

Informational Update on Outfall 005 Sediment Removal Action for the Sediment Remedy Program



Fall 2014

Lockheed Martin Middle River Complex
2323 Eastern Boulevard
Middle River, Maryland

As part of remedy design studies in Dark Head Cove, Lockheed Martin found higher concentrations of contaminants in sediment in areas targeted for removal

Lockheed Martin has been performing characterization and remedy design studies in Cow Pen Creek and Dark Head Cove to prepare for cleanup of sediment near the Middle River Complex. As part of these studies, samples were collected in 2013 in Dark Head Cove adjacent to the outfalls from Tax Block E, the location of former Building D. These samples were collected from submerged sediments eight to ten feet beneath the water surface, near the outlets of what is referred to as Outfall 005. These samples included higher concentrations of polychlorinated biphenyls (PCBs) than previously detected. See graphic on page 2.

The PCBs were measured in concentrations up to 3,600 parts per million immediately adjacent to the outfall. These concentrations would be of concern if people were to contact the submerged material on a regular basis. These concentrations are higher than previously detected, but are in an area that is already planned for sediment removal.

Tom Blackman, Lockheed Martin's project manager for the Middle River Complex remediation project, noted: "The depth of these materials indicates that they were released into the environment decades in the past. We're fairly certain these contaminants came from Building D. We can't be certain when they made their way to Dark Head Cove, whether when Building D was in active use (1940's through 1960's), or when Building D was being demolished back in 1971."

Tom Blackman outlined a number of steps Lockheed Martin is now proposing as initial cleanup measures for Dark Head Cove, known as Outfall 005 Sediment Removal Action. These are steps that will be taken before the full remedy is implemented. "While the sediment isn't mobile, (it is below deep water and in a quiet and stable area of the cove), in

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Project History

In the late 1990s Lockheed Martin began environmental testing at both the Middle River Complex and Martin State Airport, to assess impacts from former industrial operations and disposal practices that were commonplace in industry more than a half-century ago. Since that time, Lockheed Martin has been actively investigating groundwater, soil and sediments at both locations. The company is in different stages of planning and cleanup on each part of the Middle River remediation effort.

The Lockheed Martin team conducted extensive environmental investigations, developed cleanup objectives and goals, and screened alternatives for cleaning up sediments in the waterways of Cow Pen Creek, Dark Head Cove and Dark Head Creek. Preliminary sampling of the sediments revealed the presence of concentrations of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and metals such as cadmium and chromium. The alternatives for cleaning up the sediments were reduced to a short list of options, which were addressed by a Feasibility Study.

In 2012 Lockheed Martin presented its alternatives for cleaning up the sediments. Public Information Sessions were held in early 2012, and a Citizens Working Group met from February through April of that year to examine the alternative approaches.

For many years, Lockheed Martin has worked closely with the Maryland Department of the Environment, the U.S. Environmental Protection Agency, and local civic association leaders, providing briefings and informational materials that have been distributed throughout the community to ensure the neighboring residents have optimal opportunities for understanding the proposed remediation plans. This timely, open and transparent communication will continue throughout the remediation process. Lockheed Martin will continue to seek feedback from community leaders and our neighbors.

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May 2014 we put a silt curtain in place to assure that the contaminants don't move. We also put a boom in place in the water to limit access to the area by boaters, and immediately erected sediment contact advisory signs warning people that no anchoring should take place within 100 feet of the signs. We already proposed dredging the area as part of the final remedy, and are now planning with MDE and EPA, and other permitting agencies, an Outfall 005 Sediment Removal Action at this location to remove more quickly the sediment with higher concentrations of PCBs."

The area containing sediments with elevated PCB concentrations is estimated to be approximately 1.4 acres. The Outfall 005 Sediment Removal Action requires dredging, dewatering, and disposing of up to 8,100 cubic yards of sediment (approximately 550 truckloads) off site over a several-month period. A portion of the storm drain system from Block E to Dark Head Cove was cleaned in 2011, and the final segments of storm drain leading to the bulkhead at Outfall 005 (a total length of 485 feet of storm drain cleaning from the plug upstream of IL-30A) will be cleaned out as part of the Outfall 005 Sediment Removal Action final sediment remediation.

