National Nuclear Security Administration

NATIONAL NUCLEAR SECURITY ADMINISTRATION

Fiscal Year 2009

PERFORMANCE EVALUATION REPORT

OF

SANDIA CORPORATION

For the Management and Operation of

SANDIA NATIONAL LABORATORIES
Contract No. DE-AC04-94-AL85000

NNSA FY 2009 PERFORMANCE EVALUATION REPORT (PER)
OF SANDIA NATIONAL LABORATORIES
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EXECUTIVE SUMMARY

This Performance Evaluation Report (PER) presents the U.S. Department of Energy/National Nuclear Security Administration's (DOE/NNSA) evaluation of Sandia Corporation's (Sandia) performance in managing and operating the Sandia National Laboratories (SNL) for Fiscal Year (FY) 2009 under Contract Number DE-AC04-94AL85000.

The report details NNSA's evaluation of Sandia's performance for meeting objectives, measures and targets within each of the three performance groups: Performance Objectives (POs) and Performance Incentives (PIs). Consistent with the Performance Evaluation Plan (PEP) issued pursuant to the contract, presented below are highlights of Sandia's accomplishments and weaknesses during this fiscal year followed by Exhibit 1, *Scoring of FY 2009 Performance*, which delineates the adjectival ratings for each PO and PI. While some difference in adjectival scoring between the Laboratories and NNSA occurs and is expected, this year and last year a twenty-five percent disconnect was noted (i.e. Sandia scored themselves higher than NNSA could support). For management assurance to work both parties need use the standardized definitions of adjectival ratings and critically evaluate annual performance to ensure trust and confidence in the assessments.

Sandia's overall performance and their Mission related performance is rated as Outstanding. Sandia continues to demonstrate exceptional leadership across the Nuclear Weapons Complex (NWC) and provide high quality scientific and engineering support of the United States' national security interests. In support of Complex goals, Sandia completed 98% of the scored Level II Milestones on or ahead of schedule but encountered issues on the W76-1 program. Sandia continues to demonstrate leadership in science, technology and engineering by strategically concentrating on the science that underpins and enables technology for DOE missions. Sandia is able to maintain and further develop expertise, facilities and equipment to create world-class science that pushes the frontiers of knowledge, in anticipation of future emerging threats and other mission needs. Sandia received numerous prestigious awards and honors for scientific, technology and engineering advances, including six Research and Development (R&D) 100 Awards.

Sandia's performance in Operations is rated as an overall Good. Although Sandia made improvements in operational performance, the sled track incident significantly impacted operations during FY 2009. Sandia has taken steps to address the serious issues raised in their Executive Safety Review Board (ESRB) consultant report; however, challenges remain to address the fundamental concerns over Sandia's safety culture. Evidence of improvement is their Total Recordable Case Rate (TRCR) of 1.45, which is an improvement of almost 19 percent reduction from the previous year and Days Away Restricted Transferred (DART) Case Rate that has decreased from 1.4 in FY 2005 to .44 in FY 2009. Sandia achieved Environmental certification of ISO 14001 in New Mexico and recertification in California. Sandia has reduced the footprint by 55,131 gross sq. ft. without planned Transformation Disposition funding. Sandia's Technical Security Services (TSS) department continues to manage and execute the Security System Replacement Project (SSRP) for security alarms in a manner that has resulted in an approximate $2.3M cost savings during this performance period. Sandia awarded 56.6% of their subcontracts to small businesses which significantly exceeded their FY 2009 goal of 48%; an increase of 8.6%. Sandia successfully implemented two-tiered benefits for new employees to address burgeoning health care and pension costs. These parameters were also negotiated into two labor contracts, allowing standard application across the non-represented and represented workforce. Continuous improvement in the transparency and population of data in the Integrated Laboratory Management System (ILMS) / Contractor Assurance System (CAS) has been noted over the past FY although additional progress is still needed.

PERFORMANCE OBJECTIVES

MISSION PERFORMANCE

Defense Programs (DP)

Once again, Sandia was instrumental to NNSA's success in meeting the mission and providing the necessary leadership for the NWC. Sandia continued to demonstrate proficiency in addressing a wide variety of complex issues and in some cases exceeding expectations. Significant accomplishments during this fiscal year included:

- Sandia completed 98% of the scored Level II Milestones in support of the mission.
- Sandia successfully completed Milestone 3152 ahead of the scheduled completion date of December 2008. NNSA's upgrade of the Red Storm system is now complete. This successful upgrade provided capability improvements to the machine by replacing 6240 dual core nodes with quad core processors and increasing memory on the system so there is 2GB per core throughout.
- Sandia worked in conjunction with Los Alamos National Laboratory (LANL) and Lawrence Livermore National Laboratory (LLNL) to deliver on the tri-lab Common Computing Environment milestone 3162 to provide an integrated tri-lab environment, leveraging work at all laboratories which benefited all and continues to consolidate efforts to eliminate unnecessary and expensive redundancy.
- Sandia's Microsystems and Engineering Sciences Applications (MESA) Fab received Department of Defense (DoD) "Trusted Design and Foundry" accreditation for both unclassified and classified silicon integrated circuits used in the U.S. Military and national security applications.
- Sandia's Critical Experiment (CX) assembly at the Sandia Pulsed Reactor successfully started up as a training vehicle for criticality safety experiments.
- The Dynamic Materials Properties subprogram of the Science Campaign achieved more than a 30% increase in the peak impact velocity of aluminum flyer plates on the refurbished Z compared to the old Z (46 km/s vs. 35 km/s). The peak accelerating pressure was >6 Mbars (600 GPa) for the refurbished Z shot. As a result, Sandia will be able to provide accurate (to 1-2%) data at higher pressures for stockpile stewardship relevant materials impacted by the flyer plates.
- Sandia completed experiments with the 6-Degrees of Freedom (6-DOF) vibration system on the W78 Fire Set Assembly. Single axis, three axis, and full 6-DOF Stockpile-to-Target Sequence (STS) level powered flight random vibration with multi-point response limiting were successfully demonstrated by Sandia. These experiments provided measured input and response data for comparison with numerical simulation, and demonstrate the capability to provide more realistic vibration simulations for weapon components in the future.
- Sandia improved the uncertainty quantification (UQ) methodology for the initial full-circuit calculation prediction of a silicon complex circuit. The results from experiments conducted at the Annular Core Research Reactor, Ion Beam Laboratory (IBL) and the Little Mountain Linear Accelerator had excellent agreement with the values predicted by the models used in Quality Alternatives for the Sandia Pulsed Reactor (QASPR). Initial work with data collected on the Sandia Pulsed Reactor (SPR) III reactor was also accomplished, which is a critical step in validating the QASPR methodology. Additionally the independent review of the QASPR project

was completed. Sandia is making positive progress not only from a technical perspective, but also in gaining DoD support for QASPR.

- Completed Gate A for the B61 LEP 6.2/2A study with significant technology maturation (e.g. arming & fuzing) supporting next insertion opportunities.
- Nine B61 and B83 JTAs were successfully conducted at TTR as part of the 26 flights that were conducted for all weapons systems which included the first W80 hi-fidelity JTAs for the AF since 1998.
- Flight testing for B61-3/4 was delayed from February, 2009 due to the unavailability of US Air Force, Europe (USAFE) aircraft to support the test schedule. Sandia worked with DoD and NNSA to reschedule the B61-3/4 flight testing. Three successful B61-3/4 Joint Test Assembly (JTA) flight tests were completed on September 15, 2009 and a fourth on September 17, 2009. Two B61-7 JTA flight tests were successfully conducted in July, 2009 and a third in August for the completion of Level II milestone. (MS3049)
- Sandia completed two W80-0 JTA tests in December 2008 and a third W80-0 JTA test in August, 2009. Sandia completed JTA flight tests for the W80-1 in February, July and August for a total of three W80-1 JTA tests. Sandia functionally evaluated four W80-0 Type 2F Navy Test Assemblies (NTA) that supported Navy missile scoring with the first Type 2F NTA tested August 15, 2009. This was the first Navy Type 2F flight test since 1993. Sandia provided technical and test support for the successful launch of a USAF W80-1 JTA3 High-Fidelity (hi-fi) flight test unit on August 25, 2009, at the Utah Test and Training Range (UTTR). Sandia, NNSA, and USAF planning for this JTA hi-fi test began in 2001. This was the first hi-fi test for the W80 since 1998 and the first on an Air Launched Cruise Missile (ALCM) since 1983. The completion of all W80 flight tests resulted in the completion of the Level II milestone one month ahead of the September 2009 due date. (MS3043)

Although Sandia demonstrated overall success in their DP assignments, there are areas discussed below in which performance could be improved.

- Sandia will need to work on setting the context for some of their Advanced Scientific Computing (ASC) milestones in order to demonstrate alignment of the work to larger programmatic goals.
- While good at communicating individual changes to the program of record within ASC, Sandia needs to increase their visibility in articulating general improvements/new capabilities in both designer needs in modeling and simulation (near-term) and predictive simulation capability.
- Although the Forward Assembly in the W76-1 JTA1 Telemetry Assembly meets its STS requirements there are concerns about its performance in the future undefined Alternate Release Assembly (ARA). This discrepancy was discovered as a result of the NNSA requesting analysis by Sandia to determine the risk associated with an upcoming ARA flight for the JTA1 in FY 2010. As a result of the analysis, based on the available qualification data the forward telemetry assembly has no remaining margin to the 1 in 500 shock requirements in the STS requirements. At this time this should be considered an item to watch due to the risk to the upcoming flight.
- Sandia could improve the quality of work performed between the Responsive Management Infrastructure (RMI) Program Office and Systems Integration Technical Support (SITS) to ensure there are no duplicative or conflicting processes and that the processes complement each other. Further, the RMI Program Office must ensure there are sufficient personnel to complete RMI Program Office responsibilities in a timely manner and SITS personnel are fully supporting the RMI program. In addition, the RMI Program Office is expected to submit high quality work products and delivered on time in support of the Lead and Sub Teams.
- Sandia should provide a technology roadmap for neutron generators and other key component development, in order to prepare comprehensive business case assessments for various

technology development objectives, integrating across several program elements. Sandia has presented an integrated plan to NNSA which included a roadmap showing which systems needed parts, when and how many, but Sandia has focused on the funding of Neutron Generator (NG) development. The roadmap needs to show technology development for tubes, detonators, timers, and other components to offer NNSA options for technology development.

