



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

STATEMENT OF BASIS

LOCKHEED MARTIN MISSILES AND FIRE CONTROL

Archbald, Pennsylvania

EPA ID NO. PAD003032190

Prepared by
Office of Pennsylvania Remediation
Land and Chemicals Division
July, 2015

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Section 1: Introduction

The United States Environmental Protection Agency (EPA) has prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for the Lockheed Martin Missiles and Fire Control Facility located at 459 Kennedy Drive, Archbald, Pennsylvania 18403 (Facility), which is subject to EPA's Corrective Action (CA) program under the Solid Waste Disposal Act, as amended, commonly referred to as the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Sections 6901 *et seq.* Pursuant to 40 C.F.R. § 124.7, EPA has prepared this SB to describe the background and basis for the proposed remedy.

EPA is providing a 30-day public comment period on this SB and may modify its proposed remedy based on comments received during this period. EPA will announce its selection of a final remedy for the Facility in a Final Decision and Response to Comments (Final Decision) after the comment period has ended.

Information on the Corrective Action program, a fact sheet, and the Government Performance and Results Act Environmental Indicator Determinations for the Facility can be found by navigating <http://www.epa.gov/reg3wcmd/correctiveaction.htm>.

The Administrative Record (AR) for the Facility contains all documents, including data and quality assurance information, on which EPA's proposed remedy is based. See Section VIII, Public Participation, for information on how you may review the AR.

Section 2: Facility Background

The Facility was originally constructed by Daystrom Corporation and began operating in the 1950s. The Facility was later purchased by Sangamo, Incorporated, Weston, Schlumberger-Fairchild, Loral Control Systems and Lockheed Martin Corporation (LM). LM acquired the Facility in 1996 and changed the Facility's name to Lockheed Martin Tactical Defense Systems and more recently to Lockheed Martin Missiles and Fire Control (LMMFC).

The Facility property consists of approximately 143 acres and is situated on the top of a small mountain within the Appalachian Mountain Chain. Figure 1 shows the Facility location. The approximately 18-acre portion of the Facility where operations occur is fenced with the remainder unrestricted and vegetated. The Facility is made up of two buildings (Manufacturing Buildings No. 1 and 2) interconnected by a walkway and an attached administrative building, with the three buildings collectively totaling approximately 350,000 square feet. Figure 2 is a map of the Facility. The Facility is surrounded by a mixture of wooded areas, a high school, residential, commercial, and

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light industrial use properties.

LMMFC is a designer, developer, and manufacturer of missiles, rockets, and manned and unmanned defense systems for the U.S. and allied military customers. The processes involve material inspection, metal fabrication, electronics assembly, finished product assembly, quality assurance testing, and packaging and shipping. Various quantities of paints, transmission and cooling oils, degreasers (Freon and ketones), industrial solvents, paint thinners (xylenes), and compressed gases (halon 1301, ammonia, carbon dioxide, acetylene) are used in the manufacturing process. Facility operations have historically included metal finishing that was performed in the western area of Manufacturing Building No. 2.

Section 3: Summary of Environmental Investigations

3.1 Environmental Investigations and Remedial Activities

A Preliminary Assessment (PA) of the Facility was performed by NUS Corporation and submitted to EPA on October 5, 1989. No evidence of past or present releases was identified from the areas of potential concern (APC) identified. As part of the PA, NUS performed a well search through the Pennsylvania Groundwater Inventory System. No groundwater wells were identified within Archbald Township.

On November 2, 1989, LM registered three underground storage tanks (USTs). On February 29, 1991, an Underground Storage Tank Closure Report was filed. According to this report, visible surface and subsurface contamination was encountered at a depth of 1-2 feet in an isolated area around the fill pipe of the tank. Three rounds of excavation and sampling occurred which resulted in removal and offsite disposal of approximately 200 tons of soil. The Pennsylvania Department of Environmental Protection (PADEP) recommended additional samples be collected at the 9-foot depth and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX). All results showed contaminant concentrations to be less than detection limits.

LM initiated a voluntary corporate due diligence program and a subsequent Facility wide environmental groundwater monitoring program in approximately 1996. As part of these programs, shallow and deep soil sampling, sediment sampling, test pits, and groundwater monitoring well installation and sampling were performed. Results, as discussed directly below, were reported in a Facility Site Investigation Report (SIR).

