



Performance Evaluation Report
for
BWXT Y-12, L.L.C.

Contract Number DE-AC05-00OR22800

Evaluation Period: October 1, 2005 through September 30, 2006

The purpose of this Performance Evaluation Report is to provide a final report of the National Nuclear Security Administration (NNSA) evaluation of BWXT Y-12's performance for the period October 1, 2005, through September 30, 2006. This evaluation uses the guidance, criteria, measures, and process established in the Performance Evaluation Plan (PEP) approved at the beginning of this performance period. At Y-12, the fee pool was divided into three components: Base Award Fee Incentives (AFIs); Performance-Based Incentives (PBIs); and Stretch Performance Based Incentives. Final fee distribution was 53%/47% for base AFIs and PBIs, respectively. Stretch performance fee was made available for those unfunded PBIs completed through efficiencies and economies. The total available fee pool was 7%, with 5.3% allocated to base incentives and the remaining 1.7% for stretch incentives.

The Award Fee Incentives contains 3 major performance objectives: General Management; Mission; and Operations. The Y-12 Site Office (YSO) met monthly with BWXT Y-12 to provide feedback and progress in satisfying the detailed elements contained in the Award Fee Incentives outlined in the PEP. The first section of this report summarizes NNSA's evaluations for each Performance Objective (e.g., General Management) and the topical areas (e.g. Fiscal Management-Budget) contained within each Performance Objective. Additional details supporting this report are contained in documented performance evaluation reports provided to BWXT Y-12.

The second section of this report presents the results of the PBI evaluation, both base and stretch. The PBI portion of the fee process is similar to past years and consists of negotiated specific incentives assigned to high priority activities where fee is earned based on quantitative/objective performance results such as product deliverables, schedule, and cost.

Finally, this report communicates information obtained from documented performance evaluations. This report is not intended to repeat evaluations or create new information.

I. General Management

The General Management Performance Objective included the following topical areas: Fiscal Management/Budget; Contractor Human Resource Management; Procurement Management; and Internal Controls. Fiscal Management and Budget is Outstanding based on BWXT Y-12's efforts on: numerous ad hoc budget exercises; execution of work against the approved financial plan; initiatives to comply with OMB 123 circular and to effectively translate OMB 123 requirements into a useful management tool; resolution of STARS operating issues and support in implementing STARS; and in planning for end-of-fiscal year continuing resolution requirements and options. Contractor Human Resources has made significant progress in reducing under representations for minorities and women, has an excellent on-line employee communication tool entitled "No More Surprises," has exceeded its Critical Skills goals for college, co-operative, and intern recruiting, and is working to reduce bargaining union grievances. The change in the HR manager has brought noted change and positive environment to the contractor workforce. Procurement Management continues to earn BWXT Y-12 numerous federal and public awards for its development, nurturing, and awards to small business with excellent achievement of small business goals. Mentor-protégé arrangements are effectively used and are increasing as evidenced by the recent addition of an agreement with Fisk University. Internal Controls are well established in BWXT Y-12 and effectively utilized by management as evidenced by the results of the internal audit program, external audits, confirmation of numerous accounting and banking functions, and the audited financial statements issued by DOE.

Fiscal Management/Budget

The overall rating in the area of Fiscal Management/Budget was Outstanding.

The objective of the Fiscal Management/Budget area is to execute agreed upon work scope within the fiscal and definitional constraints of its approved financial plan.

Adherence to obligational control levels continues to be excellent and response to budget formulation (and subsequent validation) requirements was generally timely. Reprogramming actions were identified in a timely manner, although a late financial plan change (requiring HQ approval) was required to move funding to the B61 LEP. Input for processing of local financial plans, submission of valid value requests, and responses for funds certification were timely.

Analysis/justification/documentation of proposed funding strategies, conversion to the new cost model, support of the transition to the NNSA Service Center, and contractor initiatives to improve financial control and efficiency are all noteworthy accomplishments. Support of STARS resolutions and improvements by BWXT Y-12 has been excellent.

The nature of the budget function produces numerous ad hoc requests which have a quick turn around time. BWXT Y-12 continues to respond well to these requests. Planning and execution for the continuing resolution has been very good.

It is expected that the issues associated with: 1) the need for additional funding for the B61LEP (utilization of financial reserve); and 2) individual rate variances and projection of variances will be analyzed and corrective actions implemented in a timely manner to preclude a repeat of this funds control deficiency. The BWXT Y-12 CFO has been tasked with assuring that corporate understanding and accountability related to the release and utilization of management reserves is practiced.

Contractor Human Resources Management

The overall rating in the area of Contractor Human Resources Management was Good.

The objective of the Contractor Human Resources Management Program is to create an environment that assures the existence of a flexible, motivated, and diverse workforce that possesses the knowledge, skills, and abilities to effectively accomplish DOE contract work.

BWXT Y-12 has made good improvements in labor relations developing a collaborative working environment with the unions at Y-12. It appears that union officials are recognizing BWXT Y-12's efforts to respond to issues and concerns and that is translating into fewer grievances and an air of cooperation between the two.

The new HR Manager has identified the need to develop a workforce plan for BWXT Y-12. The HR group is working with managers from throughout the plant to develop this workforce plan. An initial plan was submitted which will be expanded upon as BWXT Y-12 progresses through the modernization efforts including workforce adaptation.

The benefits group contracted with Towers Perrin to have a benefits value study conducted at BWXT Y-12. The results of the study reflected that BWXT Y12's employer-paid index was 2.7% above the DOE threshold. While BWXT Y-12 met the requirements of the performance measure, it has yet to provide a plan for getting BWXT Y-12 in line with the DOE threshold or provide justification to exceed the threshold. The deferral of pension plan changes by DOE has affected the opportunity for BWXT Y-12 to make adjustments to the benefits value threshold.

BWXT Y-12 also was tasked with developing a customer satisfaction survey to measure customer satisfaction with BWXT Y-12 HR services. They developed a survey that measured activities in the employee support services group. The primary functions within HR, however, compensation and employee benefits, were not a part of the survey.

BWXT Y-12's knowledge transfer program has been formalized and implemented throughout the complex.

BWXT Y-12 has shown steady improvement in HR from last year. The NNSA Service Center and YSO are very pleased that BWXT Y-12 is taking the initiative to make changes within the HR Division that will benefit the overall HR program and in turn the employees at the Y-12 Plant. The Service Center and YSO firmly believe that BWXT Y-12's HR Division is making program changes that will better position them to address the issues noted above and become more proactive in managing HR at Y-12.

Procurement Management

The overall rating in the area of Procurement Management was Outstanding.

This objective of Procurement Management is to execute contractor procurements in accordance with prudent procurement policies and procedures, and in full support of governmental procurement goals and objectives.

BWXT Y-12 continues to be a leader in DOE for meeting socio-economic goals which represent significant challenge. Mentor-protégé arrangements exist with numerous companies and Historically Black Colleges and Universities, the latest of which is with Fisk University. BWXT Y-12 continues to support Supply Chain Management initiatives, and company managers are required to provide evidence that small business cannot perform the task or provide the material before large business is solicited. The subcontract for newly generated solid waste was awarded at the end of the fiscal year. The subcontract for newly generated liquid waste was not awarded by fiscal year end which was a long standing direction and expectation of NNSA YSO. The contractor is hosting a joint DOE and NNSA Supply Chain Management Workshop in December 2006, in Gatlinburg, Tennessee. This conference is bringing very favorable attention to BWXT Y-12 and NNSA and will provide valuable information and training to DOE. BWXT Y-12 has performed very well in its objective matrix performance scores which represent a challenging environment.

Internal Controls

The overall rating in the area of Internal Controls was Good.

The objective of Internal Controls is to provide a system of checks and balances that encourages improved management performance and minimizes the opportunity for waste, fraud, and abuse.

BWXT Y-12 continues to ensure that internal controls are implemented as required and monitored to determine that expected results are achieved. Fundamental and essential activities such as monthly reconciliation of the federal letter-of-credit and quarterly accounts receivable balances have been performed. The actions taken to implement Circular A-123 have been impressive, and recognized by the NNSA Service Center as the best in NNSA. The efforts on A-123 reflect the contractor's initiative in taking what could have been nothing more than a bureaucratic requirement and turning it into a useful contractor management tool. While the discovery of falsified time charging early in the fiscal year was deemed significant, BWXT Y-12 reacted in an expedient manner to reinforce the responsibility of both management and employees with regard to time-charging practices. The internal audit program has been effectively executed with resources available. The contractor internal audit staffing level should receive senior management review for adequacy particularly in light of all the construction subcontract activity on going at Y-12 and the audit resources sufficient to handle this increased audit scope.

II. MISSION

The area of Programs and Projects includes Integrated Program Planning and Execution, Modernization and Responsive Infrastructure Planning, Construction Program/Project Management, Plant Directed Research and Development (PDRD), Directed Stockpile Work (DSW), Campaigns, Readiness in Technical Basis (RTBF) and Facilities Infrastructure and

Recapitalization Program (FIRP), Nuclear Non-Proliferation (NN), Naval Reactors and Other Material Supply, and the Safeguards and Security Program. These programs include the mission essential work that Y-12 is tasked to accomplish throughout the year.

Many improvements were noted in the area of Integrated Program Planning and Execution. The Y-12 Throughput Improvement Plan (YTIP) was an excellent example of integrated planning, and should substantially improve Y-12's ability to meet the upcoming increase in workload. The process used this year to prepare, present and finalize the Work Authorization Directives resulted in a much more integrated product. Baseline management for both programs and projects was very good. Initiatives to improve productivity including Six Sigma, Work Control Centers and Zone Controllers continue to yield results. BWXT Y-12 did an outstanding job supporting numerous HQ meetings including the NA-10 Defense Programming meeting and the Quarterly Program Reviews.

A major focus for the site this year was in the area of Modernization. BWXT Y-12 did an excellent job of supporting modernization activities, including the DU/Binary Consolidation effort, presenting an acceptable path forward for the SIP project, participating in the ORO Integrated Facility Disposition Project, and delivering numerous high quality planning documents. Additionally, BWXT Y-12 developed a new strategic plan that builds on the NNSA transformation initiative. Requirements, strategies and concepts continue to be developed to support third party financing for the Emergency Command Center, Development Facility, Maintenance Facility, and Plant Laboratory. BWXT Y-12 provided good support for the development of the Site Wide Environmental Impact Statement and public meeting. BWXT Y-12 provided good support for the Complex 2030/Responsive Infrastructure (RI) initiative during the year including the "January Process" meetings, preferred scenario development, and responsive infrastructure metrics.

BWXT Y-12 struggled in the area of HEUMF construction and project management. Quality, cost, and project management issues were noted early in the year, resulting in a significant restructuring of the BWXT Y-12 project management organization, the need to re-baseline the project, and increased oversight. This very important, high visibility project has been "marginal" the majority of the year. On a positive note, BWXT Y-12 has taken the necessary actions to ensure appropriate senior management attention and project management controls are in place to prevent a similar recurrence. Construction safety was outstanding this year, with over 1,000,000 hours worked safely. Accomplishments include progress on the Uranium Processing Facility project, and obtaining CD-1 and CD-2 (conditional) for the Potable Water System Upgrade project, CD-2/3A for the BeC project, and CD-4 for the Purification Facility project.

In the mission areas, Directed Stockpile Work (DSW) demonstrated outstanding performance in significantly exceeding FY 2006 dismantlement requirements and positioning themselves to achieve dismantlement rates in FY 2007 and beyond. BWXT Y-12 successfully accomplished all 28 Level II milestones. Notable accomplishments include meeting the B61 Mod-7 and -11 First Production Unit dates, which were DP-10 Top Ten goals. Y-12's performance in the areas of surveillance, the W76 Life Extension Program, and Production Support was good, despite a reduced funding level in FY 2006 for Production Support. All baselined Quality Evaluation and Surveillance requirements were met, including stretch goals. All container requirements were met, including stretch goals for PANTEX. Production Engineering activities for the W76 LEP were supported. Y-12's performance with the B61 LEP was overall satisfactory, although all the B61-7 ALT 357 quantities were not achieved. BWXT Y-12 has yet to complete the remaining W87 JTA work.

Within Campaigns, all Level 2 Milestones were completed on time except for Stockpile Readiness MRT milestones 1965 and 1864. BWXT Y-12 completed all of the Level 3 milestones (PBIs) for ESC and SR. The majority of the PBIs were contained in ADAPT which had 20 out of the total 25 milestones. ADAPT completed 19 and missed only one milestone. Good progress was noted

in advancing technologies, especially in the areas of microwave casting, SDOR, and Infrared Heating. BWXT Y-12 also had significant accomplishments with installing the Agile Machine in Development, deployment of a classified diskless Ardence Secure RAM disk controller workstation, development of a machine locking system (MALOCS), and production of the first image with the High Energy Digital Radiography 9 MeV system. At the end of the evaluation period, the overall CPI and SPI for Campaigns was 0.96 and 0.94, respectively, representing a significant improvement over FY 2005. BWXT Y-12 needs to improve the process for inserting technology into production.

All performance measures for the PDRD Program were met or exceeded, including costing as close to 2% of the available budget before overhead is applied as possible, populating the L/PDRD database, and moving projects to the next stage of development.

In the area of Readiness in Technical Base and Facilities, nine out of ten Level 2 milestones are Outstanding (the single exception is 10 CFR 851 which is ongoing). In the area of Material Recycle and Recovery (MRR), metal production resumed operation and lithium wet chemistry exceeded the FY 2006 production goals. Operations of Facilities funded several activities that were not part of the original baseline. This included additional OPC (\$1M) for UPF and \$500K for 9720-6 relocations. Program Readiness was also able to support all DSW and ES&H sampling within a very constrained budget. Excellent support was noted for the Inactive Actinides Working Group, resulting in additional funding for FY 2007.

In Facilities and Infrastructure Recapitalization Program (FIRP), BWXT Y-12 continued a very successful and aggressive demolition program and made significant buy-downs on the FY 2003 deferred maintenance baseline. Overall FIRP spending also reached a major milestone with approximately 75% of the available budget authority costed for the year. In addition, all baselined projects were completed ahead of schedule, and Infrastructure Reduction successfully demolished over 100,000 square feet that was a major contributor to a 13% reduction in energy costs from FY 2005 to FY 2006.