Defense Nuclear Nonproliferation (DNN) Programs

Overall Sandia's performance in Defense Nuclear Nonproliferation is regarded as Outstanding. In nearly all target areas Sandia was rated Outstanding. Some minor support and technical issues contributed to the few areas that did not receive an outstanding. However, the technical performance and completion of specific contract deliverables were first-rate supporting an Outstanding rating for this Performance Objective. Some key accomplishments are:

- Sandia spearheaded efforts in the design and implementation plan to retrofit irradiators and support through Global Threat Reduction Initiative (GTRI) to Nuclear Regulator Commission (NRC) Interagency radiation Source Protection and Security Task force.
- Sandia's execution of a major multi-laboratory exercise called Full Toss and work on the Global Burst Detector.
- Outstanding Support to the Highly Enriched Uranium (HEU) Transparency Program.
- Sandia successfully completed physical protection upgrade tasks and significantly exceeded Second line of Defense initiatives.

Science and Technology (S&T) Programs

Overall, Sandia's performance in the Science and Technology Performance Objective is regarded as Outstanding. Sandia's success in advancing science, technology and engineering this performance period has been impressive. Sandia has placed emphasis on the need for comprehensive strategic planning and objective evaluation of metrics to make informed corporate decisions on future direction of science and technology. Sandia's unique technical capabilities and dedication to national security continues to bring credit to the DOE's national security mission. Sandia has successfully maintained critical skills and has adopted innovative ways to maintain technical capabilities.

The following represents select examples of Science and Technology achievements and accomplishments in FY 2009, including:

Summary of achievements and accomplishments recognized

- Impressive scientific breakthroughs and substantial progress on various Laboratory Directed Research and Development (LDRD) and LDRD Grand Challenge Projects, including Network Discovery, Quantum Information, Metamaterials, Featureless Tagging Tracking, Advanced Circuit Integration, and SunShine to Petrol.
- Achieved major scientific discoveries and accomplished significant technology deployments.
- Accomplished numerous tasks that directly supported DOE strategic goals in the areas of Nuclear Security, Energy Security and Scientific Discovery and Innovation.
- Numerous patents, awards and scientific recognition across all Sandia science, technology and engineering programs, including six R&D 100 awards.
- Significant accomplishments that directly supported national security mission of Other Federal Agencies (OFAs).

Major advancements - building on foundations for scientific advancement:

- Sandia ion trap team successfully demonstrated a unique MESA micro-fabricated silicon ion trap with surface electrode topology which will ultimately enable advanced quantum information computing.
- Sandia computer scientists successfully booted one million Linux kernels as virtual machine, an achievement that will allow them to more effectively observe behavior found on malicious botnets.
- New Type of Polymer Electrolyte Membrane (PEM) fuel cell membrane developed at Sandia may help make hydrogen hybrid cars a reality.
- Sandia's MESA achieved DoD 'trusted design' accreditation and trusted foundry accreditation.
- Sandia signed Memorandum of Understanding (MOUs) with Japan's National Institute of Advanced Industrial Science and Technology and China's Tsinghua University, focusing on low carbon energy and nano materials.
- Sandia worked collaboratively with industry and academia to investigate new smart systems, sensors, methods, and engineering improvements for operating wind turbines, solar energy systems, and enhanced geothermal systems.
- Sandia successfully completed a 'smart-bed' Na-hydride hydrogen storage system for General Motors.
- Sandia was awarded lead laboratory in the Energy Frontier Research Center's Solid State Lighting center, and Sandia will participate in another seven centers.
- Successfully established the National Institute for Nano Engineering (NINE) Institute, a Sandia-University-Industry collaboration formed to help develop the next generation of nano-engineering innovation leaders for the nation.

Significant and notable progress in DOE sponsored Office of Science programs:

- There are many noteworthy accomplishments performed by Sandia in support of a broad spectrum of DOE Office of Science sponsored projects, including significant scientific advances including: commencement of new core program task on "Artificial Microtubules"; participation in seven new Energy Frontier Research Centers that will result in nearly $40M in advanced research through the next five years; successful operations of the Basic Energy Sciences (BES) Center for Integrated Nanotechnologies (CINT), securing American Recovery and Reinvestment Act (ARRA) appropriations for the CINT Facility, ongoing biosciences advances supporting the Joint BioEnergy Institute of which Sandia is a major partner, numerous papers published in peer-reviewed journals, numerous professional awards and positive external reviews of Office of Science (SC) sponsored programs.

Significant and notable progress in DOE sponsored Energy and Environment programs such as:

- Geothermal – successful design, fabrication and testing of high-temperature seismic tool for extended deployment associated with high-temperature enhanced geothermal systems, and development of advanced sensors and tools for use in high-temperature, down-hole applications for high resolution monitoring of drilling and geothermal exploration activities;
- Wind – Sandia has made exceptional progress in further developing methods and tools for advanced sensors and components used in wind technologies, including blade reliability and overall systems operations;

- Solar – major advances in concentrating solar power technologies such as parabolic troughs, dish-engine and central receiver technologies, including the successful commercialization of dish-engine technologies;
- Photovoltaics – major advances in solar efficiencies and material sciences which have produced advanced methods for enhancing performance and reliability of photovoltaic systems;
- Vehicle/Combustion - Sandia made significant progress in engine research and provided the science base for U.S. industry to develop a new generation of high-efficiency, clean engines for transportation;
- Hydrogen, Fuel Cells and Infrastructure – Sandia has successfully secured funding for several DOE sponsored projects which have resulted in several breakthroughs in the areas of hydrogen storage, hydrogen systems analysis, solar thermal hydrogen production, development of advanced codes and standards, and metal hydride research.

Significant accomplishments that directly supported the national security mission of Other Federal Agencies (OFAs):

- Sandia was successful in supporting OFAs in many of their major program areas, while at the same time sustaining and broadening core DOE and NNSA competencies and capabilities. Major federal sponsors include the DoD, Intelligence Agencies, Department of Homeland Security (DHS), Department of State, NRC, and NASA. There are numerous Work for Others (WFO) projects within the Sandia WFO Program portfolio that are making significant contributions to the Nation and national security by providing innovative solutions in areas such as: Synthetic Aperture Radar (SAR); Research Foundation (RF), optical, cyber, microwave engineering, nonproliferation, micro and nano technologies, missile defense, sensors development, satellites, risk assessments, physical security, cyber threat/security, modeling and simulation, cognitive sciences, emerging threats, test and evaluation, robotics, counterterrorism, systems engineering, energy, electronics, computing, materials and material response.

FY 2010 Opportunities for Improvement:

- *ILMS Transparency:*
  - *DOE Programs (non-NNSA DOE Programs)*: Sandia should post all DOE progress reports, as submitted to DOE/HQ program offices, on Sandia ILMS. Invitations to select internal and external project and/or program reviews, briefings, tests, as well as providing notifications concerning significant technological developments would aide in better transparency of activities and accomplishments.
  - *Institutional Programs, Other Federal Agencies/Work for Others (OFA/WFO)*: Sandia should support operational oversight by increasing the WFO program/project ILMS/CAS "transparency." Invitations to demonstrations, select internal and external project and/or program reviews, briefings, tests, as well as providing notifications concerning significant technological developments would aide in better transparency of activities and accomplishments. Increased meetings between SSO and Sandia concerning WFO problem areas, successes, and sponsor concerns would improve communications and enhance NNSA's operational awareness.
  - *DOE Programs – Office of Civilian and Radioactive Waste Management (OCRWM)/Yucca Mountain Project (YMP)*: It is OCRWM's desire that the licensing contention process be approached with the same rigor and high technical quality as the Request for Additional

Information (RAI) process within the budgetary and time constraints that exist. Additionally, communication with OCRWM and their Management and Operating (M&O) contractor will be key in FY 2010 for the Lead Laboratory as work scope evolves, especially when competing task activities conflict due to the budgetary and time constraints of the program.

OPERATIONS PERFORMANCE

Sandia's operational performance is rated as Good for FY 2009. Although Sandia made improvements in operational performance, the sled track incident significantly impacted operations during FY 2009. Performance did exceed standards in many areas evaluated. Notable accomplishments as well as opportunities for improvement in Operational areas are presented below:

- Sandia Technical Area V (TA-V) made great strides in this reporting period by establishing performance metrics and instituting a condition reporting log. The performance metrics have helped to reinforce the TA-V management expectations as well as establish a monitoring tool. The condition reporting log has become a useful management tool to support tracking and trending of issues.
- As highlighted in the Performance Evaluation and Assessment Report (PEAR), Sandia has responded to the ESRB report with actions at senior management levels to support an improved safety culture; however, these actions have yet to produce evidence of significantly improved operations and safety at the working level in laboratories and in the field.
- Sandia performance metrics have helped to reinforce the TA-V management expectations as well as establish a monitoring tool.

In the areas of Utilities and Energy; Real Property, Maintenance, Site Planning, and Project Management Sandia had the following accomplishments:

- Sandia/New Mexico saved a significant amount of energy (2.5%) and water (14%) compared to FY 2008 and is on track to meet or exceed the 33 goals indentified in DOE O 430.2B, Departmental Energy, Renewable Energy and Transportation Management, dated 02-27-08 that are within their control.
- The performance of the IBL project has been favorable with a Cumulative Schedule Performance Index (SPI) of 1.15 and SPI of 1.24. Sandia mitigated the impact associated with funding delays. Equipment delivery is 5 months ahead of schedule.
- Space utilization improved to 82%, which is a 6% improvement.
- Sandia has reduced the footprint by 55,131 gross sq. ft. without planned Transformation Disposition funding.
- Sandia has been the only site or one of the few sites that has met the NNSA Facility Condition Index (FCI) goals of 5% for mission critical facilities and 7% for mission dependent facilities.
- Sandia's Technical Security Services department continues to manage and execute the Security SSRP in a manner that has resulted in significant cost-savings, cost avoidances and scheduling efficiencies. The project has been on schedule and within scope and cost for the entire performance period with no major issues. All changes to the project have been appropriately processed using the approved change control procedures. All required quarterly updates to SSO were provided. An approximate $2.3M cost savings was realized by the SSRP project during this performance period.
- Sandia Safeguards and Security (S&S) actively participated in an initiative established by the NA-70 Security Leadership Coalition regarding the development of an NNSA-wide S&S management system assurance program. Sandia provided management level participants that worked as part of a working group with the responsibility to develop a recommended strategy for consistent

reporting of site-specific S&S performance using existing systems, processes and procedures. Sandia S&S also volunteered to Beta test the agreed upon Management System Assurance Program Report (MSAPR) (format and content) for two quarters. Upon completion of the third quarter MSAPR, SSO completed the Beta test process by submitting the completed contractor report along with the requisite Federal component to NA-70.

