



FY 2013 SECRETARY OF DEFENSE ENVIRONMENTAL AWARD JOINT EXPEDITIONARY BASE LITTLE CREEK-FORT STORY ENVIRONMENTAL QUALITY, NON-INDUSTRIAL INSTALLATION



Introduction On 1 October 2009, Hampton Roads' first Joint Base, Joint Expeditionary Base Little Creek-Fort Story (JEBLCFS), was established. JEBLCFS comprises former Naval Amphibious Base Little Creek and former Army Garrison of Fort Story (Figure 1). As the major east coast operating base supporting Overseas Contingency Operations, the mission of the base is to "contribute to maximum military readiness by providing sustained superior service."



JEBLCFS provides support services to 132 shore-based resident commands, 30 home ported Navy and Auxiliary ships. Consisting of 3,838 acres with seven-and-a-half miles of beachfront training area, 1503 facilities, and 61 piers, the base employs 21,914 military and civilian personnel. It is the only bare-beach JLOTS (Joint Logistics Over-The-Shore) training site within DOD; the only east coast Advanced Explosive Ordnance Disposal Training facility; and supports nearly all Navy Special Warfare training requirements.

requirements.

Located in Virginia Beach, Virginia, JEBLCFS lies within the Chesapeake Bay watershed (Figure 2). Little Creek Harbor is a 470-acre tidal estuary of the bay, serving as a wildlife habitat and pollutant filter. Riparian forest and dune systems, critical to coastal ecosystems, are found on JEBLCFS. The base and surrounding community area are used for industrial, recreational, commercial, and residential purposes. Terrain within and adjacent to the facility is low-lying and relatively flat, containing freshwater lakes and saltwater bodies. JEBLCFS is adjacent to the Atlantic Ocean and Chesapeake Bay, substantial sources of recreational opportunities and commercial industry. Chesapeake Bay is North America's largest and most biologically diverse estuary. Commercial and recreational fishing are vital activities in the area.

Background Environmental protection is an integrated, ongoing, critical part of the installation's mission; environmental staff ensures protection of resources and compliance with regulatory permits to keep training sites and facilities fully operational at all times. The need to stay in compliance is accentuated by the installation's location in an environmentally-sensitive area.

The Environmental (EV) Division is part of JEBLCFS Public Works Department; the Director works directly for the Public Works Officer (PWO).

The EV Division Director communicates routinely with senior leadership, including the Base Commander, on critical environmental issues. EV Division staff consists of a Director; one Environmental Protection Specialist (EPS), Team Leader; three EPS team members; and one Natural Resources Specialist (NRS). Environmental permits are centrally managed by the Hampton Roads' EV Core staff (located in Norfolk), while the EV Division interfaces with resident commands' operational process owners.

Integrating the compliance requirements for the 1,458 acres and 253 facilities at Fort Story into the Joint Base was a significant challenge. To ensure success, the staff spent much time surveying the post and meeting with Army counterparts and regulators to transition permits and programs to the Navy. Another challenge was ensuring program excellence with few installation personnel. Risk management and attention to detail were employed to ensure compliance while maximizing the efforts of a small staff. The base has a fully-conforming Environmental Management System (EMS). After our External Audit, the Base was able to immediately re-declare ISO 14001:2004 conformance.

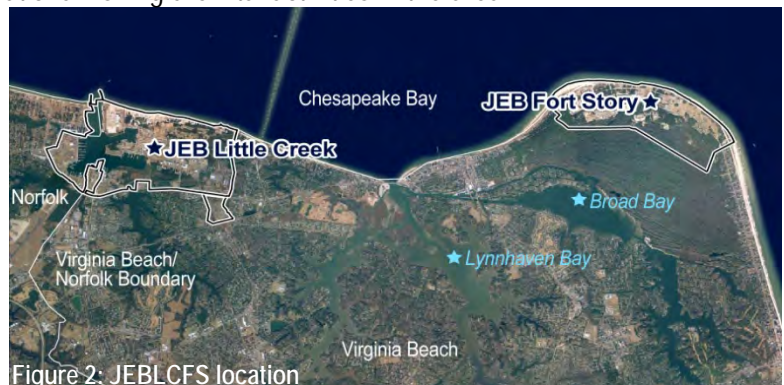


Figure 2: JEBLCFS location

During the award period, the installation has enjoyed many partnerships with the community and resident commands:

