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National Nuclear Security  
Administration

FY 2013 PER

Babcock & Wilcox Technical  
Services Y-12, LLC  
Performance Evaluation  
Report

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**NNSA Production Office**  
**Y-12 Nuclear Security Complex**  
**Performance Period:**  
October 2012 – September 2013

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**December 24, 2013**

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**APPROVED FOR PUBLIC RELEASE**

This document has been approved for release to the public by:

**Name / Title:** Scott A. Hawks, NPO Y-12 Classification Officer  
**Date:** 12/31/2013

## Executive Summary

This Performance Evaluation Report (PER) provides the assessment of Babcock & Wilcox Technical Services Y-12, LLC (B&W Y-12) performance for the period of October 1, 2012 through September 30, 2013, as evaluated against the objectives defined in the Fiscal Year (FY) 2013 Strategic Performance Evaluation Plan (PEP). The National Nuclear Security Administration (NNSA) Production Office (NPO) took into consideration and consolidated all input provided from NNSA functions both at Headquarters and in the field. The five basic Performance Objectives (POs) in the PEP will be graded using adjectival ratings as described in the Federal Acquisition Regulation (FAR). Comments on the performance of each Contributing Factor (CF) and Site Specific Outcomes (SSO) under each PO identified in the PEP are provided as well.

PO-1: Nuclear Weapons Missions (27% of At-risk fee) was rated as VERY GOOD for B&W Y-12 during this period. Consistent with NNSA's FY 2013 'Getting the Job Done' list, B&W Y-12 exceeded W76-1 LEP at 102%, Dismantlement at 105%, and Disposition at 153% despite receiving an unexpected \$15M reduction in Stockpile Services funding. Expectations were exceeded in the Material, Recycle, Recovery (MRR) and Storage Programs through improvements in MRR microwave caster, upgrades to non-MAA storage facilities, and exceeding the 2013 goal for consolidating, repacking, and shipping U-Zr material. B&W Y-12 exceeded all Level 2 stockpile systems surveillance (119%) milestones that led to accomplishing lifetime estimates and lifetime assessments for future LEPs. Container performance was at 110% despite continued recovery from the DT packaging foam insert issues (non-compliant manufacturing foam). Deliverables for the B61-12 LEP, W78/88-1 Study, and the W88 ALT 370 were all met. B&W Y-12 contributed to the various reporting requirements throughout the year, including schedule and risk information for the Integrated Master Schedule, CAPE reviews, cost and study information associated with the option development and feasibility studies, and Quarterly Program Reviews. B&W Y-12 also met stockpile strategy expectations by providing critical aging information on legacy and potential replacement materials to make informed decision on long-term material/component behaviors including lifetimes.

PO-2: Broader National Security Mission (8% of At-risk fee) is rated as VERY GOOD. B&W Y-12 exceeded most expectations for execution of the broader national security mission work in accordance with NNSA priorities, program work authorizations, and required deliverables, for Defense Nuclear Nonproliferation (DNN), Naval Reactors (NR), Work for Others (WFO), and emergency operations and counterterrorism missions. B&W Y-12 effectively integrated the broader National Security mission work across the site and within the plant production schedule, while helping to ensure critical skills and capabilities were maintained to meet current and future NNSA missions. Programs were consistently managed within schedule and budget. The Complementary WFO Program continued effective use of B&W Y-12's unique capabilities and critical skills in support of other national security needs and B&W Y-12 received an R&D 100 Award for semiconductor radiation detectors. There were significant achievements supporting NA-21 programs including the Reactor Convert, Material Return and the Alarm Response Training (ART) Programs. B&W Y-12 supports the high-density low-enriched uranium (LEU) foil target and accelerator with LEU fission technology development within GTRI's Molybdenum-99 (Mo-99) Program. While Y-12 demonstrated creative problem-solving efforts and made significant progress in advancing the overall Reactor Conversion Program mission, several issues negatively impeded the Program and Y-12 failed to successfully meet some of the program's critical path activities. B&W Y-12 developed and demonstrated new production processes for uranium research reactor fuels to convert from highly enriched uranium (HEU) to LEU for the next-generation nuclear reactors. Y-12's unique expertise was used throughout the

year to execute enriched uranium supply and return projects, including HEU returned from France, Italy, and Canada and supplying LEU in support of NNSA's agreements and contracts with foreign governments. In addition, B&W Y-12 completed associated deliveries on schedule to support the Fissile Material Disposition HEU down-blending contract requirements, produced and shipped HEU feedstock for the Naval Reactor fuel program ahead of schedule, and supported NA-25's Transportation Security and Sustainability Projects, and Performance Testing Workshops.

PO-3: Science, Technology & Engineering (ST&E) Mission (2% of At-risk fee) was rated as EXCELLENT. During the rating period, B&W Y-12 effectively executed and exceeded expectations in the Science, Technology, and Engineering mission at Y-12. The FY 2013 Plant Directed Research and Development (PDRD) portfolio of projects was aligned with technology focus areas of the Y-12 Technology Roadmap. Several PDRD technologies continue to hold promise to transform future Y-12 operations. Potentially transformative technologies for uranium processing include Direct Electrolytic Reduction (DER) and Electro Refining (ER); for lithium processing, Thermal Decomposition & Distillation (TDD) and "Oxypeal;" and for manufacturing, Additive Direct Manufacturing. The PDRD program exceeded its goal by advancing 15 technologies to other programs. The PDRD program was well managed and met the FY 2013 Guidance provided by NA-124. B&W Y-12 submitted 51 invention disclosures in FY 2013.

PO-4: Security, Infrastructure, Environmental Stewardship, and Institutional Management (53% of At-risk fee) was rated as SATISFACTORY during this period. This Performance Objective encompasses most of the mission support areas to include Security, Safety (nuclear and non-nuclear), Business, Information Technology, Facility and Infrastructure, Environment and Health, Projects, Quality Assurance, and Contractor Assurance. While B&W Y-12 continued to make strides recovering from the security event late in FY 2012, a number of events occurred over the last year requiring management attention. The Emergency Management function has performed well. The major line item projects are progressing. The overall performance of the Uranium Processing Facility (UPF) project has shown improvement but problems with design processes continue. Y-12 Business, IT and Legal functions have operated effectively and the contractor was responsive to the major funding challenges throughout the year. B&W Y-12 implemented safety programs as well as an effective Quality Assurance Program. B&W Y-12 aggressively worked towards reducing the risks associated with an aging infrastructure, improved the reliability of the power distribution system and exceeded the facilities cost reduction goal for FY 2013. Their Engineering and Nuclear Safety programs effectively supported operations and implemented several initiatives that promoted improvements in quality, effectiveness and efficiency. B&W developed and are utilizing a very thorough Contractor Assurance System (CAS) program that provides a comprehensive self-critical plant-wide analysis. Overall, B&W Y-12 has done a satisfactory job identifying issues and developing corrective action plans while maintaining and executing normal day-to-day plant-wide operations.