- The Days Away Restricted Transferred Case Rate (DART) and the Total Recordable Case Rate (TRCR) continue to decrease. Evidence of improvement is their TRCR of 1.45, which is an improvement of almost 19 percent reduction from the previous year and DART Case Rate that has decreased from 1.4 in FY 2005 to .44 in FY 2009.
- Electrical Safety performance continues to improve. Significant reduction in electrical incidents and severity of incidents since last year. Electrical occurrences have moved from 22 to 4 from FY 2008 to FY 2009 and a reduction in the overall severity of events from 26.3 to 7.6.
- Sandia issued a new corporate process and procedure for Activity Level Work Planning and Control (WP&C) and, working to gain lab wide acceptance, took multiple and diverse action to communicate the expectations and requirements. Assistance Teams worked with implementing organizations to improve their organization-specific process descriptions and procedures to ensure these met corporate requirements.
- Sandia achieved Environmental certification of ISO 14001 in New Mexico and recertification in California.
- Sandia created a new (AP)-241, "Integration of Documented Safety Analyses and Fire Hazards Analyses" procedure Web File Share (WFS) (WFS992666), which defines a more structured approach to achieving integration.
- Sandia completed the Site Fire Alarm Upgrade by the end of FY 2009. The original project was designed and budgeted to be completed with Facilities Infrastructure Replacement Program (FIRP) funds, which ran out two years ago. Sandia senior management found and applied the resources to complete this site-wide project by the end of FY 2009.
- Sandia demonstrated complex-wide leadership with implementation of initiatives on a number of business fronts.
    - Sandia Fleet Services received "The 100 Best Fleets in North America" award which was quite an accomplishment considering there were 38,000 public fleets and 760 applications.
    - Sandia awarded 56.6% of their subcontracts to small businesses which significantly exceeded their FY 2009 goal of 48%; an increase of 8.6%.
    - Sandia led a Cyber Incident Simulation/Knowledge Transfer exercise in June 2009 at Sandia to share knowledge, tools, and approaches used by cyber defenders at local sites. The exercise also included simulating a cyber incident to include hands-on experience to incident responders.
    - Sandia's management of long term liabilities was Outstanding particularly with regard to their pursuit of an overall health benefits strategy that is aimed at reducing costs while remaining competitive with the market and their successful labor negotiations.
    - The Sandia Blackberry Pilot Program demonstrated Sandia's approach to leveraging technology to enhance workforce productivity and better serve their customers.
    - Sandia's litigation study accurately identified and analyzed several causal factors, including Sandia's culture, and the makeup of its workforce.

- Continuous improvement in the transparency and population of data in the ILMS/CAS has greatly increased over the past FY although additional progress is needed as SSO finds that continuous improvement is not consistent across all of the entities at Sandia.
- SITS provided critical and impactful input to many portions of DP's Strategic Execution Plan (SEP) that was designed to implement the 2008 Defense Programs Strategic Framework. SITS provided extensive reviews and comments for SEP document; conducted and delivered benchmarking studies; inventoried critical skills across the National Security Enterprise (NSE), and updated the NSE functional analysis.

OPPORTUNITIES FOR IMPROVEMENT:

Opportunities for improvement in operational support areas include:

- While Sandia set out to achieve corporate-wide improvements following the sled track incident, there is still significant progress needed to achieve an outstanding safety culture (i.e. implementing actions from ESRB, RST corrective actions, etc.)
- Safety Culture - As identified by the Executive Safety Board Review, Sandia has not fully demonstrated the attributes of a Learning Organization and the FY 2010 PEP includes an incentive for Sandia to pursue means to improve its workforce awareness and engagement in identifying organizational latent weaknesses and error precursors. Sandia began use of Human Performance Improvement (HPI) tools in select organizations but has not yet institutionalized the use of HPI tools to further improve system safety. Additional details are discussed in Performance Incentive 4.
- Line Implementation of Work Planning & Control – With the issuance of corporate WP&C processes and procedures Sandia has set the stage to establish effective activity level hazard identification, analysis and control. As indicated in the PEAR, operational events continue to occur for a variety of reasons associated with lack of awareness which may not be resolved by procedure if implementing organizations are blind to their gaps or weaknesses and overly reliant on skill of workers substitute for complete hazard analysis and control. Discussion on this point related to the Rocket Sled Track incident is in PO6.
- In the areas of Utilities and Energy, Real Property, Maintenance, Site Planning, and Project Management Sandia has the following opportunities for improvement:
    - Sandia's FY 2009 effort to demonstrate project cost and schedule efficiencies relative to previous years is absent or nontransparent for capital projects between $500K and $5M.
    - The open corrective actions from the Earned Value Management System (EVMS) Surveillance conducted by HQ DOE/Office of Engineering and Construction Management (OECM) introduce unnecessary risk associated with obtaining new projects and measuring performance on existing projects.
    - Continued improvements in Real Estate processes are needed to minimize rework on Preliminary Real Estate Plans (PREPs) submittals and to ensure lease PREP requests are submitted in a timely manner.
    - All future leases must include a preference for Gold Certification per the Leadership in Energy and Environmental Design (LEED) rating system and facility temperature set-backs.

- Based on the results of the OE assessments, Sandia must be responsive in terms of enacting as quickly and effectively as possible those actions and corrective measures identified within the project plan for the Safeguards and Security Improvement Project (SSIP) initiative in order to be able to effectively demonstrate, through compliance and performance, that the intent of the DOE requirements implemented by the site has been met and validated.
- Sandia S&S must continue to self-identify and improve their self-assessment and corrective action management processes which represent two major attributes of assurance. The line-line portion of the current self-assessment program represents a significant weakness in the overall self-assessment program in that it has been determined to be ineffective. Sandia must take action to remedy this component of the overall process as soon as possible.
- Subcontractor Oversight – With the issuance of ESH Manual Chapter 23 Sandia has set the stage to establish effective oversight of subcontracted activity. Sandia has yet to demonstrate that effective oversight is occurring in all types of contracted activities and demonstrated effectiveness in reducing incidents that would be attributed to incomplete flowdown or execution of requirements.
- Electrical Safety Program – While Electrical Safety has improved this year, continued effort for configuration management of the Sandia single-line diagram of distribution and transmission systems is needed. Sandia is encouraged to continue safety oversight of line-directed electrical work and continue to provide corporate training and qualification process for Sandia employees and subcontractors performing electrical work.
- Environmental Compliance – Sandia needs to determine the cause for the SNL/CA violations and implement all corrective actions identified to date. Sandia also needs to improve meeting the National Pollution Discharge Elimination System Permit requirements including timeliness of inspections, certifications and permit coverage and in following SSO National Environmental Policy Act processes.
- Gaps in P-Card policies, processes and procedures, increase risk to the P-Card program which questions a) the effectiveness of corrective actions implemented; and b) whether the P-Card self assessments are sufficient in robustness, sampling size and appropriateness.
- Failed to meet its FY 2009 implementation plan milestone for deployment of FIPS 140 compliant encryption methodologies to protect mobile devices and removable media.
- Improvement in implementation, use, communication, and assurance results from ILMS to include improvement in self-assessment, identification of deficiencies, and implementation of corrective actions.

PERFORMANCE INCENTIVES

Performance Incentive 1, *Stretch Goals Related to Nuclear Weapons Work*. Sandia overcame significant obstacles to complete the FY 2009 Level II Milestones. Both the protracted continuing resolution that limited funding and the stand-down of energetic material operations at Sandia in the aftermath of the incident at Sandia's Rocket Sled Track facility challenged Sandia's ability to meet schedule and delivery requirements in a variety of areas. The work represented goes beyond the expectations embodied in the FY 2009 suite of Level II Milestones. Specifically:

- Sandia completed one non-National Ignition Campaign (NIC) milestone two months early and two others three months early.
- Sandia exceeded the goal for Z shot rate and frequency, achieving nine shots on nine consecutive workdays in February and demonstrating the ability to complete four shots per week on average by May 1, 2009.
- Sandia completed demonstration of an advanced power supply system four months ahead of the PI-1 target date.
- Sandia integrated electrical and mechanical components for enhanced surety on the B61 transportation environments three months ahead of schedule.

- Sandia's Readiness activities incorporated additional work scope to meet multi-system DSW priorities without affecting existing readiness commitments such as early start of critical radar development, upgrade of the Sandia mass spectrometer, and facilitating qualification of testers.
- Sandia stood up a production capability to deliver 170 W78 Neutron Generator (NG) Timer/Drivers for product acceptance by the end of January 2009. This in-house capability enabled the scheduled delivery of NG product and allowed time to qualify a new supplier after a no-bid response from the existing timer/driver supplier.
- Sandia reduced destructive sample testing for W76 and W78 NG sub-assemblies (NGSA), reducing product span time and cost.
- Sandia completed seven unfunded Trainer Maintenance milestones requiring drawing updates for Type 5 trainers on multiple weapon systems. Completion of these milestones supported Pantex in their response to a Defense Nuclear Facility Safety Board (DNFSB) finding.

Performance Incentive 2, *Quality Assurance - Stretch.* Overall Sandia Quality Assurance Performance is higher than FY 2008. Examples include reduced escapes and reduced number of defects found at Sandia Acceptance. Quality Assurance issues remain with the Sandia Quality Management System (QMS). Examples include SSO rejecting Quality Assurance Survey (QAS) responses that had inadequate causal analysis, corrective action plans that are not effective at solving systemic issue and independent assessments that have not focused on prevention and issues early. A decrement of $481,603 is taken from this performance incentive for costs unnecessary to the government.

Performance Incentive 3, *Removal of Material from SNL - Stretch.* Sandia has performed exceptionally well in the disposition of no defined use nuclear material, explosives and unneeded materials and chemicals. Sandia's diligence has resulted, in some cases, in exceeding the objective. Despite a variety of obstacles and complications, Sandia persevered in their efforts and met or exceeded their objectives.

Performance Incentive 4, *Culture and Management Issues That Lead to Repeat Findings and Inadequate Implementation - Stretch.* The single most important event in Sandia ES&H in FY 2009 was the Rocket Sled Track (RST) Accident. This event highlighted long-standing cultural issues surrounding safety. Senior Sandia management understands this issue. The FY 2009 PEAR states under "Safety culture (lab-wide): Safety-related incidents continue to occur, such as the sled track misfire resulting in the DOE Type B investigation in October 2008, the Advanced Material Laboratory (AML) fume hood incident that caused physical exposure to fumes in February 2009, the near-miss Tech Area (TA)-III high-pressure air line rupture incident in April 2009, and the defeat of laser welder interlocks in May 2009. These events continue to occur because of lack of adequate WP&C activity-level work processes, inadequate management awareness and oversight of risk/hazards and their controls, unsafe behaviors, lack of appropriate procedures that match the work being conducted, and inconsistent hazard analysis." Operational events will continue to occur for a variety of reasons associated with lack of awareness which may not be resolved by procedure if implementing organizations are blind to their gaps or weaknesses and overly reliant on skill of workers substitute for complete hazard analysis and control. Notwithstanding, the objective evaluation of the performance measures and targets in PO 6, PO 8, and PI 4 are objectively evaluated with regards to actions that seek to drive continuous improvement. The SSO overall evaluates the Sandia safety culture as Satisfactory. A decrement of $881,603 is taken from this performance incentive for costs unnecessary to the government.

