

Lockheed Martin Newsletter Update *Middle River Complex and Martin State Airport*

November 2012

Paul Calligan to Assume Leadership Role in Airport Cleanup

On Dec. 1, Paul Calligan, an experienced project manager, will assume responsibility for Lockheed Martin's environmental cleanup at Martin State Airport.



Calligan, who joined Lockheed Martin in 2005, is familiar with the airport cleanup project, having served as project lead in 2006 and 2007.

He will replace Tom Blackman, who will retain responsibility for Lockheed Martin's environmental cleanup project at the Middle River Complex and will be expanding his role in other environmental areas within the Corporation.

Calligan is a licensed professional geologist with more than 25 years of experience managing environmental remediation projects. Having previously served about 18 months as project lead at Martin State Airport, he is familiar with the Middle River area and some of the leaders who were involved in the community at that time.

He also is familiar with the cleanup challenges and proposed solutions in the airport project, because since 2007, he has been managing a Lockheed Martin cleanup project in Tallevast, Fla., where the contaminants are similar to those at Martin State.

For the Florida project, he has overseen the operation and maintenance of the interim treatment system as well as the construction and installation of the permanent groundwater treatment system, which will be up and running in 2013 and is similar to the proposed technical solution for the airport cleanup project.

Calligan majored in geology and graduated from the University of South Florida in Tampa. He was born in Pittsburgh, Pa., and grew up in Cumberland, Md. He currently lives in Tampa.

"I'm excited to be getting involved with the Martin State Airport project again," Calligan said. "I'm looking forward to bringing my expertise and lessons learned from the complex challenges in Florida, and I'm looking forward to working with this community, which is so supportive and eager to collaborate with us."

Site Background

In the early 1990s, the Maryland Aviation Administration began conducting a series of environmental investigations of the Martin State Airport in consultation with the Maryland Department of the Environment (MDE).

A possible link between contamination on the airport property and historical operations at Lockheed Martin's Middle River Complex was made when china, papers and other items apparently connected to the former Glenn L. Martin Company were found in excavations for utility work on the airport site.

Since 1991, extensive environmental studies have been conducted at the Martin State Airport in an area between the taxiway and Frog Mortar Creek (the Dump Road Area) in cooperation with MDE. Additional environmental investigations have been performed around Strawberry Point, in Frog Mortar Creek and in Stansbury Creek.

Based on the initial findings for studies conducted at Martin State Airport, Lockheed Martin began to evaluate the Middle River Complex to determine if contamination existed around the plant.

Since contamination associated with former operations was found on the Middle River Complex, Lockheed Martin has taken responsibility for addressing it. MDE is overseeing Lockheed Martin's remediation efforts.

Lockheed Martin has collected thousands of soil, sediment and groundwater samples at both the Middle River Complex and Martin State Airport. The Corporation is proactively addressing cleanup projects at both sites, and is committed to working with the community and keeping residents informed as each of the projects progresses.

Articles highlighted with a blue box reference Martin State Airport projects, articles with white background reference Middle River Complex projects.

Surface-Water Sampling Continues in Frog Mortar Creek

Lockheed Martin is conducting an extensive, ongoing surface-water sampling program to monitor contaminant levels in Frog Mortar Creek adjacent to the Dump Road Area of Martin State Airport and across the creek near Edwards Lane.

Although Lockheed Martin has been monitoring surface water in Frog Mortar Creek since 2004, it expanded the sampling program after detecting higher levels of contaminants in March 2011 than had previously been detected.

Today, sampling is conducted six times per year between March and December, with monthly testing between June and September. The 2012 monitoring results to date showed that contaminants did not pose health risks to people swimming in the creek.

Lockheed Martin conducts the sampling program in collaboration with the Maryland Department of the Environment (MDE). The Corporation also developed human health risk calculations that are used to gauge the sampling results.

To date, the sampling results have not indicated a need to actively restrict access to the area; however, people are advised to limit swimming in the portion of the creek located closest to the Dump Road Area shoreline of the Martin State Airport property.

In fact, in April 2012, MDE issued a water contact advisory for that creek area adjacent to the Martin State Airport. The advisory does not prohibit swimming; it leaves that decision as a personal choice of users of the area. However, it advises the public about the chemicals in the creek near the Dump Road Area shoreline. The advisory is posted on warning signs in the recreational area of the creek.

The Corporation sends all sampling results to MDE and the Maryland Aviation Administration.

