

Fact Sheet

Middle River, Maryland

Middle River Complex and Martin State Airport

Environmental Studies and Cleanup



April 2018

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

History

In 1929, the Glenn L. Martin Company, a predecessor to Lockheed Martin Corporation, purchased land in Middle River, Maryland, to build and test aircraft. This land is now part of the Middle River Complex and Glenn L. Martin State Airport. In 1975 the airport was sold to the state of Maryland, by and through the Maryland Department of Transportation (MDOT). The Maryland Aviation Administration (MAA), a unit of the MDOT, currently operates the airport. Other land parcels sold around the same time include the properties now occupied by Ashley Furniture, Johnson & Towers, Tilley Chemical, Total Industrial Group, the U.S. Postal Service and a gas station-convenience store.

In 1995, Martin Marietta Corporation merged with Lockheed Corporation to form Lockheed Martin Corporation (LMC), which today conducts engineering and research at the Middle River Complex. The complex is owned by LMC Properties, Inc., which provides global real estate and asset management services to Lockheed Martin business areas. Lockheed Martin Rotary and Mission Systems operates at the facility, as does Lockheed Martin Applied NanoStructured Solutions. Aircraft components are also assembled and tested in A- and B-Buildings by MRA Systems, Inc. (MRAS), a subsidiary of General Electric Company.

Beginning Environmental Studies

In the 1990s, two developments occurred that prompted inquiries about environmental conditions at Lockheed Martin's Middle River Complex and at Martin State Airport. First, china, papers and other items associated with the former Glenn L. Martin Company were found by the

Maryland Aviation Administration in excavations for utility work at Martin State Airport. Second, Baltimore County developed an economic revitalization plan for the Middle River community and inquired about Lockheed Martin's plans for vacant waterfront parcels at the Middle River Complex.

Since that time, Lockheed Martin has conducted extensive environmental studies at Martin State Airport in an area between Taxiway T or "Tango" and Frog Mortar Creek (the Dump Road Area) in cooperation with the Maryland Department of the Environment's (MDE) Land Restoration Program (also known as the State Superfund Program). Additional environmental investigations have been performed around the Main Terminal, Strawberry Point, in Frog Mortar Creek and in Stansbury Creek.

Environmental studies also have been conducted at the Middle River Complex. Lockheed Martin entered the MDE's Voluntary Cleanup Program after beginning soil and groundwater investigations at the Middle River Complex. Lockheed Martin and MDE mutually agreed on moving the Middle River Complex Remediation Project from the Voluntary Cleanup Program, which is only available for real estate owned by the remediating entity, to the Land Restoration Program when investigations expanded to adjacent surface water bodies owned by the State of Maryland. This change allows all planned cleanup activities to be consolidated under one Maryland-administered program, which are addressed in an administrative consent order.

Environmental Sampling

Lockheed Martin has collected thousands of soil, surface water, sediment, groundwater, soil vapor and indoor air samples at the Middle River Complex and Martin State Airport. All samples were tested for chemicals known to have been used during aircraft manufacturing and assembly and related industrial operations. Chemicals used in the Middle River Complex were found beneath pavement and buildings, in fenced-off areas with limited access, and near storm water outfalls along Cow Pen Creek and Dark Head Cove. Sampling at Martin State Airport identified the Dump

Newsletters and Project Bulletins updating the community on timely information and Citizen's Guides covering groundwater, soil and sediment can be found at lockheedmartin.com/middleriver or lockheedmartin.com/martinstate

Road Area as the primary area of concern and revealed a groundwater plume containing contaminants moving towards Frog Mortar Creek. Some of these compounds have been found in Frog Mortar Creek, prompting MDE to issue a water contact advisory along parts of the airport shoreline, and Lockheed Martin to construct a groundwater treatment system on the airport property (see below). Sampling results were used to assess potential risks to human health and the environment and to assess the appropriate level of cleanup in consideration of current and anticipated future use of the properties.

Middle River Complex

The Middle River Complex consists of eight parcels of land, called tax blocks, identified separately by the letters A, B, and D through I. Investigations have been conducted primarily by tax block or site-wide by medium (e.g., groundwater).