Performance Incentive 5, *NA-10 Multi-Site.* Sandia had leadership responsibilities for three of the performance targets, did not play a role in one performance target, and supported the other eleven performance targets in FY 2009. The one target not rated by Sandia as outstanding was to achieve W76-1 LEP scheduled deliveries to the Navy and self-assessed as Unsatisfactory. The W76-1 MC4710 ISL and MC4713 Launch Accelerometer (LA) technical design and production issues delayed delivery of

the MC4700 AF&F to Pantex. The inability to meet the Program Control Document (PCD) delivery schedule was the result of the MC4710 Intent Stronglink (ISL) failing to meet a safety requirement in a specific abnormal environment. Sandia was able to successfully deliver against the recovery plan schedule as renegotiated with the NNSA and the Navy but at additional costs (estimated at $10.5M for FY 2009) to the Complex and after a reduction in the requirement for the Navy. A decrement of $216,752 is taken from this performance incentive for costs unnecessary to the government.

Exhibit 1

RATING OF FY 2009 PERFORMANCE

Sandia Corporation

ELEMENT	RATING	
[redacted]		
PO 1 Defense Programs *(Capabilities, Facilities and Research)*	Outstanding	
PO 2 Defense Programs *(Development and Maturation of NW Technologies and Tools)*	Outstanding	
PO 3 Defense Programs *(Directed Stockpile Work (DSW) and Readiness Activities)*	Outstanding	
PO 4 Defense Programs *(Nuclear Nonproliferation (NA-20))*	Outstanding	
PO 5 Science and Technology	Outstanding	
Overall Mission –	Outstanding	
[redacted]		
PO 6 Operations	Good	
PO 7 Safeguards and Security	Good	
PO 8 Environmental, Safety and Health and Fire Protection Programs	Good	
PO 9 Business Systems Performance	Outstanding	
PO10 Contractor Assurance System*	Satisfactory	
PO11 Systems Integration Technical Support	Outstanding	
Overall Operations	Good	
Total Performance Objective (PO) Rating	Outstanding	
[redacted]		
PI 1 Stretch Goals Related to Nuclear Weapons Work	Outstanding	
PI 2 Quality Assurance	Good	
PI 3 Removal of Materials from SNL	Outstanding	
PI 4 Culture and Management Issues	Good	
PI 5 NA-10 Multi-Sites	Good	
PI Aggregate Rating	Good	
Amount of Incentive Fee Awarded	$7,176, 461	

*Reflects Rating Against Specific CAS Improvement Targets

Table 1 *FY 2009 Rating Scale*

Outstanding	Substantially exceeds the standard of performance in many areas. Performance in critical and mission areas is at a high level and is accomplished in a manner that has substantial positive impact on the mission. Program/Project milestones and deliverables significantly exceed either or both of the budget and schedule expectations.
Good	Exceeds the standard of performance in many areas. Performance in critical and mission areas remain at a high level although there may be room for improvement in some areas. Program/Project milestones and deliverables exceed either or both of the budget and schedule expectations.
Satisfactory	Meets the standard of performance although there may be some areas requiring improvement but do not substantively affect overall performance. Program/Project milestones and deliverables are accomplished within budget and schedule.
Unsatisfactory	Does not meet the standard of performance in one or more areas. Deficiencies are serious, may affect one or a combination of mission, operations or cost.

PERFORMANCE OBJECTIVE 1 - Defense Programs Capabilities, Facilities and Research - Essential

Develop and maintain the science and engineering capabilities, facilities, and associated infrastructure needed to contribute to a flexible and responsive nuclear weapons complex.

Adjectival Rating
Outstanding

Summary of Performance

PO1 is comprised of four major Defense Program categories Readiness in Technical Base and Facilities (RTBF), Advanced Scientific Computing (ASC), Inertial Confinement Fusion (ICF) Campaign, and Science Campaign and a measure related to environmental test capabilities. Sandia was evaluated based on their performance against 44 Level II milestones. Four milestones of the original 48 milestones (RTBF milestones) were moved into PO6 and PO8. Overall, Sandia successfully completed all of the milestones still within PO1 or HQ approved moving completion dates into FY 2010. The Pulsed Power Program at Sandia has done a good to outstanding job in all major areas. Of particular note are the fusion research, and facility operations. They have completed all their ICF milestones and performance targets, and have achieved an NNSA PART efficiency measure goal. While Sandia experienced success in meeting the Defense Programs (DP) mission, there are still areas that need improvement. In the NNSA final assessment, Sandia rated an overall Outstanding.

Significant Accomplishments

- Sandia successfully completed Milestone 3152 on June 2009 – 3 months ahead of the scheduled completion date of September 2009. This milestone focused on realization of an integrated analysis workbench that merged model management and simulation data management capabilities, along with several others. This addresses what the full system modeling projects identified as the top priority in 2008 with respect to the DART tools – namely, usability through better integration was required. Furthermore, this milestone accomplishes the strategic objectives of substantially reducing the long-term M&O costs for sustaining this capability in production deployment.
- Sandia successfully completed Milestone 3159 ahead of the scheduled completion date of December 2008. NNSA's upgrade of the Red Storm system is now complete. This successful upgrade provided capability improvements to the machine by replacing 6240 dual core nodes with quad core processors and increasing memory on the system so there is 2GB per core throughout. This represents an increase in the total memory of the machine from 38TB to 75TB. Since 6240 dual core sockets were replaced with quad core sockets, this represents an increase of 38.4% in the capacity of the machine for an 8% increase in machine investment.
- Sandia has made great strides this year in articulating and beginning to address in a focused manner, their challenges for predictive capability and identifying their largest ad-hoc "knobs" for non-nuclear components.
- In FY 2009, Sandia demonstrated the power of computational science and simulation complex-wide by making significant contributions to surety, design of experiment, and secure transportation as well as the traditional weapons performance in normal, abnormal and hostile environments.
- Sandia worked in conjunction with LANL and LLNL to deliver on the tri-lab Common Computing Environment milestone 3162 to provide an integrated tri-lab environment, leveraging work at all laboratories which benefited all and continues to consolidate efforts to eliminate unnecessary and expensive redundancy.
- Sandia successfully met the request by the ASC office to transition some of the duties to the laboratory related to the Office of Management and Budget (OMB) Circular A-11 Exhibit 300 and 53 reporting processes in support of IT portfolio management for ASC supercomputers at the laboratory.
- Sandia's MESA Fab received DoD "Trusted Design and Foundry" accreditation for both unclassified and classified silicon integrated circuits used in the U.S. Military and national security applications.

- Sandia's CX assembly at the Sandia Pulsed Reactor successfully started up as a training vehicle for criticality safety experiments.
- The Safety Assessment Report (SAR) addendum for the PAT-1 container draft was completed and transmitted to the NNSA for final review prior to being submitted to the NRC.
- In the area of facility operations, there were significant advances to improve efficiency and reliability. Sandia added the following: a new spark diagnostic for laser alignment, a new configuration of the Marx trigger generator, new energy diverters, and new output transmission rods, and an automatic water processing system. A major improvement was upgrading the laser-triggered gas switches. As a result of the improvements, the Z facility has been able to take 51 shots in the fourth quarter, which is twice the first quarter rate, and has taken a total of 147 shots in FY 2009. The 51 shots/per quarter is at the optimum level of 200 shots/year. In addition, Sandia was able to reduce the number of hours for the operations crew to prepare for an experiment. This is a multi-year NNSA PART efficiency measure and it has a goal of 9 hrs. Sandia achieved an average of 7.3 hrs for Q4 and an average level of 8.2 for the year.
- The pulsed power fusion group has developed an innovative concept for fusion that couples the electrical energy more efficiently into the fusion fuel. They have made significant scientific progress. This was aided by adding the capability to do cryogenic experiments. In addition, they have improved diagnostics such as the two-frame backlighter for imaging.
- The 2D and 3D modeling has helped Sandia provide the required pulse shape and current for the experiments.
- Sandia successfully completed Milestone 3139 ahead of schedule. While all four criteria were met, Sandia will still need to further analyze the date.
- Sandia successfully completed their contribution to Milestone 2873 in Q4FY 2008. In addition, during Q1 FY 2009, Sandia developed and verified operation of the optical diagnostics planned for the deployment of the NTS Large Bore Powder Gun.
- A goal of the Z Refurbishment Project was to increase the current delivered to a load, which was 18 MA on the "old Z." The Secondary Assessment Technologies (SAT) subprogram of SC set a new current record (24.2 MA) for a radiation-producing load on Z. In addition, the ICF Campaign achieved greater than 20 MA into a load on Z that had an inductance of at least 3.5 nanohenries (nH). This was for an FY 2009 stretch goal negotiated with NA-123 that was not incorporated in the FY 2009 Performance Evaluation Plan. The load inductance exceeded 4.5 nH and the load current was 22.6 MA. Two subsequent shots in the same series also had load currents in excess of 20 MA for the same inductance.
- Notable achievements include work on the Advanced Certification campaign developing materials data for gases and cryogenic liquids which will lead to improved fundamental understanding required for to address both certification and boost physics issues. Additional work on developing certification methodologies for non-nuclear components has been consistently outstanding.

Opportunity for Improvement

ASC

- Sandia will need to work on setting the context for some of their milestones in order to demonstrate alignment of the work to larger programmatic goals.
- While good at communicating individual changes to the program of record, Sandia needs to increase their visibility in articulating general improvements/new capabilities in both designer needs in modeling and simulation (near-term) and predictive simulation capability.

ICF

- For the pulsed power program, the near-term contributions to Defense Programs are well-defined and strong, but long-term contributions have not been as clearly articulated. Sandia should work closely with NNSA / HQ to formulate a detailed plan for utilizing the unique capabilities of pulsed power technology to satisfy the specific needs of Defense Programs, especially as defined by the Predictive Capability Framework (PCF).

SC

- Generally the pulsed power technology efforts have been well done, however Sandia management needs to focus on those efforts that contribute applications to national priorities in making Z more reliable at higher voltage, and materials dynamics platforms. Improvements for radiography and next generation z-pinch drivers although important, are expected to be longer term objectives.

- Sandia laboratory management has shown a notable lack of consistent support for providing an appropriate match for the joint munitions program MOU with DoD. This may lead to a loss of funding at Sandia.