In the area of NN and NR and other reactors, outstanding progress has been made in: the preparation and delivery of HEU to Naval Reactors, USEC and TVA; preparing HEU for the NNSA 17 MT "Reliable Fuel Supply" contract and foreign governments for research, test, and medical isotope production reactors; and in planning and executing other HEU disposition projects. Y-12 has provided excellent support for the DOE complex in the planning and disposition of surplus HEU.

BWXT Y-12 is continuing to have outstanding success in making and expanding its contributions to the NNSA Defense Nuclear Nonproliferation programs. The increased participation and quality of support to the HEU Transparency Program has exceeded expectations. All IAEA inspections at Y-12 were conducted without incident. Participation and support of the new Global Threat Reduction Initiatives continues to be very good. BWXT Y-12 employees have also provided key expertise and project management for complex and sensitive missions to remove radioactive material and equipment from foreign environments. Progress has been made in using Y-12 facilities and expertise for testing and demonstration of nonproliferation technologies.

Overall performance in the Personnel Security functional area was Outstanding. Major accomplishments included the implementation of an "Interim HRP" process at Y-12 and full implementation of HSPD-12 Phase I requirements. Both of these efforts were identified by NNSA HQ (NA-70) as "leading the complex" for S&S innovation and effort.

Overall performance in the S&S Program Management, Information Security, Cyber Security, and NMC&A functional areas was Good. Performance in the S&S Program Management functional area was impacted early by issues with Security Plans and the failure to provide an adequate S&S Annual Operating Plan (AOP). The contractor recovered from this performance, and achieved

substantial accomplishments later in the period due to significant management attention and effort. Two strengths in this area were the response to Design Basis Threat (DBT) requirements and Technology Deployment. BWXT Y-12 continues to provide excellent evaluation, planning, and implementation of DBT efforts, meeting all HQ deliverables with quality products. In addition, Y-12 leads the complex in the development and deployment of new security technologies. Major accomplishments in the Information Security area included YSO approval of the Y-12 CMPC manual which implements the new DOE CMPC requirements, the disposition of classified parts, and continued destruction of a significant amount of unneeded ACREM. Areas needing continued management attention are the closure of findings and adequacy of Deviation submittals. In the cyber security area, major improvements were seen in two-factor authentication for remote access, laptop encryption, and equipment upgrades. A significant degaussing deficiency was identified by YSO and corrected. The contractor should ensure their self-evaluation of cyber security processes is adequate to discover issues of this significance. While performance in the NMC&A functional area for most of the period was below expectations, significant improvement was achieved by the end, with substantial progress on corrective actions to address identified issues, particularly with material surveillance. This included improvements in two-person rule implementation and the deployment of technology to assist in implementation. Y-12 NMC&A is leading the complex in plans for implementing the Safeguards First Principles Initiative (SFPI); was recognized by outside organizations for their expertise; and was requested to assist in benchmarking and training of other organizations.

Overall performance in the Protection Program Operations (PPO) functional area was Satisfactory. Significant accomplishments were seen in the installation of physical security enhancements, including several vehicle barriers, fences, and detection systems. Overall performance in the PPO area, however, declined during the period as a result of slow progress in addressing significant issues still requiring resolution. This includes VTR concerns and issues in one facility for which little progress was made.

Overall performance in the S&S functional areas, with the exception of PPO, met or exceeded YSO expectations. Significant accomplishments were achieved in all areas. Continued strong action and dedicated senior management attention will be necessary to accomplish the remaining challenges for implementation of the DBT and correcting outstanding Physical Security issues.

The remainder of this section provides more specific information on each of the Mission topical areas.

Integrated Program Planning and Execution

The overall rating in the area of Integrated Program Planning and Execution was Outstanding.

The objective of Integrated Program Planning and Execution is to support cross-cutting program management activities including but not limited to: Planning, Programming, Budgeting & Evaluation System (PPBES), summary work packages, work authorization directives, baseline control, work prioritization, budget submittals, and the development, control, and execution of integrated planning. Integrated Program Planning and Execution addresses the effort to integrate program planning and execution across the Y-12 National Security Complex and across the Nuclear Weapons Complex. Integrated program planning and execution is needed to ensure efficient and effective mission accomplishment. Work must be planned and approved prior to execution, and must not exceed funds available in approved financial plan. Carryover and reprogrammings should be minimized.

BWXT Y-12 completed one of the Top Ten priorities (the B61 FPU), and supported other Top Ten items including accelerating dismantlements, supporting the W76 FPU, Reliable Replacement Warhead, and Responsive Infrastructure. BWXT Y-12 made a significant improvement to the dismantlement process which resulted in substantial increase in the number of units dismantled. Also, BWXT Y-12 provided outstanding support to the Nuclear Weapons Complex in the areas of

Reliable Replacement Warhead and Responsive Infrastructure, through participation on teams, providing support to design agencies, tours, etc.

Overall, the PPBES management was excellent. The 2008 FYNISP deliverables were submitted on time and were of acceptable quality. BWXT Y-12 provided strong support for the QPRs and the NA-10 Defense Programming meeting in Albuquerque. This included significant effort coordinating the presentation with both YSO and NNSA HQ program managers, and ensuring that supporting budget deliverables were provided in a timely manner. The Milestone Reporting Tool was updated on schedule, and updates accurately reflected milestone status. BWXT Y-12 presented the milestone reporting tool data in a new format, a table of the red and yellow milestones with explanation of the issues, which was very useful during the QPR. This year BWXT Y-12 was requested to present the FY 2007 WADs to a YSO review team. The Program Managers did an excellent job presenting the WADs, and the presentation format was very effective in identifying problem areas, highlighting interdependencies among the WADs, and recommending proposals to address the shortfalls.

Baseline management for both programs and project management was very good. The baseline was established at the beginning of the fiscal year, and BWXT Y-12 submitted BCPs in a timely manner as needed to maintain the baseline. BWXT Y-12 submitted the updated Prioritized Project Lists and completed all Baseline Change Proposals (BCPs) to incorporate the FY 2006 Productivity Efficiencies and Scope Challenge. Project controls personnel provided strong support to a number of projects including HEUMF, BeC project, SIP, Steam Plant Life Extension project and Potable Water project. Activities included HEUMF EAC analysis including several funding scenarios, revision of the HEUMF WBS to address ICR recommendations, UPF cost and schedule benchmarking, support to critical decision packages and ESAAB briefings, etc.

Although overall funds management was very good, BWXT Y-12 had challenges with cost control/efficiencies to eliminate overruns in the areas of Production Support and Program Readiness. Efforts should be taken to improve/accelerate program/project execution in order to reduce the carryover in the NN programs and the Stockpile Readiness capital program.

BWXT Y-12 continues to make progress in Work Management Centers and Zone Controllers, both of which are contributing to efficient and timely performance of work. BWXT Y-12 needs to continue their efforts to strengthen this activity, including adding other functional areas such as Calibrations, ET&I Inspections, and Equipment Services.

BWXT Y-12 provided excellent support for a variety of complex-wide program meetings/events this fiscal year including the DP Planning and Budgeting Meeting, the Tennessee Valley Corridor Summit meeting and Quarterly Program and Project Reviews. Numerous HQ briefings were conducted on modernization planning, line item projects, and program execution to a number of important visitors including the DOE Deputy Secretary in June, a B61 FPU celebration involving NA-10 in April, a visit by the head of Naval Reactors in August, a joint visit by NA-12 and NA-70, the DP Awards of Excellence ceremony, and numerous other visiting dignitaries. Local communication with YSO has been good. The detail assignment of senior managers to HQ has resulted in positive benefits to both HQ and Y-12.

A major initiative was the development of the Y-12 Throughput Improvement Plan, which was lead by Operations and involved the other Divisions. The Y-12 TIP is critical to accomplishing the increased workload in the upcoming years. The Six Sigma process continues to be a major element of Y-12's productivity improvement initiatives. A number of Process Improvement Projects (PIPs) were initiated throughout the year, and yellow belt and black belt candidates continue to be certified. A new position at Y-12 was established to promote integration among the various Defense Programs including DSW, Campaigns, RTBF and FIRP. While this resulted in improved integration among these programs, effort still needs to be made to improve integration among Programs and other organizations including project management, non-DP Programs and financial staff.

The performance target to develop Integrated Facility Schedules for the Y-12 Production Facilities that include production, maintenance, and project activities was met. A presentation on the 9204-2E integrated Schedule was provided to YSO on December 21, 2005. Initial integrated facility schedule training for all remaining manufacturing facilities was completed by December 31, 2005. Schedules for the remaining facilities were developed, as well as an additional facility, 9212. All facility schedules have been updated with known FY 2007 facility activities. The development of the facility schedules enhances Y12's efforts in planning and scheduling as well as the effective utilization of Y12's resources.

BWXT Y-12 has done an excellent job responding to the Presidential Directive on Energy and Fuel Conservation.

Modernization and Responsive Infrastructure Planning

The overall rating in the area of Modernization and Responsive Infrastructure Planning was Outstanding.

The objectives of Modernization and Responsive Infrastructure Planning are to: 1) continue efforts to achieve a modernized factory that is responsive, efficient, and cost effective in meeting the missions of NNSA and meets the latest design basis threat guidance and complies with modern codes, standards, and ES&H regulations; integrate the planning of the many program and project initiatives to ensure a consistent execution of the vision; and 2) contribute implementation of a responsive and sustainable Nuclear Weapons Complex infrastructure necessary to guarantee the Nation's nuclear security in a dynamic and uncertain threat environment.

BWXT Y-12 delivered several high quality modernization planning documents this fiscal year including the Y-12 Integrated Modernization Plan, Concept Study for a Consolidated Manufacturing Complex, Bridging the Gap - An Analysis of the Sustainability of Y-12 Manufacturing Facilities and Equipment until Modernization, and limited update for the Ten Year Site Plan. Other high quality plans included the HEUMF Initial Loadout PEP and Area 5 MAA De-inventory PEP.

BWXT Y-12 worked on several planning initiatives this fiscal year to relocate and consolidate materials throughout the plant to implement the DBT guidance. Briefings and information were provided to HQ to identify the DP costs to implement the DBT guidance. BWXT Y-12 put forth a significant effort to support the Depleted Uranium/Binary Consolidation effort. Planning documentation was prepared to support Phase 2 activities. Sources of funds were self identified by BWXT Y-12 and presented to HQ as a means to accomplish the work.

BWXT Y-12 completed a pair-wise comparison of alternatives for the SIP/HEUMF/UPF interfaces and presented the information to HQ. The presentation resulted in the decision to go forward with the SIP project with the ARGUS scope only based on the availability of funding. BWXT Y-12 put forth a significant effort to support the Integrated Facility Disposition Project (IFDP) walkdowns with a DOE-EM-sponsored team. This effort was needed to prepare the Critical Decision-0 information to deactivate, decontaminate, and decommission excess facilities and underlying soils and groundwater at Y-12 and ORNL through FY 2018.

BWXT Y-12 expended a good effort on the development of a new strategic plan that builds on the NNSA transformation initiative. Requirements, strategies and concepts continue to be developed to support third party financing for the Emergency Command Center, Development Facility, Maintenance Facility, and Plant Laboratory. BWXT Y-12 provided good support for the development of the Site Wide Environmental Impact Statement and public meeting. BWXT Y-12 provided good support for the Complex 2030/ Responsive Infrastructure (RI) initiative during the year including the "January Process" meetings, preferred scenario development, and responsive infrastructure metrics.

Construction/Project Management

The overall rating in the area of Construction and Project Management was Marginal.

The objective of the Construction/Project Management program is to ensure all projects are managed within established and approved baselines (cost, schedule, and scope) with a management philosophy that demonstrates continuous improvement and the desire to be the best-in-class in project management.

The rating is due primarily to the HEUMF performance. While BWXT Y-12 has made significant personnel, organizational, and project management system changes toward improved HEUMF performance, NNSA awaits cost and schedule performance evidence.

Notable areas of good performance include:

- 1) Building 9720-82 Project Management,
- 2) Building 9720-82 engineering responses to RFIs/ECNs,
- 3) Cost avoidance resulting from the Building 9720-82 mock-up,
- 4) CAUP ahead of schedule/under budget for construction and testing activities,
- 5) PWSU CD-1 approval and CD-2 "conditional" performance baseline approval and excellent commendation by the IPR and EIR teams of technical scope and schedule, and
- 6) Continued good performance on GPP and GPE projects.

The Compressed Air Upgrades Project provides a centralized source of plant air to Y-12 with a capacity of 19,500 scfm. The project is made up of three compressor trains, which includes; filters, air dryers, compressor units, receivers, and heat exchangers. Adjacent switchgear, controls, upgrades to the cooling tower 8 motor and pump systems, MCC and switchgear, chiller retrofit, and demolition of abandoned equipment achieved an overall CAUP completion of over 90%. In Fiscal Year 2006, exceptional performance has maintained the project within schedule and under budget and the project management and engineering team's performance is excellent. Lockout/tag out mapping improved as project construction matured, other projects are benefiting from estimating lessons learned, acquisition strategies, and external best management practices such as attending engineering conferences for training needed to improve design and installation strategies. Open actions that remain are punch list items, operator procedure writing, operations training, readiness checklists, and integrated testing which is planned for completion by December 20, 2006. Project Critical Decision-4 is July 2007 and project close out is planned for September 29, 2007.

NNSA would like to see continued improvement in the areas of 1) cost engineering and estimating, 2) QA/QC with flow down to subcontractors, 3) construction work processes, 4) project controls including change management, and 5) meeting YSO performance expectations for award fee performance metrics.

For Building 9720-82, further work is necessary to establish confidence that the Building 9720-82 Baseline Performance can be maintained once the Baseline Change Proposal is approved by the end of 1st Quarter FY 2007.

For the SPLE, performance improvement is needed in defining the reasons for the significant construction cost increases with a more detailed cost estimate and a well defined path forward to support repair/upgrades of the steam supply at Y-12.

Based upon foundational improvements implemented in FY 2006, YSO anticipates further improvement in FY 2007.

Plant Directed Research and Development (PDRD)

The overall rating in the area of PDRD was Outstanding.

The objective of the PDRD program is to ensure BWXT Y-12 will manage the funds set aside for PDRD to accomplish the goals set forth in the PDRD Program Plan.

All performance measures for the Program were met, including costing as close to 2% of the available budget before overhead is applied as possible, populating the L/PDRD database with information from FY 2005 projects on time, and moving projects to the next stage of development. Results of assessments conducted were good, and the PBI for debonding was met.