The surface-water sampling program was established to help determine if existing conditions in the area pose risks to recreational users in the waterway and if sampling results might vary based on influences such as seasons or tides.



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MDE Approves Groundwater Cleanup Plan for Middle River Complex

Lockheed Martin reached a significant milestone in its Middle River Complex groundwater cleanup program this summer when it received approval from the Maryland Department of the Environment (MDE) to proceed with the groundwater remediation program at the site, located at 2323 Eastern Boulevard.

“This approval culminates years of investigation, remediation planning, field testing and preliminary designing of the remediation of solvents in groundwater, and it represents a milestone in the overall environmental restoration program at the facility,” said Lockheed Martin Project Lead Tom Blackman.

“Lockheed Martin is now moving aggressively forward with completion of the design, and field implementation is expected to begin in spring/summer 2013,” Blackman added.

The MDE noted that the groundwater does not pose an elevated risk to human health because there are no pathways that would allow the groundwater contamination to reach people.

“We look forward to moving into the final design of the groundwater cleanup project,” Blackman said. “No one is exposed to the groundwater, but we are cleaning it up to ensure there is no risk of vapor intrusion for future use of the property.”

The groundwater alternative that was approved by MDE will consist of *in situ* (meaning performed in place) bioremediation of contaminated groundwater in areas where there are elevated concentrations of contaminants, and institutional controls such as deed restrictions to limit groundwater use.

In situ bioremediation injects a mixture of water, food grade vegetable oil and lactate (a non-toxic food additive that is produced from sugars of corn or beets) into the ground to stimulate naturally-occurring bacteria that then consume — and break down — the contamination.

This alternative will reduce the plume of trichloroethene (TCE) at the site by using *in situ* bioremediation in the three areas with the highest concentrations and greatest accumulations of TCE. The highest concentrations are found south of the active industrial facilities. Institutional controls, such as deed restrictions, will limit groundwater use, further reducing potential risks in the future.

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Since the extensive sampling program began, there has been a pattern of lower contaminant concentrations in warm weather and higher contaminant concentrations in cold weather. For each surface-water sampling event, the team takes a total of 40 samples — starting at the same 10 specifically chosen sample points on the shoreline, then at 50 feet, 100 feet and 200 feet from each of the shoreline points.



Lockheed Martin is proposing a treatment system that will capture and treat groundwater in the Dump Road Area of Frog Mortar Creek. The Corporation expects to reduce surface-water contaminant concentrations in the future by containing the movement of contaminated groundwater toward the creek. However, monitoring will continue until a treatment system is approved, constructed and shown to be effective. The final 2012 sampling event will take place in mid-December.

Collaborative Planning Continues for Proposed Groundwater Cleanup at Airport

To ensure effective planning and implementation of the interim groundwater cleanup in the Dump Road Area at Martin State Airport, Lockheed Martin's technical team, Maryland Aviation Administration (MAA) and Maryland Air National Guard (MDANG) meet monthly to discuss the project.

The collaborative meetings are held to discuss, track and make progress toward permitting and construction requirements so that the development of the interim groundwater remediation system remains on schedule.

The primary goal of the groundwater Interim Remedial Action is to capture, treat and thereby contain the groundwater contamination on the airport property so it does not discharge into the nearby Frog Mortar Creek.

MAA, which owns the airport, will be the owner of most of the necessary permits for the interim groundwater cleanup work. The Federal Aviation Administration (FAA) has oversight responsibility related to construction on the airport property. MAA is assisting Lockheed Martin with coordination of permitting activities.

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MDE specified in its approval that Lockheed Martin will be required to develop and implement MDE-approved Response Action Plans for soil cleanup in each tax block, since soil contaminants may pose an elevated risk to human health.

Lockheed Martin Studies Soil at Tax Block E site

Lockheed Martin is preparing Soil Response Action Plans in consultation with the Maryland Department of the Environment (MDE) for five parcels of land, called tax blocks, where soil cleanup is necessary in the Middle River Complex.



One of the tax blocks, Block E, requires additional characterization and collaboration with the U.S. Environmental Protection Agency (EPA) because investigations at this site found elevated levels of polychlorinated biphenyls (PCBs), which are regulated by EPA.

This summer, Lockheed Martin worked to better define the contaminants in Block E. The sampling involved shallow and deep soil borings to better understand the depth and distribution of the PCBs.