A UST Closure Report filed by LM on March 7, 1997 noted that Tank 003, which was used for waste oil and water storage, was removed and showed no obvious contamination. However, TCE was detected in Monitoring Well #5 at 0.012 parts per million (ppm). Methyl Ethyl Ketone (MEK) was detected in another well.

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In 1997, LM performed a well search for all public and private supply/production wells within 2,500 feet of the Facility's boundary. No wells were identified as a result of the search.

A voluntary Facility wide site investigation was performed and information was presented in a January 1999 SIR. The SIR investigation is equivalent to a RCRA Facility Investigation (RFI) since the approach was to sample soil from each APC identified as well as sample groundwater quality across the entire Facility. The SIR identified the following 16 APCs:

- APC-1: Former waste sewer line/stormwater sewer line: Area outside of metals finishing room.
- APC-2 –Waste Water Treatment Facility (WWTF): Waste water from metal finishing operations was pre-treated on-site in the Facility's former waste water treatment plant. Waste included cyanide and chromate wastewaters. After treatment, Facility wastewater was then discharged to the sanitary sewer. APC-2 has been referred to in some reports as the Waste Neutralization Building. In this SB, ACP-2 will be referred to as the WWTF.
- APC-3: Dust Bag Collector: Facility dust bag collector for emissions from the sand and shot blasting operations just east of APC-2, the wastewater treatment plant.
- APC-4: Air Cooling Unit: Facility cooling unit mounted on a pad in the southwestern corner of the landscaped area. Arsenic was detected above Pennsylvania Department of Environmental Protection (PADEP) Land Recycling and Environmental Remediation Standards Act (Act 2) Statewide Health Standard (SHS) residential Medium-Specific Concentrations (MSCs) but not the non-residential MSCs.
- APC-5: Open Staging area and dumpster/trash compacter area: Located centrally in the area between the two Manufacturing Buildings. The Facility historically staged equipment and dumpsters containing general refuse in this area. TCE was detected in soils at concentrations above the groundwater pathway MSC but not the direct contact MSC.
- APC-6: Former USTs: As discussed above, the Facility operated and closed three Underground Storage Tanks (USTs).
- APC-7: Dumpster/Shavings Collection Area: Located inside and outside the eastern end of Manufacturing Building 2. Metal shavings generated from machining operations are staged in this area in large bins and roll off dumpsters prior to removal from the site. The bins sit on top of a grated containment berm that catches machining liquid drained from the metal shavings. This berm surrounds a vault. Outside of this area, the Facility maintains a small underground vault that is used as spill containment for flammable materials in the flammable storage room located in Manufacturing Building No. 2.
- APC-8: Incinerator Building: The Facility operates a small cement-floored incinerator that is centrally located to the north side of Manufacturing Building 2 and adjacent to the Facility's security fence. It is used to burn small amounts of

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classified paper documents and magnetic tape. Lead and silver were detected in shallow soil above non-residential direct contact and soil to groundwater pathway MSCs.

- APC-9: Debris Piles/Materials Pit and Fill Areas, eastern section of Facility property: These Areas, located adjacent to and beyond the northern and eastern sides of the main parking area have historically been used to deposit debris and refuse generated during routine maintenance operations and Facility improvements. In addition, a materials pit was identified in the wooded area adjacent to the northwestern corner of the main parking area. The materials present in the pit appeared consistent with those in the sludge generated in the Facility's former wastewater treatment plant. The following compounds and concentrations were found in one test pit at a depth greater than 2 feet below grade: benzo(A)pyrene, benzo(B)flouranthene and dibenzo(A,H)anthracene. Soils sampled in the the Materials Pit showed metal concentrations above non-residential direct contact and soil to groundwater pathway MSCs. An area of soils immediately downgradient of the Materials Pit contain cadmium above groundwater pathway MSC.
- APC-10: Former Carpenter Shack Area and Debris Pile: The Facility formerly operated a carpenter shack south of the main parking area for the construction of shipping crates and pallets. The shack was demolished in the late 1980s.
- APC-11: Demolition Test/Burn Pit Areas and Suspect Terrain and Unvegetated Areas on the Western Portion of Property: For testing purposes, the Facility ignited small charges in a natural bank on the northern side of the baseball field. An upright burn pit is present in the wooded areas located to the west of the baseball field in an area of suspect mounding. Areas lacking vegetation were also identified to the west of the Facility and north of the baseball field. These areas are located within the western portion of the Facility property, away from the Manufacturing Buildings.
- APC-12: Sediment in Stormwater Drainage Swales: The Facility maintains a sewer system that discharges stormwater at three outfalls at the perimeter of the developed portion of the Facility property. Stormwater that enters the system via surface runoff from the Manufacturing Buildings, driveways, parking lots, loading bays, and past and present outdoor storage areas. Arsenic was detected above its residential direct contact MSC.
- APC-13: Groundwater Quality: The Facility has been a manufacturing facility since 1950 and has used various types of chemicals, including solvents, caustics, acids and explosives. Groundwater quality was identified as an APC based on the long-term industrial usage. TCE is present in one test well while chromium ion is present in another; both contaminants were detected above applicable MSCs.
- APC-14: Old Vehicle Maintenance Bay Area: The Facility formerly performed maintenance on its company vehicles east of the dust bag collection area.
- APC-15: Loading Dock Area: This area is located in the northeastern portions of the Manufacturing Building No. 1 and is used occasionally for loading and unloading of various materials. Prior to the construction of this loading dock, the area was used as a drum staging area.