Risk Assessments

Soil, groundwater, soil vapor, indoor air and sediments were assessed to evaluate potential risks to human health and the environment. The risk assessments determined specific chemicals to target for cleanup in all of the various media and proposed target cleanup concentrations for various future uses of the site such as industrial, residential or recreational. The information provided in the risk assessments was used in the next step of the process to select and design appropriate cleanup remedies that could reduce chemical concentrations in soil, groundwater, indoor air and sediments to health protective levels in a timely manner.

Soil Investigations and Cleanup

Soil around and underneath buildings and parking lots and in secured, fenced-off areas along the waterfront had areas containing elevated concentrations of petroleum compounds, polycyclic aromatic hydrocarbons (PAHs); metals such as arsenic, mercury and lead; and polychlorinated biphenyls (PCBs).

Block B (the parking lot and ball field area on Eastern Avenue) was cleaned up in 2010 by removing contaminated soil to a licensed landfill and replacing the contaminated soil with clean soil. The Maryland Department of the



Figure 1

Environment notified Lockheed Martin that no further soil or groundwater cleanup is necessary on Block B. However, since contaminated groundwater is located in adjacent Tax Block I, a land-use restriction prohibiting the use of groundwater on Block B was recorded in the Baltimore County land records.

Block A contains Lockheed Martin offices. The Maryland Department of the Environment agrees that the site history and characterization support the conclusion that Block A does not require remediation. However, Block A is subject to the same land-use restriction regarding use of groundwater as Block B because it also is adjacent to Block I.

Based on results of the risk assessments, Soil Remedial Action Plans (RAPs) were required for Blocks D, F, G and H. The resulting RAPs were approved by the Maryland Department of the Environment in 2013 and early 2014. The public reviewed and commented on the plans, which proposed cleaning the soils to industrial standards, consistent with current and historical property use. The panhandle portion of Block D is an exception: Lockheed Martin proposed to clean up the Block D panhandle to recreational standards developed in the risk assessment. Soil remedy design proceeded during 2014. Cleanup of these tax blocks occurred in 2015 and 2016. The Maryland Department of the Environment notified Lockheed Martin that no further soil cleanup is necessary on these Blocks for continued industrial usage. However, land-use restrictions prohibiting the use of groundwater and prescribing soil management requirements have been recorded in the Baltimore County land records. Additional remediation would be conducted should residential, commercial or recreational land use within these industrial parcels be planned in the future.

Environmental characterization and monitoring continues at Block I, which contains MRA Systems, Inc. (MRAS) production facilities, some operations of Lockheed Martin Rotary and Mission Systems, and Lockheed Martin Applied NanoStructured Solutions.

Additional investigations and remedial actions for Block E will be developed under the U.S. Environmental Protection Agency (USEPA) program addressing polychlorinated biphenyls (PCBs) remediation, because PCBs were found at elevated concentrations in this Block. In 2011 and again in 2014 and 2016, Lockheed Martin cleaned out and rehabilitated storm drain and inlet structures to the extent possible. Remaining contamination will be addressed in future soil remediation activities. Lockheed Martin is

monitoring these storm drains annually, and will conduct additional storm drain cleanouts if additional sediment accumulation is found, as it was during 2018. Lockheed Martin is completing PCB soil investigation, and is now moving into preparation of a remedial action plan during 2018.

Because radioactive materials were used in former D-Building (Tax Block E), the Nuclear Regulatory Commission conducted a closeout verification survey of that parcel in 1994 and concluded that no detectable radiation levels above background were present and that the location was suitable for unrestricted use in its current condition, with the basement floor slab in place and the floor drains plugged with concrete. Lockheed Martin surveyed the area in 2004 and in 2012 and concluded that there was no radiation significantly above background at the surface. Additional sampling for potential residual radioactive materials at the former location of D-Building will continue during soil investigation. A remedial action strategy and necessary precautions will be developed for future cleanups so that any radiological constituents found as the building slab is being removed will be properly handled and disposed.

Groundwater Investigations and Cleanup

Investigations of groundwater at the Middle River Complex identified three shallow groundwater plumes containing elevated concentrations of chlorinated solvents such as trichloroethene (TCE) that originated from the industrial facility in the center of the complex (Block I). There also were several small, isolated areas containing petroleum compounds such as benzene in shallow groundwater near former underground storage tanks (USTs) beneath the Middle River Complex industrial buildings. Site workers and visitors do not come into contact with these chemicals because the groundwater at the site is not used for any purpose. Mitigation systems have been installed under portions of Block I buildings to protect indoor air quality by removing vapors of contaminants emanating from groundwater beneath the building. Any future use of shallow groundwater is likely to be restricted by the Maryland Department of the Environment.