In addition to direct sampling, the work included high resolution electroresistance imaging in the area of elevated PCBs to help define subsurface contamination distribution, geology and structures.

The PCBs, which appear to be associated with former electrical transformers that were on the site, were detected in the shallow soils, grassy areas surrounding Block E, and sediment in stormwater pipes leading to Dark Head Cove.

In 2011, Lockheed Martin took measures to remove PCBs from locations where storm water could transport PCBs to Dark Head Cove. These interim measures included removal of PCB-contaminated sediment from storm drains, surface controls to prevent PCB-contaminated silt from entering the storm drains, and reconstruction of damaged drainage inlets. Lockheed Martin also has extended fencing to prevent access to areas with elevated PCB surface contamination.

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Essex Day



Marshy Point Nature Center



Bein' Green



Lynn Hodges presentation at Hawthorne Elementary



Sediments Working Group



Lockheed Martin in the Community ...

Lockheed Martin is committed to working with and being a part of the communities in which it has operations. Lockheed Martin employees and the technical teams working on environmental cleanup projects at the Middle River Complex and Martin State Airport often team together with local community members to enhance life in the area. As you'll see in this photo collage, Lockheed Martin team members are involved. Lockheed Martin annually hosts information tables at Essex Day and is a proud sponsor of the Marshy Point Nature Center. Lockheed Martin team members work with community members to clean up areas of the local waterways during the annual Bein' Green event. Earlier this year, Lockheed Martin sponsored an educational event with presenter Lynn Hodges at Hawthorne Elementary. And this spring, Lockheed Martin organized a Sediments Working Group, a forum that gave residents a chance to learn about and comment on the options being considered for cleaning up contaminated sediments in waterways adjacent to the Middle River Complex.

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As it moves forward on the groundwater Interim Remedial Action, Lockheed Martin also is conducting extensive investigations to better characterize the source areas of contamination in the Dump Road Area of the airport. This characterization will assist in the development and design of cleanup for the Dump Road Area.

Lockheed Martin is planning a pilot-scale treatability test for groundwater in the Dump Road Area. A work plan for the proposed test will be submitted to MDE, and the test is anticipated to occur in the spring of 2013.

Groundwater Project Submits First Permit Application

Lockheed Martin recently submitted the first in a series of permit applications — a Water Appropriations and Use permit — to the Maryland State Department of the Environment (MDE) for the groundwater Interim Remedial Action project in the Dump Road Area of Martin State Airport.

The permit is required to ensure that only specified amounts of water are pumped from the aquifer. A public hearing may be held, although it has not yet been scheduled, and notifications will be made to adjacent property owners.

As the project proceeds, other permits will be required from regulatory agencies for efforts such as the construction of the groundwater treatment facility, certain tree clearance, and water discharge, to name a few.

Source Areas Being Sampled at Martin State Airport

Lockheed Martin is conducting environmental investigations to determine the source areas for groundwater contamination in the Dump Road Area of Martin State Airport. The results of the investigations will help determine future environmental cleanup at the site.

Field work was conducted throughout September and October. Where possible, an environmental investigation technique called direct-push sampling was used. Lockheed Martin collaborated with the Maryland Department of the Environment (MDE) on developing the scope of the sampling.

The direct-push technique drives small rods or tools into the subsurface to collect data. In several locations where groundwater samples could not be collected by use of the direct-push sampler, temporary wells were installed to obtain samples.

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These measures will be followed by full remediation in the future that will address remaining PCB contamination in soil and the storm drains.

Lockheed Martin is continuing to characterize soil contaminants at the Block E site and will be developing a Response Action Plan containing a proposed remediation strategy that will be submitted to regulators in 2013.

Soil Investigations in Block G

In early September 2012, Lockheed Martin conducted soil investigation activities in Block G, a parcel of land near North American Electric and east of Cow Pen Creek in the Middle River Complex.

The purpose of the investigations was to investigate areas where transformers containing PCBs were potentially buried, as alleged by a long-time employee. Geophysical surveys were performed using ground penetrating radar and metal detection equipment. The work also included soil sampling for laboratory analysis.

To date, the reported transformers have not been located, nor has any evidence for their presence been identified.

Lockheed Martin is conducting environmental investigations at the site and will submit a Response Action Plan to the Maryland Department of the Environment (MDE) in 2013.

