FY12 - FY13 Secretary of the Army Environmental Awards Program

Fort George G. Meade, Maryland

Environmental Restoration - Team / Individual

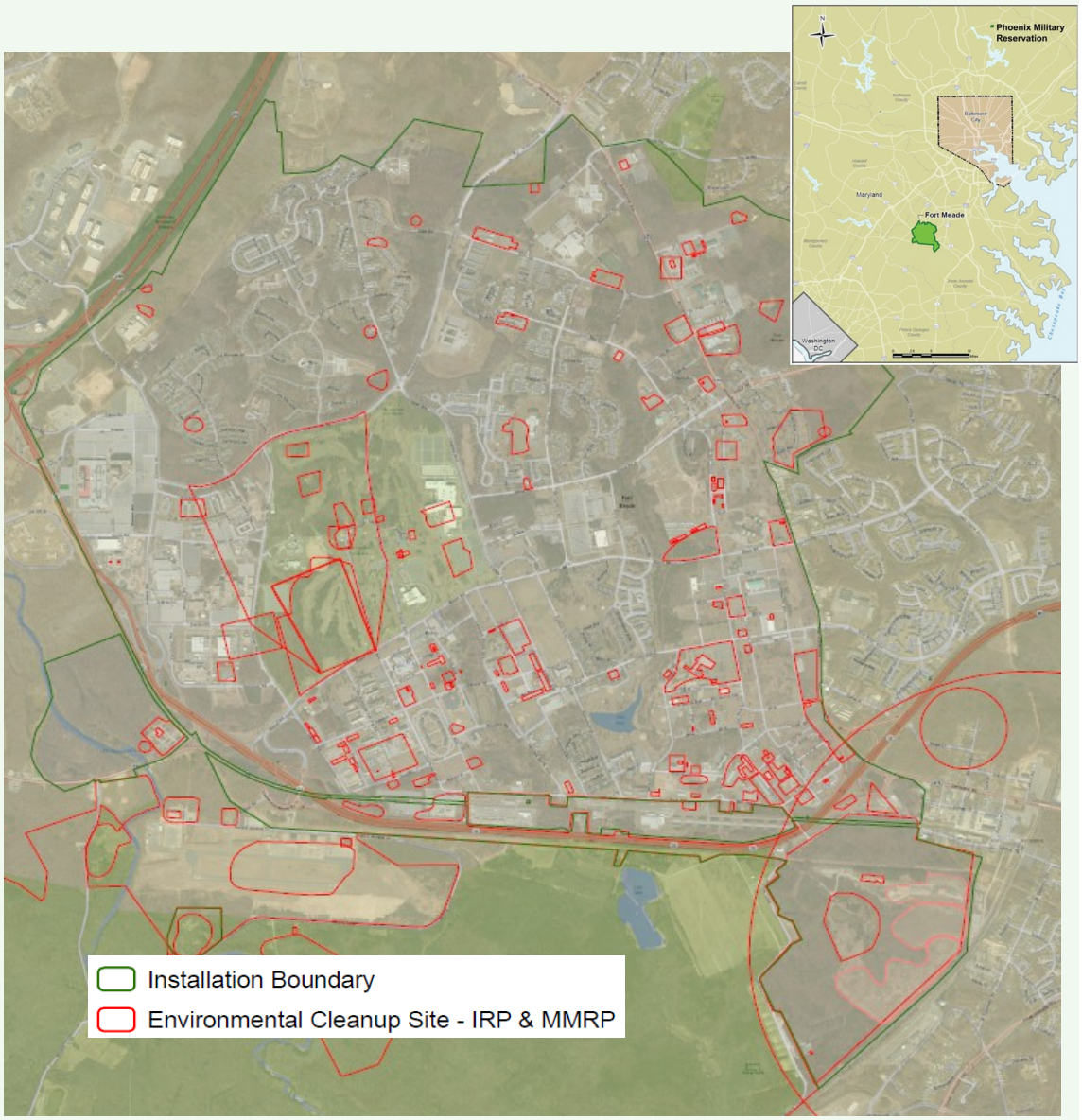
BACKGROUND

Mission Statement

Fort George G. Meade's (FGGM) vision is: "Excellence in installation support enabling FGGM to be the Nation's Preeminent Center of Information, Intelligence and Cyber." Its primary mission is to provide a wide range of services to more than 116 partner organizations from the Army, Navy, Air Force, Marines, Coast Guard and several federal agencies including the National Security Agency (NSA), Defense Media Activity, Defense Information Systems Agency, the Defense Courier Service, and the U.S. Cyber Command.