The reason PDRD is rated Outstanding is that five PDRD projects are scheduled to be moved to the next stages of development in FY 2007, with requests for funding for ten additional projects to be moved to the next stages in FY 2008. This significantly exceeds the number in the performance measure (four).

Directed Stockpile Work

The overall rating in the area of DSW was Good.

This rating is primarily based on BWXT Y-12's inability to complete all directed and funded work, continuing issues with maintenance of critical equipment, and less than adequate cost and schedule performance.

The objective of the DSW Program is to ensure BWXT Y-12 will perform planning, execute, and manage to the technical baselines (work scope, cost, and schedule) contained in the Summary Work Plan for DSW Programs. This includes the DSW functional areas of Life Extension Programs (B61 ALT 357 and W76-1), Stockpile Systems (Quality Evaluation, Shelf-Life, and Joint Test Assemblies), Retired Systems (W56, B61, and other systems), Stockpile Services, Production Support, and Containers. BWXT Y-12 will provide weapons hardware and other technical services (including but not limited to components, subassemblies, materials, weapon-related services) to Design Agencies (DA) in a highly responsive manner (in terms of responsiveness and timeliness, quality, and cost-effectiveness).

The DSW Program is the NNSA program that fulfills the Defense Programs mission to maintain the safety, reliability, and performance of the nuclear weapons stockpile. DSW includes all activities that directly support weapons in the stockpile including production and refurbishment, QE and Surveillance, Dismantlement, and supporting tasks such as nuclear weapon receipts and packaging, DSW Complementary Work, and Stockpile Services (primarily Production Support). Some major DSW accomplishments during FY 2006 included the following:

- BWXT Y-12 successfully accomplished all 28 Level II milestones.
- All base dismantlement and disposition work scope was completed ahead of schedule. In addition, accelerated and high-challenge dismantlement and disposition goals have been met or exceeded. As a result, FY 2006 goals for the entire dismantlement and disposition were exceeded within existing budget authority.
- The Production Support program was significantly challenged due to a reduced funding level in FY 2006. BWXT Y-12 was able to gain efficiencies, realign major work scope to free up resources, and assumed additional risk in efforts to support DSW deliverables. Overall, this effort was successful since the contractor was able to minimize impacts to DSW deliverables and manage costs within the control point.
- Surveillance work planned for the 9204-4 Facility was completed allowing the cessation of operations in that facility to be accommodated with no impact to FY 2006 program deliverables. Twenty one units were processed during the year. Early in the fourth quarter of FY 2006, high challenge scope was added to the surveillance work load. Operational

efficiencies enabled a majority of the planned FY 2006 QE work scope to be completed in late August or early September. High Challenge scope was completed.

- Container deliveries to the PANTEX Plant supporting dismantlement activities for the W62, W70, W78, B61, and W76 Programs were completed. This included containers to support BWXT Y-12 PANTEX Stretch Goals. In addition, the contractor continued to provide strong support in the preparation of safety documentation for nuclear packaging.

During FY 2006, there were several key areas where performance was less than satisfactory. Opportunities for improvement have been identified and include the following:

- B61 ALT 357 Program execution – BWXT Y-12 was unable to complete all the required baseline work scope due to several factors including issues with surface defects, an extended critical facility outage, equipment problems, and late design changes. Of the planned PPI production, only about 21% of the requirements were achieved. The contractor's performance during FY 2006 has put this program at high risk of failing to support PANTEX and ultimately NNSA's DoD customer. Financial management of this program was less than satisfactory as evidenced by the need to "borrow" budget from the W76-1 LEP in the last quarter of FY 2006 to ensure actual costs did not exceed available budget.
- W87 JTA4 deliverables – The contractor struggled throughout the evaluation period to complete the baseline work on the W87 JTA4 program. Only 30% of the required units were completed which will necessitate this work being carried over into a third fiscal year for execution. The planned work scope on the composite deck (primarily associated with tooling) was not fully completed due to conflicts with tooling requirements for the B61 and W76 programs.
- Although cost and schedule performance was acceptable at the overall DSW level, there remain certain subprograms that need improvement. Those subprograms include the B61 ALT 357 (both cost and schedule performance must be improved) and DSW Complementary Work (schedule performance must be improved). In addition, DSW needs to improve the cost management and control system as communicated by the Federal Program Manager.

The senior Federal Program Manager provided the following summary communication regarding BWXT Y-12's performance in FY 2006: "Y-12 demonstrated outstanding performance in significantly exceeding FY 2006 dismantlement requirements and positioning themselves to achieve dismantlement rates in FY 2007 and beyond. Y-12's performance in the areas of surveillance, the W76 LEP, and Production Support was Good. The majority of surveillance requirements were met, Production Engineering activities for the W76 LEP were supported, and a balanced Production Support program was achieved despite numerous challenges. Y-12's performance with the B61 LEP was Satisfactory. The B61-7 ALT 357 quantities were not achieved. Additionally, the B61-7 ALT 357 DRAAG was postponed due to delays in receiving required data from Y-12."

Campaigns

The overall rating in the area of Campaigns was Good.

The objective of the Campaigns Program is to ensure Campaigns will be managed and executed in accordance with Work Authorization Directives and implementation plans with focus on Level I, II, and III milestones. The Campaigns will re-establish and enhance the manufacturing capability at Y-12 needed for the long-term stewardship of the stockpile. These efforts will result in the revitalization of Y-12's ability to meet its mission requirements in a more responsive, efficient, and cost effective manner while improving security and worker safety and health.

The Campaigns at Y-12 continue to provide significant support to the modernization program at Y-12 this year, particularly, the Uranium Processing Facility Technology Development. Campaigns funds projects that are technically challenging, multi-year, multi-functional efforts to

re-establish and enhance the manufacturing capability at Y-12 needed for long-term stewardship of the stockpile.

Campaigns at Y-12 continue to choose projects that support the NNSA and Y-12 Modernization efforts. The SDOR bench top process achieved success in June 2006, by producing depleted uranium buttons. The technology development Microwave casters produced nine depleted uranium specimens. BWXT Y-12 also had significant accomplishments with installing the Agile Machine in Development, deployment of a classified diskless Ardence Secure RAM disk controller workstation, development of a machine locking system (MALOCS), and completion of the Readiness Assessment on the Laser Gas Sampling System.

At the end of the evaluation period, the overall CPI and SPI for Campaigns was 0.96 and 0.94, respectively. These numbers indicate an improvement of 12% for SPI and 10% for CPI compared to FY 2005. The uncosted balances for the individual campaigns were within the NNSA guidelines with the exception of ADAPT which was outside the control of BWXT Y-12 due to the plus-up funding. The Readiness Campaign lowered its uncosted balance in comparison to the previous fiscal year.

All Level 2 Milestones were completed on time except for Stockpile Readiness MRT milestones 1965 and 1864. BWXT Y-12 completed all of the Level 3 milestones (PBIs) for ESC and SR. The majority of the PBIs were contained in ADAPT which had 20 out of the total 25 milestones. ADAPT completed 19 and missed only one milestone.

A number of programmatic based assessments were performed by not only the site office but also NNSA headquarters. Y-12 hosted the first Readiness Campaign Baseline Validation Review May conducted by the Office of Stockpile Technology (NA-123) in cooperation with the site office. BWXT Y-12 provided good support in all of the reviews. A problem area identified in one of the assessments was the inability of BWXT Y-12 to implement new technologies into production areas; in other words, the startup of new equipment and production actually using the equipment. This remains an issue with certain Campaign projects.

Readiness in Technical Base and Facilities (RTBF) & Facilities and Infrastructure Recapitalization Program (FIRP)

The overall rating in the area of RTBF and FIRP was Outstanding.

The objective of the RTBF program is to ensure the program will be managed and implemented in accordance with the Y-12 FY 2006 RTBF Execution Plan with focus on Level I, II, and III milestones. The FIRP will be managed per the FY 2006 Program Execution Plan issued by Headquarters. The objective of RTBF is to ensure that key production facilities, processes, materials, and equipment are available to meet current and future mission requirements while FIRP is focused on reduction of the deferred maintenance backlog and elimination of excess facilities.

The rating is based on exceptional performance in supporting the DSW mission and balancing the competing needs of old facilities and processes with making necessary investments in HEUMF and UPF for the future. Nine out of ten Level 2 milestones are projected to end the year with a Outstanding rating (the single exception is 10 CFR 851 which is ongoing). In the area of MRR, metal production resumed operation and lithium wet chemistry exceeded the FY 2006 production goals. Operations of Facilities funded several activities that were not part of the original baseline. This included additional OPC (\$1M) for UPF and \$500K for 9720-6 relocations. Program Readiness was also able to support all DSW and ES&H sampling within a very constrained budget.

Within IAWG, Y-12's efforts have resulted in HQ support for Y-12 projects to disposition legacy materials totaling ~\$6.5M in additional RTBF funds for FY 2007. In FIRP, BWXT Y-12

continued a very successful and aggressive demolition program and made significant buy-downs on the FY 2003 deferred maintenance baseline. Overall FIRP spending also reached a major milestone with approximately 75% of the available BA costed for the year. In addition, all baselined projects were completed ahead of schedule, and Infrastructure Reduction successfully demolished over 100,000 square feet that was a major contributor to a 13% reduction in energy costs from FY 2005 to FY 2006.

Y-12 provided outstanding technical support to the DOE team responsible for developing the DNFSB Recommendation 2005-1 Implementation Plan and drafting a DOE nuclear materials packaging manual. The Y-12 Subject Material Expert (SME) participating on the writing team provided invaluable support to the team in developing the 2005-1 requirements for enriched uranium and in developing the overall nuclear material storage and packaging strategy, container requirements, risk assessment and other technical areas. The Y-12 SME brought an excellent operation/technical perspective to the group that has greatly improved the quality of the draft manual.

Nuclear Nonproliferation (NN) and Reactor and Other Material Supply

The overall rating in the area of Nuclear Nonproliferation, Naval Reactors, Other Reactors and Research Material Supply was Outstanding.

The objective of the Nuclear Nonproliferation, Naval Reactors, Other Reactors and Research Material Supply Program is to develop, manage, and execute programs in support of the NNSA nuclear nonproliferation missions, Naval Reactors Program, and the supply of nuclear materials for research and isotope production reactors and other Y-12 customers.

Outstanding progress has been made in the preparation and delivery of HEU to Naval Reactors, TVA, preparing HEU for the NNSA 17 MT "Reliable Fuel Supply" contract to be awarded in FY 2007, and foreign governments for research, test, and medical isotope production reactors and in planning and executing other HEU disposition projects. Y-12 met all contractual requirements for HEU shipments to the TVA, Y-12 completed numerous projects to disposition complex HEU materials and forms such as the SNAP reactor, K-25 trap material, and other low equity HEU materials. Y-12 has provided excellent support for the DOE complex in the planning and disposition of surplus HEU (e.g. Idaho), and in the identification of additional HEU inventories to be declared as excess from the nuclear weapons program and down blended. Y-12 satisfied all of the NR FY 2006 requirements and has worked very hard to resolve NR specification quality issues.

BWXT Y-12 is continuing to have outstanding success in making and expanding its contributions to the NNSA Defense Nuclear Nonproliferation programs. The increased participation and quality of support to the HEU Transparency Program has exceeded expectations. All IAEA inspections at Y-12 were conducted without incident. Participation and support of the new Global Threat Reduction Initiatives continues to be very good. BWXT Y-12 employees have also provided key expertise and project management for complex and sensitive missions to remove radioactive material and equipment from foreign environments. Progress has been made in using Y-12 facilities and expertise for testing and demonstration of nonproliferation technologies.

Safeguards and Security (S&S) Program Management

The overall rating in the area of S&S Program Management was Outstanding.

The objective of this area is to ensure all S&S Program Management elements are implemented in the execution of a S&S program in accordance with DOE Order 470.4; DOE Manual 470.4-1;

S&S applicable CFRs; DOE/NNSA directives, orders, and policies; YSO directives and policies; and Y-12 policies and procedures.

BWXT Y-12 performed effectively in all S&S Program Management subtopics. Efforts to enhance S&S program management effectiveness were continuous and substantial. Overall performance significantly improved throughout the year due to the significant management attention and commitment to improving overall Y-12 S&S.

The S&S Annual Operating Plan (AOP) development and implementation process began with many problems resulting in YSO approval occurring 5 months later than expected and no baseline changes being proposed or processed. However, BWXT Y-12's efforts to improve the AOP format, content, and change process resulted in a superior model for FY 2007. Contractor implementation of the 2006 AOP was acceptable with performance measures generally being met and significant communication and information exchanges on budget formulation and execution. While some progress was achieved, BWXT Y-12 must continue to establish "requirements based" process and staffing information and must ensure that timely revisions are made to the AOP when significant program or budgetary changes occur.

Similarly, the development and maintenance of security plans was unsatisfactory at the beginning of the fiscal year. However, with the development and implementation of new BWXT Y-12 procedures and recent improvements in plan quality, YSO delegated approval authority for most security plans to BWXT Y-12. This delegation of authority signifies YSO's confidence in the contractor's ability to perform well in this area.

BWXT Y-12 was very successful at responding to Design Basis Threat (DBT) requirements and changes. By March 2006, the contractor submitted a new Y-12 2005 DBT Implementation Plan to YSO. In September 2006, NA-70 validated YSO's certification of compliance with the May 2003 DBT. The VA team was very active developing implementation plans for various DBT policies, developing the SSSP, supporting HQ requests for information, conducting risk assessments for deviation requests, developing and implementing security upgrades, and supporting other major projects like the HEUMF and UPF. Based upon YSO's periodic assessments and NA-70's VA process reviews, BWXT Y-12 has performed exemplary in this functional area.

BWXT Y-12 was very aggressive at integrating security into site operations. Y-12's strategy for implementing Integrated Safeguards and Security Management (ISSM) is to integrate it with the Integrated Safety Management System (ISMS) process in an Integrated Management approach, as described in BWXT Y-12 procedure Y12-047, *Integrated Safety Management/Integrated Safeguards and Security Management*. Essentially, this procedure demands that all site work processes/activities integrate security and safety requirements to ensure secure and safe working conditions. Evidence that this philosophy is put into practice includes the conduct of alternatives analysis for upgraded protective force weapons systems and specific new physical security upgrades. For each activity, a comprehensive cross section of site personnel comprised teams to analyze and recommend paths forward to achieve certain security objectives while ensuring safety and operational concerns were appropriately addressed. BWXT Y-12 procedures Y15-004PD, *Configuration Management Program*, and Y15-009, *Criteria for Application of the Y-12 Configuration Management Program*, are the primary sources that delineate the process for ensuring changes to the site or its facility and operations adequately assess and address impacts to the protection program. These two procedures were recently re-written to strengthen S&S's involvement in change control processes.