Performance Measure 1.1

Annually assess and sustain the capabilities and facilities important to the Nuclear Weapons program to assure their readiness to meet the current and future needs of the mission.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
1.1.1 Meet Level II Milestones associated with RTBF.	Outstanding	Agree	The RTBF program successfully completed the five Level II Milestones associated with this Performance Measure. Sandia's Decontamination and Demolition (D&D) program successfully removed 34,000 square-feet without RTBF funding in FY 2009.

Performance Measure 1.2

Provide predictive simulation and modeling tools, supported by the required computational platforms and other resources, needed for stockpile stewardship, development, and certification.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
1.2.1 Meet Level II Milestones associated with the Advanced Scientific Computing (ASC) Campaign.	Outstanding	Agree	The ASC Program has completed multiple milestones early while maintaining regular communication and working with the Site Office and HQ. ASC has provided noteworthy mission support capabilities to meet national priorities while completing its thirteen Level II milestones. Due to the Federal funding cycle this year, ASC has had many challenges with funding and personnel however the program was managed professionally and they completed all their milestones on schedule and some ahead of schedule (Milestone 3152 & 3159). In addition, ASC is responsible for the completion of the Nuclear Forensics capability on the Defense Programs' "Getting the Job Done in FY 2009" list. ASC also impacts the FY 2009 Multi-site Targets. Specifically, all three labs are required to meet or exceed multi-site target #4: Perform a modern baseline of enduring stockpile systems with ASC codes. Overall, NNSA rates this target as Outstanding but believes Sandia still needs to improve on Predictive Science and Engineering Simulations.

Performance Measure 1.3

Apply pulsed power science to the Inertial Confinement Fusion (ICF) and Science campaigns. Support the National Ignition Campaign as negotiated in order to reduce technical risk.

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
1.3.1 Meet Level II Milestones associated with the ICF Campaign	Outstanding	Agree	NNSA rates this target as Outstanding. Sandia completed 9 L2 milestones in ICF.

1.3.2 Meet Level II Milestones associated with the Science Campaign.	Outstanding	Disagree Good	Sandia had 15 Science Campaign milestones. Of these 15 milestones, 3 were not scored by HQ at the end of FY 2009 however the completion dates were moved into FY 2010. Sandia did not complete Milestone 3134, "Complete the first Pu experiments on the refurbished Z." This milestone completion date has been moved into FY 2010 with HQ approval. Pu ICE experiments were delayed due to an issue that presents a challenge in balancing safety and mission directives. Pu experiments on the old Z were performed within months of the planned shutdown. Additional risk analysis was performed in 2009 that indicated additional planning for potential loss of containment was prudent. SSO supports the laboratory working this issue to find an acceptable solution with appropriate risk mitigation. Further discussion of this Milestone is contained in the Multisite Performance Incentive (PI-5.3.1), which the Complex failed to achieve).

Performance Measure 1.4 Outstanding

Advance Sandia's vision of providing all environmental testing capabilities for the Nuclear Weapons Complex.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
1.4.1. Meet Level II Milestones for Test Complex Revitalization, Phase 2.	N/S	Outstanding	There are no Level II Milestones associated with the Test Complex Revitalization (TCR) Phase 2 line item. Sandia performed all FY 2009 work contained in the approved project baseline on schedule and on budget. The work included design refresh for the Mechanical Shock facilities and long lead procurement for the actuator. In addition, the Sandia project team and the Sandia program office performed extensive additional analysis to address funding options being suggested by NNSA/HQ with special attention to possible rescoping of the project to meet imminent program drivers in the face of dwindling funds and NNSA/HQ cancellation of the project for FY 2010 and beyond.
1.4.2 Meet Level II Milestones for the Ion Beam Laboratory.	N/S	Outstanding	Although there are no Level II Milestones associated with the Ion Beam Laboratory, the IBL Project team has made significant progress in FY 2009. The project was 38% complete at the end of the fiscal year which was ahead of schedule and under cost.

Other Considerations

SC

Sandia management values self defined "core capabilities." Supporting work on the milestones defined by the national boost initiative and predictive capability framework are important. While NNSA recognizes the value of supporting "core capabilities", it also values supporting the long term goals of the Stockpile Stewardship Program in order to continue funding Sandia using NNSA ST&E research funds.

PERFORMANCE OBJECTIVE 2 – Defense Programs Development and Maturation of Nuclear Weapons Technologies and Tools

Develop capabilities to assess and improve the safety, security, reliability, and performance of the non-nuclear components in nuclear weapons without further underground testing and predict the response of all non-nuclear components and subsystems to external stimuli and the effects of aging.

Adjectival Rating – OUTSTANDING

Summary of Performance

PO2 is comprised of Engineering Campaigns, Enhanced Surety, Weapons Systems Engineering, Nuclear Survivability, and Enhanced Surveillance. Sandia was evaluated based on their performance against 12 Level II milestones on four performance measures in PO2. Overall, Sandia successfully completed all milestones either on schedule, ahead of schedule, or worked successfully with HQ Program Managers approval to renegotiate schedule or scope consistent with funding availability. Overall, NNSA rates Sandia Outstanding.

Significant Accomplishments

The following is based on an assessment from HQ.

- **Enhanced Surety Subprogram (C5)**
  - Successful completion of three Level II milestones, 3103, 3104, and 3106, with the exception of one canceled Level II milestone 3105, which was due to funding impacts because of the Continuing Resolution and the late receipt of FY 2009 funding as well as a re-direction on Surety priorities.
  - Sandia Program Management – Exceeded expectations. Sandia Surety Point of Contact is always readily available via email and phone (private and work). The POC holds weekly telecons with NNSA-HQ to go over any pertinent issues, to update HQ on Sandia work progress, and to gather any actions. The Sandia POC provided input on the Enhanced Surety Work Break-down Structure, the Program Implementation Plan, and the EC Technology Roadmap. Details of the progress made towards completing Sandia FY 2009 activities were provided on a regular basis and in sufficient time to meet internal quarterly reviews. Sandia was able to, with receiving considerable amounts of funding very late in the FY, make significant contributions to the Enhanced Surety Subprogram and was also able to spend the money wisely and in a timely fashion avoiding significant carry-over. Progress and accomplishments have been observed in the areas of:
  - Advanced Safety Systems Major Technical Effort (MTE)
    - Sandia contributed to the MSI on Advanced Initiation (3309) sharing the Direct Optical Initiation (DOI) Concept of Operations with LANL; although milestone 3105 could not be completed, Sandia was able to meet the related MSI and eventually get DOI work back to a level consistent with the originally planned Level II milestone.
  - Advanced Use Denial Systems MTE
    - Sandia successfully completed milestone 3103 on the development of a highest priority surety sensor. Power Management Systems MTE.
    - Sandia's major achievement on the completion of milestone 3104 on the thermoelectric transducer and the advanced power-supply system MSI 3310, which was an activity that was re-directed by HQ Senior Management during the second quarter of the FY; Sandia was able to fill a prototypical unit, recording validated data and also maintain the original baseline as a lower level so not to lose progress towards development of a power management system for the next insertion opportunity.
  - Integrated Surety Solutions MTE
    - Sandia's significant achievement on milestone 3106 developing the Transportation Attachment Device

and demonstrating its functionality in a pertaining scenario and the various interagency coordination, which was required for the successful demonstration.

- **Weapon Systems Engineering Assessment Technology Subprogram (C6)**
  - Sandia completed experiments with the 6-Degrees of Freedom (6-DOF) vibration system on the W78 Fire Set Assembly. Single axis, three axis, and full 6-DOF Stockpile-to-Target Sequence (STS) level powered flight random vibration with multi-point response limiting were successfully demonstrated by Sandia. Three axis reentry random vibrations with multi-point response limiting were achieved at one-half the STS level. These experiments provided measured input and response data for comparison with numerical simulation, and demonstrated the capability to provide more realistic vibration simulations for weapon components in the future. Description of the system, control theory, and experimental results are documented in a technical report.
  - Sandia conducted an experiment in the Trisonic Wind Tunnel at Mach 2 in which wall pressure fluctuations were correlated between axially- and laterally-aligned miniature pressure sensors to show the correlation strengths and coherence lengths. Experiments completed earlier in this FY have used cross-correlations to isolate the effects of wind tunnel vibration and acoustic noise on pressure power spectra. Additional data analysis techniques have established the spatial coherence of the instantaneous pressure field whereas cross-correlation functions operate in a time-averaged statistical fashion. The results from the Sandia tests all are relevant to the prediction of aerodynamically-induced vibrations on a stockpile re-entry vehicle.
- **Nuclear Survivability Subprogram (C7)**
  - Completed experiments that provide the validation data needed to model the braze joints in the neutron tube used in the small neutron generator.
  - Improved the UQ methodology for the initial full-circuit calculation prediction of a silicon complex circuit. The results from experiments conducted at the Annular Core Research Reactor (ACRR), Ion Beam Laboratory (IBL) and the Little Mountain Linear Accelerator had excellent agreement with the values predicted by the models used in QASPR. Initial work with data collected on the SPR III reactor was also accomplished, which is a critical step in validating the QASPR methodology.
  - Completed the independent review of the QASPR project. The experts in the DoD consider the QASPR methodology as a high-risk endeavor and would prefer that NNSA maintain the SPR III as the qualification standard. Support for an independent science-based review panel consisting of DoD and external experts is essential to obtaining DoD support for the QASPR methodology. The feedback provided by the panel indicates that Sandia is making positive progress not only from a technical perspective, but also in gaining DoD support for QASPR.
- **Enhanced Surveillance (ESC) Subprogram (C8)**
  - A significant effort has been undertaken to define and implement a new strategic approach for component and material evaluation in FY 2010 to enable surveillance transformation to be achieved as soon as possible.
  - Sandia completed all the Level II milestones in a timely manner and within budget. The scope of work planned for the out year was accomplished as planned.
  - W78 System tester at Weapon Evaluation Test Laboratory (WETL) was completed but W87 is deferred to FY 2010 due to ESC funding not being available.

Opportunity for Improvement

- **Nuclear Survivability (C7)**
  - The Sandia Pulsed Reactor (SPR) III fuel at the Nevada Device Assembly Facility should be saved until QASPR is proven.
  - Increase outreach efforts to the broader nuclear effects community, e.g. the Defense Threat Reduction Agency, in order to increase collaboration.
- **Enhanced Surveillance (C8)**
  - Ability to provide transparency to the Federal Program staff for the strategic re-baselining of the Component and Material Evaluation (CME) pilot programs in order to address confidence in the prioritization of the methodology, validation of associated expected costs (may be >$100M), as well as the expected outcome.
  - Provide better transparency of portfolio and progress of activities to the core surveillance community, internally, as well as externally (Federal Program Managers in Directed Stockpile Work (DSW)) and in forums including, but not limited to, the Stockpile Evaluation Program Working Group (SEPWG).