- Continued "Operation Turtle" to prevent approximately 100 turtles each year attempting to cross Shore Drive (a major roadway) which is adjacent to base. This is an ongoing partnership with City of Norfolk, the Fix-It Foundation, and various local businesses.
- Coordinated Construction Battalion Maintenance Unit (CBMU) 202, Port Operations, Safety, MWR and Training Department volunteers, along with base residents and employees to move 1,417 Christmas trees to sand-fenced areas to collect sand and stabilize dunes in January 2012 and 2013 (*Figure 3*).
- Conducted Earth Day celebrations, attended by over 100 children at the Youth Centers, through efforts of Morale Welfare and Recreation, and Recycling staff volunteers.
- Executed annual Clean the (Chesapeake) Bay Day with Base staff and community volunteers collecting in excess of 12,000 lbs of trash by over 400 volunteers.
- Extended US Fish and Wildlife Service Memorandum of Understanding (MOU) providing cost-free beach patrolling for endangered sea turtles. Two Atlantic Loggerhead nests were found and 247 eggs were removed for hatching.
- Received two Hampton Roads Sanitation District (HRSD) Pollution Prevention Partner Awards.
- Continued partnership with Shelton Park Elementary School in FY2012 and 2013 which has allowed students to grow oysters in floats on our Oyster reef, and monitor the oyster growth monthly throughout the school year.
- Worked with Virginia Department of Forestry and Arbor Day Foundation for 16th Tree City Award.
- With Partners EPA and Virginia Department of Environmental Quality (VDEQ), our Restoration Advisory Board (RAB) is fortunate to have two community members serving for over 18 years.



Figure 3: CBMU-202 loads Christmas trees onto back of MTVR

Significant plans and agreements:

- Drinking Water Bacteriological Plan, Jan 2009
- Disinfectant By-Product Plan, July 2006
- Environmental Management System (EMS) Document Library, continually updated
- Hazardous Material, Hazardous Waste, Minimization & Disposal Guide, Revised February 2013
- Hazardous Waste (HW) Contingency Plan, August 2012
- HRSD Pretreatment Device Management Plan, JEBLC Revised August 2012; JEBFS Revised July 2013
- Integrated Natural Resources Management Plans (INRMP), April 2011, Updated in 2013
- Internal Assessment Plan (IAP), October 2012
- Oil Discharge Contingency Plan/Facility Response Plan, December 2011
- Pest Compliance and Pest Management Plan, Revised April 2011
- Pollution Prevention Plan, Revised April 2013
- Regional Clean Air Compliance Guide, Revised December 2010
- Regional Spill SOP, Revised August 2012
- Spill Prevention Control and Countermeasure (SPCC) Plan, JEBLC September 2013; JEBFS August 2013
- Storm Water Management Phase II Plan, Revised September 2011
- Storm Water Pollution Prevention Plan (JEBLC and JEBFS), Revised July 2013
- Record of Decision for Remediation (ROD) of site 7b, 19 September 2013
- 5 Year Environmental Restoration Plan, JEBLC April 2013; JEBFS October 2013

Awards:

- FY2012 SECNAV Gold and FY2013 Platinum level of achievement, Energy and Water Management Awards.
- FY2012 and FY2013 Commander Navy Region Mid-Atlantic Community Service of the Year Award (Environmental Stewardship).
- 2013 Governors Environmental Excellence Award for Sustainability.
- 2013 Humane Society of the United States Humane Wildlife Stewardship Award, for our partnership, and successful efforts of "Operation Turtle".
- 2011 and 2012 HRSD Outstanding Environmental Compliance Awards: JEBLC - Silver and JEBFS - Gold.