PO-5: Contractor Leadership (10% of At-risk fee) Contractor leadership (10%) was rated SATISFACTORY for B&W Y-12. Throughout FY 2013, B&W Y-12 demonstrated leadership supporting the current NNSA mission direction, responding appropriately to issues and sought opportunities for continuous internal improvement backed with their parent company's commitment. Y-12 leadership reacted well to many challenges over the past year including the impacts of a delayed contract transition. They led various collaboration efforts with other sites, especially the Pantex site. Further facilitating an improved culture of accountability, B&W Y-12 utilized a Contractor Assurance System, which through reporting captures their comprehensive self-critical analysis of many of the plant-wide functional areas. B&W Y-12 performed well, absorbing the former government G4S contract, a 500+ protective force personnel organization in a compressed timeframe. UPF had a challenging year; improvements were noted as the

year progressed in several areas but problems in configuration control of design criteria and estimate validity continue to impact the project despite significant government interaction to highlight these issues. B&W has continued to strengthen the project team with the reassignment of additional highly experienced off project resources.

## Performance Objective 1: Nuclear Weapons Mission

### Narrative Summary

B&W Y-12 exceeded W76-1 LEP at 102%, Dismantlement at 105% and Disposition at 153%, despite receiving an unexpected \$15M reduction in Stockpile Services funding. B&W Y-12 exceeded expectations in the MRR and Storage Programs through improvements in MRR microwave caster, upgrades to non-MAA storage facilities, and exceeding the 2013 goal for consolidating, repacking, and shipping U-Zr material. B&W Y-12 met high priority W78/88 and B61-12 LEP activities and deliverables within budget profile, scope, cost and schedule along with conducting the B61-12 critical, limited-scope analysis on CSA special materials. B&W Y-12 also met expectations in support of NA15 Task Agreements required deliverables for agreed scope, cost, and schedule.

**EOY Adjectival**

**Very Good**

All Level 2 surveillance (119%) milestones for the W76-1, W76-0, W87, W88, W78, B61, W80, and B83 stockpile systems were exceeded in accordance with directive documents and within site budget allotments that led to accomplishing lifetime estimates and lifetime assessments for future LEPs. B&W Y-12 completed enhanced surveillance program activities within scope, cost and schedule and container deliveries were at 110% despite continued recovery from the DT packaging foam insert issues (non-compliant manufacturing foam). The foam issue necessitated the involvement of senior management overseeing corrective actions to address this problem. With approval from NNSA, funds from new packaging design/development projects funded the corrective actions which significantly affected the Container Program budget at Y-12. The cost of correcting foam insert issues impacted certification work schedule/costs, which resulted in reprioritization of packaging certification activities from other NNSA mission work to support DT Container recovery activities/plans. During this rating period, new packaging projects design/development (DPP-1 and DPP-3) were put on hold and the scope, cost, and schedule for these projects were not met.

B&W Y-12 met the deliverables for the B61-12 LEP, W78/88-1 Study, and the W88 ALT 370 by contributing to the various reporting requirements throughout the year, including: schedule and risk information for the Integrated Master Schedule, CAPE reviews, cost and study information associated with the option development/feasibility studies, and Quarterly Program Reviews.

B&W Y-12 provided critical aging information on legacy and potential replacement materials to make informed decision on long-term material/component behaviors including lifetimes.

Requirements to strengthen Science, Technology, Engineering, and Mathematics (STEM) capabilities and skills in FY 2013 through the sustainment of the Uranium Sustainment program, deploying multi-mission essential capabilities in critical production facilities and by maintaining at least 95 percent facility availability in critical production facilities were met. There was also extensive collaboration with the physics design agencies as well as the United Kingdom on new capabilities and production technologies. B&W Y-12 exceeded expectations by proactively completing and implementing NNSA phase gate process requirements support of active and future LEPs. The Y-12 Lockout/Tagout (LO/TO) program has matured significantly through senior management leadership and process changes. The changes instituted this year in the Y-12 critique process were a good start on improving the plant's overall abnormal event investigation process.

B&W Y-12 met the FY 2013 deliverables and completed several initiatives to improve production operations and implement program efficiencies. They provided necessary schedule information for the B61-12 Integrated Master Schedule and Selective Acquisition Report on time.

B&W Y-12 actively participated in W78/88-1 option development and feasibility assessments. They prepared for and briefed at Quarterly Program Reviews and Nuclear and Non-nuclear System PRT meetings adequately in FY 2013. No significant issues were identified.

## Performance Objective 2: Broader National Security Mission

### Narrative Summary

Y-12 supported the high-density LEU foil target and accelerator programs with LEU fission technology development within GTRI's Molybdenum-99 (Mo-99) Program. Their support to the high-density target project has been to fabricate uranium targets and foils for experiments at other national laboratories. This effort included the evaluation of options for the design and fabrication procedures needed to meet customer specifications (e.g., clad bonding behavior, weld quality, etc.). Y-12 failed to successfully meet some of the program's critical path activities, including fabrication and qualification of LEU high density targets for irradiation at the HFIR reactor, which resulted in significant negative programmatic impacts. Y-12's failure to meet the schedule was due to unforeseen equipment failures and fabrication challenges. Y-12 demonstrated considerable creativity to envision new strategies to successfully achieve the mission scope. However, this additional effort resulted in an additional funding request above the program's cost requirements.

EOY Adjectival

**Very Good**

Y-12 provided significant support to the Reactor Conversion program for Uranium-Molybdenum (UMo) LEU fuel and associated fuel fabrication capability development efforts.

Y-12 personnel demonstrated creative problem-solving efforts and made significant progress in advancing the overall Reactor Conversion Program mission support, and performed work that leverages, sustains and strengthens unique current science and engineering capabilities:

- Managers worked collaboratively with other programs to find cost savings through the use of shared equipment.
- Managers evaluated lifecycle project needs to effectively integrate with Y-12's long-term production and/or development schedules.

