

## Middle River Complex: **Outfall 005 Sediment Removal Action to be discussed at October meeting**

Details on plans for the removal of contaminated sediments in Dark Head Cove near Outfall 005 will be presented at a public information meeting on October 27, 2014 at Marshy Point Nature Center. (See box on page 4 for meeting details.) The contaminants are located in submerged sediments eight-to-ten feet beneath the water surface of Dark Head Cove immediately adjacent to Outfall 005, which is located in the bulkhead just south of the foundation of former Building D. Information will be provided about the various permits that are required in order for the Outfall 005 Sediment Removal Action to proceed.

The sediments to be removed were identified in the fall of 2013, when Lockheed Martin was taking samples in

preparation for the full cleanup of sediments in Cow Pen Creek and Dark Head Cove. These sampling activities revealed higher concentrations of polychlorinated biphenyls (PCBs) near Outfall 005 than had previously been detected elsewhere in Dark Head Cove. PCBs were commonly used in electrical transformers and may have been released when Building D was dismantled. Lockheed Martin and the Maryland Department of the Environment have decided to clean up this location before the full sediment remedy is implemented.

Lockheed Martin presented its plans for the Outfall 005 Sediment Removal Action at a public information session held at Marshy Point Nature Center on April 14, 2014. These plans had three parts: installation of a floating boom with silt-control curtains; cleanup of Outfall 005; and dredging of the area.

The floating boom was installed in May, 2014. The earliest timeframe within which Lockheed Martin can dredge the sediments without affecting the opportunity for fish to



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

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spawn or submerged aquatic vegetation to grow is October 16, 2014 through February 14, 2015. State and federal permitting agencies typically limit in-water work to these dates.

Sediments will be removed by mechanical dredging, using a clamshell bucket from a barge located within the area marked off by the floating boom. The quality of the surface water both inside and outside the boom will be monitored during sediment removal. The dredged material will be transferred to the Lockheed Martin shore near the concrete former seaplane launch area where it will be allowed to drain before being transported to an approved and licensed offsite disposal facility. The drained water will also be contained, and either transported to an approved and licensed offsite disposal facility, or treated onsite and discharged to the Publicly Owned Treatment Works (POTW), also known as the Baltimore County sewage system. Planned hours of operation will be during daylight hours (up to 12 hours a day) and up to six days per week, to be able to complete the work within the available work timeframe.

***For more information, a Citizens Guide is available on this topic and can be found on the Lockheed Martin website. A community information session was held April 14, 2014.***

In order to expedite the state and federal permits required to begin removal of the contaminated sediments in Dark Head Cove, in late July Lockheed Martin presented its plans for the work to the State of Maryland's Joint Evaluation Committee. This committee is a consortium of state and federal agencies formed to facilitate permitting of major construction projects in Maryland. Lockheed Martin submitted the required permit applications and is proceeding with needed steps, including public notification, supporting a public hearing, and approval by the Board of Public Works. Lockheed Martin was granted "priority review" from Baltimore County for permits for grading and erosion and sediment control, which should help expedite approval of the work.

Tom Blackman, Lockheed Martin's project manager for the Middle River site, remarked on the cooperation necessary to make it possible to begin working in this year's winter work window. "This Sediment Removal Action is taking place in open water and near wetlands, and it falls under the oversight of a number of government agencies. We're grateful that everyone is trying to work together on this. It's helped, of course," he added, "that the Maryland Department of the Environment and the U.S. Environmental Protection Agency had already approved the Feasibility Study for cleaning up sediment contamination from the

Middle River Complex in 2013. We are optimistic that we will be able to start work in time to take advantage of this winter's work window."

## **Restoration Concepts for Sediment Area to be Presented**

In April Lockheed Martin presented its initial plans to address contaminated sediments in Dark Head Cove near Outfall 005. At that time, the Lockheed Martin team said that it would review its preliminary ideas with the community on how Cow Pen Creek, Dark Head Cove and Dark Head Creek could be restored once contaminated sediment had been removed. The Lockheed Martin team plans to present its initial restoration ideas at the October 27th public session to be held at Marshy Point Nature Center (see box on page 8).

The complete sediment remediation will include removing about 59,250 cubic yards (3,950 truckloads) of contaminated sediment from more than 13.8 acres of creek and cove bottom (one football field is approximately equal to 1.3 acres) and treat contaminants in place in an additional 10.2 acres. Lockheed Martin's presumed approach to restoration includes shoreline stabilization in those areas without bulkheads, floodplain and habitat restoration and creek bed plantings. This approach will be presented at the October meeting. Community input is appreciated at that time.

Removing the sediment in the upper part of the creek will create a deeper channel, which particularly in the upper creek, will need to be refilled and shaped to restore the topography so that water will flow the way it does now. Floodplain wetlands will also need to be restored. Vegetation will be removed as necessary and only native species will be used in re-planting, to include trees, shrubs, and plants that will provide habitat for wildlife.