Throughout the year, BWXT Y-12 has performed very well in the area of budget formulation and execution. BWXT Y-12 identified and implemented many opportunities to save or avoid not only security costs but operating costs as well. Their efforts to incorporate a project management cell into the security organization has resulted in a very impressive project closure rate with most being finished below budget and all either on-or-ahead of schedule.

BWXT Y-12 has performed exemplary and leads the NNSA complex in deploying new technologies to address protection requirements. Y-12 performance was noted to be exceptional by NA-70's Technology Deployment Program Manager in August 2006. Technologies associated with vehicle detection, SNM measurements, and access delays are examples of technologies actually deployed. Development and/or testing of technologies associated with sniper detection and response, fiber optic detection systems, secure wireless technologies, command and control, and tactical entry assistance are examples of work being led by BWXT Y-12. BWXT Y-12's efforts will save the site millions of dollars by reducing the need for security police officers. The technology deployment projects have been well managed with most meeting or exceeding funding/schedule goals.

Although YSO continues to express concerns regarding BWXT Y-12's corrective action plan development process, i.e. timeliness of submittals and use of the process to address sources of incidents of security concern, BWXT Y-12's process for identifying and tracking to closure issues is very effective. BWXT Y-12 was able to close 37 out of 40 CAPs captured in a FY 2006 performance based incentive. Additionally, BWXT Y-12 has proposed creative ways for addressing certain long-standing issues, e.g. deviation requests or implementation of technology.

Personnel Security

The overall rating in the area of Personnel Security was Outstanding.

The objective of this area is to ensure Personnel Security program requirements are implemented in the execution of a S&S program in accordance with DOE Order 470.1; S&S applicable CFRs (including 10 CFR 712); DOE/NNSA directives, orders, and policies; YSO directives and policies; and Y-12 policies and procedures.

BWXT Y-12 continues to actively assess the Personnel Security program and make improvements geared toward efficiencies in process and better use of personnel. This was evidenced in their sponsorship and participation in Six Sigma PIPS in both the HRP and access authorization areas; changes to site processes and procedures; and the use of internal and external assessments.

BWXT Y-12 continued to develop and provide additional HRP training and guidance for employees, supervisors, and HRP Management Officials in a continuing effort to reinforce the importance of their individual and collective roles under this key program and the impact on National Security if there is a failure. The HRP program is one that is noted as a "benchmark" for the complex by NA-70. Processes, procedural approaches, and information collection and dissemination approaches have been shared locally with ORO for their audit preparation, Nevada, and Los Alamos. In addition, contractor implementation of an "Interim HRP" process resulted in the achievement of significant savings for Y-12. This process implementation was based on a risk assessment of the current HRP process in an effort to better utilize personnel with "Q" clearances for HRP positions while awaiting the completion of their HQ Counterintelligence polygraph and evaluation assessment. Approximately 154 interim HRP packages were processed and approved by YSO to date.

Contractor efforts and diligence in meeting the October, 2005, HSPD-12 deadline again produced a "benchmark" program with an innovative process approach. BWXT Y-12 continued to work the HSPD-12 program beyond the initial implementation with focus on continuing Phase I and the new Phase II process efforts through close coordination with HQ, the NNSA Service Center, and local organizations. The sum of these efforts was noted as a standard for the complex by HQ NNSA, NA-70.

An additional accomplishment was the closure and verification of the last findings from the 2005 OA inspection in accordance with the established timelines.

Information Security

The overall rating in the area of Information Security was Good.

The objective of this area is to ensure Information Security program requirements are implemented in the execution of an S&S program in accordance with DOE Order 470.4; S&S applicable CFRs; DOE/NNSA directives, orders, and policies; YSO directives and policies; and Y-12 policies and procedures.

BWXT Y-12 performed effectively in all aspects of information security this year. The approval of the Y-12 CMPC manual, which now aligns with DOE M 470.4-4, resulted in the closure of six issues in CAPS and the cancellation of nine Standing Orders. The comprehensive S&S survey report resulted in no CMPC findings. Overall, much growth and progress have been noted in the CMPC area. In addition, Y-12 made outstanding progress in classified parts disposition and the disposal of ACREM. Performance evaluations and assessments of the Classification Guidance sub-topical area typically found all requirements implemented. Performance in the OPSEC, COMSEC, TSCM, and TEMPEST programs was acceptable. Of note, Y-12 submitted an updated Protected Transmission Plan which YSO approved and forwarded to Headquarters for concurrence. This directly supported the classified computing environment.

Throughout the year, YSO rejected several requests to close findings following the required YSO field work. Additional efforts need to be placed on ensuring corrective actions are met prior to submittal for YSO verification activities. In addition, YSO returned several deviations to Y-12 for rework. Improved communication between information security and physical security personnel is necessary since many physical security decisions directly impact the information security submittals.

Cyber Security

The overall rating in the area of Cyber Security was Outstanding.

The objective of this area is to ensure Cyber Security program requirements are implemented in the execution of a S&S program in accordance with DOE Order 470.4; DOE Order 205.1; DOE O 471.2-1A; NNSA Cyber Security Policies (NAPS) 14.1 – 14/11; DOE/NNSA cyber directives, orders, and policies; YSO directives and policies; and Y-12 policies and procedures.

Program evaluations and assessments typically found the implementation of the cyber security sub-topical areas to meet requirements. BWXT Y-12's work in implementing two factor authentication for remote access to cyber systems greatly strengthened the unclassified cyber program. In addition, Y-12 took action to encrypt laptops taken offsite. The development of system administrator training, replacement of legacy switches, deployment of HBIDS on key systems, and responses to data calls are all positive actions this FY. Y-12 also deployed a number of Blackberries and implemented two-factor authentication for these devices, worked toward NAP implementation, supported the Integrated Cyber Security and Diskless Initiatives, and improved in the timeliness of cyber plan submissions.

A degaussing deficiency, identified by YSO, was exacerbated by BWXT Y-12 procurement re-bidding of a recycling contract without cyber security input. It was noted that BWXT Y-12 quickly responded to the issue by sending an internal auditor and cyber security specialist to various locations in the United States to investigate. Y-12 should continue to focus on improvement in the areas of training, self-assessments, implementation of ISSPs, and labeling.

Nuclear Materials Control & Accountability (NMC&A)

The overall rating in the area of NMC&A was Good.

The objective of this area is to ensure NMC&A program requirements are implemented in the execution of an S&S program in accordance with DOE Orders 470.4; DOE Manuals 470.4-6; S&S applicable CFRs; DOE/NNSA directives, orders, and policies; YSO directives and policies; and Y-12 policies and procedures.

BWXT Y-12 made significant progress in improving NMC&A performance at Y-12 during this evaluation period. BWXT Y-12 continued to demonstrate strong commitments to the NMC&A program including the implementation of process monitoring, use of the management assessment process, and the use of full-time MBA custodians in the operating areas to assist operating area personnel. The NMC&A Department continued to produce quality documentation and coordination of shipper/receiver agreements and documentation of safeguards termination on selected material forms.

Significant progress on corrective actions addressing material surveillance improvement continues to be demonstrated. Most elements of the program are robust and well documented. The challenge to this program is in its implementation and integration with production/operations. Many efforts continue to improve this integration.

The Nuclear Materials Control and Accountability (NMC&A) Department at BWXT Y-12 was recognized both nationally and internationally as highly skilled professionals and has been requested to assist in benchmarking and training activities world-wide. Within the United States, Y-12 has participated in cross-pollination efforts with Washington Savannah River Company, Sandia National Laboratories, Los Alamos National Laboratory, PANTEX, Nevada Test Site, Idaho National Laboratory, and the U.S. Military 20th Support Command. Internationally, NMC&A has participated in information sessions with the Russian and Chinese nuclear facilities. In addition, NMC&A played a significant role in the Global Threat Reduction Initiative.

BWXT Y-12 is leading the DOE complex in development of plans and procedures for implementation of the Safeguards First Principles Initiative (SFPI), an NNSA directive to improve the quality and efficiency of DOE operations. The first draft of the proposed SFPI MC&A Plan is complete, and the program effectiveness model methodology has been drafted.

BWXT Y-12 is striving to improve NMC&A communications between the divisions that operate the Y-12 production facilities. Lessons learned and weekly refreshers on selected NMC&A topics are presented by the MBA Custodians each week during operations crew briefings. A pilot program was initiated to improve communication during anomalies, and is designed to streamline documentation of questions, requests, and guidance provided to operations personnel.

Protection Program Operations (PPO)

The overall rating in the area of PPO was Good.

The objective of this area is to ensure PPO requirements are implemented in the execution of a S&S program in accordance with DOE Order 470.4; S&S applicable CFRs; DOE/NNSA directives, orders, and policies; YSO directives and policies; and Y-12 policies and procedures.

Several achievements were made in this area during the year, such as resolution of the PIDAS overhead line issues; installation of automated vehicle barriers; installation of site wide vehicle deterrent blocks; installation of site perimeter vehicle detection systems; and the completion of numerous other DBT driven physical security barrier projects.

Some of the more significant issues identified and ongoing for the period involved VTRs and security system deficiencies. As noted in the YSO comprehensive S&S survey, issues include out-of-date facility drawings for documenting IDS sensor locations and coverage (at least one as old as 2001). Additionally, concerns were identified with the performance testing of one VTR based on YSO evaluation of the VTR certification request. Issues with the security posture for

one facility should be near a decision for resolution. This has been an unresolved issue for the duration of the period, with a special task team established to provide a path forward. Management attention is required to assure continued progress in this area and to address other outstanding issues.

III. OPERATIONS (40%)

The Operations area included the following topical areas: Engineering, Authorization Basis, Criticality Safety, Emergency Management, Fire Protection, Packaging and Transportation, Environmental and Waste Management, and Worker Protection, and Conduct of Operations, Maintenance, Quality Assurance, Training and Qualifications, and Readiness. Some improvements in configuration management and training of engineers are being accomplished. Improvements in delivering design inputs and in controlling design changes are needed. Authorization Basis is partially meeting expectations. BWXT Y-12 achieved approval of the 9212 10 CFR 830 compliant safety basis documents and continues to improve in performing Unreviewed Safety Question determinations. Improvements in the implementation of the 9212 facility compliant safety documents and in ensuring supporting documents are completed before submitting the analysis reports for NNSA approval are needed. Improvements in accomplishing corrective actions for longstanding issues were attributed to an effective usage of the Criticality Safety Officers and management support to complete these items. A significant criticality safety event associated with casting operation pointed to deficiencies in the conduct and control of the Uranium Holdup Survey program. BWXT Y-12 took strong and positive recovery actions, but will still need sustained management attention to ensure continued effectiveness of corrective actions coming out of this event. BWXT Y-12 training and exercise performance remained at a high state and the joint YSO – Office of Secure Transportation (OST) exercise benefited both NNSA field and OST organizations. This was a very beneficial test of the concept of operations governing transportation accidents that may occur at NNSA field sites. Improvements in radiological postings have been accomplished and management response to noted deficiencies is exceptional. Fire Protection performance remained steady. Completions of actions included in the Fire Protection Program Corrective Action Plan slowed due to reduced funding allocations. Efforts to recover these actions and to develop a new baseline of the plan are needed. Despite strong performances in pollution prevention, where BWXT Y-12 has earned significant awards, and maintaining excellent relations with external regulators, the performance in completing Low Level Waste shipments of new wastes and in achieving reductions in legacy waste was less than expected. BWXT Y-12 continued its very long record (now 6 years) of excellent performance in precluding any significant reportable events. BWXT Y-12 continued to progress Behavioral Based Safety and wellness initiatives. The safety performance indicators are good and are showing an improving trend. BWXT Y-12's support for the Unneeded Chemicals and Materials initiative resulted in a significant reduction in legacy chemicals in its Development facilities and excellent progress is being made on implementing the 10 CFR 851 requirements.

Contractor FY 2006 performance in the CONOPS functional area was rated Good. Much of the work done at Y-12 was completed without incident. However, as reported throughout the year, the contractor was plagued with procedure compliance and use problems, safety basis violations (although fewer in number than last year), abnormal event investigation problems, occurrence reporting performance problems (2 of 3 performance targets were missed this year), and some high visibility performance problems and failures to declare and report violations. Performance was compounded by the contractor's failure to recognize, identify, and address several significant problems and events, necessitating vigorous YSO intervention to ensure satisfactory resolution. While positive performance was noted during four months of the year (February, March, June, and July), overall, the conduct of operations area has not shown significant improvement over the year. Improved ratings in the future will be dependent upon the contractor's determination and ability to be more self-critical in evaluation of CONOPS performance. YSO assessments indicated that QA programs were generally being implemented in operations; however, implementation in some areas such as projects was lacking. After a significant failure by BWXT Y-12 in the oversight of HEUMF construction activities, YSO has observed a continual improvement in the area of

HEUMF Project QA/QC implementation. Throughout the year, issues were identified by YSO in areas such as work control, planning, electrical safety, post work testing, inadequate integration of hazards and controls in work package instructions. The maintenance program had recurring issues such as inadequate post maintenance testing, and minor vs. complex work categorization, schedule adherence, emergency work not well defined, and inadequate integration of hazards and controls in work package instructions, poor electrical work practices, failing equipment, delay implementing SAP, inadequate self assessments, poor work execution, and poor work control. Facility owners have not been diligent in assigning the appropriate budget, resources or availability to maintain facilities and equipment in a reasonable manner. The RCM process has matured and the development of the PAMS manual, and implementation of the N³ process was a success. Monthly metrics established for the maintenance functional area were met throughout the year. Multi-craft planner and dispatched work were both successfully implemented by FI&S and several model work packages were developed and used by the WMC planners around the plant. The Y-12 Training and Qualification program has achieved a level of maturity that is commensurate with a workable, adequate program, which will support both current and future missions and also support safe operations. Significant improvement was realized this year by the contractor in the area of readiness preparation. The incorporation of readiness to operate in the up-front planning has resulted in a higher level of readiness being confirmed by readiness review activities. This level of performance was also noted by the NNSA HQ CDNS review team. Results of the CDNS review were overwhelmingly positive and included three Noteworthy Practices with no appreciable weaknesses attributable to the Contractor's Readiness Program or performance. The review team concluded that Y-12 has the "most comprehensive, mature, and compliant readiness program in the Nuclear Weapons Complex."