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- APC-16: Unnatural Depression located in Unimproved Wooded Area: Observed during a site walk. Facility personnel indicate that its origin may be associated with the coal mining operations formerly performed in the area prior to the original construction of the Facility.

The principal aquifer within Lackawanna County for potable water is the Catskill Group which is not considered to be a significant source of potable water. The majority of potable water in the vicinity of the Facility is derived from local surface water bodies, such as the Lackawanna River and local reservoirs.

Soil sampling results in the SIR were compared to the Pennsylvania Department of Environmental Protection (PADEP) Land Recycling and Environmental Remediation Standards Act (Act 2) Statewide Health Standard (SHS) residential and non-residential Medium-Specific Concentrations (MSCs). The SIR concluded that APC's 1, 3, 6, 7, 10, 11, 14, 15, and 16 are not a concern relative to Act 2 residential MSCs; APC's 4 and 12 are not a concern relative to Act 2 non-residential MSCs due to levels of Arsenic identified in soils above the residential MSC of 12 mg/kg but below the non-residential MSC of 53 mg/kg (maximum Arsenic concentration of 26.5 mg/kg); and APC's 2, 5, 8, 9 and 13 were still of concern relative to Act 2 non-residential MSCs. Tables 1a and 1b list the APCs determined to be still of concern, their identified compounds, and the maximum concentrations identified in soil and groundwater as a result of the SIR investigation. The SIR recommended two years of annual groundwater monitoring and the preparation of a Baseline Human Health Risk Assessment (BHHRA).

A BHHRA for Groundwater Quality was prepared by the Facility in January 1999. It was prepared in accordance with EPA Risk Assessment Guidance for Superfund. Based on the screening of then current Facility data, TCE and Chromium were retained for the quantitative risk assessment. Chromium was retained and evaluated as a worst case scenario even though it had not been detected since the first sampling round in January 1996. The BHHRA relied on the assumption that the use of groundwater at the Facility as domestic water source is unlikely since the aquifer is not capable of producing sufficient yield to support supply wells. Table 2 lists the compounds and their maximum concentrations evaluated in the BHHRA. It concluded that the Facility was within EPA's acceptable range for both carcinogenic and non-carcinogenic effects via the residential ingestion and dermal direct contact exposure pathways for all receptors. Furthermore, it concluded that no remedial action was necessary for groundwater to be protective of human health.

In February of 1999, LM prepared a Confirmatory Soil Sampling Report that detailed remedial measures taken to address APCs 8 and 9. LM excavated soils from APC 8 to remove soils impacted by Lead and Silver and APC 9 to remove soils and a semi-solid waste material with concentrations of Cadmium, Lead, Nickel, and TCE above PADEP Act 2 MSCs. Collection of post excavation soil samples confirmed that there were no remaining impacts above PADEP Act 2 residential MSCs. Therefore, LM no longer considered APC 8

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and APC 9 areas of concern.

Groundwater monitoring continued annually since the beginning of LM's 1995 property wide environmental groundwater monitoring program. As part of the SIR, confirmatory filtered groundwater sampling for Chromium occurred in December 1997 and January 1998. Chromium was non-detect during these sampling events. July 11, 2003, August 5, 2004, and July 29, 2005 annual Groundwater Monitoring Services Reports consistently identified TCE as the only VOC detected above its PADEP Act 2 groundwater MSC of 5 ug/L in MW-5 at 11 ug/L, 5.4 ug/L, and 15 ug/L, respectively. Chromium concentrations continued to be non-detect.