Project History continued

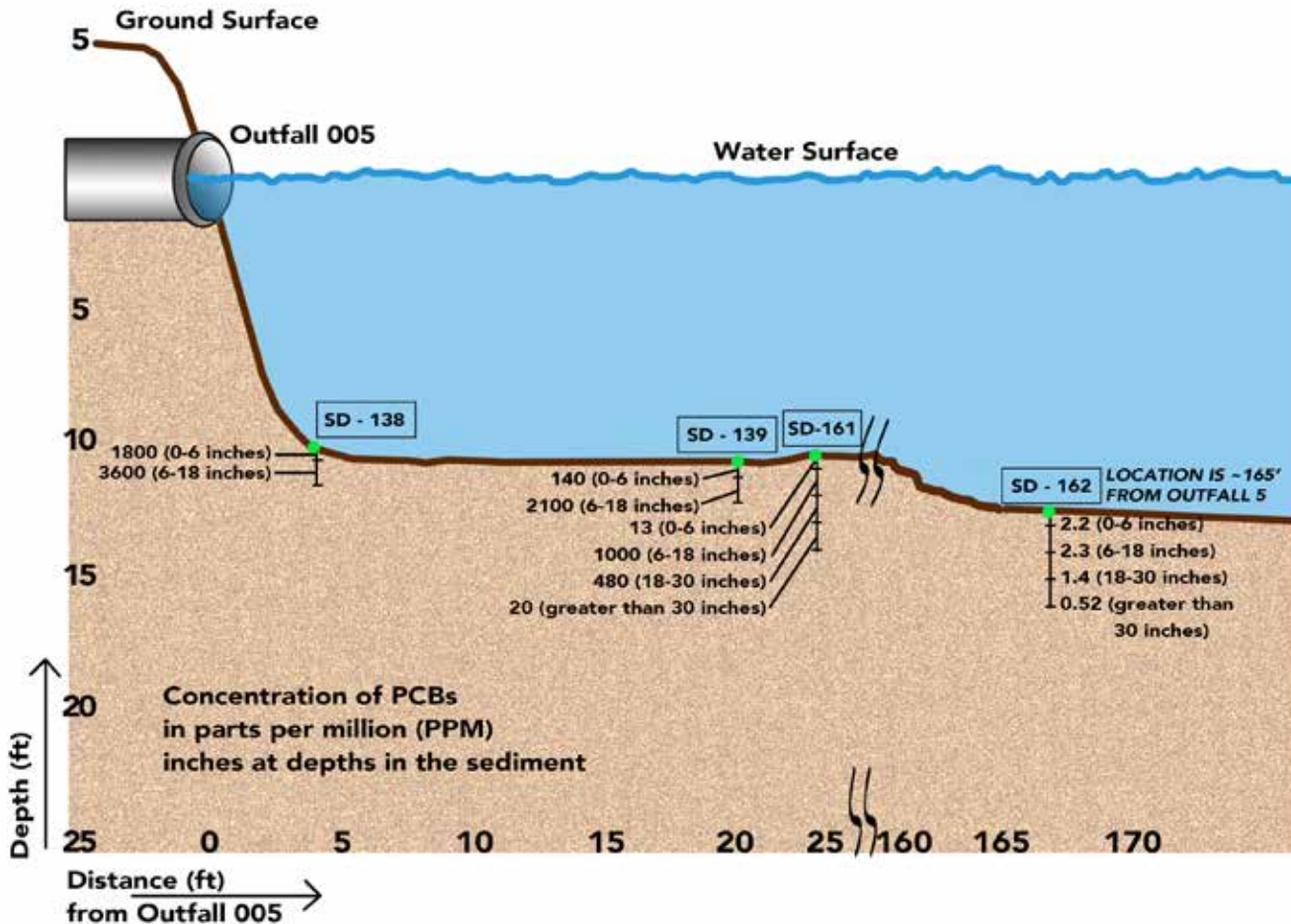
The recommended final approach was approved by the Maryland Department of the Environment and the U.S. Environmental Protection Agency in 2013. This approach calls for removal of about 48,800 cubic yards (about 3,300 truckloads) of contaminated sediments from more than 12.5 acres in Cow Pen Creek and the area in front of the bulkhead in Dark Head Cove; treatment in place (*in situ*) of contaminated sediments over the remaining 8.5 acres of potential concern; and monitored natural recovery of about 4 acres of sediments in the area being treated in place. Shoreline will be stabilized, habitat enhanced, and the riparian area where the land and surface water meet will be planted after the remedial work is completed, where necessary. Lockheed Martin will monitor the operation and maintenance of the in-place treatment to verify the effectiveness of the approved remedy.

In order to develop the final plans for implementing the approved approach, Lockheed Martin began more intensive sampling in 2013. Follow-up samples were taken in September 2013 in Cow Pen Creek and Dark Head Cove. Extensive samples were taken in sediments eight to ten feet below the surface of the water. This Update speaks to the results of that more intensive survey and plans to develop both an initial Sediment Removal Action at Outfall 005, and a full sediment remedy.



