LOCKHEED MARTIN

March 2, 2021

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RISK-BASED DISPOSAL APPROVAL APPLICATION FOR PCB-

TABLE OF CONTENTS

LIST OF FIGURES (CONTINUED)

LIST OF FIGURES (CONTINUED)

LIST OF TABLES (IN APPENDIX A)

OSHA

SECTION 1

- removal of approximately 3,000 tons of PCB-contaminated concrete (i.e., concrete with PCBs exceeding 50 mg/kg)
- disposal of PCB-contaminated soil and concrete with PCB concentrations greater than 50 mg/kg at an approved landfill facility that meets the permit requirements of 40 CFR 761

Submittal of this RBDAA complies with the requirements of 40 CFR 761.61(c)(1), which stipulates that any person wishing to sample, cleanup, or dispose of PCB remediation waste in a manner other than prescribed in 40 CFR 761.61(a) or (b) must apply in writing to the USEPA Regional Administrator. Each application must include information described in the notification required by 40 CFR on the MRC property at concentrations greater than 50 parts per million (equivalent to 50 milligrams per kilogram [mg/kg]).

e MRC is at 2323 Eastern Boulevard in Middle River, Maryland (Figure 1-1). e facility is owned by LMC Properties, Inc., and lies approximately 3.2 miles upstream of Chesapeake Bay. It consists of multiple land parcels designated as tax blocks (referred to herein as "Blocks" [Figure 1-2]). Operating facilities are in Block I; surrounding Block I are Blocks A, B, D, E, F, G, and H.

The MRC has been used for aircraft and missile launching systems design, development, and manufacturing since the late 1920s. Block E is the site of former Building D, which was built in the early 1940s and demolished to the basement floor in 1971. e building had an assembly floor (first floor) that exited at the grade of the current Tilley Chemical Company property, along with a basement level (the current concrete slab). e former building occupied appro e basement floor consists of concrete slabs with ceramic tiles overlaying the concrete in several locations. Construction joints or expansion joints (with associated cracking) are between the slabs. Former sumps and floor drains, some of which have been plugged with concrete or grouted, remain within the existing concrete slab. Areas o the foundation slab are either concrete ancillary parking and access points or are covered in grass or other vegetation.

Steep soil slopes along the western and northwestern edges of Block E represent areas where the existing grade was higher than the eastern ground surface (with elevation differences of approximately 12 feet), and the topography was lowered to provide a level surface to construct the building. In these sloped areas, the soil has slumped onto the outer edge of the foundation slab since the building removal.

Investigations related to Block E have included reviews of records, maps, and design drawings, discussions with current and former MRC personnel, geophysical surveys, geotechnical studies, physical site condition evaluations, and extensive multimedia sampling. Comprehensive sampling at Block E has included collecting 112 concrete samples, more than 1,000 surface soil samples, more than 600 subsurface soil samples,

- Reconstruction of a stormwater management system to drain post-remediation surfaces and grading
- *Post-removal confirmation sampling and analysis
- *Characterization, transport, and off-site disposal of removed materials
- Site restoration
- At least two years of semiannual groundwater and storm sewer sediment monitoring
- Implementation of institutional controls

1.4 REMEDIATION COM[illegible]

SECTION 2
REQUEST FOR A RISK-BASED DISPOSAL APPROVAL

Lockheed Martin Corporation (Lockheed Martin) is submitting this risk-based disposal approval application (RBDAA) in accordance with 40 *Code of Federal Regulations* (CFR) Part 761.61(c). is RBDAA seeks approval to allow the removal and o -site disposal of polychlorinated biphenyl (PCB)-contaminated soil, storm sewer sediment, and concrete, and associated remediation-related material such as granular activated carbon (GAC) from Block E of the Middle River Complex (MRC). e following sections of this request provide information required under 40 CFR §761.61(a)(3)(i)(A)–(D). Information required per 40 CFR §761.61(a)(3)(i)(E) is provided in Section 4.

2.1 NATURE OF CONTAMINATION

- *40 CFR §761.61(a)(3)(i)(A): T e nature of the contamination, including kinds of materials contaminated.*

PCBs are the primary constituents of concern in surface soil (zero to two feet below the soil surface), subsurface soil (deeper than two feet below the soil surface), concrete, storm sewer pipe, storm sewer sediment, and storm sewer pipe bedding. Aroclor 1260 is the most commonly detected PCB, but in one area (the Southeastern Area) the predominant PCB is Aroclor 1254.