History

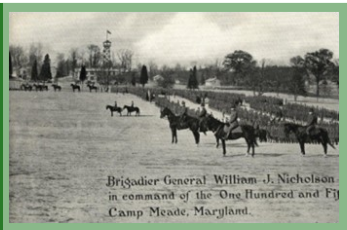
Fort Meade has been a permanent U.S. Army installation since 1917 and once occupied approximately 13,500 acres in northwestern Anne Arundel County, Maryland, along the Little Patuxent and Patuxent Rivers. Approximately 8,000 acres of mostly range and training land and the former Tipton Army Airfield were transferred under BRAC to the Department of Interior (DOI), Fish and Wildlife Agency and Anne Arundel County, respectively. Currently, FGGM is over 5,500 acres. During the Cold War era, Nike missile defense installations were installed in strategic locations throughout the US. The Phoenix Military Reservation (PMR) Nike Fire Control Area (inactive) is a sub-installation of FGGM.



Geographic, Economic and Political Setting

FGGM is located between Baltimore, Maryland, and Washington D. C. including over 11 million square feet of interior space spread across more than 1,600 buildings. FGGM is in Maryland's 2nd Congressional District represented by Dutch Ruppersberger (D). The PMR is located approximately one-half mile west of Jacksonville, Maryland, and is in Maryland's 7th Congressional District represented by Elijah E. Cummings (D). With 56,000 employees, FGGM is Maryland's largest employer and the 3rd largest workforce of any installation in the U.S. Everyday, more than 100,000 people seek the services FGGM offers, and it is home to 11,000 military personnel along with 29,000 civilian employees with nearly 6,000 people residing on post. FGGM, including the NSA, adds approximately 4% of Maryland's total economic activity. Of the $6.6 billion in goods and services from state companies, FGGM/NSA is the largest contributor.

FGGM TIMELINE



World War I Era: More than 400,000 soldiers passed through Camp Meade, a training site for infantry.

World War II Era: FGGM ranges and other facilities were used by approximately 3,500,000 soldiers.

Cold War Era: FGGM reverted to routine peacetime activities.

Modern Era: FGGM evolved into the Preeminent Center of Information, Intelligence and Cyber.

POSITION DESCRIPTION

For almost 100 years, FGGM has contributed to our national Defense from calvary to mechanized units and, more recently, to information, intelligence and cyber. With the application of the Defense Environmental Restoration Program (DERP), the environmental impacts from these activities have diminished significantly. Past storage, handling and disposal of chemical material has always been consistent with those of the time; however, some of those historic practices have left adverse impacts to our environment.

FGGM has 35 Installation Restoration Program (IRP) sites (31 active), 6 Military Munitions Response Program (MMRP) sites (3 active), and 83 active Areas of Interest (AOIs) which are included in IRP sites FGGM-95 and FGGM-96. The primary contaminants of concern include; heavy metals, pesticides, polychlorinated biphenyls and solvents in soil, sediment and groundwater on-post and solvents (carbon tetrachloride, trichloroethene, and tetrachloroethene) off-post in the Town of Odenton and the Patuxent Wildlife Research Refuge-North Tract (PRR). On July 28, 1998, FGGM was entered onto the National Priorities List (NPL) and in October 2009 executed a multi-agency Federal Facilities Agreement (FFA) with the Environmental Protection Agency (EPA), Architect of the Capitol (AOC), and DOI.