In December 2005, Tetra Tech EC, Inc. submitted a Final Environmental Indicator (EI) Inspection Report to the EPA. The EI Report was prepared under PADEP contract to support the EPA Facility Corrective Action determinations. The historical reports and data discussed above were summarized in the EI Report. No new information was identified that would suggest there were any new or unknown releases at the Facility. Therefore, EPA determined that the only environmental concern was the TCE in the groundwater monitoring well MW-5.

3.2 Act 2

On March 4, 2013, LM submitted a Notice of Intent to Remediate (NIR) enrolling in the PADEP's Land Recycling and Environmental Remediation Standards Act (Act 2), 35 P.S. Sections 6026.101 *et seq.*, program. The area to be addressed under Act 2 was soil and groundwater contamination identified during demolition of the WWTF. LM elected to enter into the One Cleanup Program as described in the April 2004 Memorandum of Agreement (MOA) between EPA and PADEP. This MOA which describes how facilities can be remediated under Act 2 while simultaneously satisfying federal Corrective Action obligations. EPA and PADEP entered the Facility into the One Cleanup Program on March 20, 2013.

A combined Act 2 Remedial Action, Remedial Investigation, and Final Report (FR) was submitted to PADEP and EPA in May 2014. The combined FR summarized the investigations and remedial actions undertaken at the WWTF as described directly below.

LM operated the WWTF to treat rinse water from plating operations. It had been granted Permit-By-Rule status in March 1983 and operated from the late 1950s until 1992. The WWTF was a 30 by 50 foot building constructed of cinder block, concrete, and steel with concrete under floor tanks for containment and treatment of waste. In 1992, the WWTF tanks were cleaned and closed in place. A visual inspection of the tanks after cleaning revealed no indication of leakage. In 2008, the former WWTF was demolished. Impacted soils were removed, to the extent practicable, during demolition. Impacted soils were

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excavated, stockpiled and, subsequently, disposed offsite. Approximately 160,000 pounds of solid hazardous waste and 100 gallons of hazardous liquid were transported for disposal. Upon demolition and after excavation, soil and groundwater samples were collected from the vicinity of the WWTF. Sampling results indicated concentrations of VOCs above PADEP MSCs and EPA Region III Risk-Based Regional Screening Levels (RSLs). Tables 3a and 3b summarize the VOCs and their respective concentration levels.

In 2010, the WWTF area was paved over with asphalt. This asphalt cap was installed to manage residual soil impacts by minimizing infiltration of precipitation through impacted soils and eliminating potential direct contact exposures.

As a result of the groundwater exceedances identified in the post-demolition samples, PADEP requested a delineation of the VOC exceedances in groundwater around the WWTF. In March 2010, LM submitted a Remedial Action Workplan 2010 to perform the requested groundwater sampling. From 2010 to 2012, groundwater monitoring occurred on a quarterly basis at wells in the vicinity of WWTF. Groundwater monitoring data, concentration, and isopleth maps (Appendices L and M of the FR) indicate that releases from the former WWTF have caused localized VOCs impacts to shallow groundwater. No VOCs have been detected in two downgradient sentinel monitoring wells. No VOCs have been detected in the deep water-bearing zone at concentrations exceeding their MSCs. Trend analyses depicted on Figure 12 and presented in Appendix Q of the FR on the three impacted shallow wells delineating the groundwater impacts from the WWTF show decreasing trends in groundwater concentrations that are expected to meet MSCs between 2016 and 2020. Table 5 summarizes the results of the groundwater exceedances for the quarterly monitoring.

An evaluation of potential vapor intrusion (VI) risks was conducted in 2010 and 2011 as a result of the elevated levels of TCE in the subsurface within 100 feet of an occupied building (Manufacturing Building No. 2). Soil gas samples were collected along preferential pathways near where the highest TCE levels in soil were identified. Three VI sampling events occurred on October 26, 2010; December 7, 2010; and May 25, 2011. The results are summarized on Table 5. TCE was detected during the October 2010 sampling event at 5.8 mg/m³ which exceeds PADEP's Soil Gas MSC of 4.8 mg/m³. The sampling was performed under drought conditions in Lackawanna County issued in September 2010. The two consecutive sampling events results were 100 and 10 times less, respectively (0.0115 and 0.512 mg/m³).