Figure

maximum PCB concentration in surface soil is 5,300 milligrams per kilogram (mg/kg), while the average PCB concentration is 50 mg/kg.

PCBs in subsurface soil are concentrated in four areas: former Transformer Room 2, former Transformer Room 3, former Transformer Room 4, and the Southeastern area. Subsurface soil data is also grouped into individual datasets according to these areas for the residual risk analysis (Tetra Tech, 2018c) (See Section 2.4). Figure 2-2 depicts the extent of subsurface soil sampling and concentrations. (See Section 2.3 for details of sampling locations and extent of contamination.) As noted above, PCB-fluids were used in both the transformers and cables associated with the former transformer rooms. e source of PCBs in outdoor areas, away from these rooms, is unknown. At former Transformer Room 2, the depth of PCB-contaminated soil to be removed is 16 feet below the soil surface, tJ0 Tc 0 Tw 10.67D6CT5

b0.33 1 (rm) -5 (a)4 (y) -10 -unknown. d J0 Tc 0 Tw 10.67D6CT5 6.36J( )Tj/6 D/674700F.0

(Tetra Tech, 2019c)

Table 2-5 (Appendix A) summarizes total Aroclors detected in soil pile samples. Figure 2-5 shows the soil pile sample locations that correspond to Table 2-5. Because PCB concentrations in soil piles did not exceed the PRG, no tag map was created.

2.4 SOIL REMEDY APPROACH TO REMOVE PCBS

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greater than 25 mg/kg in surface soil and 100 mg/kg in subsurface soil were also replaced. Limits of excavation were then drawn to encompass the locations of the replaced samples. ree-dimensional modelling of subsurface soil sampling results was also considered to select the lateral limits of excavation in subsurface soil remediation areas.

e remedial approach for soil removal at Block E is described below. Figures 2-31 through 2-40 (Appendix A) are the tag maps discussed earlier in this document with the excavation outlines superimposed on them. Figure 2-41 (Appendix A) depicts an overview of the design from the design drawings. Most activities are related directly to the excavation and o -site disposal of the PCB-contaminated soil. However, some activities are unrelated to the PCB remediation, and are being performed as part of the overall remediation of Block E. Contingency plans are discussed in Sea-0pxf.[n-1 (CB)]TJ0 Tc3J2.61 0 Td( )Tj/C21 1 Tfp 41p2.61 0 Td( )Tj/C22.

- final status survey after removal of the building structure to verify that the site can be released with no restrictions
- contamination surveys on equipment and materials during decontamination activities and for unconditional release from the site
- report results from field activities

e subsurface soil beneath the Building D slab consists of imported backfill material and native soil graded during pre-construction site preparation. Hundreds of soil samples and soil cores have been screened and approximately 180 samples have been analyzed since 2013. All radioactive compound concentrations collected during soil sampling, except for two concentrations in core borings, fall within the variable ranges of natural background concentrations. Note that this activity does not involve management of PCB remediation waste.

2.4.3 Soil Pile Removal

e soil piles on the northern and western sides of the former Building D foundation were sampled during the remedial investigation (Tetra Tech, 2018b). No PCB concentrations detected were greater than the PRG. However, the PRG for benzo(a)pyrene equivalents (BaPEq) was exceeded at five shallow soil sampling locations. BaPEq-impacted soil will be excavated and disposed of o -site, and the balance of the soil piles that meets the requirements of the Soil Management Plan (Tetra Tech, 2019b) may be used as backfill. Prior to removal of the soil piles, a temporary retaining wall will be installeJ0 [(w)4 ( )]T0 Tw 1(inw)4 br.004E>4 60Bloc

of concrete begins. If an area of elevated radionuclide activity is found after slab removal, it will be covered and secured to prevent the spread of contamination until further investigation and, if necessary, remediation can be performed. These areas will be barricaded to prevent the entry of unauthorized personnel. This protocol will be repeated for each section of slab removed.