The SLOWPOKE project exceeded its budget targets and the Mo99 Target Development project exceeded its budget target and missed a key milestone. Both of these projects are considered high risk; one involves the development of new technologies and the other involves a process that has not been operated at Y-12 for over twenty years.

Several issues negatively impeded the Reactor Conversion Program in terms of the contractor's ability to meet cost, schedule and technical requirements:

- Equipment and infrastructure failures at Y-12 continue to be a severe impediment to Reactor Conversion projects.
- Limited resources (space, equipment and personnel) frequently delay production and shipment of uranium products, resulting in programmatic delays across the DOE complex.
- Program and project management limitations curtailed the ability to accurately project actual budget requirements, resulting in additional funding requests, and delayed contracts and/or commitments.
- Reactor Conversion invitation to contractor-led Uranium Processing Facility (UPF) decision-making discussions were limited and late in the process. UPF could have significant implications to the lifecycle plans of the UMo LEU fuel work.

- Poor cross organizational communication led to some delays in the program.

Y-12 also assisted in the formation of the Uranium Lease and Take Back Program by conducting research of various programs and contracting mechanisms used by DOE and its predecessors for leasing and returning uranium. With regards to this activity, Y-12 met the cost, schedule, and technical requirements.

Y-12 supported NA-213 Office of FSU and Asian Threat Reduction in the following areas:

- Overcame significant technical obstacles to complete several shipments in support of the Presidential initiative (the 2014 Nuclear Security Summit) to secure all vulnerable material in four years including HEU removals from Canada, France, and Italy.
- Provided significant technical expertise in order to complete the reconciliation of U.S. exports to other countries. With ANL assistance, GTRI has been able to significantly enhance accountability tracking of U.S. exports. This is a significant accomplishment that has been briefed to the White House.
- Successfully supported the Mobile Uranium Facility under GTRI's Emerging Threats program and remains on track to complete the second critical mock deployment in March 2014.
- Key to GTRI efforts to not only meet, but exceed, our presidentially mandated goal of removing or confirming the disposition of over 4,353 kilograms of HEU and plutonium by the end of 2013. With the support of Y-12, GTRI removed and/or confirmed the disposition of over 5,000 kilograms of HEU and plutonium – eliminating enough material for over 200 nuclear weapons.

For the ART program, NNSA is pleased with curriculum review and training improvements but has concerns about carry over resulting from loss of staff and delays in providing sufficient resources for expected facility work. There are remaining concerns about the potential future reorganization and subcontractor management.

Y-12 personnel supported NA-25's Transportation Security Project and Sustainability Project on TSP project team visits and in the Performance Testing Workshops demonstrating the U.S. approach to a comprehensive performance testing program for physical protection. They also participated in the development and implementation of the first MC&A Performance Testing Workshop which was hosted at Y-12 in June 2013. Their professionalism and cooperation with Russian representatives contributed to achieving a mutual understanding and conceptualization of Performance Testing.

Y-12 performance of all work involving procurement contract negotiation for Cargo Pallet Assemblies (CPAs) and for MD-2 container fabrication, ES3100 container certification amendments, and surplus plutonium and HEU secure transportation resource reporting was conducted successfully, on time and within budget. When the original schedule for fabrication of completed MD-2 containers could not be achieved due to the unexpected failure of the commercial supplier to provide acceptable materials (i.e., "Kaolite") that would meet specifications for use in fabrication of the MD-2 containers, Y-12 effectively replanned activities to take corrective actions on a new path forward, along with appropriately modifying the cost and time required to compensate for failure of the supplier to provide required materials. Y-12 effectively developed an alternative path forward to ensure an effective certification process to replace "Kaolite" with a replacement material, "Packcrete." Y-12 diligently assessed the supplier problem and effectively initiated corrective actions to ensure that the required number of MD-2 containers will be fabricated in time for Pantex to use to ship surplus pits in order to support the timely production of plutonium oxide for the Office of Fissile Materials Disposition (FMD).

Periodic reports were submitted in a timely manner so that NNSA oversight could be performed. The most important milestones, including those relating to HEU disposition were exceeded. Low equity discards work has been almost always on track to ensure that the Area 5 De-inventory can be completed on time at the end of FY 2015. An issue at Savannah River Site (SRS) impacted shipments, but the contractor always completed steps that were possible short of the actual delivery to SRS. The Y-12 contractor staff did outstanding work helping to develop a 10 year plan for the program by always providing input to NA-26 as requested.

The Y-12 contractor staff fully supported NNSA's development of a request for Expressions of Interest (EOI) for down blending HEU to LEU enriched to levels above the historical 4.95% on an accelerated time schedule, always providing timely input. The Y-12 contractor improved an NA-26 draft proposal to execute a major swap of HEU with Defense Programs (DP) to accelerate the availability of HEU and enhance NA-26's ability to continue to down blend without a break in deliveries.

Overall, Y-12 exceeded most expectations for executing work within scope, schedule, and cost established by program sponsors and partners. Y-12 managed milestones and deliveries according to project execution plans, and closely coordinated and communicated progress with program sponsors. Recovery plans and some rework was required for the production of depleted uranium-Molybdenum (DU-Mo) for the HEU research reactor conversion program; the production of material for the SLOWPOKE reactor conversion; and restart of the Nuclear Detector and Sensor Testing Center. Recovery plans for these projects were aggressively executed. Significant accomplishments for this year included: the production of 32 DU-Mo coupons for the research reactor fuel conversion development project, the removal of HEU from France, Canada, and Italy; the production of the NR feedstock material requirements 10 weeks ahead of schedule; exceeding HEU processing and delivery plans in support of the NNSA HEU down-blending contract requirements by processing over 3600 kg surplus HEU metal and oxides, and delivering more than scheduled. Additionally, B&W Y-12 conducted 16 ART courses (4 more than originally planned) while implementing course improvements.

B&W Y-12 met expectations in demonstrating new application of technologies, science and engineering in support of the broader national security mission. Contributions have been made in technologies for detection of uranium, the development of proliferation-resistant reactor materials for the next generation of reactors, and in applying new tools to evaluate nuclear forensics data. Specific examples include the development of a high-efficiency, thermal neutron detector as a replacement for  $^3\text{He}$  thermal neutron detectors and the development of new machining and uranium oxide production processes to convert domestic and international reactors to less proliferable fuel. The Y-12 Nuclear Detection and Sensor Testing Center (NDSTC) received official sanctioning from NNSA Headquarters with the assignment of a large group of items to the library of test objects. The NDSTC is now ready to support a key NA-20 measurement initiative and for use by scientists from across the complex. B&W Y-12 also completed five unique chemical and physical analyses for the International Atomic Energy Agency and demonstrated a unique advanced computer modeling application to identify uranium processing signatures in support of nuclear forensics. B&W Y-12 performed unique research and development for the TerraPower LLC advanced U-Zr alloy reactor fuel. The B&W Y-12 PDRD program directed 20% of its resources to innovation and growth with key technologies being developed for testing compatibility of reactor fuels and new uranium detection that support the broader national nuclear security mission.