- The stand-down due to the explosive accident impacted the WETL tester schedule in Enhanced Surveillance. Sandia Management should have a management plan for such a risk to avoid spreading the impact to other programs.
- Sandia changed the Independent review format and content which made the review programmatic. The purpose of such reviews mainly should be technical as in the past years.

Performance Measure 2.1

Mature surety technologies that provide options for insertion into the stockpile, including: 1) advanced safety technologies, and 2) component technologies to support security architecture options.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
2.1.1 Meet Level II Milestones associated with maturation of surety technologies identified in the Enhanced Surety sub-program of the Engineering Campaign.	Outstanding	Agree	Engineering Campaign completed 17 out of 19 original FY 2009 Level II Milestones at Sandia, LANL, LLNL, Y12, SRS, Pantex and KCP. Two milestones were canceled (3105 at Sandia and 3110 LLNL). Sandia Program Management exceeded HQ expectations and communicated frequently and well with HQ Program Managers. Details of the progress made towards completing Sandia FY 2009 activities were provided on a regular basis and in sufficient time to meet internal to NNSA quarterly reviews.

Performance Measure 2.2

Develop the tools and technologies needed to design and qualify components and subsystems to meet requirements for thermal, mechanical, and radiation environments; and to assess knowledge gaps in margins and uncertainties for material and component lifetime predictions, in support of surveillance transformation.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
2.2.1 Meet Level II Milestones associated with the Enhanced Surveillance sub-program of the Engineering Campaign.	Outstanding	Agree	NNSA rates this area as Outstanding based on an overall evaluation of LII Milestones. Sandia contributes to 12 of the 17 milestones and supports FY 2009 Multi-site Targets 3309 and 3310. Sandia has met all the commitments in each milestone and will report a Complete status on the associated Engineering Campaign (EC) Level II Milestones as well as Multi-site milestones.
2.2.2 Meet Level II Milestones associated with Quantification of Margins and Uncertainties (QMU), as well as other tools to support stewardship, development, and certification of the stockpile, as identified in the Weapon System Engineering and Assessment sub-program of the Engineering Campaign.	Outstanding	Agree	

2.2.3 Meet Level II Milestones associated with development of tools and technologies needed to foster survivability of weapons in radiation environments, as identified in the Nuclear Survivability sub-program of the Engineering Campaign.	Outstanding	Agree	The Nuclear Survivability Subprogram (C7) at Sandia was impacted due to funding issues because of the Continuing Resolution and the late receipt of FY 2009 funding as well as a re-direction on Surety priorities. The work on the QASPR project was shutdown and restarted however, there was loss of personnel from the project. As a result, of these impacts, HQ and Sandia negotiated a new completion date in FY 2010. Despite the funding problems, Sandia was able to maintain progress on the other milestones. The rationale for Sandia's outstanding performance is their remarkable management of the program during the disruptions caused by the CR. They were able to perform an orderly shutdown when the funding for QASPR ran out (headquarters directed them to spend at the full rate because a long CR was not anticipated), which enabled them to restart work when the Omnibus budget was passed. Despite a loss of personnel to WFO, they reconstituted the team and resumed work quickly. Through deft management they minimized the programmatic impact by developing a plan that split the objectives of the impacted L2 milestone, which kept part of the milestone in FY 2009 and part in FY 2010. The technical work has also been outstanding because they make great efforts to keep NNSA abreast of technical progress NNSA is better able to make more effective decisions on program direction. In particular, Sandia's progress on III-V semiconductor material is first rate.

Other Considerations

- Enhanced Surety (C5)
  Direct Optical Initiation (DOI) work at Sandia has been re-initiated with the recent release of reserve funds, however the late availability of funds has significantly slowed Sandia's progress on DOI and should DOI be selected as a viable LEP technology, meeting the B61 First Production Unit (FPU) could be impacted.

- Nuclear Survivability (C7)
  The progress that Sandia has made in advancing the QASPR methodology has highlighted the shortcomings in the previous approach to qualifying components. The tools developed under the Sandia effort will provide the Sandia designers the ability to model prompt effects of nuclear weapons with a greater fidelity than what has been achieved in the past.

PERFORMANCE OBJECTIVE 3 – Defense Programs Directed Stockpile Work (DSW) and Readiness Activities

Conduct design and development, maintain the existing stockpile while supporting stockpile transformation, and develop modern production capabilities and capacity for weapons refurbishment or development and future stockpile requirements.

Adjectival Rating: OUTSTANDING

Summary of Performance

DSW is responsible for completing four Defense Programs "Getting the Job Done in FY 2009" targets. Of the four targets, within this Performance Objective, the B61 ALT 357 ALT was completed one month earlier than planned November 26, 2008 (Q1). The remaining three targets were completed in September 2009 (Q4). DSW impacts five multi-site targets at all the Nuclear Security Enterprise sites. Specifically, MSI 1.1 Stockpile "Achieve the W76 LEP scheduled deliveries"; MSI 1.2 Stockpile "Complete the B61-7/11 Alteration 357 LEP builds"; MSI 1.3 Stockpile "Perform B61 LEP Phase 6.2/2A study"; MSI 1.4 Stockpile "Exceed scheduled weapon dismantlement quantities"; and MSI 1.5 Stockpile "Deliver limited life components". These are further discussed in PI-5 Multi-Site under measure 5.1.

Sandia has life cycle systems engineering responsibility for the weapons in the enduring stockpile including the B61, B83, W80, W76, W88, W87, and W62 (LANL is the systems engineer for the W78) and for retired nuclear weapons (B53 and W84). Sandia also has life cycle engineering responsibility for non-nuclear components in the enduring stockpile. Activities for this performance objective included completing the Level II Milestones associated with the engineering support for the enduring stockpile and execution of Sandia's stockpile stewardship responsibilities as defined and expected by NNSA. Sandia successfully completed or exceeded commitments scoring 73 of 73 Level II Milestones assigned to them as Blue. Two Level II milestones were cancelled due to either being a duplicate milestone (MS3179) or the WR system being canceled (MS3203).

Sandia energetics stand-down issues impacted initial expectations on FY 2009 deliverables and Mission. DSW and Enhanced Surveillance Campaign (ESC) began the year under a restricted and reduced spend rate as part of the 2009 Continuing Resolution (CR). The Sandia energetics stand-down delayed all WETL and Tonopah Test Range (TTR) operations, including stockpile lab testing, for approximately six months while WETL and TTR demonstrated its safety basis for explosive operations as required by the Sandia Executive Management Independent Review Board (IRB) before restart of operations. Ten of the eleven scheduled flight tests were completed at TTR in FY 2009 with one B83 flight test rescheduled to FY 2010 for multiple reasons (e.g. USAF aircraft availability and B-2 ejector issue). HQ agreed to delay the W87 Surveillance MS3039 from the FY 2009 4th quarter to FY 2010 2nd quarter.

Sandia worked with the NNSA, LANL, and Pantex to complete the B61 ALTs 357 and 356/358. The last component production lots supporting the ALT 356 spin rocket motor replacement field retrofit were completed under Sandia's guidance and production oversight. Sandia completed multiple Joint Test Assembly (JTA) development efforts for the enduring stockpile improving support of W80-1, W87, and W88 future stockpile flight testing capability.

Sandia built on past improvements in the technical basis of the stockpile and utilization of quantification of margins and uncertainties (QMU) methodologies despite significantly reduced funding available in FY 2009. The technical basis and QMU work supplemented Sandia's stockpile evaluation efforts executed under the Core Surveillance, CME, and Enhanced Surveillance programs. The cumulative work completed improved the understanding of each system's unique concerns associated with critical performance parameters and knowledge gaps.

WETL testing built on work in FY 2008 in the exploration of worst-case environments through improved robustness testing capability and expanded mechanical preconditioning. The improved WETL test capabilities contributed to increased margin analysis. Sandia contributed to the completion of scheduled Stockpile Flight Tests (SFT) and

conducted Stockpile Lab Tests (SLT) and CME testing across all fielded weapon systems, increasing Sandia's stockpile knowledge and supporting the basis for the semi-annual reliability and annual assessment reports for the NNSA and the Services. The technical basis work, the QMU analyses, and the stockpile evaluation data provided source information for each weapon system's annual assessment efforts culminating in Annual Assessment Reports.

All Level II Milestones associated with future viability of nuclear weapon systems were completed, and significant accomplishments supporting future insertion opportunities and the sustaining of critical engineering skills were achieved. Items of particular note include: Gate A completion for the B61 6.2/2A study; significant technology maturation supporting next insertion opportunities (B61 LEP: arming and fuzing, Electronic Neutron Generator Development, and multiple other technologies); the establishment of a Reentry System Demonstration Vehicle that exercises Reentry System engineering and matures technologies; and the utilization of the Common Adaptable System Architecture (CASA) principles to drive Sandia's system and technology maturation efforts.

Sandia Internal Production delivered on all production and development commitments include the following: Sandia met all FY 2009 Directive Schedule requirements (i.e. 390 neutron generators) with 100% acceptance at NNSA Quality Assurance Inspection Procedure (QAIP). In addition to these customer deliveries, Sandia exceeded unit production objectives by producing more than four months of finished goods inventory although production was interrupted by the energetics stand-down. In addition, Sandia's Internal Production, in order to mitigate risk to the W78 Weapon System, established an in-house capability to produce MC4379A Timer/Drivers. Sandia exceeded the goal of 150 with 170 Timer/Drivers produced in less than 9 months, and the lot received a defect-free QAIP by SSO.

Sandia External Production delivered 72 different component lots comprising 17,923 units from seven different technology areas in FY 2009; this is an increase of 57% from FY 2008 (11,441 units delivered). In FY 2009, 82% of component deliveries were in support of the W76-1 LEP. Sandia External Production also:

- Qualified a new supplier, Perkin-Elmer Optoelectronics, for Neutron Generator Timer/Drivers in support of the W76 and W78 Weapons Program with the inventory position for each system exceeding four months' demand.
- Achieved a $991K savings by implementing cost saving measures over the life of the MC4627 Spin Rocket Motor (SRM) program.
- Realized a cost savings of $347K for the MC4807 Igniter.
- Established a new production capability for Application Specific Integrated Circuits (ASICs) Burn-In. This completes acceptance testing for burn-in capability so that qualification for immediate use in the W76-1 and future LEP production runs can begin. This capability was initiated to mitigate risk associated with supplier Export Control and international traffic in arms regulation (ITAR) issues.

The Readiness Campaign Sandia team also managed through budget issues on the electronic neutron generator project. Because of funding reductions that happened after project authorization, steps had to be taken to bridge funding gaps until NNSA could re-program funding and proceed with initially authorized projects. Sandia did an excellent job of providing options to both DSW and Readiness management to keep the small electronic neutron generator project viable, thus ensuring that the technology could be matured for two systems instead of just one, i.e. meeting both the B83 and B61 requirements.