Shallow groundwater at the Middle River Complex discharges to Dark Head Cove and Cow Pen Creek. The slow rate of discharge to these surface waters results in very small discharge of contaminants that rapidly disperse, resulting in low levels that meet the Maryland criteria for open bodies of water such as rivers and creeks, as well as drinking water standards, and is not a concern for human health or the environment. This is confirmed by periodic sampling under a surface water monitoring program. A 2017 investigation of a trichloroethene groundwater plume located in Tax Block F focused on potential impacts from that plume on Dark Head Cove. No concerns have been identified based

***A Citizens' Guide and Addendum,
Project Bulletin and Website Virtual
Photo Tour on Soil Cleanup are available at
lockheedmartin.com/middleriver***

upon the swimming criteria developed for this project, and sampling will continue to determine whether this remains the case. Groundwater investigations also confirm that the contamination does not move across the creek and cove to the adjacent Hawthorne or Wilson Point neighborhoods.

A Citizens' Guide, Project Bulletin, and Construction Photo Tour on groundwater are available at lockheedmartin.com/middleriver

A groundwater treatment system began operating in 2014 to treat two of the three shallow groundwater plumes. The system relies on *in situ* (meaning “in place”) bioremediation to reduce trichloroethene in areas of the highest concentration. In bioremediation, a mixture of water and lactate produced from sugars such as from corn or beets is injected into the ground to stimulate naturally occurring bacteria that will consume and break down the contaminants. A total of 271 truckloads of contaminated soil were excavated to allow for installation of treatment wells and piping. The removed soil was sent to a licensed landfill, and certified clean soil and gravel replaced the contaminated soil.

During the excavation for the third shallow groundwater plume in Block E, two previously unknown underground storage tanks (USTs) were encountered. The tanks were removed and disposed of following MDE regulations. Follow-up investigations revealed trichloroethene in the groundwater and soil at concentrations too high to be removed effectively by the type of groundwater bioremediation treatment system that had been recently installed for the other two groundwater plumes. A high vacuum extraction system was temporarily installed in this area to remove the highest concentrations of trichloroethene from groundwater and soil. The extracted groundwater was treated prior to discharge to the Baltimore County sanitary sewer system. The system operated in 2014-2015 and removed approximately 550 pounds of trichloroethene. The planned bioremediation treatment of groundwater under Block E was again postponed to measure elevated concentrations of trichloroethene in groundwater farther downgradient in Tax Block F. Block E cleanup planning continues; meanwhile, we are monitoring the Block F groundwater plume for any movement of trichloroethene toward Dark Head Cove. Plans are underway in 2018 to assess additional treatment options to reduce the potential impacts on surface water from the Block F plume, and will be shared with the community once developed.

Groundwater treatment in Block G appears to have met the cleanup objectives. Groundwater sampling in 2018 will seek to verify that this is the case. Initial sampling shows that the results of the Block I groundwater injections are favorable.

Sediment Sampling and Proposed Sediments Cleanup

The sediments of Dark Head Cove and Cow Pen Creek have been sampled extensively. Sediments in Cow Pen Creek and along the bulkhead and airport discharge points in Dark Head Cove contained elevated concentrations of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and metals such as cadmium and chromium. These concentrations indicate that action was appropriate to reduce potential risks associated with long-term direct contact, uptake of contaminants by fish, and potential impact to organisms residing in the sediment. (Consumption of fish taken in these waters is guided by Maryland Department of the Environment and Maryland Department of Natural Resources fish advisories for the Chesapeake Bay and the Baltimore region, which include the Middle River area.)

Lockheed Martin worked with the community to develop a preferred approach to remediating sediment in Cow Pen Creek, Dark Head Cove and Dark Head Creek adjacent to the Middle River Complex. The approach was presented in a Feasibility Study and approved by the Maryland Department of the Environment and the U.S. Environmental Protection Agency in 2013. The approach included removing contaminated sediments through dredging and excavation; *in situ* (“in place”) treatment to reduce contaminant mobility; and monitored natural recovery that relies on natural processes to return sediment to natural levels. The preferred approach included shoreline stabilization, habitat enhancement and creek bed plantings in Cow Pen Creek. Additional tests assessed benthic organisms (such as worms) and environmental conditions in the sediment to help determine the level of activated carbon to be used in *in situ* treatment. Test results submitted to regulators were also incorporated into the remedy’s design. Lockheed Martin conducted cleanup between 2014 and 2017. The stages are described below.