In areas where the slab has been removed, the floor drain system and surrounding soil will be surveyed under the supervision of a health physicist before other personnel enter the area. The results of the radiological survey will determine how materials will be packaged, removed, staged, and disposed of. Care will be taken to remove as little dirt as possible when materials such as concrete or floor drains are removed. If no radiological contamination above the limits identified in the radiological remediation plan is found, material will be removed and disposed of as nonradioactive waste. If concrete is not stained or contaminated by petroleum hydrocarbons, it will be broken up, temporarily stored, and crushed and recycled on-site, recycled off-site, or disposed of off-site as described in Section 2.4.9.

Radiological contamination in the underlying soil is not expected, provided the floor drain piping is removed in accordance with procedural guidance. However, unknown piping failures might have occurred in the past, so coverage surveys, as described in the radiological remediation plan, will be performed to monitor for this possibility. Potentially contaminated soil and debris will be removed, staged, and sampled for analysis, and, if necessary, disposed of as low-level radioactive material. This material will be bagged, wrapped, or containerized before being moved to the staging area, to prevent the spread of contamination during movement. Staging areas for these materials will be covered with disposable materials (e.g., tarps, plastic) before use and designated/barricaded as radiological areas until the material has been removed for disposal.

Monitoring wells within the footprints of the concrete removal areas will be abandoned prior the demolition activity. Monitoring wells outside of the concrete removal areas along with injection wells and piping associated with the groundwater treatment system in the southeastern area will be protected from damage. Refer to Figure 2-41 (Appendix A) for the status of each existing monitoring well during remedial action. The groundwater and storm sewer monitoring plan contains the monitoring well network that will be established after remediation to verify RAO No. 3 is achieved.

2.4.5 Current Storm Sewer System and Product Pipeline Removal and Disposal

Storm sewer lines impacted with PCBs in the current southern portion of Block E, along with surrounding contaminated soil, will also be removed. Figure 2-43 shows the storm sewers that will be removed. During removal of the storm sewer along the eastern side, the groundwater treatment system discharge pipeline, fire protection water lines, and electrical and communication service must be protected. A new stormwater management system, as described in Section 2.4.7, will be designed and constructed as part of the remediation program. e new stormwater management system will include swales and conveyance areas. If existing data suggests that potentially PCB-contaminated soil that could be eroded by stormwater from the bottom of the new swales and conveyance areas, then the bottom of the swales and conveyance areas will be replaced with at least six inches of clean backfill. Vegetation and/or riprap will be used to stabilize the bottom of the swales and conveyance areas. After the existing storm sewers and soil are removed and confirmation sample results are evaluated, the trench wil Y Ih σ Ţ

Excavation of PCB-impacted soil identified in the Block E soil RAP, is the main element of the TSCA cleanup for Block E.

Subsurface soil removal areas will be dewatered to facilitate excavation and backfilling. Stormwater that flows into the excavations or contacts possibly impacted soil and water from excavated soil stockpiles will also be collected and treated. Based on the excavation depth and soil types, a dewatering rate up to 25 gallons per minute (gpm) is required.

Runo from active work areas around the excavations where PCB-contaminated soil is being handled will be captured by diversion fences and treated (see Section 2.4.14). A combination of collection sumps and excavations will be used to capture water and prevent o -site migration per erosion and sediment control requirements. Excavation of the areas will be performed sequentially (see Section 2.5) so that contact of active areas by precipitation is minimized. Soil exposed at ground surface after remediation or removal of the concrete slab in areas where remediation is not required will be covered with backfill as soon as possible to eliminate erosion of soil that is potentially contaminated with PCBs and to prevent spread of contaminated soil from vehicle tra c and activity.

Because the stormwater runo rate could be greater than the dewatering flow rate, the stormwater will be pumped to frac tanks for temporary storage, as needed, followed by treatment at a lower flow rate.

Water treatment

Under dry weather conditions, the maximum dewatering flow rate is estimated to be 25 gpm. After significant rainfall, the collected runo could exceed that rate, and the system is designed to treat an additional 25 gpm rate. As described below, water treatment entails two parallel treatment trains.

A total sanitary-sewer

From the e uent storage tank, the water will be pumped into the existing 2-inch-diameter high-density polyethylene (HDPE) pipeline to the sewer associated with the POTW system. e e uent storage tank will provide level control for the e uent discharge pump.

At least two empty frac tanks will be available for diversion of untreated dewatering water if the GAC system is out of service. Water from the settling tanks or from the excavation will be directed to these o ine tanks if the GAC system is o ine.