Program Summary JEBLCFS's program consists of an active ISO 14001:2004-compliant EMS program, execution of a Sustainment Study to identify base-wide goals, use of a Cross-Functional Team to meet sustainment goals, and Natural Resource conservation.

The program was **initiated** to meet Navy and Executive Order goals and improve regulatory compliance. The objectives of the environmental management program are to achieve compliance and protect human health and the environment while supporting the military mission. EMS indoctrination training is required for all personnel working on base and a wallet-size EMS "green card" with our Environmental Policy Statement (*Figure 4*), Significant Aspects, and Objectives is carried by our employees. As members of the EMS Cross-Functional Team, we work toward improvements in recycling, building construction, and green purchasing while protecting natural resources and reducing toxic chemical use, energy, and resource consumption.

The **primary benefits** of the program are that we are continuing to have a successful environmental compliance inspection program while protecting human health and the environment and reducing our carbon footprint and operational costs.

The **keys to our success** are leadership focused on environmental protection and goal attainment; effective educational programs; execution of a sustainment study; and incorporation of sustainment goals into future construction and training plans.

The **objectives** of the environmental management program are to achieve compliance and protect human health and the environment while supporting the military mission. Our EMS provides us with a tool to incorporate risk management in daily work and focus on our significant aspects and objectives. Significant aspects are Hazardous Waste, Spills, and Tank Management; their respective objectives are reduce waste generation & improve management; reduce number & quantity of spills by 20%; and improve tank compliance.

JEBLCFS had 9 federal, state and local agency inspections during the award period; all inspection reports had **zero** discrepancies.

Accomplishments:

EMS Our EMS is reviewed and updated on a bi-monthly basis for all Hampton Roads installations through a regional Environmental Quality Management Board (EQMB). The EQMB sets objectives and targets which are discussed and approved by environmental managers. Success is tracked and published for EQMB members and chain of command use.



Figure 5: Marine uses shop EMS references

Using a Plan of Action and Milestones (POAM) to correct Internal Audit (IA) findings, these findings were communicated to the EQMB as lessons learned for other installations and changes were made to Internal Assessment Plans to ensure specific inspections were carried out in the Hampton Roads area to correct deficiencies before they became findings during regional regulatory inspections and IAs. Following the External Audit, JEBLCFS authored "Lessons Learned" briefing for Navy Region Mid-Atlantic to assist installations in improving their EMS. This brief has been exported to other Navy Regions.

Stakeholders at all levels are involved in the EMS process to address significant aspects (*Figure 5*). In addition to soliciting improvement ideas from the PWO and base front office during monthly meetings, we partnered with the Virginia Aquarium to design four interpretive signs educating beach patrons on the Chesapeake Bay, beaches, dunes, and aquatic sea life. Our Transportation Group is incorporating energy efficient vehicles and fuels into the fleet; we currently have 154 ethanol 85 flex fuel, 11 hybrid, 5 electric, and 2 natural gas vehicles. Additionally, we work closely with Recycling to maximize recycling opportunities. Feedback from classroom and on-the-job training is incorporated for process improvement and all personnel are required to complete EMS training. The installation environmental policy and EMS goals are distributed on a weekly basis, published in the Plan of the Week, and are "advertised" on electronic reader boards at the entrances to our properties.

The NAVFAC MIDLANT Cross-Functional Team addresses hazardous material usage, transportation, energy, recycling, and pollution prevention throughout the Mid-Atlantic Region. Respective committees work independently on Executive Order (EO) 13423 and 13514 goals then report progress to the regional group which is led by the NAVFAC MIDLANT



Figure 4: "CARE" logo

Executive Officer. Bi-annual meetings are attended by MIDLANT PWOs, DPWOs, Regional Solid Waste, Transportation, Energy and Pollution Prevention Managers, and EV Directors.