B&W Y-12 exceeded expectations in pursuing and performing high-impact national security work that utilizes Y-12 capabilities and critical skills. New projects were executed using Y-12's expertise in uranium and lithium metallurgy and manufacturing for NNSA nonproliferation programs, DOE's Isotope Business Office, and TerraPower. B&W Y-12 was selected as a team member with NASA and Los Alamos

National Laboratory to build and test a prototype kilowatt-class fission power system. B&W Y-12 also developed two new Nuclear/Radiological Federal Emergency Management Agency (FEMA) training courses to prepare responders for potential nuclear/radiological events and also developed new global security training courses for DHS and the FBI utilizing B&W Y-12's physical and radiological protection expertise. This work resulted in more than 176,000 critical skills hours and more than 2,100 personnel participating in these programs.

B&W Y-12 demonstrated effective operations that have consistently met performance expectations and completed most mission deliverables to successfully accomplish the broader National Security mission in accordance with NNSA priorities and work authorizations, including work for DNN, NR, WFO, and emergency operations and counterterrorism missions. B&W Y-12 has a strong self-critical continuous improvement process to address operational issues that impact operations and productivity. In response to issues raised by the NNSA facility representative, significant improvements to the Y-12 Development facility were made by improving housekeeping, the facility material condition, the laboratory certification process, and by aligning Development work processes with the rest of the production plant. Y-12 completed the operational readiness assessment and successfully restarted operations to produce fuel for the SLOWPOKE reactor.

B&W Y-12 exceeded most expectations for maintaining an effective nuclear counterterrorism and incident response capability. Readiness levels for B&W Y-12's Radiological Assistance Program (RAP) team continue to be maintained consistent with Program expectations. B&W Y-12's RAP team planned and effectively deployed personnel for nuclear security/response to several special events. The team also participated in four radiological/nuclear response exercises and trained over 867 first responders for NNSA, FBI and DHS. RAP was involved in successfully supporting several outreach related activities. The Surry and Watts Bar Nuclear Power Plant Ingestion Pathway Exercises included asset presentations and technical support. The Y-12 Nuclear Weapons Complex Full Participation Exercise, in August, included communications testing and field monitoring operations support. Controller/Evaluator personnel attended the August RAPTER training. Personnel continue to provide assistance to the Commonwealth of Kentucky in the development of their Preventive Rad/Nuc Detection Program. Individuals from multiple law-enforcement agencies in the St. Louis area received radiological/nuclear classroom and equipment hands-on refresher training in September. A small team participated in an FBI Critical Incident Response Group led exercise that provided the opportunity to work closely with the Knoxville SABTs and to understand their roles/responsibilities as a Level 3 Stabilization Team. For the Render Safe R&D Program, the contractor completed all three of their deliverables, of which two were completed on time. For OPS & EX they also provided scientific expertise and support during Gauntlet Challenge exercise.

B&W Y-12 continued to effectively execute ART courses for the GTRI (NA-21) Protect Program with consistently excellent student evaluation ratings. B&W Y-12 conducted Advanced Radiological Response Techniques (ARRT) certification training to the Air Force Radiological Assessment Team and an Advanced Radiological and Nuclear Threat Course for the FBI. The training and support B&W Y-12 provided was unique and critical to establishing needed response techniques.

B&W Y-12 continued to meet expectations for cost, schedule and technical performance in executing DOE mission work outside of NNSA. Work included continued support of nuclear forensics efforts for the DOE Office of Intelligence and Counterintelligence and isotope production for the DOE Office of Science. B&W Y-12 completed annual lithium metal production for the DOE Isotope Business Office ahead of the planned schedule. B&W Y-12 maintained the national uranium materials archive and performed

characterization and assessments of historical data for the nuclear forensics program. B&W Y-12 also worked with stakeholder organizations to execute activities for an on-going, large scope and technically complex classified manufacturing project on schedule and within budget.

Y-12 provided significant technical, scientific, and management expertise to the Mo-99 Program supporting the comprehensive GTRI approach in achieving its mission to reduce and protect vulnerable nuclear and radiological material worldwide, and denying terrorists' access to nuclear and radiological materials that could be used in weapons of mass destruction or other acts of terrorism. In FY 2013, equipment failures and fabrication challenges at Y-12 resulted in failure to meet a significant portion of the UMo program work scope and resulted in cost overruns. Y-12 provided critical support to Reactor Conversion projects. There are no other contractors within the DOE complex that can provide commiserate production expertise. Because the contractor is the only viable domestic performer, failure to meet cost, schedule and technical requirements is damaging to NN (convert) program objectives. However, the Reactor Conversion Program's scope at Y-12 is relatively limited compared to other NN (remove and protect), NR and WFO programs. Continued investment in infrastructure at Y-12 may require CPEP Senior Leadership Forum involvement in evaluations in future years.

Overall, the site-specific outcomes for NN, NR, and CWFO programs exceeded most expectations. B&W Y-12 met cost, schedule, and technical performance of program objectives and deliverables. While some projects were at times behind schedule due to technical, maintenance and resources challenges, recovery plans were implemented and customers' expectations were met. Continuing improvements were made to the ART Course conducting 16 ART courses for 599 first responders, 4 more courses than originally planned. B&W Y-12 designed and developed a first-of-a-kind, 3-plate mold for LEU-Mo alloy plate casting that will essentially triple casting throughput of that material for the reactor fuel program. B&W Y-12 produced 32 DU-Mo coupons for fuel fabrication studies, overcoming safety and equipment failures with equipment that is well past its expected life. B&W Y-12 successfully restarted operations to produce fuel for the SLOWPOKE Jamaican research reactor conversion. NR feed stock production was completed ahead of schedule, and surplus HEU processing and deliveries are ahead of the multi-year project plan.

