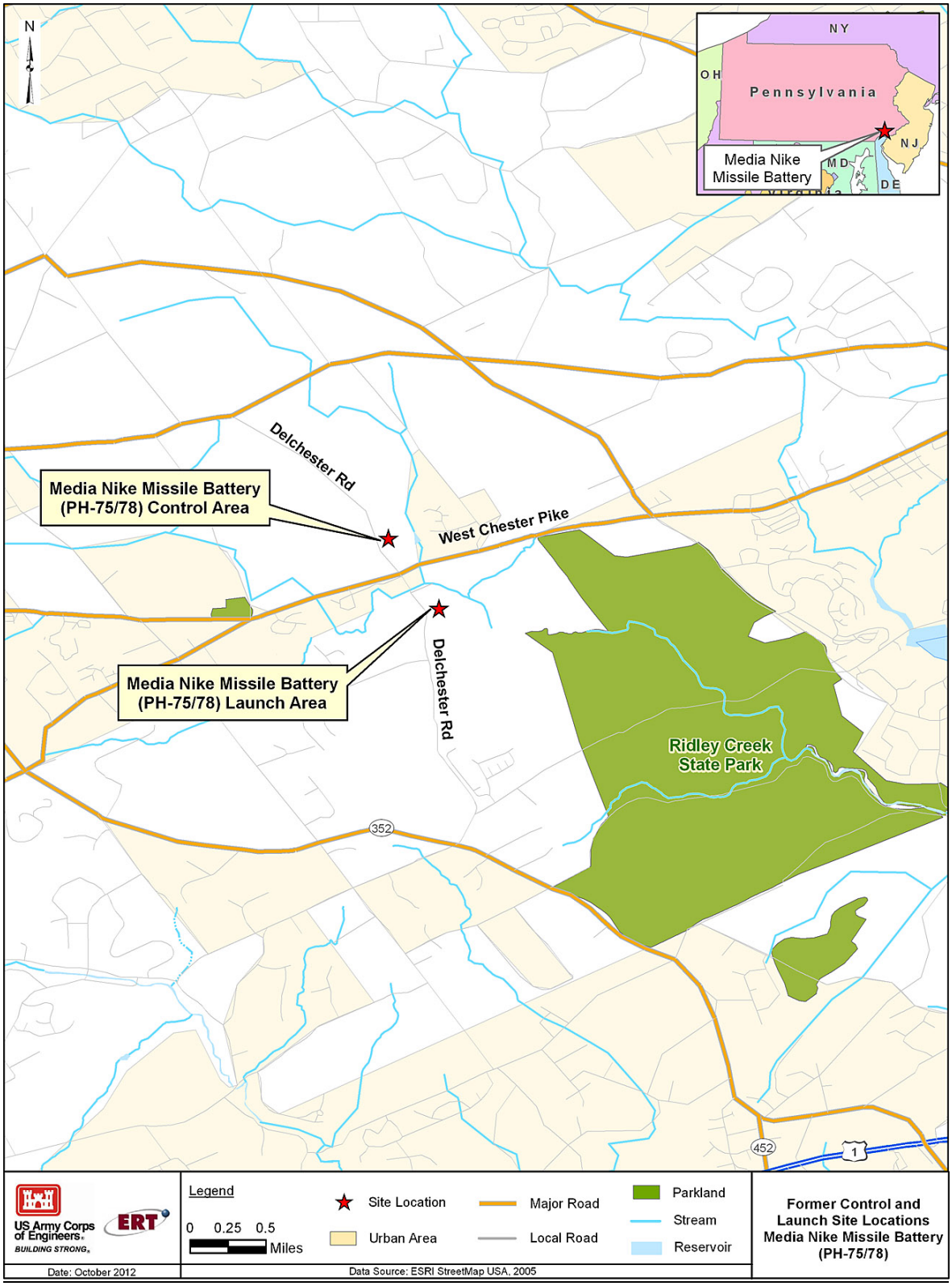

Figure 1. Site Location