In 2013, sampling activities in preparation for sediment remediation 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 D-Building was dismantled.) Lockheed Martin, the USEPA and the MDE agreed the best course of action was to clean up this location before the full sediment remedy was implemented.

In the winter of 2014, sediments were removed using a clamshell bucket operating from a crane on a barge. The work area was marked off by a floating boom that Lockheed Martin placed around the area of contamination in the spring of 2014. Dredged sediments were moved to dump trucks at the nearby bulkhead. The trucks transported

the sediments to a bermed and lined dewatering pad for draining. Additives were mixed with the sediments to achieve necessary dryness and bulk. The sediments were then transported to an approved and licensed disposal facility in New York State. In-water work was completed in mid-February 2015, the end of the allowable winter work window.

Similar practices were used for the larger dredging project in Dark Head Cove and Cow Pen Creek, which occurred during the winter of 2015-2016.

Excavation work in Cow Pen Creek began in July 2017 and all work was completed by December 2017. The creek was piped around dammed off segments, creating dry work areas. Fish were moved to the creek below work areas. Following contaminant removal, the creek was restored with native plants, along with submerged aquatic vegetation. Restored/replanted areas will be monitored to ensure they recover properly.

In total, the remediation (combined dredging and excavation) removed 55,500 cubic yards (3,285 truckloads) of contaminated sediments from nearly 12 acres. (For comparison, 1.3 acres is approximately equal to one football field.)

In winter 2017-2018 a layer of activated carbon was placed over an additional 13.7 acres of sediments in un-dredged portions of Dark Head Cove, creating a protective layer to absorb any remaining PCBs.

Because Cow Pen Creek and Dark Head Cove are considered waters of the State of Maryland and of the United States, and are within the Chesapeake Bay Critical Area, the MDE made cleanup decisions in consultation with other governmental authorities, including the USEPA, the Maryland Department of Natural Resources, the U.S. Army Corps of Engineers and the Maryland Critical Area Commission.

***A Citizens' Guide and Photo Tours on
sediments are available at
lockheedmartin.com/middleriver***

Rotary and Mission Systems and MRA Systems, Inc. Facilities

Lockheed Martin continues to conduct environmental sampling in and outside A-, B-, and C-Buildings (Tax Block I) to evaluate the extent of contamination in soil, groundwater and sub-slab vapor and to assess if there is a potential risk to human health. Soil-gas sampling indicates the presence of volatile organic compounds (VOCs) in several locations under and outside the buildings. In early 2008, Lockheed Martin took the precaution of installing sub-slab vapor-mitigation systems in the two areas of A- and

***An Indoor Air Quality Fact Sheet is available
at lockheedmartin.com/middleriver***

C-Buildings where sub-slab vapor concentrations exceed established screening concentrations. The systems are essentially vacuums that draw out the sub-slab vapor and direct it through a filter before releasing the cleaned vapor to the outside air. They have significantly reduced VOC concentrations in vapors under the buildings and have helped maintain concentrations in indoor air below the conservative screening levels calculated by the USEPA and the Maryland Department of the Environment.

Air samples collected while the A-Building system was shut down in March 2013 for maintenance revealed that concentrations of volatile organic compounds (VOCs) remain below risk levels even when the system is not operating. Nonetheless, the mitigation system continues to be operated proactively. Monitoring in C-Building basement identified additional areas of VOCs in sub-slab vapor in the east-central part of the basement. Although indoor air samples do not indicate unacceptable risk levels, the C-Building sub-slab vapor-mitigation system was expanded proactively in 2012-13. An additional expansion took place in A-Building in 2016. The mitigation systems may be modified to increase the capture of sub-slab vapors when necessary and shut down when data indicate they are no longer necessary.