Area of more highly contaminated sediment findings at Middle River Complex.

Higher PCB Concentrations in Dark Head Cove Sediments



Higher concentrations of polychlorinated biphenyls (PCBs) have been identified in sampling, and an Outfall 005 Sediment Removal Action is being planned.

The Outfall 005 Sediment Removal Action dredging and outfall cleaning is subject to the agreement of regulators. Lockheed Martin submitted an application to the Maryland Department of the Environment which issued a public notice of the request on September 3 and is hosting a public informational/educational meeting and public hearing on September 22. Lockheed Martin is also coordinating permitting activities with Baltimore County. Because work would take place in the waterway, approval also needs to come from the U.S. Army Corps of Engineers. Timing of the dredging will be determined by the Maryland Department of the Environment and will likely take into account factors like the summer recreational season and the fish spawning season. This Outfall 005 Sediment Removal Action dredging could begin in late 2014.

As part of the ongoing process, technicians took samples to provide the data necessary to refine the final design for the remediation of the sediments in Cow Pen Creek, Dark Head Cove and Dark Head Creek. As part of that process, Blackman directed his team to sample close to the bulkhead.

He explained: "It's important to create a clear picture of what's in the sediments; and it's important to do a thorough search. The better we search, the better we will be able to develop a design for final remediation that handles things properly."

Because the contaminated sediment is under eight to ten feet of water, there is no realistic opportunity for exposure to humans and therefore no significant risk to human health based on contact with the sediment. Community residents are advised to continue to adhere to the State of Maryland's current fish consumption advisories due to the presence of PCBs. For more information, see mde.maryland.gov/fishadvisory

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Questions and Answers

1. Is it still safe to eat fish or crabs from Dark Head Cove?

Area residents are advised to follow the current Maryland State Fish Advisories for Dark Head Cove. The Advisories recommend limiting the number of fish and crab consumed from each waterway in the area. The advisory is available at: <http://www.mde.state.md.us/programs/Marylander/CitizensInfoCenterHome/Pages/citizensinfocenter/fishandshellfish/index.aspx>

2. When were warning signs erected?

MDE-approved Sediment Contact Advisory signs were installed in March 2014, before the start of the boating season. The signs were moved from the shore line to the boom line in May 2014.

3. Where did the Polychlorinated Biphenyls (PCBs) come from?

The PCB contamination is likely the result of industrial operations that took place in Building D from the 1940's through the 1960's; from use of the Building D basement for storage of PCB-containing materials; or from a possible release during demolition of Building D in 1971. Three areas in Block E are contaminated with PCBs:

- PCBs were found in the first four feet of soil in the southeastern area of Block E, near a 500,000-gallon water tank used by the Middle River Complex as backup for fighting fires.
- PCBs were detected in the south-central part of where Building D was located in Block E, in an area that once housed cleaning, plating, and finishing rooms, an electrical transformer room and an electrical substation outside the building. In this area PCBs were detected in the first four feet of soil in one spot, and four- to ten-feet deep in another.
- PCBs were detected in the western and southwestern portion of Block E where the nuclear laboratory, an electrical transformer room and a waste collection area were located. PCBs were detected nine feet below the surface of the ground in one spot and eight- to twelve-feet below the surface in another. In the southwestern portion of the block, PCBs were found sixteen feet below the surface.

4. How do you know that additional contaminants are not lodged in the uncleaned portions of the two branches to Outfall 005?

Sediment sampling from manholes conducted in 2013 determined that additional contaminants are lodged in the storm drain branches leading to Outfall 005. Therefore, when we address Outfall 005 as part to the Sediment Removal Action, we will clean out any accessible portions of the storm drain, plug off the inaccessible portions of the drain line upstream within Block E, and be prepared to capture and contain any contaminants that might be released. Eventually, as part of the complete remediation of Tax Block E, the storm drain system within the block will be removed entirely, reconfigured, and new storm drain piping installed.

5. What about contaminants that could be uncovered as you clean up Block E, especially if it rains during the work and in case of severe weather conditions such as rainstorms, hurricanes and windstorms?

Appropriate precautions will be implemented during the remediation of Block E, including steps to preclude any transport of contamination to Dark Head Cove. All our plans, including sediment and erosion controls, will also be reviewed and approved by regulatory agencies including MDE and Baltimore County.