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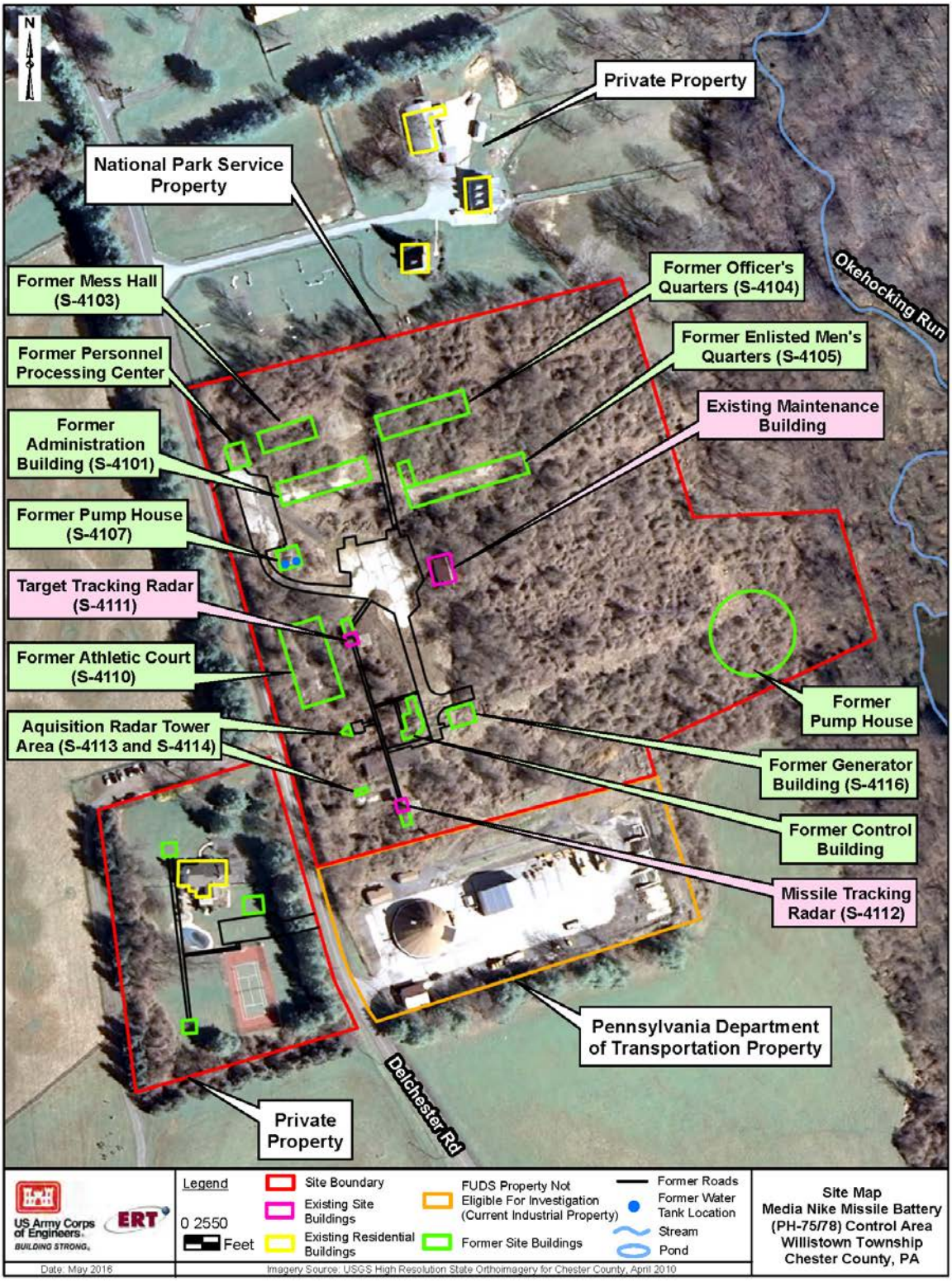