The Installation Restoration (IR) and Military Munitions Response (MMR) Program Team's (Team) mission is to reduce or eliminate unacceptable risk to human health and the environment through the closure of sites with the goal of returning land to beneficial reuse. To meet our mission, force multipliers are fully and thoughtfully applied including use of subject matter experts inside and outside the Army (Army Environmental Command, Army Public Health Command, Corps of Engineers and their Centers of Excellence, and contractors), state of the art technical and management processes (e.g., vertical profiling and the Triad management approach), and a robust and sustained internal and external participation process to ensure situational awareness and alignment with the many missions performed at FGGM and the surrounding communities. Our Team works closely with other Environmental Division programs such as: Storm Water Management, Pollution Prevention, and Cultural and Natural Resource to ensure coordination and compliance with all programs.

Team Description

Name	Title	Position Description
Paul V. Fluck, P.G., REP	Program Manager	Installation-level Program Manager for the IR/MMR Programs
George B. Knight, P.G.	Project Manager	Project Manager for initial investigations including the large Preliminary Assessment/Site Inspection Project
Denise Tegtmeyer, PE	Project Manager, Osage of Virginia, Inc. (Contract Spt)	Project Manager for a large performance-based contract including 15 IR and 2 MMR program sites
Erin McKinley	Technical Support, Osage of Virginia, Inc. (Contract Spt)	Team member responsible for providing technical support, including GIS

Team/Individual Awards

- Letter of Appreciation (Team), National Security Agency, Director, Installations & Logistics, March 2, 2012
- SAME National Young Member Medal FY12
- Commanding General, Nation Capital Region, Award for Excellence Coin, FY12
- Fort George G. Meade Commanders Certificates of Excellence, Earth Day FY12 and FY13
- Fort George G. Meade Performance Awards, FY12 and FY13
- U.S. Army Environmental Command, Commander, Outstanding Performance Coin, FY13
- Fort George G. Meade Commanders Certificate of Excellence, Energy Awareness Month FY12
- Inductee to the SAME Academy of Fellows FY13

ACCOMPLISHMENTS

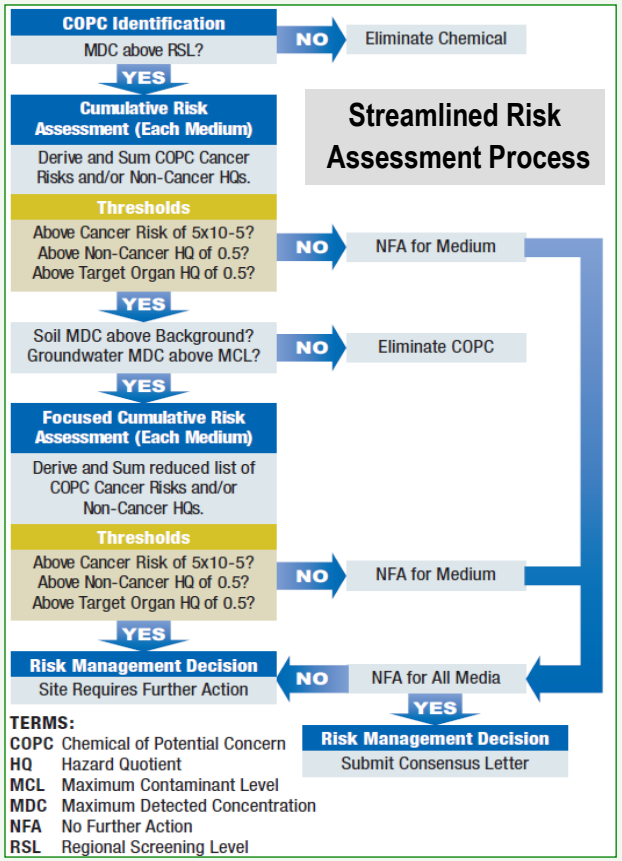
The Team's highly motivated and skilled professionals work within the framework of the applicable laws and Executive Orders, DoD and Army guidance, interagency agreements (i.e. FFA), Environmental Management System, and best management practices to accomplish our mission.