The remainder of this section provides more specific information on each of the Operations topical areas.

Engineering

The overall rating in the area of Engineering was Good.

The objective of the Y-12 Engineering program is that it will be managed and implemented in accordance with the requirements of DOE order 420.1B Facility Safety, applicable sections, Engineering S/RIDS, and the Y-17 series procedures.

BWXT Y-12 continues to maintain and improve their well managed VSS program with maintenance improvements and continuing upgrades to the VSS Program documentation, training, and qualification programs. BWXT Y-12 has implemented improvements in the configuration management and tracking of Vital Safety System status. Improvements in the quality of the command media used to maintain system configuration have also been developed and implemented. BWXT Y-12 has institutionalized additional training for VSS System Engineers in the inspection and maintenance of their systems. BWXT Y-12 has, since the beginning of the year, experienced a series of missteps in the flow down of engineering designs and requirements to the necessary documentation for construction. In implementing a change to the evacuation boundary for a facility, the engineering design change was not coordinated with the change to the SAR and with Operations. Additionally, during the PPTF startup preparation and assessment, several problems with translation of engineering design features into the construction instructions were noted. In the readiness process for a relocated glove box, several electrical deficiencies were overlooked until noted by YSO. Additionally, Engineering contributed to the HEUMF construction issues, with noted engineering design missteps in the review and checking of drawings provided by a subcontractor. In implementation of a design change to an air system, uncoordinated changes to the configuration resulted in cross connecting the air and nitrogen systems. As noted, these issues involved process and facility systems other than the VSS and demonstrated a need to upgrade the performance of other engineers to that of the VSS SE. BWXT Y-12 was prompt to investigate these situations and to develop and begin to implement corrective action.

Safety Basis

The overall rating in the area of Safety Basis program was Good, but with a decline over the year.

The objective of the Y-12 Safety Basis Program is that it be managed and implemented in accordance with the requirements of 10 CFR 830, Subpart B, *Safety Basis Requirements*, applicable S/RIDs and the applicable management requirements.

BWXT Y-12's performance was mixed. BWXT Y-12 continued to provide safety basis documents supporting both annual updates and changes to facilities, and supporting the development, review, and approval of the 9212 SAR and TSR. Annual updates to safety basis documents were generally submitted on time and satisfactory for NNSA approval. Scheduled commitments to submit the 9212 Safety Analysis Report and Technical Safety Requirements however, were not met, and BWXT Y-12 failed to maintain the schedule for submittal of waste management safety basis documents to YSO. The schedule for implementing the 9212 SAR/TSR has not been maintained; however, adherence to the resource loaded schedule now appears to be improving due to increased management attention. Following submission of the 9212 SAR/TSR and approval by YSO, it is recognized that the integration between facility safety, operations, and engineering has been exemplary. All required safety basis documents containing Specific Administrative Controls (a DNFSB recommendation implementation action) have been implemented following Independent Validation Reports. BWXT Y-12's support for DNFSB Recommendations 2002-3 and 2004-2 has been commendable. Performance in the USQ area improved during the period although some instances of less than adequate performance were noted. Improvement in the timeliness of USQDs associated with PISAs remains a necessary performance improvement. Independent reviews of revised safety bases are leading to quality improvement, however, examples of revised safety basis documents being submitted to YSO prior to completion of supporting technical documents were noted to be continuing. BWXT Y-12 has taken positive steps in risk reduction including the safety basis revisions supporting the QE relocation and the facility risk review of 9212. The safety and security integration approach being utilized at Y-12 is being used as the model for developing NNSA complex wide guidance.

Criticality Safety

The overall rating in the area of Nuclear Criticality Safety (NCS) was Good. An overall negative trend for the first half of the year was stabilized and improved over the last quarter.

The objective of the Criticality Safety Program is that it will be managed and implemented in accordance with sound safety practice as set forth in national expert consensus standards (ANSI/ANS-8 series) required by the DOE Order 420.1 Facility Safety and as specifically identified in applicable S/RIDs.

Issues continuing into the year were: historical HEPA filter holdup events in the 9212 facility which indicted that the level of formality to be improved in handling Uranium Holdup Survey Program (UHSP) interactions; the core makeup of the plant NCS committee was lacking experienced technical NCS engineering; and several 9212 facility equipment maintenance and legacy issues important to NCS remained unresolved. New events included: serious water ingress that wetted high equity fissile storage tanks, numerous container over-loading deficiencies, and the Dollinger vacuum filter holdup incident. BWXT Y-12 management assessments were ineffective in precluding these events which led to significant production interruption and delay. However, the contractor response during the Dolling filter was aggressive to determine its causes and in executing effective revisions to programs, procedures, and NCS evaluations. The NCS evaluations and basis, as well as the UHSP handling of inadvertent fissile material accumulations, is now arguably improved beyond what it was at the beginning of the year. BWXT Y-12 successfully performed revised NCS casting analysis which has paved the way for greater efficient production through an increase in mass limits which has effected a significant reduction in cast

rejections. The seriousness of events recorded this year, highlighted by the Dollinger filter loss of verifiable double contingency control event, should translate into serious lessons learned relative to the handling of an aging infrastructure at high risk for a criticality accident owing to the nature and high throughput of its fissile processes. Equipment design (replacement standard containers and cages), maintenance of criticality support equipment, and conduct of operations (execution of material handling and storage controls) are areas that continue to need management's attention and support.

Emergency Management

The overall rating in the area of Emergency Management was Outstanding.

The objective of the Y-12 Emergency Management Program is that it will be managed and implemented in accordance with the requirements of DOE Order 151.1B *Comprehensive Emergency Management System*, DOE Guide 151.1-1 *Emergency Management Guide*, as defined in the S/RIDS, and Y-40 series procedures.

The Emergency Management program performance delivered excellent training for emergency response personnel which led to observed performance improvements during management exercises series throughout the year emergency. This effort culminated in a very successful joint exercise between YSO and the Office of Secure Transportation which tested a new concept of operations for transportation events which occur on NNSA sites. Additionally, several facility and equipment upgrades (e.g. meteorological towers, K-1650 power systems, and Dialogic paging system upgrades) were accomplished. The BWXT Y-12 Emergency Management Program was recognized by the Chief Defense Nuclear Safety review team to be a strong program during its nuclear safety review of Y-12. Based on an experienced staff and mature program elements, BWXT Y-12 is in a good position to maintain high quality performance and will need to ensure emergency response training continue to receive emphasis and formalization within the Y-12 training processes.

Radiation Protection

The overall rating in the area of Radiation Protection was Outstanding.

The objective of the Y-12 Radiation Control Program is that it will be managed and implemented in accordance with the requirements of 10 CFR 835, applicable S/RIDs and the BWXT Y-12 Radiological Protection Program.

BWXT Y-12 performed its radiological controls activities in accordance with radiological protection regulations and continues to show good implementation results. Some noteworthy areas were: a dramatically reduced number of *reportable* personnel contamination events and improvements in executing radiological postings. BWXT Y-12 continued to provide support to various BWXT Y-12 initiatives that further the mission of the Y-12 National Security Complex (i.e., the ARW and Army programs). Other accomplishment that improved the program are: assurance that design process for new equipment and facilities include engineered features to support radiological hazards control, accomplishing improvements in contamination and airborne radioactivity controls for the Agile machine, and continual improvements in the personnel monitoring area. BWXT Y-12 incorporated the new thick chip for shallow dose monitoring into the external dosimetry program and completed installation of the new lung counter.

BWXT Y-12 remained proactive in correcting identified issues in a timely manner which demonstrates a strong commitment to continuous improvement. BWXT Y-12 continues to work with the YSO Health Physicist to make improvements in the radiological control program. However, improvements in the BWXT Y-12 contractor assurance process, to self-identify and correct issues before they are identified by YSO, could enhance the BWXT Y-12 radiological controls program and lead to less oversight by NNSA.

Fire Protection

The overall rating in the area of Fire Protection Program was Outstanding.

The objective of the Fire Protection Program is that it will be managed and implemented in accordance with the requirements of DOE Order 420.1, Facility Safety, applicable S/RIDs and Y79-001INS, "Y-12 Fire Protection Program Manual." The Fire Protection Program will be managed and implemented in accordance with the requirements of DOE Order 420.1, Facility Safety, applicable S/RIDs and Y79-001INS, "Y-12 Fire Protection Program Manual."

The BWXT Y-12 Fire Protection program performance was steady throughout the year, and there were no significant issues identified during assessments. BWXT Y-12 provided excellent support for the CDNS visit, and made good progress for the 10 CFR 851 implementation efforts. The CDNS review included the recognition that the Fire Protection program was considered a "strength." Efforts to improve the tracking and trending of test, maintenance, and inspection continue to progress, but indications are that continued focus by management to make improvements in completion rates for fire protection engineering analyses document and testing, maintenance, and inspections is needed. Additionally, the remaining actions included in the Fire Protection Program Corrective Action Plan Project need to be reviewed and proper documentation needs to be developed for items that will not be completed due to funding constraints.

Environmental and Waste Management

The overall rating in the area of Environmental and Waste Management was Good.

The objective of the Environmental and Waste Management programs is that it will be managed and implemented in accordance with applicable environmental laws, regulations, DOE O 450.1, DOE O 435.1, and Y71 series procedures.

The performance was mixed. BWXT Y-12 continued a very strong performance in pollution prevention (P2), as evidenced by several significant P2 awards and BWXT Y-12 strong and positive relationship with federal, state, and local regulators continued throughout the year. However BWXT Y-12 struggled to meet planned Low Level Waste (LLW) shipments, and little reduction in the amount of legacy LLW was achieved. Plant operations resulted in a brine leak in 9201-5 which in turn resulted NPDES permit exceedances and sufficient volume of liquids to dispose of through alternate means. BWXT Y-12 did not achieve some expected elements for clean up under the Y-12 PrYde program. The positive upward trend is due to the strong efforts at the end of the FY to manage the Nevada Test Site volume forecast; the reduction of the legacy LLW inventory; and the corrective actions taken to eliminate the extended storage (> 1 year) of LLW.

Packaging and Transportation

The overall rating in the area of Packaging and Transportation performance was Outstanding.

The objective of the Packaging and Transportation Program is that it will be managed and implemented in accordance with the requirements of DOE O 460.1B, Packaging and Transportation Safety, DOE Order 461.1A Packaging and Transfer of Materials of National Security Interest, DOE Order 460.2A, Departmental Materials Transportation and Packaging Management, DOE Order 440.2B, Aviation Management and Safety, applicable S/RIDs and Y73 series procedures.

BWXT Y-12's strong performance continued and has achieved zero U.S. DOT reportable motor carrier accidents or hazardous materials incidents for 6 years. Each of its activities is conducted with a high regard for ES&H and regulatory requirements. The contractor's transportation

personnel are involved in day-to-day activities and have been instrumental in implementing an effective program. They consistently practice the Y-12 NSC ISM policies and procedures in a multitude of activities. The CDNS review confirmed the determination that this is a strong program.

Worker Protection Management

The overall rating in the area of Worker Protection was Outstanding.

The objective of the Industrial Safety Program, Chemical Safety, Industrial Hygiene and Occupational Medicine Programs is that these will be managed and implemented in accordance with the requirements of DOE Order 440.1A, Worker Protection Management for DOE Federal and Contractor Employees, applicable S/RIDs and procedures (e.g., Y7 3-001PD, Industrial Safety Program, Y71-939GUD, Guidelines For Storing Hazardous Chemicals and Y71-937PD, Chemical Safety Management Program, Y73-200PD, Industrial Hygiene Program and Y78-001, Occupational Medicine Program).

BWXT Y-12 achieved no significant deficiencies identified with the ISMS or Industrial Safety programs. Safety statistics are acceptable and continue to improve. Good progress was made in Behavior Based Safety, and the contractor performed good assessments of its programs and supports complex-wide improvement by issuing lessons learned. BWXT Y-12 has been making good progress towards implementation of 10 CFR 851. The effort has been well coordinated, and continued diligence is required to meet the overall implementation schedule. BWXT Y-12 has placed additional emphasis on reducing the site legacy chemical inventory. A strong management commitment to reduce hazardous material inventories and in support of the Unneeded Materials and Chemicals (UMC) initiative has resulted in excellent progress in reducing legacy chemical disposition effort. The reconstitution of the Chemical Management Working Group (CMWG) serves to illustrate the recognized need to make substantial changes to the existing chemical management program. However, the classified portion of HMIS has remained to be handled in an inconsistent manner throughout the site. BWXT Y-12 efforts were successful with state regulators in approving the BWXT Y-12 cross connection control program. The efforts put forth in the beryllium minimization/reduction report (Y/TS-1968) were comprehensive and noteworthy. Actions required for clean-up and/or stabilization of beryllium contamination in the A-5-E machine shop and its related ancillary operations/locations require more attention by BWXT Y-12 management to ensure this area is properly cleaned and the Beryllium hazard stabilized. BWXT Y-12 continued wellness seminars, and made good progress in the development of the EMBOS system. Additionally, the medical staff continues to work with IH in its development, and the support by the medical staff of the Beryllium Support Group continued to provide an avenue for worker concern and education. Lastly, BWXT Y-12 maintained its required OHS programs and systems as required by an AAAHC readiness.

Conduct of Operations

The overall rating in the area of Conduct of Operations was Good.

The objective of the Conduct of Operations program is that the Y-12 facilities and utilities will be operated safely and in accordance with the requirements of DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*, as defined in the S/RIDs, and plant policies and procedures.

Much of the work done at Y-12 was completed without incident. However, as reported throughout the year, the contractor was plagued with procedure compliance and use problems, safety basis violations (although fewer in number than last year), abnormal event investigation problems, occurrence reporting performance problems (2 of 3 performance targets were missed this year), and some high visibility performance problems and failures to declare and report

violations. While positive performance was noted during four months of the year (February, March, June and July), overall, these areas have not shown improvement over the year.

A disparity has been noted between the results of contractor self-assessment and YSO oversight activities in the CONOPS functional area. Data submitted by the BWXT Y-12 Manufacturing Division indicate improvement in CONOPS performance of 14% when compared with the baseline results from last year. However, the ratio of negative YSO Issues to Assessments in FY 2005 was 14.8, rising to 21.5 in FY 2006. While not directly comparable, these data sets do serve to demonstrate conflicting perceptions of CONOPS performance.