Figure 2. Site Map

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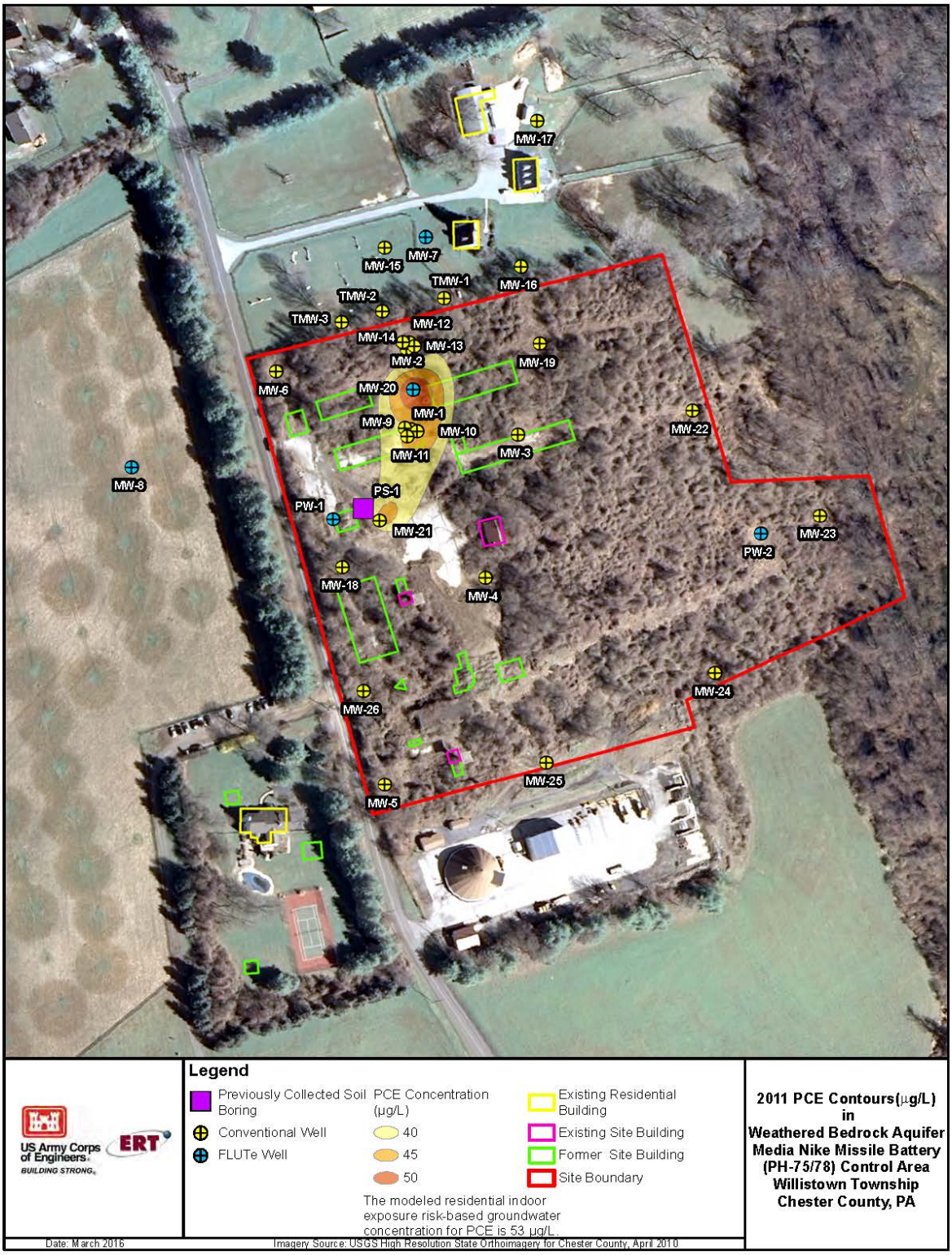

Figure 3. 2011 Weathered Bedrock Groundwater Extent of Contamination

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Figure 4. 2011 Fractured Bedrock Groundwater Extent of Contamination

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Please Print Your Comments Below:

Your input on the Proposed Plan for No Action for the former Media Nike Missile Battery (PH-75/78) Control Area is important to USACE. Comments provided by the public are valuable in helping USACE select a final remedy for the site.

You may use the space below to write your comments, then fold and mail. Comments must be postmarked by **25 November 2016**. If you have questions regarding the comment period, please contact Hamid Rafiee at (410) 962-7546 or email at Hamid.Rafiee@usace.army.mil.