Included in the Act 2 FR is a human health risk assessment (HHRA) for Facility soils in accordance with PADEP regulations and EPA guidance. The Conceptual Site Model assumptions made in the HHRA are that contaminated soils are covered by impermeable surfaces (the asphalt cap) and the Facility use remains industrial. Constituents of Concern (COCs) were identified and screened against EPA Region 3 Regional Screening Levels

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(RSLs). Site specific soil information was taken into account in the HHRA demonstrated that the risk level of the residual soil contaminant levels remaining do not exceed a risk level of 1×10^{-4} and a hazard index of 1. Table 6 lists the soil COCs and their exposure point concentrations evaluated in the HHRA. EPA has reviewed this data and these results are within EPA's acceptable risk range for Corrective Action. EPA concurs with the conclusions and recommendations contained in the HHRA.

The Act 2 Final Report included proposed land and groundwater use restrictions at the Facility. The Final Report was approved by PADEP on July 30, 2014. EPA has reviewed and agrees with the conclusions and recommendations in the Final Report. Specific restrictions as detailed in the Environmental Covenant approved on May 20, 2015 and recorded on June 16, 2015 (June 2015 Environmental Covenant) (attached hereto as Attachment 1) are:

- a. The Facility Property shall be restricted to use as non-residential property, as defined by the Pennsylvania Land Recycling and Environmental Remediation Standards Act, 35 P.S. § 6026.103;
- b. Groundwater from beneath the Facility Property shall not be used for drinking water and commercial agricultural use(s), including, but not limited to, irrigation of crops, watering of livestock, and food production, processing, or packaging without appropriate treatment and/or approval provided by the PADEP.
- c. An engineering control, in the form of an impermeable asphalt cap over the former WWTF is currently in place and will be maintained to limit or minimize future migration of residual VOCs and lead in subsurface soils. The presence of this asphalt pavement will also minimize infiltration of precipitation through the impacted soils. The Owner shall inspect the existing asphalt cap on a biennial basis to ensure that the integrity and protectiveness of the asphalt cap is maintained and provide a report consistent with paragraph 7, below, documenting the findings of the inspection to the PADEP.

3.3 EPA Assessment

The investigations discussed in the previous sections were completed voluntarily or under PADEP oversight pursuant to PADEP's Act 2 Program. Soil and groundwater sampling results in those reports were initially compared to Act 2 MSCs. Soil standards for the site-specific COCs listed on Table 6 are equivalent to EPA's RSLs and groundwater standards are equivalent to EPA's MCLs for the identified groundwater COCs listed on Table 4.

EPA modeled the potential for the soil vapor to migrate into buildings using EPA's Vapor Intrusion Screening Level (VISL) Calculator. Results showed that only the Statement of Basis

October 2010 result (5.8 mg/m³) for TCE had a calculated potential to cause elevated indoor air concentrations under industrial uses. However, the resulting calculated carcinogenic risk, 1.9E⁻⁴, was only slightly in excess of EPA's acceptable risk range. Furthermore, this sampling was performed under drought conditions. The two consecutive sampling events results were 100 and 10 times less, respectively (0.0115 and 0.512 mg/m³). Therefore, EPA has determined that soil vapor was not causing concentrations of indoor air contaminants above risk-based levels for industrial use.

From 1996 to 2012, groundwater monitoring has occurred at least annually, first as part of LMs due diligence program, and, then quarterly upon request from PADEP. Groundwater monitoring data has indicated that releases from the former WWTF have caused localized VOCs impacts to shallow groundwater. Based on the October 2012 groundwater monitoring data, the area of impacted groundwater is approximately 3.63 acres and is centrally located within the Facility. This area of impact represents a small portion (2.5%) of the total 143-acre Facility property.

Furthermore, the aquifer under the former WWTF is not a current or potential source of drinking water. EPA does not consider this aquifer a potential source of drinking water because the observed depth to groundwater is between 1.5 and 5 feet below the ground surface and it was noted in the BHHRA Report that the use of groundwater at the site as domestic water source is unlikely since the aquifer is not capable of producing sufficient yield to support supply wells. Regardless, monitoring well data and trend analyses have demonstrated that these impacts have not migrated beyond the immediate WWTF area, are naturally attenuating, and are expected to meet MCLs by around 2020.