FY 2006 Occurrence Reporting performance was as follows:

70% of reportable events were categorized on-time.

90% of categorized reportable events were reported on-time.

82% (against a target of 90%) of final reports were submitted on-time.

20% (against a target of 20% or less) of final occurrence reports requiring NNSA approval were rejected on the first submission. There were zero multiple rejections in FY 2006.

76% (against a target of 85%) of occurrence-related corrective actions were closed on-time.

Quality Assurance

The overall rating in the area of Quality Assurance was Good.

The objective of the Quality Assurance Program is that Facility Quality Assurance will be implemented in all operations conducted at Y-12 in accordance with the requirements of 10 CFR 830.120 and DOE Order O414.1B, Quality Assurance, as defined in the S/RIDS and plant policies and procedures, including Y-12 procedures Y60-101PD, Quality Program Description.

Stamping authority has been delegated to BWXT Y-12 in accordance with pre-established YSO conditions. YSO assessments have indicated no significant concerns with BWXT Y-12 acceptance activities.

YSO assessments indicated that QA programs were generally being implemented in operations; however, implementation in some areas such as projects was lacking.

During FY 2006 there were several issues involving loss of control and status of items, and use of nonconforming items in the production areas.

After a significant failure by BWXT Y-12 in the oversight of HEUMF construction activities, YSO has observed a continual improvement in the area of HEUMF Project QA/QC implementation.

YSO has evaluated the following metrics during FY 2006 and found them to accurately reflect BWXT Y-12's performance: Radiological Dose Performance, Backlog of Maintenance Work, Recordable Injury/Illness Rate, Safety Index, and BEST.

There were some programmatic issues raised in relation to corrective actions and the issues management process. After recognition of program weaknesses, BWXT Y-12 initiated an external independent review of the Issues Management Program. This review recommended numerous significant actions for consideration in order to improve the Program. YSO will continue to follow with interest the follow-on steps of finalizing and implementing these corrective actions.

Although there has been progress in enhancing performance and productivity of calibration activities, issues remain with the reduction of field calibration backlogs and ensuring all calibration activities are scheduled through the work management centers.

A Headquarters NNSA Quality Assurance Management Survey conducted in October 2005 concluded that the BWXT Y-12 quality program was found to be well documented, effective, and communicated throughout the organization.

Maintenance

The overall rating in the area of Maintenance was Good.

The objective of the Maintenance Program is that activities will be conducted in accordance with DOE Orders O433.1, Maintenance Management Program for DOE Nuclear Facilities; O430.1B, Real Property Asset Management; and the Presidents Federal Energy Efficiency Executive Order 13123, as defined by the Systems Requirements Identification Documents (S/RIDs), plant policies and procedures.

Throughout the year, issues were identified by YSO Facility Representatives and others in work control, planning, electrical safety, post work testing, inadequate integration of hazards and controls in work package instructions. These issues continue to crop up on a monthly basis, as identified in the monthly PAM reports. Four occurrences were reported in the maintenance area as a result of improper work controls. Some of the assessments conducted by YSO identified continuing issues with maintenance packages and deficiencies on filling out required information. As stated several times before, the maintenance program is stable and noteworthy, however, execution in the field continues to be troublesome. A weakness was identified in a YSO CDNS Pre-visit assessment and acknowledged by CDNS that maintenance-related contractor self-assessments are compliance-based and do not provide a useful evaluation of maintenance program implementation. Manufacturing PMs were deleted throughout the year due to lack of funding which affects the reliability of the equipment and causes problems with scheduling and planning of maintenance resources.

On some positive notes, when YSO downgraded the monthly PAM due to manufacturing issues, it was noted that manufacturing was very reactive to the rating and continue to work in correcting the deficiencies across the site. The RCM process has matured, and the development of the PAMS manual and implementation of the N³ process was a success. Major revisions to Y18-012 and Y18-021 were successfully completed and will be implemented through the OPRITE team in FY 2007. Monthly metrics established for the maintenance functional area were met throughout the year. Multi-craft planner and dispatched work were both successfully implemented by FI&S, and several model work packages were developed and used by the WMC planners around the plant. Finally, it was noted by the CDNS review that the Reliability Centered Maintenance

(RCM) analyses are thorough reviews of major equipment that lead to an effective prioritization and implementation of required maintenance activities.

Training & Qualification

The overall rating in the area of Training & Qualifications was Outstanding.

The objective of the Y-12 Training & Qualification program is that it will be managed and implemented in accordance with the requirements of DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*, as defined in the S/RIDs, and Y90-027, *Conduct of Training*, which implements the DOE Order requirements.

The Y-12 Training and Qualification program has achieved a level of maturity that is commensurate with a workable, adequate program, which will support both current and future missions and also support safe operations. The other element of a fully effective training program is the successful implementation of the program in the operating and support organizations. During FY 2006, the implementation of the program did not reach the level of success that the programmatic element achieved. A negative trend developed in the incorrect assignment of

training requirements in the SAP database in 15 organizations, resulting in a significant concern by YSO. Management attention must be maintained on both the programmatic and implementation elements to ensure a fully mature training program.

The current organizational structure assigns the programmatic element of the training program to the Plant Training and Manufacturing Training Organizations, while responsibility for the implementation element is assigned to the facility operations and support organizations. BWXT Y-12 management has demonstrated that these responsibilities are clearly assigned to their respective organizations with minimal interaction. During FY 2006, the various YSO assessments and observations led to the conclusion that the Y-12 Training & Qualification program area was stable. No programmatic concerns were found. From a performance aspect, BWXT Y-12 has exhibited both positive and negative trends in training implementation.

In summary, BWXT Y-12 has a stable program with the necessary self-assessment elements built in to ensure proper implementation. This has been demonstrated numerous times to YSO in the field. Also, there have been no significant training related programmatic deficiencies that would have an impact on the safety, security, or operation of any Y-12 facility, personnel, or the environment. The overall performance in the programmatic and implementation elements has steadily and satisfactorily improved over the last three years.

Readiness (Startup and Restart)

The overall rating in the area of Readiness was Outstanding.

The objective of the Readiness Program is that the startup or restart of nuclear activities will be conducted in accordance with the requirements of DOE Order 425.1C, Startup and Restart of Nuclear Facilities, as defined in the S/RIDs and Y-12 procedure Y15-190INS, Y-12 Readiness Manual. The startup or restart of non-nuclear facilities will be conducted in accordance with the Y-12 procedure Y15-190INS, Y-12 Readiness Manual.

Over the course of the FY, SNR performance has largely Met Expectations. All of the SNR's were submitted on-time. All startup/restart activities submitted for NNSA approval were appropriately evaluated by the contractor. NNSA agreed with all of the contractor's proposals regarding review level determination and startup authority. Five of 11 (45%) of the startup/restart activities submitted for NNSA approval were submitted less than one year in advance of the projected startup date. However, as noted below, the projected startup dates often slipped to beyond the 12 months. An area that needs improvement is determining and meeting projected startup dates. This FY, 40% of the projected startup dates slipped by an average of 2.9 months.

Early on this year, the contractor experienced problems appropriately documenting, categorizing, and analyzing readiness-related findings. The resulting corrective actions have been effective at eliminating these problems.

Arguably the most important improvement realized this year by the contractor is in the area of readiness preparation. The incorporation of readiness to operate in the up-front planning has resulted in a higher level of readiness being confirmed by readiness review activities. This level of performance was also noted by the NNSA HQ CDNS review team. Results of the CDNS review were overwhelmingly positive and included three Noteworthy Practices with no appreciable weaknesses attributable to the Contractor's Readiness Program or performance. The review team concluded that Y-12 has the "most comprehensive, mature, and compliant readiness program in the Nuclear Weapons Complex."

PERFORMANCE BASED INCENTIVES

PCD Requirements

B61 ALT 357 LEP

The FY 2006 performance measure for this metric was the completion of B61 hardware and other technical support according to the baseline plan.

All planned disassemblies were completed as planned. The fabrication of Test and Evaluation (T&E) hardware and the performance of Post Test Evaluation of certain T&E hardware were completed on a "mixed" schedule meaning about half was on schedule and the remaining half not on schedule. As communicated by the Federal Program Manager, although the product was ultimately provided in an acceptable condition, the contractor did not meet several schedules. This necessitated other NWC sites to reschedule their work to accommodate the delays experienced at Y-12. Regarding war reserve production, BWXT Y-12's execution was unacceptable as evidenced by the contractor delivering only about 21% of the required units on schedule. As communicated by the Federal Program Manager, the contractor did not perform against the required DSW work scope. BWXT Y-12 was not able to neither achieve the appropriate scope nor maintain the budget.

The Federal Program manager for the B61 program expressed concern that not all of the workscope had been completed, which adversely impacted other sites performance. Concerns raised by the B61 Program Manager did not recognize that Production Support and RTBF Operations of Facilities funding were insufficient to support this workload. He also indicated that improvement in cost management, control and reporting processes were needed.

Dismantlement - The FY 2006 performance measure for this metric was the completion of all base dismantlement work schedule.

This work included completing 100% of the W56 Phase I and Phase II dismantlements and 100 % of the B61 dismantlements. At the beginning of the year, it was questionable as to whether the W56 work could be completed. In fact, BWXT Y-12 had requested that the performance measure be reduced. YSO refused to reduce the performance measure, and as a result, significant productivity improvements were made by BWXT Y-12 that allowed the performance measures to be met. Additionally, a readiness activity was completed on schedule.

Disposition – The FY 2006 performance measure for this metric was the disposition of retired weapon parts at the Nevada Test Site.

One-hundred percent of the retired weapons parts were shipped to NTS.

Joint Test Assemblies (JTA's)

The FY 2006 performance measure for this metric is the on time production and shipment of JTA's and other high priority weapons hardware according to the incentive plan table.

Overall performance was good as evidenced by the on-schedule delivery of all JTA's and related product with only one exception. The W87 JTA4 and associated work scope achieved only 30% of the baseline work. Much of this work was already carried over from FY 2005. Since this work was not accomplished in FY 2006, this work had to be carried over into FY 2007. Additionally, all baseline work scope associated with the composite deck was not completed due primarily to the unavailability of tooling. BWXT Y-12 has been unable to resolve tooling conflicts among the DSW programs over the past two FY's. Partly as a result of BWXT Y-12's inability to complete the W87 work scope, NNSA removed \$1.1M in funding from this program and transferred same to another NWC site.

Quality Evaluation

The FY 2006 performance measure for this metric is the completion of eight (8) Phase 1's, nine (9) Phase 2's, nine (9) Phase 3's, thirteen (13) QE Reports, and forty-five (45) NDE screening units by the end of FY 2006. For FY 2006, the contractor completed all the baselined QE work.

W76 Life Extension Program

The FY 2006 performance measure for this metric included the startup and operation of the Purification Facility and produce initial material, complete DISLEPs, perform some Process Methods Development work, complete the reacceptance testing on certain components, and produce some PPI hardware.

The contractor was successful in completing all the base incentive work on the W76-1 LEP. Additionally, BWXT Y-12 was successful in completing a Stretch metric to complete the reacceptance testing of certain components.

Modernization

Applicable modernization PBIs include: Quality Evaluation (QE) Relocation, Material Consolidation (includes Beta 2 to 2E oven consolidation), and Depleted Uranium/Binary Consolidation. The QE relocation is behind schedule and not expected to complete startup before the end of the fiscal year. The Beta 2/2E oven consolidation project has been placed on hold for several years based on a change in requirements. The argon preheat furnace is expected to meet the PBI due date, however, the salt bath installation and start up will fall short due to late delivery by the vendor. The salt bath has been designed, procured, accepted, and delivered to Y-12.

Steam Plant Life Extension Project

Although the Title II design was completed early, by September 28, 2006, based on the assumptions provided in the PBI, this milestone was subject to renegotiation. The assumption applies to the need to evaluate the Title II design estimate for cost overruns to the current baseline. Some of these changes (positive or negative) resulting from events outside the contractor's control has affected the project's ability to execute the submitted Title II design. The submitted Title II design will need significant revisions to match the proposed reduced work scope in order to meet the existing performance baseline. Thus, a full award of this design was not recommended. The awarded fee is representative of the two-thirds of the design that is executable within the approved baseline.

Building 9720-82 Project

In October 2005, NNSA Unilaterally issued Multi-Year Performance Based Incentive for HEUMF was established to provide greater assurance of project performance against approved baselines. This PBI included \$6.7M in earnable fee tied to cost and schedule performance against the approved project baselines. It places a substantial portion of earned fee "at risk" pending successful completion of the project. Additional fee above base PBI fee can be earned by the contractor for achieving a TPC underrun.

The Multi-Year PBI included 3 performance areas: 1) cost/schedule performance (section 6.1); 2) annual Objectives (section 6.2); and 3) end of project cost sharing (section 6.3). Because the third area, 6.3, concerning cost sharing is not applicable until the end of the project, there is no status summary provided.

- Overall cost and schedule performance in FY 2006 was hampered by NNSA DBT directed change execution and BWXT Y-12/CBJV project execution performance issues. Because of this shared/complicated parallel events that have impacted the cost and schedule performance of this project there will be no provisional or incremental payments awarded in FY 2006. The FY 2006 \$2M will carryover/mortgaged into the FY 2007 PBI evaluation period and will be considered within the scope of the FY 2007 9720-82 Performance Based Incentive.

- PBI Section 6.2- \$1.5M- There were 7 annual objectives/milestones established. They are:
 1. Complete an update of the Readiness Plan, an updated and integrated capital/OPC resource loaded schedule, and a detailed startup staffing plan signed by the affected functional and program managers by November 30, 2005. (20%)
 2. Complete initial draft of all material handling procedures, draft of all TRACs, and draft Plan of Action (POA) by March 30, 2006. (15%)
 3. Receive frames for door systems 1, 5, 7, and 8 on site by January 16, 2006. (10%)
 4. Complete construction of the Mechanical/Electrical area roof by August, 2006. (20%)
 5. Provide permanent electrical power to the building substation by May 30, 2006. (10%)
 6. Complete construction of the utility extensions inside of PIDAS by June 30, 2006. (5%)
 7. Complete construction of Storage Area vault slab by July 30, 2006. (20%)

Annual objectives 1, 2, and 3 were all completed on schedule and met the requirements and intent. Agreement was reached between YSO and BWXT Y-12 to change the deliverable date for the POA of item 2 to be completed by June 8, 2006. The total award of this section is 45% or \$450K. The primary reason these milestones were accomplished is that they were independent of the delays associated with the site physical construction activities. Approximately 55% or \$675K was tied to cost/schedule performance of the physical construction activities, and because of the delays associated with the NNSA directed DBT change and BWXT Y-12/CBJV project execution performance issues, these milestones were not able to be met.