Indoor air monitoring in the basement of A-Building indicated more persistent levels of VOCs, with several samples exceeding screening criteria. While this basement area is not a full-time-occupied work space, it does require routine access for maintenance activities. Therefore, an air filtration system was installed in 2015 and expanded during 2017. The filtration system cleans the air and then discharges the treated air back into the basement. Additional investigations in 2017 evaluated whether TCE vapors from the basement sumps and drains could be removed and treated using the existing A-Building SSDS. Based on positive results, one sump was covered and connected to the SSDS. Formerly-used heating vents in the main work space of A-Building were sealed off to prevent vapors travelling from beneath the building or the basement into work areas. Additional sampling and flow monitoring of water leaving the sumps is taking place during 2018 to form the basis for additional remedial activities.

Sampling of indoor air quality in the Lockheed Martin Rotary and Mission System's Vertical Launching System (VLS) facility in 2006 and again in 2014 indicated no need for additional sampling in that building. Sub-slab vapor in additional outlying buildings was sampled during 2017 and 2018, and results verify that those facilities similarly do not pose concerns for vapor intrusion into indoor air.

Martin State Airport

Lockheed Martin conducts environmental investigations at Martin State Airport, including sampling of the adjacent Frog Mortar and Stansbury Creeks, in cooperation with the Maryland Department of the Environments (MDE).

As it no longer owns any part of Martin State Airport, Lockheed Martin coordinates investigations, remediation and permitting activities at Martin State Airport with the State of Maryland, represented by the Maryland Aviation Administration (the property owner), and with the Maryland Air National Guard (a major tenant at the airport).



Figure 2

Dump Road Area

Investigations in the Dump Road Area revealed the presence of contaminants—concentrations of chlorinated volatile organic compounds (CVOCs) including trichloroethene (TCE), cis-1,2 dichloroethene, and vinyl chloride at concentrations exceeding federal and Maryland groundwater standards—in a plume originating from the Dump Road Area and moving towards Frog Mortar Creek. Lockheed Martin constructed a groundwater treatment plant to contain flow of the contaminated groundwater from the Dump Road Area, thereby preventing the discharge of the chlorinated compounds to Frog Mortar Creek. This Interim Remedial Action (IRA) consists of a series of extraction wells located parallel to Frog Mortar Creek in the Dump Road Area to extract groundwater and pump it to the groundwater treatment facility. Construction and operation of the treatment system required coordination with multiple governmental authorities at the county, state and federal levels. Public review and comment related to the proposed plan for the IRA occurred in early 2012; public comment periods related to permitting continued until fall 2015. Construction of the IRA completed in late 2017, with operation beginning in December 2017.

A Citizens' Guide and Construction Photo Tour on groundwater are available at lockheedmartin.com/martinstateairport

Lockheed Martin is also evaluating supplementing groundwater treatment with *in situ* (in place) remedies that could be implemented to decrease the time needed to complete the groundwater treatment (currently expected to take decades). Lockheed Martin is coordinating with the Maryland Aviation Administration to control the risk of exposure to workers conducting airport maintenance or construction in the area.

Lockheed Martin continues to investigate potential sources of groundwater contamination in the Dump Road Area and close to the airport's Taxiway Tango. These investigations will help determine where additional cleanup actions might be needed to further reduce groundwater contamination. Lockheed Martin and the Maryland Aviation Administration also work together to determine what environmental conditions may need to be addressed in support of airport operations.

Frog Mortar Creek

While earlier sampling found no issues of concern, sampling in the last five years indicates the discharge of some concentrations of the volatile organic compounds (VOCs) trichloroethene (TCE), cis-1,2-dichloroethene, and vinyl

A Frog Mortar Creek Surface Water Conditions summary poster is available at lockheedmartin.com/martinstateairport

chloride into Frog Mortar Creek, resulting in surface water VOC concentrations in a portion of Frog Mortar Creek above the swimming criteria developed for this project. The highest concentrations are located in a small area along the shoreline of Frog Mortar Creek in the Dump Road Area. Consequently, following a public information meeting, in April 2012 the MDE issued a water contact advisory for a 2,000-foot long stretch of shoreline next to the airport, recommending that swimming within 200 feet of the shoreline be limited to four hours per day and approximately 70 days per year. Lockheed Martin and the Maryland Department of the Environment have established an ongoing surface water monitoring program for Frog Mortar Creek where 40 water samples are now collected six times a year, focusing on the summer swimming months. Results are published in an annual report. A summary of average summer Frog Mortar Creek Surface Water Conditions is also available as a poster that is updated annually and can be found on the project website at: lockheedmartin.com/martinstateairport. The groundwater Interim Remedial Action (IRA) system described above has been installed to remedy this situation. Ongoing monitoring will demonstrate the effectiveness of the IRA system over time.