## Performance Objective 3: Science, Technology & Engineering (ST&E) Mission

### Narrative Summary

B&W Y-12 exceeded expectations in the implementation of a research strategy. The Y-12 Technology Roadmap has been used to identify technology focus areas that broadly support the core mission, site transformation, emerging missions, and productivity improvements. The PDRD program helps execute the vision of the Technology Roadmap by soliciting, selecting, and funding projects that address B&W Y-12 technology focus areas. As outlined by the roadmap, PDRD funding resources are split approximately 40% in the areas of Core Programs and Productivity, 40% in Transformation, and 20% in Innovation and Growth. The B&W Y-12 PDRD Program continued to be a leader in the Nuclear Security Enterprise by advancing key technologies to the next stage of maturation in anticipation for deployment in both existing facilities and in UPF. In FY 2013, a PDRD goal was to mature four technologies such that they can be accepted by another program sponsor for further deployment. PDRD exceeded this goal and had moved 15 technologies to other programs by the end of the fiscal year.

**EOY Adjectival**

**Excellent**

The B&W Y-12 PDRD program exceeded expectations with regard to relevance to the national security missions. Scientists and engineers at Y-12 worked to identify and solve issues surrounding the U.S. supply of critical materials. B&W Y-12 worked with Oak Ridge National Laboratory (ORNL) and industrial partners to identify and solved issues surrounding the U.S. supply of critical lithium-7 materials. Briefings were given to the DOE Office of Science (Isotope Supply and Production) and the Government Accountability Office on the supply chain and production of lithium-7 compounds for commercial pressurized-water reactors (PWRs) and advanced high-temperature reactors (AHTRs). Approximately 20% of Y-12 PDRD projects are directed at nuclear nonproliferation and global security mission and approximately 30% support the UPF project. B&W Y-12 received an R&D 100 Award for the development of a high-efficiency thermal neutron detector.

B&W Y-12 exceeded expectations in research that was innovative and transformative. Progress continued in research supporting three high-priority transformative projects; DER/ER of Uranium, Production Microwave Furnace, and the Rotary Calciner, which will advance uranium operations. Approximately 30% of the PDRD projects directly support the UPF project. B&W Y-12 continued to evaluate technical programs and projects that will enable the next-generation scientists and engineers to ensure future national security missions at Y-12 by conducting internal peer reviews and ensure projects are producing the desired and proposed results. Collaborations with national laboratories are leading to advances in what could be the next generation of manufacturing technologies deployed at Y-12 to support directed stockpile work. Two patents were received based on PDRD technologies: "Synthesis Methods for the Preparation of Semiconductor Quality Chalcopyrite Crystals for Radiation Detection" and "Functional Performance of Machine Tools." Enhanced material characterization capabilities with three new, high-performance microscopes and installation of the only U-235 probe for nuclear magnetic resonance (NMR) in the world, allows Y-12 scientists and engineers to study uranium chemistry in ways not previously possible.

B&W Y-12 met expectations with respect to maintaining a healthy and vibrant research environment while dealing with the challenges of aging facilities and infrastructure. In response to issues raised by the

NNSA Facility Representative, the Development organization implemented a Conduct of Operations (ConOps) Improvement Plan to improve development facilities. This initiative made comprehensive improvements to the organization's operational activities, improved facility housekeeping, addressed material condition issues, strengthened laboratory certification process, and aligned development work processes with the rest of the production plant. Approximately 30,000 ft<sup>2</sup> of laboratory space (more than 35% of the available laboratory space) was reclaimed including down-posting more than 23,000 ft<sup>2</sup> of beryllium-contaminated areas.

B&W Y-12 exceeded expectations in support of Technology Transfer by submitting 51 invention disclosures in FY 2013. Also in this FY, B&W Y-12 received a total of 7 patents, filed 10 patent applications, completed 6 new license agreements and has 4 active CRADAs. The PDRD program supported partnerships with the University of Tennessee, University of North Carolina at Charlotte, Colorado School of Mines, University of Tennessee Space Institute, Fisk University, North Carolina State University, and the University of Virginia.

## Performance Objective 4: Security, Infrastructure, Environmental Stewardship & Institutional Management

### Narrative Summary

Throughout FY 2013, the B&W Y-12 **Safeguards, Security and Emergency Services** (SS&ES) Division satisfactorily implemented the safeguards and security and emergency management missions to protect special nuclear materials and sensitive information and to provide an emergency response capability. B&W Y-12 absorbed the former G4S protective force organization, upon the government's termination of the G4S contract. The integration of the 500+ protective forces into the B&W security organization was complex and done in a compressed time frame with very few issues. The B&W Y-12 leadership team continued efforts to recover from the July 28, 2012, event. However, an event such as the unauthorized discharge of a machine gun within an armored vehicle on July 28, 2013 indicated the program requires continued management attention. After the incident, B&W management took immediate actions--formed investigative teams, made immediate corrective actions and strengthened their processes to ensure that these incidents can be avoided in the future. As a result of these inquiries, B&W Y-12 is addressing the identified need for greater formality of operations, consolidation and revision of procedures, and improved implementation. NPO survey results continue to point out the need for management attention in the areas of self-assessments, performance assurance, and management of findings in addition to the other topical areas of physical and protective force security. For the year, 24 new Federal findings were written by NPO and as of September 2013, the total open findings were 49. Findings span all topical areas with the exception of Foreign Visits and Assignments with varying degrees of impact to the overall S&S program. Eight issued Federal findings were closed during FY 2013. Associated corrective action plans (CAPs) were submitted and implemented by B&W. Most of the CAPs for the findings will be completed in FY 2014. The benefits of closing these CAPs, which will strengthen the Y-12 safeguards and security program, will not be realized until late-FY 2014 and FY 2015. Overall, the contractor is taking steps to build an effective security program. In Emergency Management, a no-notice exercise conducted by Headquarters on February 27, 2012, highlighted the integration and effective responses of the Fire Protection Organization, Plant Shift Superintendent, and Protective Force. At a higher level of difficulty and realism, the SS&ES Division successfully conducted the Y-12 Full Participation Emergency Exercise, which included participation and full integration of eight off-site medical and law enforcement agencies. SS&ES also participated in an *Emergency Preparedness Integrated Capability Exercise 2013 (EPIC13)* on August 14, 2013. EPIC 13 was a joint Y-12, State of Tennessee full-participation exercise that included DOE HQ, State, County and City of Oak Ridge emergency response organizations.