In summary, there are no Facility-wide impacts to soil, soil gas, or groundwater. Historic environmental investigations and reports discussed above have shown that the only concern is localized VOC impacts from the former WWTF. All impacted soils have been excavated. Soil and indoor air sampling results indicate there is no concern as long as the Facility remains in industrial use. Groundwater sampling result have been demonstrated that the contaminated groundwater plume is localized and not migrating, naturally degrading, and not identified at the Facility boundary.

Section 4: Corrective Action Objectives

EPA's Corrective Action Objectives for the specific environmental media at the Facility are the following:

1. Groundwater

EPA expects final remedies to return usable groundwater to its maximum beneficial use

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within a timeframe that is reasonable given the particular circumstances of the project. For projects where aquifers are either currently used for water supply or have the potential to be used for water supply, EPA will use the National Primary Drinking Water Standard Maximum Contaminant Levels (MCLs) promulgated pursuant to Section 42 U.S.C. §§ 300f et seq. of the Safe Drinking Water Act and codified at 40 CFR Part 141.

However, for reasons stated above, EPA has determined that the aquifer under the former WWTF is not a current or potential source of drinking water. Furthermore, groundwater is not used at the Facility for drinking water and no downgradient users of off-site groundwater exist as determined by discussions with the local water company by the Facility during the RIR. Therefore, EPA's Corrective Action objectives detailed below are based on the findings of the BHHRA and groundwater attainment sampling.

EPA has determined that the risk-based site-specific groundwater concentration levels evaluated in the BHHRA for groundwater are protective of human health and the environment for individual contaminants at this Facility given that the aquifer under the former WWTF is not a potential source of drinking water.

As such, EPA's Corrective Action Objectives for Facility groundwater is to:

- a. Maintain the risk based site-specific cleanup levels developed in the BHHRA and as shown in Table 4; and
- b. As long as contaminants remain in the groundwater above applicable MCLs, control exposure to the hazardous constituents remaining in the groundwater by requiring compliance with and maintenance of groundwater use restrictions at the Facility.

2. Soil

PADEP's MSCs for non-residential usage meet or are more conservative than EPA's acceptable risk range for non-residential usage. Therefore, EPA has determined that PADEP's MSCs for non-residential usage in addition to the Exposure Point Concentrations evaluated as part of the HHRA are protective of human health and the environment for individual contaminants at the Facility provided that the Facility is not used for residential purposes.

Therefore, EPA's Corrective Action Objectives for Facility soils are:

- a. Maintain applicable MSCs and EPCs for non-residential usage as shown in Table 6;
- b. Eliminate the exposure to the impacted soil by maintaining the asphalt cap over the former WWTF Area; and

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- c. Prohibit future residential use based on risk based cleanup levels achieved and current and future use risk exposure assumptions.

Section 5: Proposed Remedy

EPA’s proposed remedy is to require the Facility to 1) comply with the requirements of and 2) maintain the land and groundwater use restrictions in the June 2015 Environmental Covenant.

Section 6: Evaluation of Proposed Remedy

This section provides a description of the criteria EPA used to evaluate the proposed remedy consistent with EPA guidance. The criteria are applied in two phases. In the first phase, EPA evaluates three decision threshold criteria as general goals. In the second phase, for those remedies which meet the threshold criteria, EPA then evaluates seven balancing criteria.

Threshold Criteria	Evaluation
1) Protect human health and the environment	EPA’s proposed remedy will protect human health and the environment by eliminating, reducing, or controlling potential unacceptable risks. The BHHRA and HHRA evaluated all exposures to human health and the environment. EPA’s proposed remedy for the Facility protects this potentially open pathway through the adherence to land and groundwater use restrictions established under the June 2015 Environmental Covenant at the Facility.
2) Achieve media cleanup objectives	EPA’s proposed remedy meets the media cleanup objectives based on assumptions regarding current and reasonably anticipated land and water resource uses. The remedy proposed in this SB is based on the current and future anticipated land use at the Facility as non-residential. The groundwater is unsuitable as drinking water and site specific cleanup objectives for groundwater and soils were met.
3) Remediating the Source of Releases	In all proposed remedies, EPA seeks to eliminate or reduce further releases of hazardous wastes and hazardous constituents that may pose a threat to human health and the environment. The Facility has met this objective. The sources