Significant accomplishments completed in FY12-FY13 include:

- 5 Decision Documents (DD) signed
- 2 Remedial Investigations (RI) and 3 RI addendums finalized
- 14 Preliminary Assessment /Site Investigation (PA/SI) sites closed
- 2 Remedial Design (RD) documents completed
- 2 Engineering Evaluation/Cost Analysis (EE/CA) completed
- 2 state lead soil removal actions (~35k tons)
- Approximately 10,000 tons of excess soil reused as make-up fill
- 2 Interim Removal Actions (IRA); 1 complete, 1 ongoing
- 1 Final Remedial Actions (FRA) completed
- 1 Focused Enhanced Site Investigation completed (hazardous lead impacted soil)
- Approximately $17.5 million In cost savings and 134 acres of land returned as unrestricted/ beneficial reuse

Innovative Technologies, Validation, Risk Reduction, Sustainability and Green Remediation

Innovative technologies were effective in risk and cost reductions, therefore, reducing timelines to beneficial site reuse while promoting efficient and sustainable use of resources. Our Team, in coordination with regulatory partners, selected aggressive engineered remedies (e.g., in-situ chemical oxidation (ISCO), soil vapor extraction (SVE), air sparging and directed groundwater recirculation wells) to rapidly reduce threats to human health and the environment while minimizing long-term management/ operations life-cycle costs. Below are demonstrations of the Team's successful execution of the IR/MMR programs within FY12 and FY13.



The 2009 FFA helped initiate a top down review of the IR/MMR programs which included an extensive evaluation of existing documents, aerial and other photographs taken from FGGM's WWI era to the present. This review identified AOIs and Resource Conservation and Recovery Act (RCRA) solid waste management units that required additional data in order to determine if a release had occurred. Confronted with such a large task and the anticipated time and cost associated with these sites progressing through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, an innovative approach was developed by working collaboratively with the EPA, Maryland Department of the Environment (MDE) and the community to minimize project life-cycle time and costs. This approach involved implementing a more robust sampling effort in the installation-wide PA/SI coupled with a screening level risk assessment utilizing the "Streamlined Risk Assessment Process" (as illustrated on the adjacent flow chart) to obtain a consensus with regulators for no further action. This innovative way of performing a PA/SI has directly led to the successful closure of 14 AOIs during FY12 and FY13 saving an estimated $7.5 million in RI costs alone and releasing 134 acres of land back to unrestricted/beneficial reuse. The PA/SI project anticipates the closure of 23 additional AOIs in FY14 using the innovations established during this reporting period and several more in the coming years with significant continued savings in time and money.

Of particular note was Parcel 8. Located in the initial construction area of the multi-billion dollar expansion of the NSA, this site required our full resources to meet NSA project goals and timeline. Onsite XRF techniques were used to rapidly determine the extent of lead contaminated soil and direct the excavation of approximately 1,734 tons of hazardous lead contaminated soil in real time. This approach significantly accelerated site closure avoiding any disruption to NSA's re-development, their mission or timeline.