EOY Adjectival  
**Satisfactory**

Within **Line Item Construction Projects**, both the Nuclear Facility Risk Reduction (NFRR) Project and Security Improvements Project (SIP) continued to be positive, overall ahead of schedule and under budget. Existing site conditions, changing security requirements, and components/units that do not meet specifications were challenges for the NFRR. For the risks that have been realized, the project is effectively managing to minimize scope, cost, and schedule impacts. The SIP estimate at completion (EAC) is below the baseline Total Project Costs (TPC), and the CD-4 forecast date is six months ahead of schedule. Both NFRR and SIP demonstrate general compliance with DOE O 413.3B with requisite Earned Value Management System (EVMS), risk management, etc. Funding for the Emergency Operations & Response Capability Enhancement (EO&RCE) Project was moved to FY 2015.

The Production Microwave (PMW) Project and the Ovens Consolidation Program (OCP) closed out with a CD-4 approval during FY 2013. While the final costs for the projects were within the current baseline TPC, they did exceed the original CD-2 Baselines by more than 10% (\$3.6M & 18 months for PMW and \$6.15M & 9 months for OCP), defining them as a "failed" projects from a Government Accountability Office (GAO) metric standpoint. The contractor's overall performance on these projects is Below Expectation (reference S-2 Dec 13, 2012 guidance on Capital Asset project incentives).

The overall performance of the Uranium Processing Facility (UPF) Project was improved; however, problems continue to exist with the design effort. UPF is discussed in more detail later in this report.

Within the broader area of project management, B&W Y-12 successfully executed multiple small projects on schedule and within budget and also achieved an overall Construction Recordable Injury Rate of .40 without an OSHA recordable injury for the seventeen month period to July 2013. Overall, B&W Y-12 demonstrated a strong commitment and ownership in this area.

B&W Y-12 managed **Business functions** effectively through a variety of challenges, particularly in light of the FY 2013 budget Sequestration which reduced overall funding by 7.7% - an \$80M impact for Y-12. Y-12 was responsive to financial challenges and avoided furloughs or other harsher personnel actions with a viable plan that included several proposed reductions in indirect cost areas. In addition, they have continued to pursue cost avoidance and reduction efforts and have validated \$57M against an internal goal of \$35M. B&W Y-12 successfully took over the previous WSI protective force contract task at the beginning of the year. This change required accelerated effort in several business functions, primarily HR, CFO, IT and Property, which included on-boarding over 550 personnel in addition to the successful transfer of \$49.7M in pension assets into the Y-12 pension plan. The contractor successfully implemented a voluntary lump sum payout to 457 terminated vested participants, which reduces annual PGGC premium payments, administrative costs, and future long-term NNSA pension liabilities. In anticipation of a new prime contract, Labor Relations successfully negotiated collective bargaining agreement extensions with Atomic Trades and Labor Council. B&W Y-12 reacted well throughout the year in responding to a significant increase in external reviews, visitors and associated information requests while still maintaining normal plant operations. B&W Y-12 also streamlined processes with the implementation of an automated approval process for Work Authorizations. Areas needing improvement during the year included the quality associated with some quick-turn financial related-reports such as the Integrated Facilities and Infrastructure Crosscut data, the Institutional Cost detail; and OFFM-identified concerns, such as STARS/FIMS reconciliation (now resolved) and timeliness of Nuclear Materials Financial Module (now in parallel testing).

B&W Y-12 **Information Technology** (IT) met expectations stated in the PEP and was above expectations when additional requirements were taken into consideration. B&W Y-12 collaborated with B&W Pantex IT to develop and to implement a cutting-edge virtual desktop computing environment (one of NNSA's earliest deployments) in support of site consolidation. B&W IT performed a vital role in the employee data conversion process associated with Y-12's successful adoption of the previous WSI Protective Force contract. These significant commitments were simultaneously accomplished while continuing to support the Uranium Processing Facility Project and Y-12's day-to-day production operations. Areas needing improvement include falling behind technically in the area of data backup, particularly regarding modernizing from a tape-based data backup system. NPO oversight and performance testing results show that, overall, classified information/material is not at risk as evidenced by reviews of risk assessments, information system security plans, technical settings, scanning activities, flaw remediation,

and intrusion detection tools. B&W has the technical expertise and staffing levels to effectively implement the cyber security and telecommunications security programs. NPO noted that improvements are required with respect to contractor assurance/self-assessments, classified technical implementation (e.g., addressing performance testing results), and risk management sub-topical areas (e.g., certification tests, scanning frequency, external reviews).

B&W Y-12 worked towards reducing the risks associated with an aging **infrastructure**. Effective utilization of the funding allowed completion of under-funded and high-risk items listed in the Utilities Migration Plan. B&W Y-12 improved the reliability of the power distribution system specifically the pilot wire system and completing overdue maintenance on the 13.8kV breakers and 480V systems. B&W Y-12 exceeded the cost reduction goal of \$3.05M during FY 2013 for facilities, identifying approximately \$3.4M of savings. B&W Y-12 was also able to implement 65 maintenance efficiency initiatives including lighting panel upgrades and steam repairs. B&W Y-12 has exceeded the sustainability goals for energy and water intensity, fleet, and Greenhouse Gases. B&W Y-12 continued to support the Energy Savings Performance Contract Delivery Order (DO) #2 and the newly awarded DO#3. B&W Y-12 won six NNSA sustainability awards this year. Due to funding constraints, B&W Y-12 wasn't able to complete the metering project as planned. They are also at risk for not meeting the High Performance Sustainable Building and Electronic Stewardship goals. The B&W Y-12 team provided support to NNSA's implementation of the Builder Software Management System (BSMS), an enterprise level application that will give NNSA infrastructure decision makers the ability to view the condition of NNSA infrastructure through metrics grounded in actual component condition and assessed in a uniform manner by all sites. The B&W Y-12 team, working with their counterparts at LLNL, coordinated with the US Army Corps of Engineers to make major progress toward migrating current building models and condition assessment data to BSMS. B&W Y-12's planning group took the lead in modeling NNSA's capital investment needs in a What-If tool to perform scenario analysis. The planning group also teamed with NSTec to lead the complex in developing Graphic Interface Systems that can be implemented across NNSA to support senior decision makers.