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REFERENCES

ARM Group, Inc., 2004. *Phase II Remedial Investigation Media Nike Missile Battery (PH-75/78) Control Area.*

EA, Engineering, Science and Technology, Inc. (EA), 1998. *Data Collection Report for Maintaining and Updating the DERP-FUDS Database for the Nike Missile Battery PH-75/78.*

ERT, Inc. (ERT) 2014. *Final Remedial Investigation Report, Media Nike Missile Battery PH-75/78, Willistown Township, Chester County, Pennsylvania.* November.

Pennsylvania Department of Environmental Protection (PADEP), 2011. *Statewide Health Standards, Medium Specific Concentrations.*

PADEP, 2014. *Letter from Mr. Dustin Armstrong to Mr. Hamid Rafiee Regarding Approval of Remedial Investigation Report/Human Health Risk Assessment,* November.

U.S. Army Corps of Engineers (USACE), 1987. *Site Inventory Project Report – Media Nike Missile Battery (PH-75/78) Site*.

USACE, 1996. *Updated Site Inventory Project Report – Media Nike Missile Battery (PH-75/78) Site*.

U.S. Environmental Protection Agency (USEPA), 1990. National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations 300.43) pursuant to CERCLA (42 U.S. Code 9605).

USEPA, 2002. *USEPA Office of Solid Waste Emergency Response (OSWER) Draft Guidance for Evaluation the Vapor Intrusion to Indoor Air Pathways from Groundwater and Soils (Subsurface Vapor Intrusion Guidance).* November.

USEPA, 2014a. Vapor Intrusion: USEPA Technical Documents and Tools Prepared to Support Guidance Development, maintained on the Internet: http://www.epa.gov/oswer/vaporintrusion/guidance.html#Item4. USEPA Office of Solid Waste Emergency Response (OSWER), Washington, DC, accessed May 2014.

USEPA, 2014b. Johnson and Ettinger (1991) Model for Subsurface Vapor Intrusion into Buildings, maintained on the Internet: http://www.epa.gov/oswer/riskassessment/airmodel/johnson_ettinger.htm. USEPA Office of Solid Waste Emergency Response (OSWER), Washington, DC, accessed November 2014.

USEPA, 2014c. Regional Screening Levels for Superfund Sites. Available at: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm, accessed May 2014.

ABBREVIATIONS AND ACRONYMS

CERCLA	Comprehensive Environmental Response, and Liability Act
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
EA	EA Engineering, Science, and Technology, Inc.
ERT	ERT, Inc.
FUDS	Formerly Used Defense Sites
NCP	National Contingency Plan
OSWER	Office of Solid Waste and Emergency Response
PADEP	Pennsylvania Department of Environmental Protection
PADOT	Pennsylvania Department of Transportation
PCE	Tetrachloroethylene
TCE	Trichloroethylene
USACE	U.S. Army Corp of Engineers
USEPA	U.S. Environmental Protection Agency
VOCs	Volatile Organic Compounds

GLOSSARY OF TERMS

(Terms defined in glossary appear in bold upon first usage in document)

Administrative Record (AR)	The documents that are relied on for selecting a particular response at a site. Also included are relevant documents that are considered but ultimately rejected. This file is available for public review and a copy maintained near the site. The Media Nike Missile Battery (PH-75/78) Control Area Administrative Record file is maintained at the Paoli Public Library.
Carcinogenic (Cancer) Risk	The likelihood that a person will develop cancer from direct exposure to chemicals classified as carcinogens. Carcinogens are chemicals known or suspected to cause cancer. The U.S. Environmental Protection Agency (USEPA) defines the acceptable cancer risk range as one additional cancer case in a population of 1,000,000 (10^{-6}) to no more than one additional cancer case in a population of 10,000 (10^{-4}). In other words, for every 10,000 people who could be exposed, one additional cancer may occur as a result of exposure to chemicals at a site. An additional cancer case means that one more person could get cancer than normally would be expected from all other causes.
Chlorinated Solvent	A chemical containing chlorine atoms in its molecular structure. Chlorinated solvents are commonly found in industrial cleaners used in dry cleaning, metal coating, and machinery degreasing operations. Examples of chlorinated solvents include trichloroethylene (TCE) and tetrachloroethylene (PCE).
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	A Federal law enacted in 1980 and amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA), which concerns investigation and response actions regarding hazardous substances, pollutants, and contaminants.
Conceptual Site Model (CSM)	Presents a description of relevant site features and conditions that assist the understanding of chemical contamination and the risk they pose from exposure to them.
Decision Document (DD)	A public document that describes the remedy selected for a site, the basis for the choice of that remedy, and provides responses to public comments.
Defense Environmental Restoration Program (DERP)	Established law authorizing environmental investigation and cleanup at sites in the United States (U.S.) and its territories that the U.S. Department of Defense (DoD) either currently owns or owned in the past.
Department of Defense (DoD)	An executive branch department of the federal government of the United States charged with coordinating and supervising all agencies and functions of the government concerned directly with national security and the United States Armed Forces.
Formerly Used Defense Sites (FUDS)	Properties that, prior to October 16, 1986, were owned, leased, or otherwise possessed by the U.S. Government and were the responsibility of the DoD.
Fractured Bedrock	Cracks or openings in rock found below ground surface and underneath the soil. Groundwater fills and travels through the cracks and openings.