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	in each of the APCs have been excavated and remediated to the maximum extent practicable.
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Balancing Criteria	Evaluation
4) Long-term effectiveness	The current and reasonably anticipated use of the Facility is non-residential. In addition, groundwater is not used at the Facility for drinking water and no downgradient users of off-site groundwater exist. Therefore, the long term effectiveness of the remedy for the Facility will be maintained by the implementation of land and groundwater use controls.
5) Reduction of toxicity, mobility, or volume of the Hazardous Constituents	The reduction of mobility and volume of hazardous constituents has already been achieved as demonstrated by the soil removal and data from the groundwater monitoring.
6) Short-term effectiveness	EPA's proposed remedy does not involve any activities, such as construction or excavation that would pose short-term risks to workers, residents, and the environment. The land and groundwater use restrictions have already been implemented through the June 2015 Environmental Covenant.
7) Implementability	The land and groundwater use restrictions have already been implemented through the enforceable June 2015 Environmental Covenant.
8) Cost	An Environmental Covenant has already been recorded in the chain of title of the deed to the Facility property. The costs associated with this proposed remedy including the maintenance of the asphalt cap are minimal (estimated cost of less than \$10,000 per year). Therefore, EPA's proposed remedy is cost effective.
9) Community Acceptance	EPA will evaluate Community acceptance of the proposed remedy during the public comment period and will be described in the Final Decision and Response to Comments.
10) State/Support Agency Acceptance	PA was the lead agency for the remediation at this Facility with EPA input under the One Cleanup Program. PADEP has reviewed and approved the Final Report, the June 2015 Environmental Covenant, and associated remedial activities and use restrictions for the Facility. EPA, therefore, expects State acceptance of the proposed remedy.

Section 7: Financial Assurance

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EPA has evaluated whether financial assurance for corrective action is necessary to implement EPA's proposed remedy at the Facility. Given that EPA's proposed remedy does not require any further actions to remediate soil, groundwater or indoor air contamination, the costs of implementing land and groundwater use restrictions at the Facility have already been incurred, and the maintenance costs of the impermeable asphalt cap is minimal, EPA is proposing that no financial assurance be required.

Section 8: Public Participation

Interested persons are invited to comment on EPA's proposed remedy. The public comment period will last 30 calendar days from the date that notice is published in a local newspaper. Comments may be submitted by mail, fax, e-mail, or phone to Mr. Kevin Bilash at the address listed below.

A public meeting will be held upon request. Requests for a public meeting should be made to Mr. Kevin Bilash at the address listed below. A meeting will not be scheduled unless one is requested.

The Administrative Record contains all the information considered by EPA for the proposed remedy at this Facility. The Administrative Record is available at the following location:

U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103
Contact: Kevin Bilash (3LC30)
Phone: (215) 814-2796
Fax: (215) 814 - 3113
Email: bilash.kevin@epa.gov

Section 9: Signature

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Lockheed Martin
Missiles and Fire Control

Date: _____

John A. Armstead, Director
Land and Chemicals Division
US EPA, Region III

Attachments:

Figure 1: Facility Location

Figure 2: Map of Facility

Table 1a: Summary of SIR Groundwater results - 1999

Table 1b: Summary of SIR Soil results - 1999

Table 2: Summary of Groundwater results – BHHRA

Table 3a: Summary of Soil exceedances – 2008 WWTF demolition

Table 3b: Summary of Groundwater exceedances – 2008 WWTF demolition

Table 4: Summary of Quarterly Groundwater Sampling exceedances – 2010 to 2012

Table 5: Summary of Vapor Intrusion Sampling results – 2010 and 2011

Table 6: Summary of HHRA results – 2010

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Environmental Priorities Initiative Site Inspection, NUS Corporation - October 5, 1989

Underground Storage Tank Closure Report, Gilarde Environmental Management Co., Inc. - February 29, 1991

Site Investigation Report, H2M Associates, Inc. - January 1999

Baseline Human Health Risk Assessment Report, H2M Associates, Inc. - January 1999

Confirmatory Soil Sampling Report, H2M Associates, Inc. - February 1999

Annual Groundwater Monitoring Services Reports, H2M Associates, Inc. - July 11, 2003, August 5, 2004, and July 29, 2005

Environmental Indicator Inspection Report, Tetra Tech EC, Inc. - December 2005

Remedial Action Workplan, H2M Associates, Inc. - 2010

Combined Act 2 Remedial Action, Remedial Investigation, and Final Report, H2M Associates, Inc. - May 1, 2014