B&W Y-12 implemented effective **safety management programs** (e.g., Integrated Safety Management and Environmental Management) that resulted in: 1) No reportable releases to the environment; 2) No civil penalties for ES&H non-compliances (e.g., PAAA, City of Oak Ridge, and Tennessee Department of Environment and Conservation); 3) Improved water quality of the East Fork Popular Creek by installing mercury traps; 4) Completed the South Ridge environmental restoration initiative that improved Y-12 operations by allowing the down posting of 15,000 square feet; 5) 13% reduction of recordable injuries from FY 12; 6) Successfully integrated WSI ES&H activities and employees into B&W Y-12 operations without any employee injuries; 7) Jointly developed a culture policy with B&W Pantex and NPO to help promote safety in a nuclear work environment; 8) Implemented site-wide Lockout/Tagout and employee falls (e.g., Eyes on Path and Safety in Action) initiatives to improve Y-12 safety performance; and 9) Maintained qualifications of site personnel at a 99.6% level which exceeded the company's goal of 97.5%. After a local disposal company went bankrupt, the State of Tennessee assumed oversight for the disposition of the remaining wastes at the company's leased facility and requested that the contractor remove >60 radioactive Y-12 waste containers. The contractor took immediate actions that included the development of waste characterization plans and the contractor successfully negotiated a contract with a local environmental company to collect, transport, and dispose of the waste containers. Feedback received by the contractor from the State of Tennessee was positive. In addition, B&W Y-12 was successful in obtaining safety awards that included: 1) DOE Star of Excellence (VPP related); 2) Accreditation Association for Ambulatory Healthcare (occupational medicine); and 3) American Association for Laboratory Accreditation (A2LA) re-accredited the Y-12 Industrial Hygiene Calibration Lab. Safety performance challenges included: 1) Adherence to Radiation Protection Procedures and

Radiological Work Permits; 2) Although B&W Y-12 developed and implemented a systematic approach in prioritizing and reduced the Priority 1 and 2 maintenance corrective action backlog, performance issues existed throughout the year with maintenance planning and safe control of work activities; 3) Three permit noncompliances with the Y-12 sanitary discharge permit for extraneous inflow and infiltration during major rain events; and 4) Repairing and maintaining fire systems in a timely manner.

B&W Y-12 continues to provide effective **legal** representation, legal advice, and information to Site Counsel on a timely basis. In particular of note, B&W Y-12 provided timely and sound legal advice during the WSI transition regarding pensions, benefits, and other Human Resource issues and negotiated a favorable settlement in the appeal of the CMI litigation. B&W Y-12 continued to effectively manage its legal risks and incorporate best legal practices in managing its ongoing litigation in accordance with 10 CFR Part 719.

B&W Y-12 implemented an effective **Quality Assurance Program**. The contractor completed all production deliverables a month ahead of schedule that included calibration of approximately 18,000 articles of measuring and test equipment. The contractor hosted the NNSA Business Management Advisory Council Supply Chain group which resulted in lessons learned between the various NNSA sites including identification of vendors and cost savings initiatives, such as avoiding multiple audits of the same supplier. To streamline management processes, the contractor integrated the facility, weapons and supplier QA manuals, and procedures into one document. However, the contractor was challenged by: 1) A lack of oversight over program/project specific QA programs such as nuclear Packaging and Transportation, UPF, and NFRR; 2) Inadequacies in implementing a comprehensive graded approach to quality; and 3) Flow down of requirements, such as NQA-1.

B&W Y-12 continued to implement a **CAS** program where performance is measured and monitored both qualitatively and quantitatively where feedback is routinely sought and processes are understood and controlled. The CAS report exhibited a comprehensive and self-critical analysis of Plant-wide performance data. NPO monthly/quarterly issues management results indicate the CAS reports are well organized and follow a logical progression including identification of Key Indicators, Other Significant Concerns and NPO identified issues; however, additional focus is needed in documenting the comprehensive analysis of the health of the most important systems and processes. The contractor identified and implemented numerous enhancements to their information management system, PerformanceTrack. This allowed NPO to have greater access and transparency into Y-12 operations by evaluating positive and negative performance trends in the Plant; easy access to the contractor's Integrated Audit and Assessment Schedule for the development of the NPO FY 14 Master Assessment Schedule; reviewing quality, depth and breadth of contractor assessment reports; and measuring how well the contractor is completing scheduled assessments. B&W Y-12 implemented an innovative systems approach to organizational health which provided an integrated and cross-cutting view of performance for six major Y-12 system elements. This is a step forward in CAS continuous improvement and transparency. B&W Y-12 has completed all but one of the corrective actions from the CAS Effectiveness Review which was performed after the July 28, 2012 security event. Corrections included a comprehensive review of existing performance indicators and identification of key performance indicators that capture critical aspects of operation such as safety, security (including alarm information), mission deliverables, conduct of operations, and financial data. This clearly outlines what is important to the contractor and it is a manageable set of indicators. Additionally, management self-assessment and feedback processes have been revised and demonstrate a culture of continuous improvement. Feedback of assessment results are discussed during Plan of the Week meetings and NPO's observation of these meetings has noted a questioning attitude when it came to discussing the importance of an issue as well

as implementation approaches to resolve the concern. NPO found this questioning attitude to be noteworthy and healthy.

The **Engineering and Nuclear Safety Programs** effectively supported Y-12 Operations and developed/implemented several initiatives that promoted improvements in quality, effectiveness, and efficiency. B&W Y-12 expanded the Essential System Health Monitoring program to facility and equipment performance, including Vital Safety Systems. In response to significant unplanned Nuclear Criticality Safety (NCS) program issues (9204-2E), the NCS Implementation Review Action Plan has proven to be effective in program improvement and assurance of compliant implementation of NCS controls. An NA-00 Operations-Level Review of this Implementation Review Action Plan late in the period found the effort to be effective in identifying and resolving identified concerns. While the assessment identified a number of Performance Problems for B&W Y-12 to resolve, no Findings were identified and the NCS programs evaluated were found to meet DOE requirements and be effectively implemented. Implementation of upgraded and approved Criticality Safety Evaluations (CSEs) was lagging at the beginning of the period, but progress was demonstrated overall by the end of the period. Continued attention is necessary to ensure implementation of all approved CSEs in a timely manner. There was a concern related to quality and timeliness of Safety Basis document submittals early in the period. Corrective action resulted in reduced review time, improved quality of submittals, and improved overall contractor management engagement with NPO-10. Significant support of UPF project included refinement of roles, responsibilities, and processes to facilitate resolution of design issues, issuance of several important plans and evaluations, and support of Preliminary Safety Design Report (PSDR) and updated Safety Design Strategy (SDS).

While B&W's preparation for **contract transition** was very thorough, the transition was placed on hold after 10 days.