Groundwater	Water found below the ground surface that fills the small openings in soil, between rocks, or in the cracks and openings of bedrock (fractured bedrock). Groundwater can be the source of drinking water through municipal or domestic wells.
Hazard Index (HI)	For non-carcinogenic health effects, a "hazard index" is calculated. The key concept here is that a "threshold level" (measured usually as a hazard index of less than 1) exists below which non-carcinogenic health effects are no longer predicted.
Human Health Risk Assessment	A human health risk assessment estimates the likelihood of health problems, either carcinogenic or non-carcinogenic, occurring if no cleanup action is taken at a site.
Maximum Contaminant Level (MCL)	Represents the maximum concentration of a chemical in drinking water allowed by law. This concentration is established by the USEPA under the Safe Drinking Water Act.
Medium Specific Concentration (MSC)	Chemical concentrations for chemicals in soil, surface water, sediment, and groundwater established by the Pennsylvania Department of Environmental Protection. These concentrations are established to protect human health under different land use scenarios (e.g., residential or industrial).
Monitoring well	Wells used to collect chemical concentration information in groundwater over a period of time.
National Oil and Hazardous Substances Pollution Contingency Plan (NCP)	Provides the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants.
Non-Carcinogenic Risk	The likelihood that a person will develop an illness from chemicals through eating, drinking, breathing, or touching soil, groundwater, surface water, sediment, or vapors that contain these chemicals. Non-carcinogenic risk is defined as the ratio of the concentration of a chemical detected at a site to the concentration of the chemical at which illness is expected.
Proposed Plan (PP)	The Proposed Plan identifies the proposed decision for a site that best meets the requirements of CERCLA and the NCP. The purpose of the Proposed Plan is to summarize the Remedial Investigation and provide the public with a reasonable opportunity to comment on the proposed decision and to participate in the final decision for a site.
Public Comment Period	The time allowed for the members of a community to express views and concerns regarding an action proposed to be taken by the USACE.
Receptor	Humans, animals, or plants that may come into contact with chemicals present at a site.
Remedial Action (RA)	The final action taken to protect humans and animals from chemicals present at a site.
Remedial Action Objective (RAO)	Remedial action objectives are developed to address specific chemicals in the environment (e.g., soil, groundwater). Remedial action objectives are cleanup concentrations that protect humans and the environment. When these concentrations are met, there are no longer any unacceptable risks at a site.

Remedial Investigation (RI)	A study performed at a site to determine if chemicals are present at a site and where, if the chemicals are moving in the environment, and if these chemicals pose an unacceptable risk to humans and animals.
Responsiveness Summary	A summary of responses to the public's comments and concerns regarding the PP. These comments and concerns can be in writing or spoken at a public meeting. The Responsiveness Summary is included as part of the Decision Document.
U.S. Army Corps of Engineers (USACE)	A branch of the U.S. Department of Defense with special expertise in carrying out CERCLA/NCP investigations and response actions at former Department of Defense sites.
Volatile Organic Compounds (VOCs)	Carbon-based chemicals, such as chlorinated solvents, whose composition makes it possible for them to evaporate under normal conditions of temperature and pressure.
Weathered Bedrock	The layer of soil and partially disintegrated rock immediately above solid or fractured bedrock.

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