Figure 6: EMS “Green Card”

Using a business card template, 20,000 “Green Cards” containing EMS “CARE” slogan, significant aspects, objectives, targets, spill, and EMS training information were disseminated base-wide (Figure 6). CARE brochures and posters are posted at pass offices and work areas. Classroom training was held for 2,274 personnel on EMS, SPCC, and spill reporting.

The positive impact of our EMS is demonstrated by an outstanding compliance record and increased awareness. Spills, regardless of size, and other environmental issues, such as marine mammal strandings, are readily reported as personnel know why

they are required to report and how such data can help us improve our program.

Waste Reduction Efforts The EV staff manages a total of 11 permits from VDEQ and HRSD and conducts oversight inspections of tenant commands to ensure permit compliance. All inspections are entered and tracked utilizing EMSWeb for immediate review by Core and installation EV staff for problem identification and trend analysis. Our inspection records are kept for a period of 5 years; backup hardcopies of inspections are meticulously maintained and organized by media for regulator viewing.

JEBLC invested \$2.1M to improve 19 waste water facilities; work consisted of upgrades, lift station repairs, and lining 5,200 linear feet of sanitary piping. Overall, 80% of 115,560 linear feet of piping at JEBLC has been lined in an effort to meet infiltration and inflow elimination goals.

The steam plant uses reverse osmosis (RO) technology; the RO system purifies potable water to reduce tube fouling, increase boiler efficiency, and decrease boiler run time. Waste water disposal costs are lower since feed water demineralization and associated chemicals are eliminated. The system also recycles process water throughout the plant for boiler make-up; process water is discharged to storm system, significantly reducing the volume of wastewater sent to the sanitary sewer system. Water reuse and other new steam system plant efficiencies reduce consumption by as much as 1 million gallons per year. Conversion of the steam plant from coal to natural gas reduced air emissions by 511 tons. Most significant reductions include 154 tons of nitrogen oxide, 278 tons of sulfur dioxide, 67 tons of particulates, 99% reduction in lead and 100% reduction in ammonia. Steam distribution system improvements account for a 172 billion BTU reduction in annual fuel consumption.

Hazardous Waste (HW) manifested for offsite disposal continues to decline. Through the use of pollution prevention, such as hazardous material control and waste minimization, a 63.2% reduction in off-site routine HW disposal was achieved since 2007 with 58% reduction in disposal costs and cost-avoidance of approximately \$254K (Figure 7).

A recycling program was instituted to collect waste amalgam from dental work. Amalgam consists of 50% mercury with the remaining 50% comprised of silver, copper and tin. This program avoids disposal costs of \$35,000 per year while reducing solid waste generation.

Our Recycling Program consists of the collection, segregation and sale of scrap metal, aluminum cans, cardboard, paper, antifreeze, concrete and construction debris, lead-acid batteries and other commonly recyclable items. Executive Order 13514 set a goal to divert 50% of solid waste by the end of 2015. JEBLCFS has an average diversion rate of 43% for the past four years, with a realized cost savings of \$959,596. In 2012, the program utilized a metal contractor to recycle 200 tons of steel shot blasting media, diverting material from the landfill and saving the government over \$16K in disposal costs. In another project, 265 tons of concrete and one ton of rebar was recovered and recycled saving \$9,500 in tipping fees.

Navy policy directed storm water low impact development (LID) be incorporated into new construction projects by 2011; JEBLCFS exceeded this goal by creating 9 LID sites prior to 2008. During FY 2012 and 2013, fifteen sites were added for a total of 76 sites collecting 57 acres of runoff.