The Readiness Campaign completed all activities and Level II Milestones associated with FY 2009 Program Plan. In addition, Sandia completed substantial re-programming and subsequent additional work scope to meet multisystem DSW priorities. This additional work scope included the following: Early start of critical Radar development at the KCP; Upgraded electronics for Sandia Finnegan mass spec (leveraging expertise at Savannah River National Laboratory; Facilitated the qualification of the PT4198 tester at Pantex (supporting 3 upcoming First Production Units (FPUs) including the W88 JTA2; Upgraded Lead Probe electronics to neutron measurement capability at Sandia, KCP and WETL; Facilitated ADAPT funding at KCP for Advance plastics project at KCP in direct support of C5 (Surety) Level II Milestone; Negotiated increased Design-to-Buy Process Development funding for integrating CL20 powder technology into the Small Ferroelectric Neutron Generator (FENG); and extended best business practices from within Readiness Campaign program office to project management of Electronic Neutron Generator Life Cycle Management.

With that effort and team work from other sites, Sandia recovered much of surveillance program, the new B61 LEP team is excellent, TTR and WETL are back up, phase gates are making progress on multiple systems, and the W76-1 redesign is moving out.

Significant Accomplishments

Sandia's surveillance activities were hampered by funding delays associated with operating under a Continuing Resolution for the first half of the year as well as the stand down of energetic materials operations at Sandia. In spite of these challenges, Sandia completed the following tests in support of stockpile surveillance activities:

- B53 System – Sandia provided technical input to the SS-21 B53 project team for tooling design and completed the Hazard Analysis Task Team (HATT) walk-down with production tooling at the end of June 2009. (MS3027)
- B61 Surveillance – Flight testing for B61-3/4 was delayed from February, 2009 due to the unavailability of USAFE aircraft to support the test schedule. Sandia worked with DoD and NNSA to reschedule the B61-3/4 flight testing. Three successful B61-3/4 JTA flight tests were completed on September 15, 2009 and a fourth on September 17, 2009. Concerns surfaced with B61-7/11 flight tests due to new, uncertified B-2 launch ejector cartridges. The risk associated with loss of data was determined to be acceptable with the agreement among the USAF, NNSA, Sandia and the B61 Executive Project Officers Group (EPOG). Two B61-7 JTA flight tests were successfully conducted in July, 2009 and a third in August for the completion of Level II milestone. (MS3049)
- B61 Surveillance – In spite of delays due to the Sandia energetic materials stand down and the associated impact to WETL testing schedules, Sandia completed principal laboratory tests for the B61-3/4 systems. Six tests were conducted between April and June of 2009, allowing completion of the B61 SLT Level II MS 3050 three months ahead of the September, 2009 due date.
- B61 Systems – Sandia provided the leadership and diligence in developing the Power Free Gas Sampling (PGS) technology, paving way for FY 2010 implementation/certification. (MS3188)
- W76-0 Systems– During W76-1 LEP requirements validation, Sandia discovered the MC4217 Electric Detonator does not comply with the 1 amp/1 watt, 5 minute no-fire safety requirement stated in the Trident W76-0/Mk4 Reentry Body Military Characteristics. Consequently, the Navy stood down field operations involving neutron generator handling pending resolution. Sandia participated in the Navy's investigation of operations at Navy facilities to identify safety concerns and to determine actions needed to mitigate the concerns. Sandia implemented changes to neutron generator handling and packaging that enabled the Navy to stand up operations. Sandia developed an exception to the MAR to address the MC4217's non-compliance and is working with the Navy to obtain their concurrence which is expected by the end of the calendar year. (MS3062)
- W78 Surveillance– Sandia completed two principal laboratory tests at the WETL during the first quarter of FY 2009. Additional testing was delayed due to Sandia's energetic materials stand-down and funding limitations to support development of the new System Test Equipment (STE). These issues were worked to resolution and four additional units were subjected to pre-conditioning on the WETL shaker for the first time and were then tested on the new STE, bringing the total principal tests for the year to six. The associated Level II milestone was successfully completed in August 2009 one month ahead of the September 2009 due date. (MS3035)
- W78 Systems and Surveillance - Sandia working with the USAF and NNSA complex, supported flight testing for three JTA6 units in June 2009 three months ahead of the September 2009 due date. Sandia worked with USAF service personnel at VAFB to execute field repairs of these JTAs enabling the USAF flight schedule to be maintained. (MS3034)
- W80 Systems and Surveillance– Sandia completed two W80-0 JTA tests in December 2008 and a third W80-0 JTA test in August, 2009. Sandia completed JTA flight tests for the W80-1 in February, July and August for a total three W80-1 JTA tests. Sandia functionally evaluated four W80-0 Type 2F Navy Test Assemblies (NTA) that supported Navy missile scoring with the first Type 2F NTA tested August 15, 2009. This was the first Navy Type 2F flight test since 1993. Sandia provided technical and test support for the successful launch of a USAF W80-1 JTA3 High-Fidelity (hi-fi) flight test unit on August 25, 2009, at the UTTR. Sandia, NNSA, and USAF planning for this JTA hi-fi test began in 2001. This was the first hi-fi test for the W80 since 1998 and the first on an ALCM since 1983. The completion of all W80 flight tests resulted in the completion of the Level II milestone one month ahead of the September 2009 due date. (MS3043)
- W80 Systems– Sandia provided leadership of the W80-1 JTA8 development project which resulted in completion of the first and second production units being ahead of schedule. They provided outstanding support to the production agencies for completion of required activities and quick resolution of issues. (MS3044)
- B83 Systems and Surveillance– Flight testing at the TTR was suspended during the Sandia energetic materials stand down, delaying a B83 JTA flight test planned for late March. As with the B61, flight testing for the B83 was delayed due to concerns regarding the B-2 launch ejector cartridge. The risk associated with loss of data was determined to be acceptable and two B83-1 JTA flight tests were completed in August 2009. These tests met the requirements of the B83 SFT Level II MS 3051 one month ahead of the September 2009 due date. (MS3051)
- B83 Systems– Sandia stood up the PRT for the ALT 367. The ALT 367 product definition CER was released

authorizing KCP to produce the retainer ring.

- B83 Systems– Sandia down selected from eleven design options to three to address the B83 gas transfer system (GTS) issue under ALT353. (MS to be worked in FY 2010)
- B83 Systems– Sandia conducted ALT 753 Electronic Neutron Generator (ELNG) planning meetings with the design team, DSW program management and the B61 and B83 systems organizations. (MS to be worked in FY 2010)
- W84 Systems – Sandia participated in tooling and HATT as needed to support the SS-21 project schedule. (MS3028)
- W87 Systems– Despite a funding shortfall, Sandia re-prioritized their FY 2009 work plans to accomplish the W87 program and surveillance requirements. With a few missteps on the Small Ferro Electric Neutron Generator due to funding and priority, Sandia established a PRT and wrote and submitted a Project Realization Team Project Plan. The project has also included Phase Gates which initially required a great deal of additional work. (MS3195)
- W87 Systems– Sandia supported the launch of the FPU JTA4-401 from Vandenberg Air Force Base (VAFB) on November 5, 2008. Sandia supported the delivery of JTA4-402 in February 2009 to VAFB for a planned May 2009 flight test that was delayed due to USAF issues. The flight test was executed on August 23, 2009. This completed the associated Level II milestone one month ahead of the September 2009 due date. (MS3038)
- W88 Surveillance– Sandia completed three W88 JTA flight tests, including the first redesigned W88 JTA2 Refresh. Two tests were completed in December 2008 while the third was completed in August, 2009. With the completion of these tests, Sandia accomplished the W88 SFT Level II milestone. (MS3067)
- W88 Surveillance– After standup of explosive material operations at WETL, Sandia completed all five of the principal W88 lab tests. Testing enhancements included subjecting four W88 units from the previous year to shaker environmental pre-conditioning for a second time and retesting them. All tests were completed in May 2009 meeting the requirements of the W88 SLT MS 3068 four months ahead of the September 2009 completion date. (MS3068)
- W88 Systems– Sandia supported the Nuclear Explosive Safety Study (NESS) for SS-21 Cell activities at Pantex in November 2008. Sandia participated in the Readiness Assessments for both Cell and Mass Properties operations in February 2009. Final authorization from PXSO for both operations was received in March 2009. (MS3178)
- W88 Systems – Sandia led the JTA2R team to a successful delivery/receipt of the JTA2R FPU unit at Navy facilities in June 2009. The first flight for the JTA2 Refresh unit flew for the Navy in September 2009 (MS 3070)

Opportunity for Improvement

- Although the Forward Assembly in the W76-1 JTA1 Telemetry Assembly meets its STS requirements there are concerns about its performance in the future undefined Alternate Release Assembly (ARA). This discrepancy was discovered as a result of the NNSA requesting analysis by Sandia to determine the risk associated with an upcoming ARA flight for the JTA1 in FY 2010. As a result of the analysis, based on the available qualification data the forward telemetry assembly has no remaining margin to the 1 in 500 shock requirements in the STS requirements. At this time this should be considered an item to watch due to the risk to the upcoming flight.
- Sandia could improve the quality of work performed between the RMI Program Office and Systems Integration Technical Support (SITS) to ensure there are no duplicative or conflicting processes and that the processes complement each other. Further, the RMI Program Office must ensure there are sufficient personnel to complete RMI Program Office responsibilities in a timely manner and that SITS personnel are fully supporting the RMI program. In addition, the RMI Program Office is expected to submit high quality work products and delivered on time in support of the Lead and Sub Teams.
- Sandia should provide a technology roadmap for neutron generators and other key component development, in order to prepare comprehensive business case assessments for various technology development objectives, integrating across several program elements. Sandia has presented an integrated plan to NNSA which included a roadmap showing which systems needed parts, when and how many, but Sandia has focused on the funding of NG development. The roadmap needs to show technology development for tubes, detonators, timers, and other components to offer NNSA options for technology development.