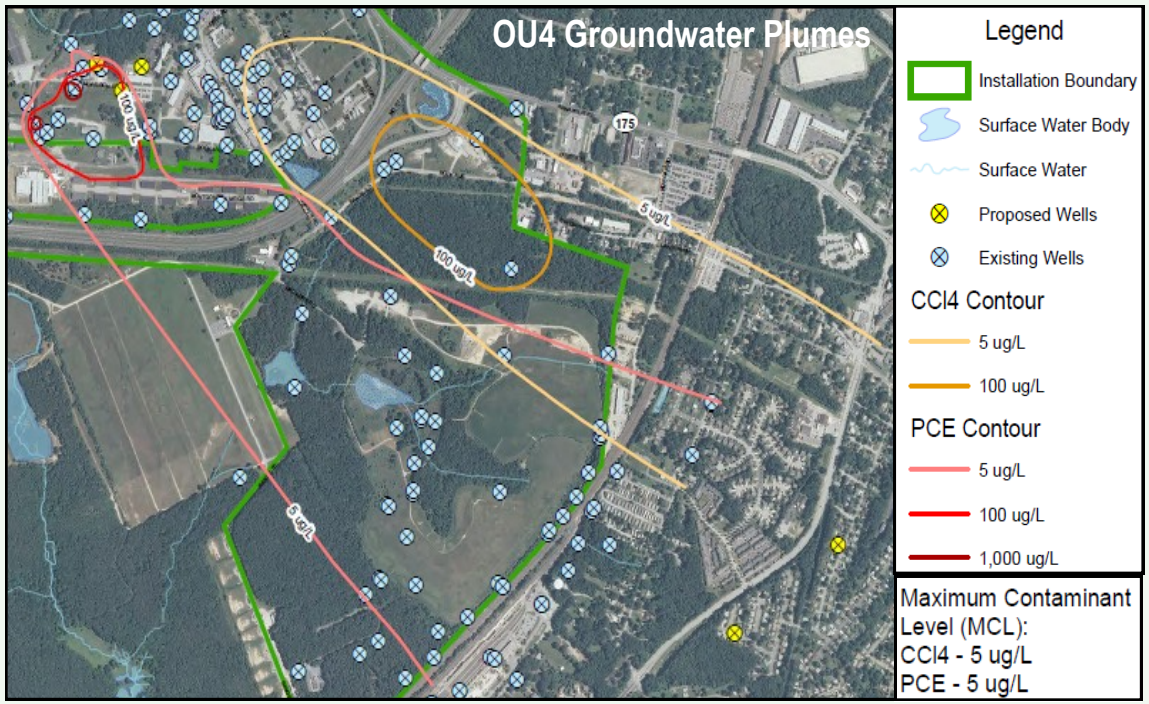
PA/SI Cost Savings

RI Activity	Estimated Cost (K$)
Field Sampling	158
Sample Analysis	45
Data Evaluations	30
Risk Assessments	28
Remedial Investigation reports	25
RI Phase TOTAL	$286
Adjustment for Inflation	$539,425
14 Sites x $539,425	**$7,551,950**

Notes:
Level of effort – uncomplicated
Source: An RI/FS Costing Guide, EPA, 1990
CPI Inflation Calculator (www.data.bls.gov)

Project Scale and Complexity Matters: The size and complexity of impacted media demands innovative management and outreach processes to ensure optimal alignment of cleanup goals with the needs of the installation, tenant organizations, and the community. This required an extraordinary level of partnership and communication. Operable Unit No. 4 includes 13 IR sites and 7 AOIs collectively representing FGGM's industrial area where automobiles, tanks, missiles and heavy guns were maintained and repaired as well as general repair shops and a laundry facility. The challenge involved addressing a large number of sites and one of EPA Region 3's largest solvent groundwater plumes (estimated at over 500 million gallons of water) that impacts FGGM, AOC, PRR and the Town of Odenton. A performance-based contract was awarded in 2009 with the general performance objective of remedy-in-place, response complete and Long-Term Operation/Long-Term Monitoring (LTO/LTM) as needed for the duration of the contract.

Substantial investigations were conducted to determine the architecture of the solvent plume (carbon tetrachloride, trichloroethene and tetrachloroethene), to establish populations at risk, and to develop appropriate remedial action alternatives needed for risk reduction. The size and potential hazards met the National Contingency Plan criteria for a non-time critical removal action and the project switched from remedial to removal authority. An EE/CA was prepared in collaboration with the EPA, MDE, AOC, DOI, affected tenant organizations, and the community; and a decision document was signed in July 2013. Since 2009, bottled water as been supplied to residences in Odenton with drinking water wells as a precautionary measure. The Triad management approach was critical to the successful investigation process as it streamlines the decision making process and reduces costs from extra mobilizations and sampling events. Of special note was the need to install deep monitoring wells using Rotosonic drilling in Odenton because minimizing impacts to residents was an essential mission objective. The Triad management approach and robust public outreach activities (e.g., public notices, meetings with stakeholders, website updates, press releases, newspaper/blog articles, factsheets, direct mailings, and communication with community members) were instrumental to expediting the drilling/monitoring well installation process and gaining community acceptance. The Triad management approach with virtual conferencing and vertical aquifer profiling (sensors advancing in the borehole to give real-time analytical data at depth) brought together real-time information with decision makers, and real-time decisions were made. This accelerated the off-post investigation to the benefit of the Army and the off-post community.