Potable Water System Upgrades

Development of the CD-1 Selection of Alternatives and Cost Range package was completed by BWXT Y-12 on the PBI date June 16. The PWSU CD-1 Independent Project Review conducted on August 1-4, 2005, requested the project to perform the planned piping inspection activities early, prior to full CD-1 approval. After receipt of \$1M funds from HQs to purchase an inspection camera and initiate inspections, the inspections were performed and completed November 22, 2005, which identified significant cost savings with the reduction of cast iron piping initial scope. In December 2005, an additional tailored IPR was requested by NA-50 and results confirmed that the project was ready for CD-1 approval. CD-1 Approval of Alternative Selection and Cost Range was approved in January 2006. The project's ability to complete Title I design, resolution of the Design Adequacy Evaluation underground piping system documentation, and Quality Assurance NQA-1 issues in a few months after CD-1 approval is noteworthy. The May 2006 EIR confirmed that the project had a robust CD-2 performance baseline estimate and commented that it was one of the better seen in the complex. CD-2 Performance Baseline had a timely submittal to HQs and with the partial approval of CD-2 in July 2006, a request for an additional IPR and Independent Cost Estimate (ICE) were to be performed. The IPR identified two significant concerns, one being the recommendation that a full blown ICE not be performed. The ICE on-site visit is scheduled in first quarter 2007. All Tennessee Department of Environmental and Conservation (TDEC) comments for the NEPA - EA were resolved in January, and the EA Finding of No Significant Impact (FONSI) determination was granted by the YSO Site Manager on March 29, 2006. The BWXT Y-12 project team has performed with excellence. It is worth mentioning that the PWSU Project supported training for the project engineer to attend piping conferences to gain knowledge about piping installation techniques and piping inspection technology. This training was later found to be beneficial to keeping the cost of the PWSU project within funding constraints.

Demolition and Deactivation of Excess Facilities

For FY 2006, BWXT Y-12 completed the demolition and waste removal for all buildings scheduled for the year. This equated to over 100,000 square feet eliminated.

Security Improvement Project

The SIP project team was supported with sufficient resources to accomplish the CD-1 schedule established at the beginning of FY 2006. The SIP CD-1 cost was maintained below the projected estimates for the CD-1 deliverables. The SIP project team worked most known and emerging issues aggressively throughout the year. One performance issue was that the BWXT Y-12 Safeguard and Security Program identified a late change in scope to address a security need following submission of the original submission of the CD-1 package. This apparent lack of timely integration resulted in the delivery of CD-1 package being inconsistent with the scope desired by the BWXT Y-12 Safeguards and Security Program. In May, NA-70 requested a recommendation on a reduced scope of work that could be completed within the projected available funding profiles that would be consistent with the justification of mission need for SIP. The SIP project team supported the development of an overall modernization approach to factor in the reduced scope, and drafted a revised Program Requirements Document that reflected the reduced scope. A new CD-1 schedule was provided to the YSO in September, 2006.

Du/Binary Consolidation

The DU/Binary PBI was to install, test, and start up the Argon preheat furnace and Roger's salt bath retrofit. The argon preheat furnace met the PBI due date, however, the salt bath installation and start up fell short due to late delivery by the vendor. The salt bath has been designed, procured, accepted, and delivered to Y-12. Revision of the safety basis documentation was also completed as required.

Beryllium Capability Project

CD-2/3A was approved by the Acquisition Executive at the September 28, 2006, ESAAB. While this approval was 3 months later than forecast at CD-1, and with a TPC (\$34.3M) greater than projected at CD-1, BWXT Y-12 submitted the required Critical Decision 2 (CD-2) documents on time (February 2) and applied adequate and appropriate resources to the development of this CD-2/3A package. Much of the 3 month slip in CD-2/3A approval was a result of the decision reached jointly by BWXT Y-12 and the YSO. During development of preliminary design, the required glove box and associated equipment were determined to be more complicated and costly than projected at CD-1, partly as a result of changing DOE safety requirements. Required equipment delivery schedules were also determined to be longer than anticipated at CD-1. As a result of the cost and schedule changes from CD-1 to CD2, extensive reviews of the required CD-2 documents were conducted by the YSO Integrated Project Team (IPT), and by an independent Savannah River (SR) review team. Also, a decision was made jointly by YSO and BWXT Y-12 to await finalization of the cost baseline until receipt of bids for Final Design and Fabrication of the glove-box and associated equipment. BWXT Y-12 resubmitted the final CD-2/3A package incorporating the resolution of YSO and SR comments, and bid costs from the Glove-box vendor on August 4, 2006.

Technology Insertion (Ops and Security)

Advanced Design and Production Technologies (ADAPT)

Item 1 – Complete testing of initial single module digital radiography prototype design in a high-energy radiation environment by 7/30/06. *Complete*

Item 2 – Complete initial evaluation of an agile machine tool with surrogate material in support of DSW mission requirements and generate report by 9/15/06. *Complete*

Item 3 – Produce eight components using production-like material in a microwave furnace that meet dimensional, radiographic, and chemistry specifications by 7/15/06. *Complete*

Item 4 – Demonstrate IR heating efficiency in production environment at vendor location and make recommendations for production use by 9/15/06. *Complete*

Item 5 – Complete Advanced Processing parameter study and generate report by 6/30/06. *Complete*

Item 6 – Produce at least one button from production-like material on SDOR process meeting chemistry specifications by 6/30/06. *Complete*

Item 7 – Complete a functional test and checkout of the EB Weld Inspection stand at the test location by 3/18/06. A functional test and checkout will include the testing of the motion controls and verifying the data acquisition for each of the technologies. *Complete*

Enhanced Surveillance Campaign (ESC)

Item 8 - Complete lifetime assessment analysis based on an aging model for W80-3 components by 9/30/06. *Complete*

Stockpile Readiness Campaign (SRC)

Item 9 – Complete Readiness Assessment for the Vacuum Annealing Furnace by 6/30/06. *Complete* (DU Readiness)

Item 10 – Complete Readiness Assessment for the ABB Hydroform by 6/30/06. *Complete* (DU Readiness)

Item 11 – Complete Readiness Assessment for the 2nd EU Jig Borer by 12/30/05. *Complete* (Technologies for EU Modernization)

Item 12 – Complete Readiness Assessment for the low energy x-ray for special materials by 7/31/06. (Readiness in Special Materials) *Complete*

Weapons Fire Detection

This project involves the design, deployment, and installation of a networked-based Remotely Operated Weapon System (ROWS) integrated with counter sniper detection/targeting capabilities. The detector system integrates both acoustic and optical detectors. A fully operational demonstration system was installed at the Y-12 Central Training Facility (CTF) in fiscal year 2006. Work continues into FY 2007.

FIRP

For FY 2006, BWXT Y-12 completed 100% of the projects that were scheduled to be completed. In addition, cost performance and spending targets for the program were met.

Enriched Uranium Delivery and Recovery

BWXT Y-12 shipped material to all customers in accordance with customer shipping schedules and has satisfied customer requirements and contractual obligations. The work scope included processing and preparing for shipment a substantial amount of HEU and LEU metal and HEU oxides to support the NN and NR program, and deliveries made to foreign governments for the foreign research reactor program. Y-12 was not able to complete all planned work scope to size reduce and prepare for off-site shipment off-specification HEU metal buttons. Only about one half of the material planned to be processed was completed; however, this delay is not expected to impact NNSA contractual obligations due to substantial delay in receipt and processing schedules at the TVA down-blending contractor facility. Y-12 completed production work to process and prepare for shipment surplus HEU metal to support the NNSA 17 MT HEU contract (“Reliable Fuel Supply) and the disposition of HEU currently under international safeguards at Y-12.

HEU Disposition Planning and Execution

The SNAP reactor was disassembled, and the reactor fuel is in storage at Y-12 awaiting future processing; Readiness was achieved for the HEU/Np material. The K-25 traps were disassembled, and the low equity material removed. The majority of the material has already been disposed at NTS. Disposal of other low equity material including ceramics, glass and borax pellets has been initiated with several shipments made to NTS. A substantial amount of Super Kukla and other reactor fuel material has been size reduced, but not all the planned size reduction work planned to prepare the material for off-site shipment was completed in

FY 2006 due to storage space and resource constraints. The milestone to return tray dissolvers to operation and dissolve U-Al fuel was missed in FY 2006. Y-12 determined that the dissolution time was cost prohibitive, and the work should be accomplished at a commercial facility.

Increase NNSA Nuclear Nonproliferation Work

Four separate measures were established for this PBI. The measures were designed as incentives to increase support to the major program areas within the NNSA Defense Nuclear Nonproliferation missions. The incentives involved the submittal of proposals to the various DNN programs and the receipt of funding for the acquired work. All measures for this PBI were achieved.

Material Recycle and Recovery

Measure 1 was not met. Approximately 25% of production goal for purified Uranium metal was completed. Measure 2 for Lithium production was completed.

Increase Complementary Work

For Complementary Work for Others Program, BWXT Y-12 met 100% of one of three PBI measures. This measure (No. 2) included BWXT Y-12 receiving at least \$27M in Complementary Work for Others projects for FY 2006. Measure 3 involved receiving at least \$5M for Homeland Security work related to counterterrorism and Homeland Security projects. BWXT Y-12 received \$3.018M in funding, receiving 75% of their PBI amount. BWXT Y-12 did not meet Measure 1 which included submitting 20 proposals totaling \$20M to Y-12 Site Office for approval and submission to the sponsors. They submitted 22 proposals for only \$8.1M.

Safeguards and Security

- Closure of Specific S&S Corrective Action Plans

BWXT Y-12 was able to satisfactorily close 33 out of 40 corrective action plans and earned 82.5% of the available fee.

- Personnel Monitoring System Upgrades

Under this project, personnel monitoring systems in building 9212 were upgraded, including replacement of the metal and SNM detectors and associated electronics. Lane modifications were required to accommodate the new equipment.

- VME Migration Project

This project replaces obsolete security system host computers and software with new computers and software that are needed prior to implementation of Argus at Y-12 under the SIP line item project. Two major milestones were completed in Fiscal Year 2006: migration of the VME Graphic Editing Station Operator Displays to the new system's Graphic Edition Station; and development of a communication prototype between the host processor and the data gathering panels.

- New Barriers for Layered Engagement Concept

BWXT Y-12 satisfactorily completed the Fence 1, Fence 2, and Fence 3 Projects on schedule with a great percentage of the work being completed several weeks ahead of schedule. All fee was earned.

- TID Application for Solution Bottles

The purpose of this PBI was to apply tampering indicating devices (TIDs) to all solution bottles containing Attractiveness Level C or greater quantities of SNM. Based on field verification, BWXT

Y-12 did not satisfactorily complete the application of TIDs on all applicable solution bottles. This issue was due to the Attractiveness Level program not making the appropriate selection and identification of material for application of TIDs.

- Biometrics

The purpose of this PBI was to install and function test hardware and software for a biometric reader identification system at the Protected Area portals. The work was completed as defined, and full fee was paid.

- Fence 4

The Project Execution Plan and Title I & II Design Packages were satisfactory completed and submitted approximately 2 weeks ahead of schedule. BWXT Y-12 earned 100% of the available fee.

DP Comprehensive Materials Disposition

Y-12 completed the majority of the measures included in the PBI DP Comprehensive Materials Disposition including: achieving readiness for use and initiate loading of the new Rackable Can Storage Box (RCSB) that are to be used in HEUMF; shipping off-site the Y-12 UF₆ inventory for commercial processing; shipping off-site legacy reactor fuel; and consolidating a substantial amount of legacy HEU metal; completing planned sampling of consolidated HEU metal to enable carbon screening for NNSA customers so that lower-level carbon batches are optimized until purified metal production is restored to ample inventories; implementing new EDLs and disposing of backlogged low equity HEU bearing materials; 3) disposing of significant quantities of legacy classified and unclassified non-SNM nuclear material, and 4) developing a draft EA for the sale of Y-12's mercury inventory. The physical smearing of select HEU items with potential surface plutonium contamination did not progress as planned. Y-12 initiated work to smear the HEU items; however, it did not come close to completing the PBI measure due to heat stress issues that with proper planning should have been factored into the schedule earlier.

Engineering Improvements

All BWXT Y-12 Engineering PBI's were completed and submitted to YSO on time. Eight of the nine items were approved for full payment. One item was approved for partial payment. In addition, BWXT Y-12 completed an additional System Design Description over and above the two which had been agreed upon.

Criticality Safety and Container Improvements

- New container initiatives were successful in producing new 20" and 24" birdcage designs which should greatly simplify administrative requirements and improve operational efficiency. A new EUO can dolly was produced as required based upon extensive operator input, but may be too large or unwieldy to become a mainstay for its intended use. The wet/dry can development was not completed.
- Material reduction goals, which focused on RCRA residues, appears to be finally headed in the right direction and exceeded required expectations. Overall improvement in the residue can storage posture should continue over the next couple years as residues leave the site and meet disposition goals.
- NCS improvement initiatives were by and large very successful except for the metric to install the raffinate monitor. In order to resolve a legacy non-compliant practice of releasing solution from fissile processes under geometric control, was cancelled without the YSO NCS program manager awareness or approval. This metric was established in part to respond to 2004 CSSG findings and to conform with expected DCP practice. This cancellation is most disconcerting. For example, it appears that based on a recent NNSA headquarters interpretation that two controls on one parameter do not meet DCP and the corresponding DOE order 420.1B requirements for headquarters approval of any exceptions to DCP, such transfer operations that rely solely upon sampling rigor may be disallowed and would effectively shut down chemical recovery

operations. Of particular merit is the NCS casting analysis provided which addresses the long standing YSO NCS issue and as a result allows for an increased casting mass. This has greatly improved operational efficiency and thereby NCS from the dramatic decrease in killed parts requiring re-processing which translates into repeat risk acceptance.