Solids trapped by filtration will be analyzed and, depending on the results, transported to an approved facility for disposal. GAC used to treat the excavation and stormwater will also be characterized and disposed of appropriately. Permits required for the remedial action are described in Section 1.5 and the Water Management Plan describing the treatment system in more detail is provide in Appendix D.

2.4.7 Post-Construction Stormwater Management System

To achieve RAO No. 2, the remedial alternative entails building a new stormwater management system to replace existing Block E storm sewers. A design for site grading and stormwater conveyance (see Figures 2-44 and 2-45, respectively, in Appendix A), and a final stormwater study to assess site drainage is part of the final design. e existing storm sewer system will be replaced with surface swales and pipelines to accommodate stormwater requirements associated with a 100-year-storm, collected if sheet piles are used to support an excavation, as this data will be collected before the sheet pile wall is installed.

e results will be used in the RRA to confirm that recalculated 95% upper confidence limit (UCL) exposure-point concentrations continue to result in a cumulative residual cancer risk at or below 1×10^{-5} and a hazard index less than 1. e margins of safety used in the original RRA (25 mg/kg

2.4.9 Waste Characterization and Disposal

Much of the remediation includes TSCA regulated waste that has already been shown to have concentrations of PCBs greater them 50 mg/kg during the characterization phase of the project. Some soil in the excavation areas and concrete debris that did not exceed 50 mg/kg must be sampled and analyzed for waste disposal characterization as required by the selected Subtitle D Sse sy8 (iTJ/(

Additionally, protrusions will likely tear covers and only a minimal amount of soil adheres to the debris.

Excavated soil will generally be loaded for transport for o -site disposal after waste characterization is complete and the waste disposal facility has accepted the waste. e transportation method to the disposal facility (e.g., truck, rail, or barge) will be determined by the selected construction contractor. Soil identified during pre-design delineation sampling as having PCB contamination greater than 50 mg/kg will be disposed of at a TSCA-regulated facility approved by Lockheed Martin; the tentatively selected facility is Chemical Waste Management Emelle, Alabama. e remaining removed soil will be disposed of as nonhazardous waste at an approved Subtitle D landfill or recycling facility approved by Lockheed Martin (tentatively selected facility as the King George Landfill located in King George, Virginia). Approximately 35,000 tons of soil and debris will be excavated and transported to the selected facilities during this remedial action. e actual disposal facilities will be selected by the construction contractor.

Approximately 28,000 tons of concrete will be removed and disposed or recycled o site or recycled on-site as part of the selected remedy. Following radiological testing, concrete will be disposed of or recycled as follows:

- If contaminated, concrete will be transported to a selected facility as follows:
    - Concrete with PCB concentrations greater than 50 mg/kg would be disposed of at a TSCA-approved facility (approximately 3,000 tons).
    - Concrete and asphalt with PCB concentrations less than 50 mg/kg or unsuitable for recycling (for example, due to staining) would be disposed of at a nonhazardous waste landfill (approximately 800 tons).
- If noncontaminated, concrete may be broken on-site with crushing equipment and may be used on-site as backfill (approximately 24,000 tons). Alternatively, the concrete would be broken up on-site and transported o -site for disposal or recycling.

Air quality during soil and concrete handling would be evaluated using a combination of direct observation and perimeter fugitive dust and VOCs sampling/monitoring stations. Wt ditiond us-2 (eè 0 Td(-)

Trucks will be loaded continuously during working hours, anticipated to be 10 hours per day and five days per week.   e number of truck

(Tetra Tech, 2019b). Other materials, such as crushed stone, might also be used as backfill. Backfill material acceptance-criteria will be described in the final design.

e o -site borrow source material will be evaluated according to procedures described in the MDE document *Facts about (Voluntary Cleanup Program) VCP—Clean Imported-Fill Material* (MDE, undated). e o -site borrow source will be identified by the selected construction contractor

2.4.12 Groundwater/Storm Sewer Sediment Monitoring and Site Inspections

e Block E Soil Remedy Monitoring Plan to evaluate the e ects of the soil removal on groundwater and storm sewer sediment is provided in Appendix F. is plan includes groundwater and storm sewer sediment sampling locations, analyses, and sampling frequency. ese results will also be used to establish that PCB concentrations in groundwater and storm sewer sediment confirm attainment of RAO No. 3 (Section 2.4). Figure 2-47 shows the historical cumulative PCB results for groundwater samples collected from monitoring wells in Blocks E and F. e monitoring plan also includes provisions for annual site inspections to confirm attainment of RAO No. 2.