The Team selected aggressive and innovative remedies for the two source areas and the down gradient plume near the installation boundary. As the adjacent illustration shows, two separate source areas were identified and the individual plumes coalesced into a single plume. These technologies will reduce risk more quickly than other approaches considered and reduce the LTM/LTO costs and project life cycle. Building 2276/2286 source area is being remediated by ISCO and LTM, and the building 2250 source area is being addressed by air sparging. The down gradient plume by the installation boundary is being remediated with a large-scale groundwater extraction, filter and injection system with LTM. This will form a front of clean groundwater that will reduce risk to the residents in Odenton. To address the significant consumption of electricity to operate the extraction system for the estimated time of 40 to 60 years, electricity can be supplied by a micro-turbine supplemented with solar panels and batteries to reduce LTO costs. This system would be independent of the existing electrical grid and could be used as a technology demonstration if determined cost effective.

Combining innovative and conventional investigative techniques with remedial practices can be the best approach in risk reduction and restoring the environment while promoting efficient and sustainable use of resources. In the mid-1990s a dump site (Manor View Dump Site) was discovered behind Manor View Elementary school during the construction of the surrounding residential community. Conventional investigative practices (test pits and drilling) with advanced cone penetrometers (CPT) were utilized to detail subsurface conditions. The CPT was used to delineate temperature gradients showing areas of organic breakdown and its associated methane generation. This technology helped establish that only 2 out of the 10 acre landfill were producing methane gas (explosive hazard). This significantly reduced the potential remediation cost and projected remedial life-cycle. This technology can be transferred to other Federal and State agencies in technical documents, so the technologies can be applied at similar landfills in an attempt to precisely discriminate between methane generating and non-methane generating fill material. Approximately 20,000 tons of methane generating trash were excavated and disposed of at a licensed off-post facility. 1940s era artifacts were recovered and evaluated by our Cultural Resource Manager, museum curator, and contractors. Together we created a display of significant items that are used in community events such as Earth Day to illustrate the need to recycle. Approximately 10,000 tons of replacement fill came from on-post sources. Reusing fill has several positive benefits including reduce project cost (importing or exporting fill), reduction of trucking (lower fuel costs, traffic, and emissions thus reducing the project's carbon footprint). The estimated cost for the Manor View Dump Site methane generating trash removal project was approximately $2.5 million. The investigative approach and use of innovative and conventional investigative techniques and remedial practices translated into a saving of approximately $10 million.

Green and Sustainability Strategy

- Apply EO 13514, EO 13423, and other Federal and Army regulations, policies, and guidance
- Purchase environmentally-friendly products and services
- Incorporate Green and Sustainability goals in all applicable contracts
- Reduce number of paper deliverables for all contracts
- Increase electronic deliverables for all contracts
- In agreement with the RAB, our meetings/presentations are paperless
- Paper used has post-consumer content and are from responsible sources
- Double-side work to the fullest extent possible

Manor View Dump Site

Pink = Methane generating waste

Yellow = C&D waste

Aerial View

Original conditions

Excavating buried waste

1940s Era Artifacts

Artistic rendition of restored land

Deconstruction of former Troop Housing Boiler Plant, over 99% recycled!

The Team is always evaluating possible opportunities to reduce our carbon footprint and recycle as outlined in EO 13514 and 13423. In addition to utilizing our electric vehicle whenever possible, we have established a relationship with American Water, who operates the post wastewater treatment plant, to facilitate the disposal of investigative derived waste. Disposing of waste on-post as opposed to trucking it to an off-post disposal facility saves fuel, reduces truck traffic, limits exhaust, and saves the Army money. Our Team also maximizes the recycling potential at all construction sites. The former Troop Housing Boiler Plant groundwater treatment systems, which involved the extraction of separate phase fuel hydrocarbons and treatment of impacted groundwater, was deconstructed this year following regulatory closure. System deconstruction, as opposed to demolition, maximized the amount of material suitable for recycling. Of the total 90.2 tons of material associated with the treatment system, 7.17 tons of steel and 82.59 tons of aggregate were recycled; a recycling rate of 99.5% material by weight. Additionally, 22 tons of concrete were removed and recycled from the uncontrolled dump site (Site Y) in FY13.

"Lean, Mean, and Green" - Paul Fluck, Winner of 2011 Earth Day Quote Contest

The Team's efforts returned 134 acres of land to unrestricted/beneficial reuse sooner than expected. The majority of this land comes from the closure of many PA/SI and AOI Sites through our more robust investigations and use of the innovative Streamlined Risk Assessment Process. The removal of methane generating trash from the Manor View Dump Site and follow-on site restorations at other IRP/MMRP sites has also contributed to the amount of land returned to unrestricted/beneficial reuse.