Figure 7: Hazardous Waste disposal in pounds (LBS)

In FY13 a newly-constructed facility named after LT Carl Milford Olson, was certified LEED Platinum, the 28,330 square foot building contains two firsts for Little Creek: (1) rainwater harvesting; and (2) photovoltaic cells. Rainwater collected from the roof is piped to an 8,000 gallon cistern and then piped back into the building to flush toilets and urinals. Renewable energy using photovoltaic cells provide approximately 6% of the building's energy cost. The project implemented a storm water management plan that results in no net increase in runoff from (calculated pre-project conditions) for 1- and 2-year, 24-hour storm events using 45,000 square feet of pervious pavers. The buildings' energy usage has been minimized to achieve an energy cost savings of 31.7%. Low-emitting adhesives, sealants, paints, and carpets were used for better indoor air quality. 75% of occupied spaces have day lighting.

Our Storm Water Pollution Prevention Committee meets annually to discuss Best Management Practices and to address resolutions of newly-identified pollution issues. JEBLCFS adopted a policy to purchase drain inserts and absorbent socks; these items are strategically placed around the installation to reduce non-point source discharges in high-pollution areas.



Figure 8: Straw bales serve as water filters on drydock

A drydock feasibility study was conducted to determine the source of elevated copper and zinc levels in storm water discharges; our permit requires wastewaters meet discharge limits by 2013. Identifying potable water as the culprit, patented Navy filtration technology will be implemented by the end of 2013. Keeping the drydock operational is critical for vessel maintenance support (*Figure 8*).

Protecting human health and the environment is at the forefront of all decision making when remediating our 14 environmental restoration (ER) sites. The assessment of vapor intrusion at Site 11 and Site 13 demonstrates JEBLCFS's commitment to assuring employees of buildings within and adjacent to the sites are not exposed to contaminants associated with the underlying groundwater plume. Vacuum canisters collected air samples in offices, classrooms, and shop areas and data proved employees were not at risk. In another

study, we conducted additional sampling at Site 11a for pentachlorophenol (PCP) to more clearly define contamination risk. PCP was not detected in site samples, resulting in an overall decrease in the footprint of the area requiring remedial action and eliminating associated costs. All ER sites will be construction complete by mid-2014.

Environmental Compliance Assessment and Management Program

The EV staff utilizes 41 media-specific checklists to cover requirements of federal, state, and local regulations. Four EPSs are responsible for overseeing permits pertaining to day-to-day operations; the staff consistently conducts and documents all compliance inspections into EMSweb, which total 5404 inspections annually, as prescribed by our IAP. Related findings are discussed monthly to prevent recurrence. JEBLCFS resolves 98% of all findings quarterly and has a less than 1 percent repeat finding rate. During our last External Audit, auditors recognized 10 outstanding practices; most significant was resident command awareness: 91% of personnel surveyed had knowledge of the base's EMS. To foster environmental excellence throughout the base we have incorporated methods such as hands on training; consistent and concise communications; weekly site visits; and 20,000 EMS "Green Cards". We provide solutions to overcome problems that may impact the installations permits and compliance. Regulated compliance points, such as HW Accumulation Areas, wash racks, oil water separators, paint spray booths, firing ranges, solvent tanks, and fuel storage tanks are routine inspection areas. These inspections allow the Navy to identify and resolve compliance issues prior to an inspection by a regulatory agency, thus preserving the ability of the commands on base to perform their respective missions.

On a quarterly basis, program managers and installation environmental staff review all compliance findings, conduct root cause analysis, problem solving, and perform risk assessment of compliance point inventories. As POAMs are identified to correct compliance deficiencies, resident commands are briefed on the issue and recommendations for long-term corrective action. This chain of events affords EV staff the opportunity to interface closely with commands and allows commands to take ownership of their environmental compliance.

As a result of its outstanding compliance record, JEBLCFS enjoys a positive relationship with its regulators. Working closely with VDEQ, we have negotiated the storm water permit from an individual to a general permit by removing operations not discharging to "waters of the state"; thereby, reducing laboratory and permit fees by \$6K annually.