2.4.13 Institutional Controls

Institutional controls are needed so that site use and activities are consistent with PRGs. MDE will document institutional controls applicable to Block E soil in the “No Further Action” letter that will be issued once the three RAOs have been met. e environmental covenants defined in the

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- Verbal notification to MDE is required within 24 hours of any emergency excavation (with follow-up written report).
- All excavated material shall be thoroughly characterized and properly handled or disposed per analytical results.
- Environmental covenant(s) specific to the subject tax block(s) will be established.
- Block E excavations will be described in an annual report to the USEPA that also includes any other activities pertinent to the site remedies. e description of each excavation will include the location and dates of the excavation, excavated volume, and disposition of the excavated material.

2.4.14 Best Management Practices

Potential impacts during construction of the remedy and during soil removal will be limited by implementing the following measures and best management practices (BMPs) during construction, as appropriate:

- ***Erosion and sedimentation controls:*** Erosion and sediment controls will be installed at the site as they are approved by Baltimore County. e contractor will implement these controls throughout the project and adjust as needed to comply with the grading permit and other agency requirements. Runo from noncontaminated surfaces will be diverted away from contaminated surfaces and potentially contaminated areas using diversion fences or similar erosion and sediment control structures to minimize the volume of contaminated water that must be collected and treated.

- ***Management of water that has contacted contaminated soil and concrete:*** Stormwater that contacts soil stockpiles, ground surface near active excavations, exposed contaminated soil surfaces, and contaminated foundation slab surfaces, and water draining from stockpiles of soil from the saturated zone will be collected in sumps or excavations, contained, and treated on-site (see Section 2.4.6). Treated water will be sampled to comply with county permit discharge requirements.

- ***Spill prevention controls:*** A spill prevention, control, and countermeasure plan per Maryland state guidelines, if needed, will protect the environment from spills and releases of any hazardous materials or petroleum products. Spill prevention measures will be applied during construction and when transporting excavated soil. Trucks used for soil transport will be equipped with an impermeable liner to prevent leaks. e trucks er Td( )Tj/C22 1 Tw 5.03 05 (c areas. Monitoring [illegible]

- excavation and disposal of PCB-contaminated soil from deep excavation
- post-removal confirmation sampling and analysis (only excavation base sampling in deep excavations)
- backfilling (with clean backfill) of initial excavated areas to minimize dewatering
- concrete removal, and contaminated soil removal in shallow impact areas
- excavation and disposal of contaminated soil from shallow excavations
- backfill placement
- removal and stockpiling of existing soil piles overlying the concrete slab, with disposal of PAH-contaminated portion
- installation of retaining wall on western side of site to facilitate complete removal of the foundation slab
- demolition and disposal of other adjacent concrete and asphalt surfaces including remaining slab (noncontaminated concrete and asphalt can be recycled)
- removal and disposal or recycling of the product pipeline
- excavation and disposal of PCB-contaminated soil, and subsequent backfilling, in the median of Chesapeake Park Plaza
- removal and disposal of designated storm drains in Block E and Block F, and subsequent backfilling
- installation of new storm drains in Block E and Block F
- installation of replacement monitoring wells
- final backfilling, grading, and revegetation
- final site survey
- demobilization of equipment
- groundwater and storm sewer sediment monitoring

2.6 CONTINGENCIES

Groundwater monitoring, with analyses for PCBs, will continue for at least two years after the remedial action is complete to verify that the remedial action satisfies RAOs. If the results show statistically significant increases in contaminant concentrations, then additional actions such as continued monitoring or groundwater remediation will be considered. Similarly, sediment monitoring in storm sewers, with analysis for PCBs, will continue at several manholes and inlets for at least two years after the remedial action is complete to verify that RAO #3 is satisfied. These results will be compared to the action level for sediment remediation in Dark Head Cove. If the results show statistically significant increases, then additional actions, such as continued monitoring or storm sewer sediment removal, will be considered.