Stansbury Creek

Lockheed Martin collected sediment samples in Stansbury Creek in 2009 to identify and characterize the nature and extent of possible contamination resulting from current and past airport activities. Elevated concentrations of polycyclic aromatic hydrocarbons (PAHs) were found next to one outfall that drains paved surfaces associated with airport operations. These concentrations were consistent with regional findings, and risks to human health and the environment appear negligible. In 2010 the Maryland Department of the Environment notified Lockheed Martin that based on the agency's review of the corporation's reports, no remediation was required for Stansbury Creek..

Strawberry Point

The Greater Strawberry Point area of Martin State Airport has been investigated since 2010 to determine the nature and extent of possible contamination in soil and groundwater in areas of former Glenn L. Martin operations. Soil and groundwater investigations in the southern part of Greater Strawberry Point, from the airport fuel storage area north to the airport maintenance facility, did not encounter contaminants at levels that present a risk to human health or the environment. Follow-up soil and groundwater investigations in the part of Greater Strawberry Point

north of the Martin State Airport maintenance facility show some areas of groundwater contamination. The area is largely woodlands and was the site of several former Glenn L. Martin facilities that have been demolished. Lockheed Martin has prepared a Feasibility Study to assess remediation alternatives for groundwater in Greater Strawberry Point and will be working with the MAA, MDE, and other stakeholders including the public towards a final approved remediation strategy.

Main Terminal

The airport Main Terminal area, surrounding Hangars 1 through 6, was investigated starting in 2011. Geophysical and soil vapor surveys and soil and groundwater sampling were conducted in areas of former Glenn L. Martin operations near these hangars, which were part of the original Glenn L. Martin Airport. The report for the Main Terminal work was completed in 2012. Additional groundwater investigations were also conducted in summer 2012. No contaminants were discovered at levels that present a risk to human health or the environment. Annual groundwater monitoring continues in the Main Terminal area due to the presence of low levels of fuel-related compounds. These are expected to degrade without impacting nearby waterways.

Public Outreach and Citizen Participation

Lockheed Martin is committed to ensuring that employees at the Middle River Complex, interested citizens, neighbors of the site, the media, and local, state and federal officials are kept informed of the progress of this work. Lockheed Martin also shares all airport findings with the Maryland Aviation Administration and Maryland Air National Guard. The Corporation has conducted and will continue to conduct informational, educational and working sessions, tours, briefings and presentations with stakeholders, and to provide poster and public availability sessions and open houses throughout the course of the investigations and cleanup. Lockheed Martin is keeping the public informed about the cleanup through newsletters, personal update letters and its website.

Lockheed Martin has a long-standing tradition and a philosophy of involving community members and neighbors and encouraging them to provide their input and insight into the remedial investigations and proposed cleanup alternatives. As a part of this community outreach effort in the Middle River area, the Corporation has conducted regular briefings and updates with civic association leaders, hosted community meetings and been an active participant

in community events.

During many permitting activities, public comment periods will also be sponsored by state and federal governmental authorities. Lockheed Martin will share information about these opportunities through its ongoing community outreach program.

Glossary and Acronym List

of terms used in this Fact Sheet or other site-related documents.

Applied NanoStructured Solutions, LLC — a subsidiary of Lockheed Martin located in the Middle River Complex.

Arsenic — an odorless and tasteless semi-metal that enters bodies of water naturally from the earth and from industrial processes.

AWQC — Ambient Water Quality Criteria: numeric values of chemicals that show the limit of what is allowed in our nation's waters in order to help protect human health and the environment.

Background radiation — radiation that comes from natural sources and is always present in the environment. This includes solar and cosmic radiation as well as radioactive elements in the ground, building materials and the human body.

Benzene — a colorless, flammable, liquid aromatic hydrocarbon derived from petroleum and used in or to manufacture a wide variety of chemical products.