Through partnerships and communications, our Team has achieved one of the hallmarks of success: positive feedback and lack of negative feedback: The Team devotes a significant amount of time and resources in partnerships and communications ranging from DoD/State Memo Of Agreement (DSMOA), Installation Action Plans, technical meetings and direct communications with stakeholders. We take pride in the exceptional relationships we have created with Federal, State and local regulators and other stakeholders, a product of which, is our exceptional success rate that can only be achieved with a very positive and productive working relationships between the Team and our partners. To date, all parties are in agreement with our cleanup approach and exit strategies. Prime examples include public response to several major projects; Manor View, Operable Unit No. 4, and the PMR. In all the public, installation and regulatory meetings, letters, factsheets and direct communications, no critical or negative feedback has been received. Partnerships have been established with EPA, MDE, AOC, DOI, and the Remediation Advisory Board (RAB) where we engage in regular communications on project status, direction and challenges. To expand public outreach we significantly revised the installation's webpage, published a regular series of articles in the Post newspaper and press releases for RABs and other important activities. The Triad approach involved regulatory/stakeholder participation, systematic project planning, dynamic work strategies, virtual teleconferencing, and innovative rapid sampling/analytical technologies for real-time decision making (e.g., optimized well depths and locations without re-mobilizing to the site). Additionally, cross-functional integration fostered early and sustained communications to synchronize mission objectives and avoided costly and time consuming adjustments (e.g., quick site closures at NSA).

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NATIONAL SECURITY AGENCY
CENTRAL SECURITY SERVICE
FORT GEORGE G. MEADE, MARYLAND 20755-6000

2 March 2012

Colonel Edward Rothstein
Garrison Commander
4551 Llewellyn Avenue
Fort George G. Meade, MD 20755-5000

Subject: Letter of Appreciation for Environmental Office

Dear Colonel Rothstein:

I wanted to take a moment to express my appreciation and gratitude for the dedication shown by Mick Butler, Paul Fluck, and George Knight during the recent effort by Fort Meade to attain concurrence from the Environmental Protection Agency (EPA) on the Preliminary Inspection Site Assessment for the golf course. This concurrence from the EPA was a critical requirement on the path to building the facilities that will ensure the Nation's continued dominance in Signals Intelligence and Cybersecurity.

The Environmental Office's understanding and active guidance to us during this process reflects greatly on the quality of your organization and your workforce. I am confident that with the support of both Fort Meade and people like Mick, Paul, and George the construction projects planned for this area will be a great success.

Sincerely,

Dr. Harvey A. Davis
Director, Installations & Logistics
National Security Agency/Central Security Service

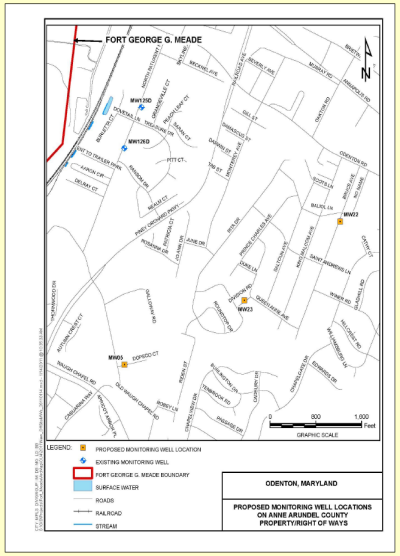
"The Environmental Office's understanding and active guidance to us during this process reflects greatly on the quality of your organization and your workforce." – Dr. Harvey Davis, Director NSA

FACT SHEET

Fort George G. Meade, Maryland
Off-Post Groundwater Investigation In Odenton
February 2013

Overview

The U.S. Army at Fort George G. Meade is continuing its investigation of deep groundwater in Odenton and will be installing a number of monitoring wells in residential areas. This fact sheet provides background information on the groundwater investigation and the upcoming work, as well as the location of the monitoring wells and the estimated schedule.