SECTION 3
COMMUNITY OUTREACH/COMMUNICATIONS PLAN

A site community outreach plan was developed and will continue to be implemented before any of the remediation work outlined in this application begins. e plan helps establish, maintain, and develop working relationships with stakeholders to ensure that constructive communication channels are maintained, and to ensure that issues or concerns that might arise are e ciently and e ectively resolved. Community outreach includes a systematic plan to communicate information regarding remedial actions to the local community neighbors and to solicit feedback. ese outreach e orts aim to:

- continue Lockheed Martin Corporation's (Lockheed Martin's) commitment to engage the public in an informational and educational process;
- better understand stakeholders' concerns, issues, and needs; and
- resolve issues efficiently and effectively while maintaining the integrity of Lockheed Martin's remediation and community outreach eff

- holding a public comment period (November 20 through December 30, 2019).

Media inquiry response resulted in a newspaper story on the public information session and comment period.

Once the construction phase of the project is underway, ongoing outreach will continue to keep the local community informed about the work until the project is completed.

SECTION 4
CERTIFIED STATEMENT FOR U.S. ENVIRONMENTAL PROTECTION AGENCY REQUIREMENTS

- *40 CFR §761.61(a)(3)(i)(E): A written certification, signed by the owner of the property where the cleanup site is located and the party conducting the cleanup, that all sampling plans, sample collection procedures, extraction procedures, and instrumental/chemical procedures used to characterize polychlorinated biphenyl (PCB) contamination at the*

Feb. 25, 2021

SECTION 5
REFERENCES

Tetra Tech, Inc. (Tetra Tech), 2010. *Block E Supplemental Soil and Storm-Drain-Sediment Characterization Report, Lockheed Martin Middle River Complex* (#7624). Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. October.

Tetra Tech, Inc. (Tetra Tech), 2011. *Block E Data-Summary Report, Lockheed Martin Middle River Complex.* Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. March.

Tetra Tech, Inc. (Tetra Tech), 2012a. *Additional Block E Soil Characterization Report, Lockheed Martin Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland* (#7795). Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. January.

Tetra Tech, Inc. (Tetra Tech), 2012b. *Utility Cross-Connection Investigation Report, Lockheed Martin Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland.* Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. January.

Tetra Tech, Inc. (Tetra Tech), 2012c. *Blocks E and G Pre-Design Soil-Sampling Investigation Report, Lockheed Martin Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland* (#7889). Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. September.

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n c

Tetra Tech, Inc. (Tetra Tech), 2014a. *Supplemental Investigation: Block E and Block I, 2013 Report* (#7997). Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. March.

Tetra Tech, Inc. (Tetra Tech), 2014b. *Storm Drainage System Sediment-Sampling Report, Lockheed Martin Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland* (#8024). Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. August.

Tetra Tech, Inc. (Tetra Tech), 2015. *Block E Soil Sampling Investigation, Lockheed Martin Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland.* Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. January.

Tetra Tech, Inc. (Tetra Tech), 2017. *Block E Soil Remedial Investigation Addendum Report: PCB Sediment Sampling of Storm Drain Systems for Outfalls 006 and 008, Middle River Complex, Middle River, Maryland* (#8331). Memorandum from T. Blackman to James Carroll, MDE. February.

Tetra Tech, Inc. (Tetra Tech), 2018a. *Block E Storm Drain Monitoring Report: PCB Sediment Sampling of Storm Drain Systems for Outfalls 006 and 008, Middle River Complex, Middle River, Maryland* (#8455). Memorandum from T. Blackman to James Carroll, MDE. February.

Tetra Tech, Inc. (Tetra Tech), 2018b. *Remedial Investigation Block E Soil, Lockheed Martin Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland* (#8488). Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. August.

Tetra Tech, Inc. (Tetra Tech), 2018c. *Residual Risk Analysis to Support Remedial Action Plan for Block E Soil (Draft Report).* Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. December.

Tetra Tech, Inc. (Tetra Tech), 2019a. *Chesapeake Park Plaza PCB Investigation Report.* Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. January.

Tetra Tech, Inc. (Tetra Tech), 2019b. *Soil Management Plan for Blocks E and I.* Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. January.

Tetra Tech, Inc. (Tetra Tech), 2019c. *Block E Soil Remedial Action Plan, Middle River Complex.* Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. March.

Tetra Tech, Inc. (Tetra Tech), 2019d. *Radiological Remediation Plan, Former Building D, Block*