Cadmium — an element found naturally in soil and rocks. Cadmium is also found in some foods and in man-made consumer products such as batteries, plastics, pigments, paints and metal coatings. Cadmium does not break down in the environment and generally does not dissolve in water. In the ground, cadmium typically clings to soil and sediment.

Chlorinated solvents — chemicals that include methylene chloride, perchloroethylene, trichloroethene, 1,1,1-trichloroethane, 1,1,2-trichloroethane and carbon tetrachloride. Chlorinated solvents are typically used as cleaning and degreasing agents.

Chromium — an element found naturally in the earth's soil and water and all plants. Ore refining, chemical, and refractory processing, cement plants, automobile and aircraft parts production, tanning and chrome pigments add chromium to the environment.

EPA — U.S. Environmental Protection Agency

In situ — in place

IRA — Interim Remedial Action

Lead — used in the manufacture of batteries, metal products and ammunition. Exposure can occur from breathing contaminated air in or near workplaces that process lead, as well as ingesting chips from lead-based paint. Lead can affect the blood, nervous, immune, renal and cardiovascular systems.

MAA — Maryland Aviation Administration

MDANG — Maryland Air National Guard

MDE — Maryland Department of the Environment

MDNR — Maryland Department of Natural Resources

Mercury — a metal used in manmade products such as batteries and thermometers.

Middle River Complex — the site that includes a Lockheed Martin Rotary and Mission Systems (RMS) facility; Applied NanoStructured Solutions, LLC; General Electric's MRA Systems, Inc. (MRAS) subsidiary; and other businesses.

Mitigation — process that lessens the severity of an environmental risk or condition.

MRAS — MRA Systems, Inc., a/k/a Middle River Aircraft Systems, a subsidiary of General Electric Company, which leases space mainly inside A-, B-, and C-Buildings at the Middle River Complex to manufacture aircraft parts.

PAHs — polycyclic aromatic hydrocarbons — a group of chemicals that are formed during the incomplete burning of coal, oil, gas, wood, garbage, or other organic substances, such as tobacco and charbroiled meat. There are more than 100 different PAHs. Also commonly found in asphalt paving and roofing materials and urban environments.

PCBs — polychlorinated biphenyls — a group of synthetic organic chemicals. There are no known natural sources of PCBs. PCBs are either oily liquids or solids and are colorless to light yellow. They were once used commonly in electrical transformers, among many other applications.

RAP — Remedial Action Plan

RMS — Rotary and Mission Systems (RMS) business area of the Lockheed Martin Corporation.

Sediment — sand, silt and clay 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.

Surface soils — topsoil found usually within the first six inches to one foot of the land surface. It is assumed that people can come into contact with surface soils when doing normal activities around the home or work place, such as shallow digging for fencing, gardening, landscaping and mowing the lawn.

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

TCE — trichloroethene — a volatile organic compound (VOC) used to clean metals and in specialty adhesives. It was used commonly as a degreaser in industrial operations. Trichloroethylene is another, older name for the same chemical.

UST — underground storage tank

VCP — Voluntary Cleanup Program. Administered by the Maryland Department of the Environment. Participation by companies is voluntary. The program is used to clean up brownfield sites (abandoned or underused industrial and commercial facilities available for re-use).

VLS — Vertical Launching System

VOC — volatile organic compound — A type of chemical that transforms from a liquid to a gas at room temperature.

Further Information

Final environmental reports and other public information covering Lockheed Martin's environmental activities at the Middle River Complex and Martin State Airport sites may be found at the Essex Public Library at 1110 Eastern Boulevard, Essex, Maryland, 21221. For more information about the library, call 410-887-0295.

Information also is available on the Lockheed Martin website: www.lockheedmartin.com/middleriver or www.lockheedmartin.com/martinstate

Contact Information

Interested members of the public, or the media, are invited to contact Lockheed Martin at any time with questions or requests for additional information.

Meghan Macdonald, Lockheed Martin
Communications Representative
800.449.4486
Meghan.O.Macdonald@lmco.com

Katherine Scruggs, Lockheed Martin Rotary
and Mission Systems Communications
202.863.3239
katharine.n.scruggs@lmco.com

Kay or Darryl Armstrong
Project Community Outreach
1.888.340.2006
darrylkay@aol.com

For information on career opportunities at Lockheed Martin, visit <http://www.lockheedmartinjobs.com>