EPA VISL Calculator Results, EPA - June 2014

Environmental Covenant, Lockheed Martin Missiles and Fire Control - recorded June 16, 2015

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Figure 1
Facility Location

Figure 2
Map of Facility

Table 1a

Summary of SIR Groundwater results - 1999

Area of Potential Concern (APC)	Volatile Organic Compound	Max Concentration (ug/L)	USEPA Regional Screening Level	PADEP Act 2 Nonresidential Used Aquifer MSC
13	Chromium	430	100	180
13	Trichloroethylene	28	5	5

Table 1b

Summary of SIR Soil results - 1999

Area of Potential Concern (APC)	Volatile Organic Compound	Max Concentration (mg/kg)	USEPA Regional Screening Level – Industrial Soil	PADEP Act 2 Non-residential Soil Direct Contact MSC	PADEP Act 2 Non-residential Soil-to-Groundwater MSC
9	Cadmium	9470	980	1400	38
8,9	Lead	1310, 1740	800	1000	450
9	Nickel	313000	22000	56000	650
8	Silver	149	5800	14000	84
5, 9	Trichloroethene	19, 1.1	6	1500	0.5
	Semi-Volatile Organic Compound				
9	Benzo(A) Anthracene	54	2.9	110	320
9	Benzo(B) Fluoranthene	43	2.9	110	170
9	Benzo(A) Pyrene	43	0.29	11	46
9	Dibenzo(A,H) Anthracene	14	0.29	11	160

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Table 2

Summary of Groundwater results – Baseline Human Health Risk Assessment

Volatile Organic Compound	Max Concentration (ug/L)	USEPA Regional Screening Level (ug/L)	PADEP Act 2 Nonresidential Used Aquifer MSC (ug/L)
Chromium	430	100	180
Trichloroethylene	28	5	5

Table 3a

Summary of Soil exceedances – 2008 WWTF demolition

Volatile Organic Compound	Maximum Concentration detected (mg/kg)	USEPA Regional Screening Level – Industrial (mg/kg)	PADEP Act 2 Nonresidential MSC (mg/kg)
1,1-Dichloroethane	17.1	16	1600
1,1-Dichloroethene	3.89	1000	10000
Cis 1,2-Dichloroethene	7.7	2300	10000
Methylene Chloride	34.5	1000	5400
1,1,1-Trichloroethane	89.6	36000	10000
Trichloroethene	1730	6	1500
Tetrachloroethene	306	41	4400
Semi-Volatile Organic Compound			
1,2,4-Trimethylbenzene	5.21	240	640
1,3,5-Trimethylbenzene	1.81	12000	550
Metal			
Lead	458	800	190000

Statement of Basis

Table 3b

Summary of Groundwater exceedances – 2008 WWTF demolition

Volatile Organic Compound	Max Concentration (ug/L)	USEPA Regional Screening Level	PADEP Act 2 Nonresidential Used Aquifer MSC
1,2- Dichloroethene	170	70	70
1,1,1-Trichloroethane	290	200	200
Trichloroethene	330	5	5
Tetrachloroethene	6.2	5	5
Vinyl Chloride	16	2	2

Table 4

Summary of Groundwater exceedances – 2010-2012 quarterly sampling

Volatile Organic Compound	Max Concentration (ug/L)	USEPA Regional Screening Level	PADEP Act 2 Nonresidential Used Aquifer MSC
1,1,1-Trichloroethane	290	200	200
Trichloroethene	230	5	5
Tetrachloroethene	9	5	5
Vinyl Chloride	5.7	2	2

Table 5

Summary of Vapor Intrusion Sampling results – 2010 and 2011

Volatile Organic Compound	October 2010 (mg/m ³)	December 2010 (mg/m ³)	May 2011 (mg/m ³)	USEPA Regional Screening Level – Industrial Air	PADEP Act 2 Nonresidential Soil Gas MSC
Trichloroethene	5.8	0.0115	0.512	0.003	4.8

Statement of Basis

Table 6

Summary of HHRA results – 2010

Volatile Organic Compound	Maximum Concentration detected (mg/kg)	Exposure Point Concentration	USEPA Regional Screening Level –Industrial Soil	PADEP Act 2 Non-residential MSC
1,1-Dichloroethane	17.1	1.124	16	1600
Trichloroethene	1730	237.6	6	1500
Tetrachloroethene	306	29.78	41	4400

Statement of Basis