6. If the sampling took place in September 2013, why did it take so long to announce the results?

Analysis of results is a long and complicated process. The sampling in Dark Head Cove and Dark Head Creek that produced these latest findings took place in mid-September, 2013. The samples were sent to the laboratory for analysis at that time. Preliminary laboratory results were returned in

**SEDIMENT CONTACT ADVISORY
PCBs IN SEDIMENT
KEEP OUT**

**DO NOT ANCHOR
WITHIN 50 FEET OF MARKED AREA**

**For additional information, please contact
the Maryland Department of the Environment at
<http://bit.ly/darkheadcove>
1-800-633-6101**

Signs were installed to discourage anchoring near the outfalls; anchoring could result in bringing up contaminated sediment.

late October; validated data were made available November 18. These are typical lengths of time to obtain certified environmental data. After having considered the significance of the results and developed ideas for the proposed interim solutions, Lockheed Martin verbally notified the Maryland Department of the Environment (MDE) of the PCB results on December 16 and the U.S. Environmental Protection Agency (EPA) on December 17. Results were sent to the MDE by letter on January 2, 2014. Due to the November 2013 sampling results, Lockheed Martin also decided to conduct an additional PCB survey, which will be completed by the fall of 2014.

Lockheed Martin has begun additional sampling to further prepare for both the Outfall 005 Sediment Removal Action as well as the full sediment remedy.

7. If there is an initial action to dredge the area of contamination in Dark Head Cove, will you dredge a second time during final clean up?

We would plan to dredge the area near the outfalls only once, but will make a final determination of what is necessary in consultation with MDE and EPA.

8. Will dredging disturb the contaminants and expose them as a potential risk to humans or the environment?

At the same time the sediments are disturbed they are removed out of the water, and stored on a barge before being transferred onto the adjacent upland concrete tarmac. Care will be taken to contain the sediment in a lined and bermed area on the tarmac where water will be captured as it is drained. Once sediments are dewatered adequately, they will be transported in lined trucks to a licensed disposal facility. The drained water will also be contained, treated onsite and either transported to an approved and licensed offsite disposal facility or discharged to the Publicly Owned Treatment Works (POTW). Measures to minimize the potential for contaminants to be released to the environment will be taken during each step of the process and all reasonable precautions will be implemented, including maintenance of the silt curtain to contain any contaminants that are disturbed.

Glossary

Cleanup — Actions to deal with a release of a hazardous substance that could affect humans or the environment. The term “cleanup” is sometimes used interchangeably with the terms remedial action, removal action, response action, or corrective action.

EPA — U.S. Environmental Protection Agency

MDE — Maryland Department of the Environment

Middle River Complex — The site of Lockheed Martin’s Mission Systems and Training (MST) and Applied Nanostructured Solutions (ANS) facilities and General Electric’s MRA Systems, Inc., subsidiary, known as Middle River Aircraft Systems, or MRAS. The Middle River Complex is also known locally as Plant 1.

Polychlorinated Biphenyls (PCBs) — Man-made organic chemicals manufactured and used in construction materials and electrical products among other applications. A number of PCB types exist and their reported toxicity ranges from carcinogenic to non-carcinogenic. The manufacture of PCBs was banned in 1979.

Remediation — The process of correcting or cleaning up environmental contamination. Various federal and state laws, regulations, and other requirements govern this process.

Sediment — Refers to sand, silts and clays washed from the land into water, usually after rain or snowmelt. Sediment is found under water in storm drains, ponds, lakes, creeks, streams, rivers and oceans.

Silt Curtain — A temporary barrier of geotextile material used to contain sediments within a defined area of a water body.

Surface Water — All water bodies naturally open to the atmosphere (rivers, creeks, storm drains, lakes, reservoirs, ponds, streams, impoundments, seas, estuaries, etc.).

For More Information:

Questions may be addressed to:

Lockheed Martin Corporation

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All documents are available at the Essex Library, 410-887-0295, or on Lockheed Martin’s Web site at <http://lockheedmartin.com/middleriver>

Essex Library

1110 Eastern Boulevard, Essex, Maryland

410.887.0295

Hours: Monday through Thursday, 9 a.m. to 9 p.m.

Friday and Saturday, 9 a.m. to 5:30 p.m.



**For address change or undeliverable
mail return to:**

**Lockheed Martin Corporation
1195 Sarasota Center Blvd
Sarasota, FL 34240**

**Lockheed Martin Would Like to Invite the Community to
a Public Information Session On Outfall 005 Sediment
Removal Action Plans at the Middle River Complex**

Date: Monday, October 27, 2014

Location: Marshy Point Nature Center • 7130 Marshy Point Road

**Times: 5 to 7 p.m. - Informal poster session with personalized attention and
questions/answers; 7 p.m. - Formal presentation of proposed plans,
followed by a question and answer and comment period**

Light refreshments will be served.