Fire Protection Program

All of the PBIs identified below were completed within agreed schedule and were of acceptable quality.

1. Completion of 95% of all scheduled fire barrier items in SAP by 9-30-2006.
2. The number of fire system impairments is reduced by 25% by 9-30-2006.
3. Implementation and use of the WARS radio system by 9-30-2006.
4. Completion of the Baseline Needs Assessment (BNA) by 12-16-2005.
5. Implement the National Fire Incident Reporting System (NFIRS) by 9-30-2006.
6. Implement a tracking and trending database for fire systems by 9-30-2006.

Maintenance

- 12 RCM Analysis Packages – 100% Complete
 - RCM Analysis of HEUMF CAAS
 - RCM Analysis of 9767-13 Instrument Air Compressor
 - RCM Analysis of 9767-13 Instrument Air Dryer
 - RCM Analysis of 9212 Wet Vacuum System
 - RCM Analysis of HEUMF Fire Hydrants
 - RCM Analysis of 9204-2E #3 Elevator
 - RCM Analysis of 9212 ASC
 - RCM Analysis of 9212 Secondary Extraction
 - RCM Analysis of 9212 Break & Shear
 - RCM Analysis of 9212 SP Tube Furnaces
 - RCM Analysis of 9212 SP Scrubber
 - RCM Analysis of B2E Hoods
- Implement Critical Maintenance Recommendation on 8 RCM Systems – 70% Complete
 - RCM Analysis of Dry Room Air Monitors
 - RCM Analysis of Dry Room Breathing Air
 - RCM Analysis of Dry Room Circulating Air
 - RCM Analysis of Dry Room Compressors
 - RCM Analysis of Pioneer Air Dryer
 - RCM Analysis of 4500 CFM Compressor
 - RCM Analysis of B2 & B2E Old Kathabars
 - RCM Analysis of New Kathabars
- Metric Evidence Showing improvements after RCM implementation – 100% Complete
- Maintenance PBI II.D.2:
 - Inspect 2.0M GSF of ME and Non-ME Facilities and submit final reports to YSO – 100% Complete
 - Inspect OSF and submit draft reports to YSO – 100% Complete
- Maintenance PBI II.D.3:
 - Manage Backlog with expected performance ranges (< 8 crew weeks).
- Maintenance PBI II.D.4:
 - Improve maintenance craft productivity by 10%.
 - Manufacturing Maintenance = 39.4%,

- Plant Maintenance = 39.6%.
- Maintenance PBI II.D.5:
 - N3 analysis including PM instructions on Machine Tools – 100% Complete
- Scheduled Outage Program PBI II.D.2:
 - 9202/9203/9731 Outage – 100% Complete
 - 9204-2 Outage – 100% Complete
 - 9201-1 Outage – 100% Complete
 - 9204-4 Outage – 100% Complete
 - 9204-2E/9720-5 Outage – 100% Complete
 - 9212 Outage – 100% Complete
 - 9215/9998 Outage – 100% Complete
 - 9995/9206 Outage – 100% Complete
 - 9201-5N/9201-5W/9201-5 Outage – 100% Complete

Emergency Management

- The Y-12 NSC Emergency Management Program will provide a technical basis correlation with the NNSA Office of Secure Transportation (OST) hazards and the Y-12 NSC hazards assessment process. This includes applicable hazard assessments and protective action recommendations to the Y-12 NSC that pertain to “generic” OST shipments and situations where OST may introduce transitory hazards that are not already present at the Y-12 NSC.

Milestones for the Y-12 NSC technical basis correlation:

1. Develop and issue Y-12 NSC Emergency Action Levels for generic OST shipment events and OST transitory hazards events.
2. Develop and issue an Emergency Action Levels basis document for Y-12 OST shipment events and OST transitory hazards events.

Status: The BWXT Y-12 Emergency Management Program Organization (EMPO) submitted the following documents to Y-12 Site Office (YSO) for review and approval:

- EMPO-670, Emergency Action Level Technical Basis for the Office of Secure Transportation Shipments (U)
- EMPO-560/EAL-065, Emergency Action Levels for Office of Secure Transportation Shipments (U)

Both of the above documents were evaluated to be acceptable, and associated review reports were issued by YSO to document NNSA-YSO approval.

- The Y-12 NSC Emergency Management Program in conjunction and coordination with the NNSA OST will implement an emergency planning process that integrates roles and responsibilities to establish effective control at a host site event scene involving OST ground transportation activities/operations.

Milestones for the Y-12 NSC Emergency Planning process with the NNSA OST were:

1. Develop a Concept of Operations document for NNSA OST host sites.
2. Develop an emergency response document, specific to the Y-12 NSC, for events involving OST host site activities/operations.

Status: Both documents have been developed and issued by BWXT Y-12, and reviewed by both YSO and OST. Both were acceptable and will be incorporated into future emergency planning documentation.

- The Y-12 NSC Emergency Management Program will conduct the annual Emergency Management Exercise for FY 2006, in compliance with DOE Order 151.1B, Chapter IV, section 4.b and DOE G 151.1-1. The annual exercise will include participation from BWXT Y-12, NNSA YSO, NNSA HQ, NNSA OST, and NNSA OST Eastern Command.

Milestones for the Y-12 NSC Emergency Management Program annual exercise are:

1. Coordinate and plan the annual exercise in accordance with DOE Order 151.1B and DOE G 151.1-1 to include the scope, objectives, scenario, evaluation criteria, and level of participation by all involved organizations.
2. Conduct the annual exercise, including all necessary preparation and control, as defined in the approved exercise package.
3. Evaluate the annual exercise and complete an exercise evaluation report.

Status: All planning activities were completed on-or-ahead of schedule and with satisfactory results. The subject exercise was conducted on June 7, 2006. EMPO submitted a post exercise report for YSO review on June 27, 2006 (10 days ahead of schedule).

Conduct of Operations

- II.F.1 Utilities CONOPS in Manufacturing Facilities

System drawings in Cat. 2 Facilities	Complete
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- II.F.2 Human Performance Improvement

Charter HPI Steering Committee	Complete
Implementation Plan	Complete
Program Description	Complete
Training Curriculum	Complete
Performance Metrics	Complete
Complete training (pilot Departments)	Complete
Demonstrate use of HPI principles 2006.	Complete

High Challenge (Stretch) Performance Based Incentives

Accelerated Dismantlements

The FY 2006 performance measure for this metric included dismantlement of additional B61 units.

FY 2006 Performance Summary: 100% of the additional units were completed. BWXT Y-12 exceeded FY 2006 productivity expectations in the dismantlement program. The associated incentive plans were challenging and required significant productivity improvements to accomplish. Several productivity improvements were successfully implemented. These included increasing in-process storage, reducing machining operations on selected systems, improvements in the training program, and streamlining work procedures. Aggressive implementation of these improvements allowed the dismantlement goals to be exceeded.

Additional Shipments to Nevada Test Site

This measure was added late in the year to fully utilize all Nevada Test Site space that had been purchased by BWXT Y-12. This measure included using up the additional volume with additional retired weapons parts disposal.

FY 2006 Performance Summary: 100% of the remaining volume was shipped as intended.

Additional Dismantlements

This measure was added late in the year due to the exceptional improvement in productivity that had been realized. This allowed additional B61 dismantlements over and above the base and the high challenge that had already been completed.

FY 2006 Performance Summary: Due to the achievements in productivity improvements, a significant number of additional dismantlements was completed above the base and high challenge requirements.

Quality Evaluation First Use

FY 2006 Performance Summary: This work was not performed. Work execution was dependent on operation of the relocated in-line glove box and LTTD ovens. None of this equipment became operational in FY 2006 due to QE Relocation being behind schedule.

Quality Evaluation

This performance measure was added late in the year to support additional W78 NDE testing and W87 life storage testing.

FY 2006 Performance Summary: All W87 Life Storage High Challenge work scope scheduled for FY 2006 was completed. All W78 High Challenge work scope of Non-Destructive Tests and Evaluation scheduled for FY 2006 was completed.

Process W76 containers to support Pantex Stretch goals

This performance measure was added late in the year to allow BWXT Y-12 to provide additional W76 containers in support of Pantex stretch goals.

FY 2006 Performance Summary: The required number of W76 containers were shipped to Pantex on schedule.

Uranium Processing Facility Design Project

BWXT Y-12 has continued to do an outstanding job at meeting the demands and milestones for the UPF. BWXT Y-12 completed the Conceptual Design package during the first quarter and fully supported the Internal Project Review (IPR) during January 2006. The project team took the initiative to develop relationships with other major projects within the complex as well as reviewing commercial projects of similar size and complexity. The project team responded to the results and recommendations of the IPR team providing a Conceptual Design package that was sent to NA-10 requesting support and assistance in preparing for the next critical stage of the project, approval of the Critical Decision-1.

Specific accomplishments included completion of the revised Program Requirements Document and appendices, the Conceptual Design Report (CDR), the draft Design Criteria, and a multitude of reports and plans as required by DOE O 413 and guidance from within NA-10. These documents and plans were delivered on schedule and met all requirements as addressed in the Performance Evaluation Plan.

The project also tracked the progress of the Building 9720-82 Project and lessons learned resulting from that project's experience. Adjustments in planning, organization, method of accomplishment, and assessments have changed throughout the last part of this year. Every aspect of the lessons learned derived from the Building 9720-82 project as well as those across the complex have been assessed and addressed within the project team and project planning.

Technology Development that supports new technology for the facility has continued throughout the year. Technology Development was successful in meeting the objectives as outlined within the PBI, but did not meet the priority needs as identified by the Design Agencies relative to quality evaluation needed to support acceptability of the new processes in particular those associated with the Microwave Technology.

The project is poised and ready to proceed through CD-1 pre-ESSAB and ESAAB with plans for reaching these milestones early in the next fiscal year.

DBT Implementation - 2006 Milestones

- Access Delay

Building on design efforts completed in FY 2005, an active delay system was installed in a currently active processing area. BWXT Y-12 satisfactorily completed preliminary testing of and Title I & II Design Packages for the system on schedule; however, issues with delivery of a portion of the system will delay full implementation. In addition, due to cost overruns and planning errors within the control of the contractor, the fee earned for the installation element of this PBI was reduced.

- Large Vehicle Barrier System

Deployment of a steel cable with a fiber optic sensor around the outer perimeter of Y-12 provides robust detection of vehicles with a minimal, if any, nuisance and false alarm rate. BWXT Y-12 satisfactorily installed and tested Phase II of this project. This phase extended the detection line that runs along Y-12's southern perimeter northward at both the east and west ends. BWXT Y-12 earned 100% of the available fee. The east end leg was extended an extra 250 feet more than originally planned, and a number of software enhancements were included. The Bear Creek Road gates and large blocks were verified complete approximately 2 months ahead of schedule.

- Neutralization

This project involves the site evaluation, technology selection, and deployment of a neutralization system. After conducting a comprehensive alternatives analysis, BWXT Y-12 satisfactorily completed the design package on time and earned 100% of the available fee.

Cyber Security Improvements: Classified Network Switch and Host-based Intrusion Detection System (IDS) Upgrades

The purpose of this PBI was to replace old 3Com network switches on the classified network with all on-hand CISCO switches and to place host-based intrusion detection capabilities on key classified and unclassified servers, to include email, IDS monitoring, SecureNET DNS, Directory Servers, etc. BWXT Y-12 successfully met this PBI and exceeded it in one case, resulting in improved network and intrusion detection capabilities.

Tech Insertion Operations

Advanced Design and Production Technologies (ADAPT)

Item 1 – Deploy diskless computing infrastructure to support scale up factory floor controllers and gauges satisfying NNSA red team recommendations by 7/30/06. *Complete*

Item 2 – Turnover diskless vibration analysis system to operations by 8/31/06. *Complete*

Item 3 – Demonstrate 3D model-based discrete event simulation capability for manufacturing operations at a modernized facility by 9/15/06. *Complete*

Item 4 – Develop hardware and software interface requirements between the Moore CMM's and the Brown & Sharpe “state of the art” Controller, and deploy one conversion kit on at BWXT Y-12 by 9/30/06.
Failed to Complete

A-123 Implementation

The Office of Management and Budget (OMB) established a requirement for contractors to further document and examine the Internal Control function. This was the first year for this requirement. Without any previous experience, BWXT Y-12 was tasked to populate the Assessment and Reporting Tool, develop a data base for implementation, and test the associated plans. This task was only partially funded which qualified the task for high challenge fee plan. BWXT Y-12 in a very short time assembled a cross section of financial and program managers who used this tool to document and evaluate numerous internal processes for internal control weaknesses. No significant finding were found. However, internal control documentation was significantly strengthened as a result of this initiative. The use of OMB 123 could have been only a bureaucratic compliance but was turned into a very useful management improvement tool by BWXT Y-12. The NNSA Service Center identified BWXT Y-12 utilization of this requirement as a best-in-class for NNSA.

LEP (B61 and W76)

This high-challenge PBI was not completed.

Local Alarm System to Enhance Material Surveillance

The purpose of this PBI was to beta test Material Surveillance Alarm Boxes (MSAB), a new local alarming system designed to aid in the implementation of Material Surveillance. The testing involved a variety of applications, including some in production environments. The results of the PBI were defensible recommendations for larger scale (28 units) production deployment in FY 2007. The benefit of the MSAB is more effective material surveillance and more efficient use of production resources. YSO verification determined that the material surveillance plan and some implementing procedures were not complete by the defined due dates, resulting in a reduced fee.

DP Comprehensive Materials Disposition - Latin America Reactor

Y-12 initiated the shipments of fuel related materials from AEC demonstration reactors used in the Atoms for Peace Initiative. The material has been stored at Y-12 for decades, and disassembly of the reactor is required to retrieve the HEU fuel for processing and downblending to LEU. Y-12 made a special effort to include this work scope in FY 2006 and developed the required project and transportation plans, safety documentation, and initiated and completed the first shipment of the reactor assembly to ORNL in September 2006.

Campaigns

Advanced Design and Production Technologies (ADAPT)

MALOCS – Design and install six MALOCS on machine Type 2 by 9/30/06.

Deuterium Cell Proof of Concept Testing – Generate and recover deuterium gas on vendor electrolysis equipment by 9/30/06. *Complete*

MALOCS – Design and install two MALOCS on machine type 1 by 9/30/06. *Complete*

Carbon Analyzer – Demonstrate portable metal analyzer capable of estimating carbon in an operations area by 9/30/06. *Complete*