Surface Water in Creek and Cove Found Safe for Human Contact

Environmental testing conducted this summer in 13 locations in surface water in Cow Pen Creek and Dark Head Cove showed only trace levels of volatile organic compounds (VOCs) with all detections below state and federal levels of concern for people, animals and the environment.



Volatile Organic Compounds (VOCs) are a type of chemical (organic compound) that vaporizes at room temperatures.

The two samples in Cow Pen Creek showed trace levels of acetone and the samples in Dark Head Cove showed trace levels of trichloroethene (TCE). These were the only two VOCs detected in the sampling round.

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Lockheed Martin, Middle River Neighbors Collaborate for Success

Lockheed Martin has been involved for more than a decade in environmental cleanup projects at the Lockheed Martin Middle River Complex and Martin State Airport in Middle River, Md.

Through it all — environmental investigations, testing, planning, cleanup proposals, and ongoing project work — the Corporation’s environmental cleanup projects have been enhanced by one consistent factor: community collaboration.

“We are so grateful to the community for collaborating with us, because it contributes to the smooth process flow and helps us complete these projects more effectively and efficiently,” said Tom Blackman, Lockheed Martin Project Lead. “It has been and will continue to be a real team effort between Lockheed Martin and our neighbors.”

For its part in the team effort, Lockheed Martin recently received the Chesapeake Gateway Chamber of Commerce 2012 “People’s Choice Award.”

The chamber — which serves an area on the east side of Baltimore County — honored Lockheed Martin for its “substantial efforts” related to the environmental investigations and cleanup projects at the Middle River Complex and Martin State Airport.

In nominating Lockheed Martin for the award, Robert Bendler, president of the Essex-Middle River Civic Council, applauded Lockheed Martin for voluntarily accepting responsibility for the cleanup projects and for addressing adjacent properties and waterways in addition to Lockheed Martin-owned buildings and land.

“The thoroughness and professionalism of their staff and contractors has been stellar, and from a community perspective, equally impressive has been their communication and openness,” Bendler wrote in the Essex-Middle River Civic Council’s nomination letter. “They have made concerted efforts to brief our communities on their planned activities, test results, preliminary and final reports, and proposed clean up and remediation.”

Since the late 1990s, the Corporation has actively investigated groundwater, soil and sediment at both locations to assess impacts from former industrial operations.

The projects are in different stages of investigation, planning and cleanup, depending on the location. To date, cleanup work has been completed at one of the tax blocks at the Middle River Complex, and a second tax block was



Lockheed Martin Project Lead Tom Blackman, left, accepts the 2012 People’s Choice Award from Marc Czosnowski, president of the Chesapeake Gateway Chamber of Commerce.

closed under the Voluntary Cleanup Program without the need to conduct any cleanup.

Lockheed Martin currently is conducting the Middle River Complex project primarily through the Maryland Department of the Environment’s Voluntary Cleanup Program, and the Martin State Airport project under Maryland’s Superfund program.

Bendler complimented Lockheed Martin for doing an “excellent job of information dissemination” through public meetings, briefing sessions, visits with local community associations and the distribution of publications about the environmental-cleanup projects.

“Beyond simply providing test results and accurate and comprehensive information on the potential impact of the findings, they have involved the communities in the process of identifying the most appropriate means of addressing the identified concerns,” Bendler wrote in his nomination letter.

Blackman said Lockheed Martin is grateful for its open and transparent working relationship with local residents.

“We really appreciate the community’s collaboration,” he said. “It’s contributed tremendously to the success of this project, and for that we’re very grateful.”

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Characterization field work — including soil, groundwater, sediment and surface water sampling — at the source areas at Martin State Airport was conducted through the end of October.



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Acetone is occasionally found at trace levels in the groundwater at the Middle River Complex. TCE has a significant presence in the groundwater at the Middle River Complex. This summer's testing was conducted to verify that conditions are safe in the surface water.

In Cow Pen Creek, samples were collected one foot below the water surface. In Dark Head Cove, sampling was done at 10 feet and 50 feet from the shore and at a depth of one foot below the surface. The results were submitted to the Maryland Department of the Environment (MDE), and no further action is warranted. Sampling will be conducted again next summer.

For More Information:

*Gary Cambre, Senior Manager, Communications
Lockheed Martin Corporation*

800-449-4486

email: gary.cambre@lmco.com

<http://www.lockheedmartin.com/middleriver>

<http://www.lockheedmartin.com/martinstate>



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

**Lockheed Martin Corporation
2940 University Parkway
Sarasota, FL 34243**