Investigation Background & Immediate Actions

The Army, in cooperation with the U.S. Environmental Protection Agency, Maryland Department of the Environment, and Anne Arundel County Department of Health, has been conducting an investigation of groundwater in the southeastern portion of Fort Meade (see map to the left).

In June 2009, samples of groundwater taken 200 feet below the ground surface from two Army monitoring wells (MW-125D and MW-126D) at North Patuxent Road and Dovetail Lane in Odenton showed elevated levels of trichloroethene (TCE), tetrachloroethene (PCE), and carbon tetrachloride (CCl_4). These chemicals are industrial solvents used for cleaning and degreasing metals, to dry clean fabrics, and as an ingredient in paint removers, spot removers and pesticides. The chemicals may have originated from Fort Meade.

To ensure alignment with the mission; the Team directly involved appropriate personnel to convey information to ensure mission readiness and situational awareness on a routine basis:

- Bi-monthly Community Council meetings consist of local government representatives, regional business, and civic and educational leaders. Quarterly Environmental Quality Control Committee meetings consist of FGGM tenants, federal/state/local organizations, and infrastructure partners.
- Quarterly FFA meetings include EPA, AOC and DOI. The intent of these meetings is to identify potential risks to milestones and develop alternatives to help ensure they're met.
- GIS database consolidated geospatial and metadata for use on a routine basis by Army planners (e.g., well locations, LUC boundaries).
- Multi-lateral partnerships were developed with Anne Arundel County, AOC, DOI, EPA and DOI specifically to address sites which impacted their property. This resulted in the December 2011 Decision Document (Manor View Dump Site) and the July 2013 Decision Document (Operable Unit No. 4).
- Bi-lateral partnership with MDE lead to a more aggressive remedy and the September 2013 Decision Document for the PMR.

Community Outreach

The Team employed a multi-media approach to communicate with the public and stakeholders including:

- Military munitions training, fact sheets, website updates, data repositories, press releases, articles in local online news outlets, articles in Soundoff (Post newspaper), Facebook updates
- Arbor Day, Earth Day, Family Fun Day, and the Safety Wellness & Resiliency Expo
- Team members also participate in educational outreach with the Society of American Military Engineers including Day with an Engineer, Introduce a Girl to Engineering, and Summer Engineering and Construction Camps


Soundoff!
FEATURE
Trucks move in as Manor View Disposal digs into next phase
CLEANUP TIMELINE
HARD HAT AREA
SIGN IN REQ'D
FEATURE

The most active community outreach/partnering program is the FGGM RAB. Established in April 1995, the RAB which meets every other month is open to the public and includes 11 community members and local, state, and federal representatives. RAB training consisted of educational briefings and remediation site tours. At a RAB member's recommendation, FGGM was included in the Christian Broadcasting Network documentary on methane gas as a success story. The overall sense of the community is trust and respect which has spilled out into other IR & MMR projects and will long outlive the current projects.

Earth Day 2013 Photos




"Fort Meade isn't about the fence line; it's about the community,"

-COL. Edward C. Rothstein Garrison Commander, SoundOff! March 28, 2012

1940s era artifacts found at the Manor View Dump Site displayed at the 2012 Earth Day celebration help identify a new site (Site Y): FGGM's celebration of Earth Day 2013 was broadcast on local TV and included interviews with the Team showcasing artifacts uncovered during the Manor View Dump Site removal project. Garrison personnel, while viewing the items, discussed with the Team an area where similar items were seen. A site inspection by the Team uncovered a previously unknown uncontrolled dump site named Site Y. Remediation at Site Y was completed with 3,674 tons of soil/debris removed with 22 tons of concrete recycled.

Site Y


Earth Day Interview with Team


Removal of dumped piles of soil and debris


Loading soil and debris


Site Y Removal Complete

Army Civilian Core Creed:

- I am an Army Civilian - a member of the Army Team
- I am dedicated to our Army, our Soldiers and Civilians
- I will always support the mission
- I provide stability and continuity during war and peace
- I support and defend the Constitution of the United States and consider it an honor to serve our Nation and our Army
- I live the Army values of Loyalty, Duty, Respect, Selfless Service, Honor, Integrity, and Personal Courage
- I am an Army Civilian