Within **line item projects**, the Nuclear Facility Risk Reduction (NFRR) Project performance continues to be positive, overall ahead of schedule and under budget. Existing site conditions, changing security requirements, and components/units that do not meet specifications continue to be challenges for the project. For the risks that have been realized, the project is effectively managing to minimize scope, cost, and schedule impacts. A revised NFRR Project Execution Plan was published in September. The Security Improvements Project (SIP) performance of existing scope is well ahead of schedule and under budget. The Staff Assistance Visit for Validation of Proposed Scope Changes was completed in August and the resulting observations are under consideration. The current EAC is below the baseline TPC, and the CD-4 forecast date is six months ahead of schedule. Both NFRR and SIP demonstrate general compliance with DOE O 413.3B with requisite EVMS, risk management, etc.

The overall performance of the Uranium Processing Facility Project was satisfactory with improvement in several areas acknowledged during the performance period. Safety: The project has exceeded 5 million safe work hours without a lost time accident. In the areas of nuclear safety, operations, and maintenance, the level of coordination has been notable rendering resolution of many long-standing risks. A series of external reviews highlighted improvements in safety-in-design processes and reinforced an overall confidence in the facility's selected baseline process technologies. Quality: Early in the period, problems were identified with configuration control of the design criteria, the Design Code of Record, and Design Analysis Calculations, resulting in a series of corrective actions and compensatory measures. Improvement is evident but QA audits (B&W's) continue to identify a 30% average error rate in the Design Analysis Calculations. Cost: The Project's Baseline (for PED) has experienced continued growth since the mid-year replan, the Total Project Cost has been impacted by growth in the quantity of

commodities and the use of management reserve has exceeded plan. Schedule: The cumulative schedule performance index for the rating period was 0.98 and represents improvement throughout the year. In terms of the project's critical path and near-critical path activities, a downward trend in completing planned finishes is shown. Project Management: B&W has continued to strengthen the project team with the reassignment of additional highly-experienced off-project resources. The CD-3A (Site Preparation sub-project) had successful Independent Cost Estimate and External Independent Reviews.

Over the course of the FY in **Safeguards and Security**, the contractor's efforts reflected a move towards achieving a sustainable and integrated program and an overall satisfactory performance. The rating was based on current continuing challenges, which include the number of open findings, open corrective action plans, and the continuing hurdles in the area of performance assurance/contractor assurance systems, which are the foundational elements of a successful S&S program. The contractor's self-assurance efforts, as defined through and by the B&W Y-12 SS&ES self-assessment program, performance assurance, and acceptance testing areas, continue to require management and program attention to correct identified issues. Late in the fourth quarter, the contractor began addressing fundamental changes to the self-assessment program per their approved CAP plan. The completion of those related CAPs in the Management Control topical area is scheduled for the second quarter of FY 2014. NPO assesses that the safeguards and security program will need FY 2014 and 2015 to fully realize and reflect the full benefits associated with the contractor's efforts to improve the overall program and sustain these improvements. A notable completed update is the submission of the Site Safeguards and Security Plan (SSSP) in accordance with the approved corrective action plan. Additionally, as part of updating the SSSP, the single integrated vulnerability assessment (VA) was completed and submitted to NPO for review/approval. CAPs currently in process are meeting approved timelines. Previously identified Performance Testing concerns, dealing with the internal feedback loop so issues were adequately identified and then shared across internal Division lines to ensure an integrated effort for resolution, is being adequately addressed as of the close of the FY. Additionally, SS&ES completed the change in the maintenance and categorization of security systems, which NPO will continue to observe associated activities for further improvement. Another area that requires continued emphasis is the balancing of resources and budget in order to stay within the spending plan. By the end of the fiscal year, SS&ES was able to adjust to stay within budget. The contractor is continuing to make progress that reflects leadership involvement and willingness to do the hard work that is still ahead.

## Performance Objective 5: Contractor Leadership

### Narrative Summary

Contractor leadership (10%) was rated as SATISFACTORY. Throughout FY 2013, B&W Y-12 demonstrated leadership supporting the current NNSA mission direction, responding appropriately to issues and sought opportunities for continuous internal improvement backed with their parent company's commitment. Y-12 leadership reacted well to many challenges over the past year including the impacts of a delayed contract transition. Supporting realistic and strategic alignment, B&W Y-12 annually updated their site's strategic vision plan in support of NNSA's plans for areas such as mission requirements, production facilities, and infrastructure. They led various collaboration efforts with other sites, especially the Pantex site. For instance, working with the Pantex site, they supported the new NPO IT desktop environment; developed a joint nuclear safety culture implementation plan aimed at improving accountability throughout both organizations; and streamlined a components disposition process achieving cost avoidances. Establishing partnerships with area communities, B&W Y-12 was the first NNSA production site to implement university joint assignment agreements which allowed exchange of staff. They also received 51 invention disclosures from employees, more than the other NNSA production sites. These activities accelerated technology developments and deployments for long-term use. Further facilitating an improved culture of accountability, B&W Y-12 utilized a Contractor Assurance System, which through reporting captures their comprehensive self-critical analysis of many of the plant-wide functional areas. B&W Y-12's interagency work efforts strengthened capabilities supporting NNSA mission. B&W Y-12 performed well absorbing the former government G4S contract, a 500+ protective force personnel organization in a compressed timeframe with identification of very few issues, all of which were promptly resolved. They have made many strides recovering from the July 28, 2012 security event but there remains a need for attention in the area of safeguards and security. For instance, this fiscal year events have occurred indicating underpinning problems which required continued management attention. One of the fiscal year's events occurred on July 28, 2013, involving an unauthorized discharge of a weapon round within an armored vehicle. While B&W Y-12 Management took immediate actions, strengthening their process to ensure such incidents would be avoided in the future, NPO assessment results concluded there remained a need for management attention in the areas of self-assessments, performance assurance, and management of findings as well as other topical areas of physical and protective force security. UPF had a challenging year; improvements were noted as the year progressed in several areas but problems in configuration control of design criteria and estimate validity continue to impact the project despite significant government interaction to highlight these issues. B&W Y-12 routinely coordinated and effectively communicated key information to the appropriate NNSA leadership. Their parent company also reflected a commitment to the site and a Management Assurance System by ensuring B&W Y-12's access to parent company resources as well as visiting the site frequently, maintaining awareness of B&W Y-12's performance and improvement opportunities. B&W Y-12 continued to pursue improvements in their self-assessment process of all areas. Some of the programs developed included a system health program which prioritized maintenance and capital improvement needs and a comprehensive operations continuing training program aimed at realistically improving the training environment.

EOY Adjectival

**Satisfactory**