During the remediation and restoration process, debris such as submerged tires and pieces of concrete will be removed. In the area of Cow Pen Creek, shoreline stabilization will primarily be accomplished using techniques that create a soft shoreline. These techniques use natural materials and vegetation to stabilize slopes and shores. Riprap, which is typically found in the form of large stones, will be limited and only used where other shoreline stabilization methods would not be effective. The overall approach to habitat restoration will be to replant the restored areas using native species that both help stabilize soils and provide for a variety of wildlife. Where possible, removal of larger trees will be avoided.

Closer to the mouth of Cow Pen Creek, where it approaches Dark Head Cove, the water bottom is more open, with exposed mud flats at low tide. Removing sediment here will create deeper water depths. Concepts of restoration in this area will be shared in the October public information session.





*The creek and banks are shown in their current condition, and the restoration being planned would likely create conditions that look largely similar.*

In Dark Head Cove, sediment will be removed in front of the bulkhead, which will result in deeper water depths that comply with the authorized navigation channel. In other areas of Dark Head Cove, sediment will be treated in place (*in situ*) by adding activated carbon to the sediment on the water bottom, thereby reducing the availability of the sediment contaminants to fish and other animals.

The land beneath the waters of Cow Pen Creek, Dark Head Cove and Dark Head Creek is owned by the State of Maryland. The U.S. Army Corps of Engineers (USACE) regulates areas associated with the navigation channel in Dark Head Cove and Dark Head Creek. Both USACE and the Maryland Department of the Environment (MDE) regulate the full extent of wetlands and waterways that will be affected and will make the final decisions regarding wetlands and waterways restoration in consultation with other agencies, including the Maryland Department of Natural Resources and the Maryland Critical Area Commission.

## Temporary Multi-Phase Treatment System Begins Operation

A temporary soil vapor and groundwater extraction system (known as multi-phase) is now operating in Block E. The system is drawing contaminated soil vapor and groundwater from five wells in the southern perimeter of Block E near the remaining foundation of former Building D.

As reported in the Summer 2014 Middle River Complex and Martin State Airport Newsletter, in 2013 Lockheed Martin contractors digging trenches for installation of the piping for the Block E *in situ* bioremediation groundwater treatment system found two previously unidentified underground storage tanks. One of these tanks contained quantities of

petroleum, the other trichloroethene, or TCE. The two tanks were pumped clean and removed. Additional investigations in the vicinity of the two tanks revealed

*The liquid phase carbon treatment vessels are shown here. Approximately 500 pounds of carbon will be used during this process to remove trichloroethene. The system will be in operation from September until December 2014.*



only minimal concentrations of residual petroleum, but high concentrations of trichloroethene in the groundwater and soil. Lockheed Martin evaluated various technologies that could be used to treat these high concentrations of trichloroethene. While it was determined that the installed *in situ* bioremediation groundwater treatment system could be modified to treat the higher concentrations of contaminant in groundwater, temporary multi-phase extraction would more quickly remove the highest concentrations in groundwater and simultaneously remove the trichloroethene in the soil. Consequently, Lockheed Martin decided to introduce the temporary multi-phase extraction and treatment system to reduce the quantities of trichloroethene to a level that could be effectively treated by the installed *in situ* bioremediation groundwater treatment system.

The temporary multi-phase extraction system consists of four groundwater extraction wells, one soil vapor extraction well, pumps and connecting piping, a treatment system, and two 21,000-gallon tanks that hold the treated water prior to discharge to the Baltimore County sewer system. The treatment system includes an air stripper and activated carbon for treatment of the recovered groundwater and activated carbon for the treatment of recovered vapor.

The temporary multi-phase extraction system will require about three months of operation to remove excess contaminant from both soil and groundwater, at which time the multi-phase extraction system will be shut down and removed. The *in situ* bioremediation system will then begin operation in Block E in the spring of 2015.



*Located near the water tank in Block E near Chesapeake Park Plaza, the vapor phase carbon treatment vessels are shown here. When the temporary system is dismantled or carbon in these vessels becomes saturated with trichloroethene, the carbon and collected contaminants will be transported to a licensed landfill for proper disposal or recycling.*



*A temporary Multi-phase Extraction System is installed on Block E near the water tank and the foundation of former Building D in the area where an underground storage tank was discovered containing trichloroethene, or TCE. The system vacuums soil vapors and extracts groundwater through wells for treatment to remove the largest quantity of the contamination. Shown here are system components mounted on skids, including the piping and tank where incoming groundwater moves through pipes and is stored in a holding tank prior to being treated with an air stripper system and carbon to remove contaminants.*

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***Lockheed Martin Invites the Community***

**to a Public Information Session on the Plans for the  
Outfall 005 Sediment Remediation Action  
and the  
Presentation of Concepts for Restoration of Dark  
Head Cove and Cow Pen Creek**

**Date: Monday, October 27, 2014**

**Location: Marshy Point Nature Center  
7130 Marshy Point Road**

**Times: 5 to 7 p.m. – Informal walk-around poster  
session to meet with the team and get personalized  
attention and your questions answered**

**7 p.m. PowerPoint presentation of the proposed  
plans and concepts, followed by a facilitated  
question and answer and comment period**

**Light refreshments will be served.**

**For More Information**

Questions may be addressed to:  
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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>

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Hours: Monday through Thursday, 9 a.m. to 9 p.m.  
Friday and Saturday, 9 a.m. to 5:30 p.m.