Budgeting is done through EPRWeb exhibit submittals. In FY12, in addition to regional projects, the base invested \$861K in labor, compliance, and natural resources projects; in FY13, \$923K was invested. These funding amounts are adequate to meet Common Output Levels.

To provide a “how to” for our customers, Air, HW, and Explosive HW Guidebooks are in use to define local environmental policies, guidance, and operational procedures, including standardized compliance procedures and recordkeeping forms for air equipment and HW Accumulation Area operators. These have been standardized across five installations in Hampton Roads so personnel transferring from one local base to another know to follow the same procedures. To prevent storm water pollution, control nuisance animals, and keep the base litter free, we have designed and installed decals on all trash dumpsters instructing personnel to “Keep critters out and litter in” (*Figure 9*). The 600 signs reinforce our EMS Program while serving a practical purpose to meet program goals.

We use standard, permanent HW Accumulation Area and drum storage area signs, which are easily seen and can be relocated when not needed, to reduce the need to replace worn or damaged paper signs. A similar signage program is used at deep sinks reminding personnel that chemical and paint disposal in the sinks is prohibited.

Classroom and on-the-job training is conducted for commands and ships, covering general and media specific subjects. We have conducted training for 10,678 sailors, marines, and soldiers. Training is also completed online through the Environmental Compliance Assessment, Training, and Tracking System (ECATTS).

We manage 34 oil water separators and numerous sanitary sewer pretreatment devices. To ensure proper operation, Pretreatment Device Management Plans and self-assessment inspection checklists were developed. Based on a sound compliance record, we negotiated monitoring frequency reduction at all waste water sampling locations resulting in annual analytical savings of \$9K.



Figure 9: Soldier thumbs up to EMS dumpster policy

In support of the construction program, environmental staff reviewed 29 construction designs for environmental compliance criteria, attended 310 preconstruction meetings, and held two training sessions for Construction Managers and Engineering Technicians. We created a Pre-Construction Conference Checklist to provide contractors with work site environmental requirements; this checklist was exported for regional use. Storm water instructions were developed to define requirements relating to erosion and sediment control, construction permitting, and post construction Best Management Practices (BMPs). This increased communication reduces the potential for illicit discharges to sanitary and storm systems. Construction site inspections are conducted quarterly to minimize pollutants entering state waters via improper environmental controls.

Effective Use of Funds The EV Division partnered with US Fish and Wildlife Service to develop a MOU for cost-free patrolling of JEBFS beaches for endangered sea turtles. This MOU saves approximately \$30K annually in Navy labor dollars and provides removal of discovered turtles without costly military training mission disruption.

To meet EO 13514 goal of a 30% energy reduction by 2015, energy conservation audits were conducted on 200 facilities to realize a 48% reduction in energy intensity compared to 2003 baseline (*Figure 10*). Overall, energy reduction is already at 52% base-wide surpassing the EO 13514. During this award period JEBLCFS received the Platinum Level Energy Management

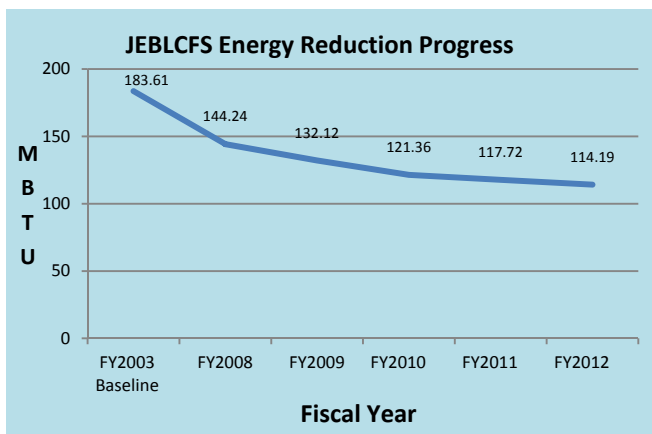


Figure 10: Energy reduction in Million British Thermal Units (MBTU)

Award.

As a Natural Resources project, with a cost of only \$10K, the base installed shells to act as habitat for the naturally-occurring Virginia Oysters in Little Creek Cove. This reef supports the Chesapeake Bay 2000 Agreement to increase oysters - which serve as filters - and improve water quality. Thousands of dollars in transportation and labor dollars were saved as Port Operations and PHICB 2 moved the shells to the permitted location as part of a training evolution. The

oyster reef installation was covered by local media and is being used by a local elementary school for an annual science experiment (*Figure 11*); thus, the reef was a sound investment paying immeasurable dividends in positive public relations.

Partnering with volunteers saved over \$50K in labor and equipment for dune planting and Christmas tree recycling. Thus far effective ER partnering with EPA and VDEQ, reuse of available resources, and use of green technology resulted in expedited site clean-ups; 1,864 acres were released to the installation for reuse and \$1.7M in savings were realized. The following documents were signed during the award period: one ROD; three Interim Remedial Action Completion Reports; one Remedial Action Completion Report; two Action Memorandums; one Time-Critical Removal Action; and the 5-Year Environmental Restoration Plan. Consumer Confidence Reports and Bacteriological Sampling Plans were completed in-house saving \$35K annually.

Community Relations As described above, JEBLCFS participates in many local and regional outreach initiatives including Earth Day celebrations at Youth Centers and base exchanges, Arbor Day/Tree City USA at Child Development Centers, Clean the (Chesapeake) Bay Day, National Public Lands Day, Partnership with Shelton Park Elementary School and Restoration Advisory Board meetings. In 2012 and 2013, approximately 400 volunteers participated in Clean the Bay Day and collected over 12,000 pounds of trash onboard JEBLCFS.



Figure 11: Children from Shelton Park Elementary count oysters

NEPA The CNRMA Site Approval Process (COMNAVREG MIDLANT INST 11011.11) mandates completion of all NEPA requirements before site approval can be granted. As part of the planning process an Environmental Checklist (EC) is prepared for each proposal. This checklist is routed to all media and NEPA experts to determine required level of regulatory permits and NEPA for the proposed action. Training evolutions must also meet EC and NEPA requirements. During the award period, 154 ECs were completed and 148 Records of Categorical Exclusion were signed.

The EC process provides compliance media and natural and cultural resources managers the opportunity to preview an action, perform a site visit and look for ways to avoid environmental impacts while the project is in planning stages. As such, the EC checklist provides an avenue to avoid and mitigate environmental impacts early and avoid potential costs associated with those impacts. Looking for ways to become a sustainable installation, as directed in EO 13514, in 2012, JEBLCFS finalized a pilot program to study and test the methodology for developing a sustainability program which has been exported to benefit other DOD installations. Energy, Green Building, Socioeconomics, Water, Ecosystem Services and Transportation were focus areas. Baseline data was developed for these focus areas and goals set using respective federal mandates. This study is being used to incorporate conservation of resources and pollution prevention into current and future base construction and operations.

Two Environmental Assessments (EAs) were under development during the award period. For EAs, public notification is conducted via agency consultations with the State Historic Preservation Officer, VDEQ, and US Fish and Wildlife Service. A Notice of Availability of a Finding of No Significant Impact (FONSI) is published in the local newspaper. There are no federally recognized tribes in Virginia; thus, no specific outreach is made to Native Americans.

NEPA documents are reviewed for quality and use of concise, direct language. Both a Statement of Technical Review and a Legal Sufficiency Review are completed before NEPA documents are forwarded to the region for FONSI approval. After project completion, facilities become part of the installation Internal Assessment Plan and inspections for new equipment are carried out in frequencies prescribed in applicable permits. Any natural resources mitigation sites, such as wetland areas, are added to the INRMP and monitored for success in accordance with permit requirements.