Performance Measure 3.1

Maintain the nuclear weapons systems in the stockpile by establishing the comprehensive technical basis for the existing stockpile that is necessary to assure the ability of the stockpile to meet requirements.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
3.1.1 Meet Level II milestones associated with DSW for Production & Planning Directive (P&PD) delivery requirements, Annual Assessments, Stockpile Maintenance.	Outstanding	Agree	There were 33 Level II Milestones for measure PO-3.1. Sandia met all Stockpile Stewardship and Authorized Stockpile Refurbishments milestones and deliverables within original or renegotiated budgets and schedules. The B61 ALTs 357 and 358/359 were completed and the final component lots of the ALT 356 SRM were completed. Completion of the W80-1 JTA8, the W87 JTA4, and the W88 JTA2R development work improved the future stockpile flight testing capability for NNSA and the DoD. Sandia's stockpile systems engineering teams continued to contribute to the success of the NNSA plants through engineering expertise, production support, engineering authorization releases and product deliveries to keep approved directed production on track and help the plants exceed NNSA Directive Schedules. Though reduced funding was available, Sandia was able to make improvements to the technical basis for each active weapon system in the stockpile in support of another successful cycle of the annual assessment process. Sandia provided the leadership and diligence in developing the PGS technology, paving way for FY 2010 implementation/certification. (MS3188) Completed trainer drawing review and released them to Pantex. (MS3204 to MS3210) The life of program builds of spin rocket motors for the B61 ALT 356 was completed at Alliant Techsystems Inc and was accepted by SSO Quality Assurance. (MS3047 and MS3301) Before Sandia received formal definition for the scope of the B61 LEP Phase 2/2A Study, Sandia as the Design Agency for the B61 LEP Phase2/2A activities started working to determine all requirements and deliverables. After receiving the formal definition, Sandia quickly assigned a dedicated team. The team was selected from the W76-1 LEP to respond to the GAO Report: *NNSA and DoD Need to More Effectively Manage the Stockpile Life Extension Program.* Sandia provided critical system and technology options information and a number of pre-Phase 2/2A estimates. This environment did lead to disagreements early in the year on approaches. Sandia discussed the issues with NNSA, and implemented corrective actions. Sandia worked intensely together with the SITS team to create an appropriate approach to pilot the IPG approach on the B61 LEP Phase 2/2A Study, as required by the NNSA. Although the IPG was not yet finalized and had not been previously integrated with the DP Manual's Weapon Phase approach led to constructive discussions and disagreements, but these were resolved mid-year and the teams subsequently have worked together. The evidence of the success of Sandia's work on the

			B61 LEP Phase 6.2/6.2A Study is successful accomplishment of all deliverables including the Phase Gate A review, for which Sandia's performance was commended by the NNSA There were challenges at Sandia; resistance to NNSA with the B61 Non-LEP System Manager, resistance to accepting the phase gates requiring senior NNSA involvement while the phase gates are being defined in DOE Requirements documents, delays due to the energetics stand down, and having to expand the readiness assessment for TTR after a failure to communicate with NNSA in a timely manner that TTR would not be ready. For the first half of the year laborious efforts on the part of NNSA were required to gain the cooperation of B61 Non-LEP Systems Manager requiring senior management involvement from NNSA and Sandia. Since then the new B61 LEP Systems team was established and the support from the new team has been outstanding.

Performance Measure 3.2

Integrate and transform stockpile evaluation to create a responsive, cost-effective, science-based approach and annual evaluation plan that continually strengthens our technical understanding of weapon products for which we are responsible.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
3.2.1 Meet Level II milestones associated with the Stockpile Evaluation schedules and implement the Surveillance Transformation Plan initiatives.	Outstanding	Agree	There were 21 Level II Milestones for measure PO-3.2. DSW and Enhanced Surveillance Campaign (ESC) funding and Sandia energetics stand-down issues impacted initial expectations on FY 2009 deliverables. DSW and ESC began the year under a restricted and reduced spend rate as part of the 2009 CR. ESC funding for a common lab tester was eliminated for most of the year as ESC struggled to meet reduced budgets and the CR. The Sandia energetics stand-down delayed all WETL operations, including stockpile lab testing, for approximately six months. Likewise flight test operations were delayed at TTR while Sandia completed a readiness assessment. By the end of FY 2009, Sandia was able to recover or renegotiate all Level II Milestones except one and successfully implemented its stockpile evaluation program. The W87 Surveillance milestone has been delayed from the FY 2009 4th quarter to FY 2010 2nd quarter (MS3039)

Performance Measure 3.3

Ensure the viability of future stockpile options by supporting stockpile refurbishment activities; by exercising component design and system engineering expertise; and, through demonstration vehicles that implement and test critical elements of future system architectures and matured technologies.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
3.3.1 Meet Level II milestones for Life Extension Options and authorized refurbishments, advanced technologies and systems development, stockpile services and development of common adaptable system architectures for use in future weapon systems.	Outstanding	Agree	There were 10 Level II Milestones for measure PM-3.3. Sandia applied the Common Adaptable System Architecture not only to an Air Delivered System (MS3196), but also applied it to Reentry System architectures. Additionally, Sandia made significant progress on creating an Air Delivered System demonstration vehicle in addition to the Reentry System demonstration vehicle that was done. (MS3197). Sandia also was able to keep radar development and electronic neutron generator development on track to support a B61 component replacement, as well as maintaining a level of activity sufficient to maintain the expertise necessary to support the full suite of technologies that would be required for a full B61 LEP. (MS3233)

Performance Measure 3.4

Execute the neutron generator enterprise to meet NNSA requirements and accomplish continuous process improvements.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
3.4.1 Meet Level II milestones for capability maturation of technology in support of design, development and qualification of new neutron generators.	Outstanding	Agree	There were 3 Level II Milestones for measure PM-3.4.1. Despite a funding shortfall, Sandia re-prioritized their FY 2009 work plans to accomplish the W87 program and surveillance requirements. The Small Ferro Electric Neutron Generator (SFENG) was able to recover after not receiving funding for the development at the beginning of the FY, and having the funding partially restored. Sandia established a PRT and wrote and submitted a project plan. In addition to completing the Level II Milestone, the ELNG team assessed multiple options for the B83 and B61/B61 LEP requirements, and produced a proposal for these teams to consider in early FY 2010 to decide whether to pursue a drop-in replacement or a small ELNG. (MS3194).
3.4.2 Meet Level II milestones for neutron generator production per the Directed Schedule.	Outstanding	Agree	There were 3 Level II Milestones for measure PM-3.4.2. Sandia met all FY 2009 Directive Schedule requirements with 100% defect free acceptance at NNSA QAIP. The following is a list of the number of neutron generators by weapon system that were delivered in accordance with the Directive Schedule: W76-1 72 units in 5 shipments (MS 3057) W76-0 264 units in 8 shipments (MS 3062) W78 54 units in 5 shipments (MS 3033) In addition to these deliveries, Sandia exceeded unit production objectives by producing over four months of finished goods inventory even though production was interrupted by the energetic stand-down.

Performance Measure 3.5

Ensure modern production capabilities and capacities – including concurrent design and manufacturing - are available on time scales paced by requirements to carry out the weapons refurbishment or development projects and stockpile evaluation schedules and to support projected stockpile requirements.

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
3.5.1 Meet Level II milestones for production per the Directed Schedule.	Outstanding	Agree	There were no Level II Milestones for measure PM-3.5.1. Sandia met all FY 2009 Directive Schedule requirements with 100% Product Acceptance at NNSA QAIP. Sandia delivered 72 different component lots comprising 17,923 units from seven different technology areas in FY 2009; this is an increase of 57% from FY 2008 (11,441 units delivered). In FY 2009, 82% of component deliveries were in support of the W76-1 LEP. The following is a list of the number of units and lots delivered by technology area: • Explosives Materials 1,217 units 10 lots • Magnetics 9,700 units 16 lots • Microelectronics 540 units 2 lots • Special Components 183 units 3 lots • Switch Tubes 2,574 units 29 lots • NGSC (timers, dets) 3,468 units 6 lots • Other 241 units 6 lots In FY 2009 a new production capability was established at Sandia, ASICs Burn-In. Funded by both Readiness Campaign and Production Support, Sandia completed the tooling and process characterization for the ASICs burn-in equipment. This completes acceptance testing for burn-in capability so that qualification for immediate use in the W76-1 and future LEP production runs can begin. This capability was initiated to mitigate risk associated with supplier Export Control and ITAR issues.
3.5.2 Meet Level II milestones associated with the Readiness Campaign.	Outstanding	Disagree Good	HQ Rates this target as Good, based on performance on LII milestones and some issues associated with the closure of the Machine Shop. There were 3 Level II Milestones for measure PM-3.5.2. One interim milestone was two weeks late due to delayed purchases as a result of the CR and an issue with negotiating priorities with the Machine Shop. Sandia supported additional work scope to meet multisystem DSW priorities. The additional work scope included but is not limited to facilitating ADAPT funding at KCP for Advance plastics project in direct support of C5, negotiated increase in funding for integrating CL20 powder technology for the SFENG, and extended best business practices from within Readiness Campaign program office to project management of the ELNG Life Cycle Management. Sandia facilitated the effort to complete formal qualification of the PT4198 tester at Pantex by helping to coordinate the use of KCP personnel to help with the shortfall at Pantex. The tester directly supports three unique upcoming FPUs. It should be noted however that the W88 JTA has slipped even with this assistance. Sandia completed the tooling and process

			characterization for the ASICs burn in equipment wrapping up acceptance testing for the burn-in capability which will be qualified using DSW funds for immediate use in the W76-1 production run. Sandia worked extremely well to manage through funding shortfalls and keep the small electronic neutron generator as an option for both the B83 and the B61.

Other Considerations

- Instances of inconsistent communication from Sandia have created challenges to NNSA program management and DoD planning. Statements from Sandia personnel to a PRT or to the Project Officers Group at one level while more senior leaders of the site establish another position when communicating with NNSA or DoD leadership, does not well serve the credibility of the NSE and, in some cases, effects DoD plans. Statements regarding resource requirements, technology readiness, or the health of the stockpile form the basis for planning, programming, budgeting, and execution of programs and are foundational to integration with the DoD. In these areas in particular, consistent communications from the laboratory is essential.
- Sandia has made progress toward embracing change with regard to the support for the development and implementation of Integrated Phase Gates through pilots. Recognizing change is difficult, the progress made was with a high degree of NNSA involvement.

PERFORMANCE INCENTIVE 1 – Stretch Goals related to Nuclear Weapons Work

Achieve stretch goals described in the performance targets below to increase Sandia's effectiveness as a leading contributor to the success of the Nuclear Weapons Complex (NWC). Evaluation of the stretch goals in this section will consider the availability of sufficient funding needed to complete such additional work.

Adjectival Rating: OUTSTANDING

Summary of Performance

The Stretch Goals reflected in PI-1 challenge Sandia to go beyond the achievement of current year Level II Milestones, stretching resources and productivity to exceed expectations. Sandia overcame significant obstacles to completion of the FY 2009 Level II Milestones. Both the protracted continuing resolution that limited funding and the stand-down of energetic material operations at Sandia in the aftermath of the incident at Sandia's Rocket Sled Track facility challenged Sandia's ability to meet schedule and delivery requirements in a variety of areas. Other issues that Sandia overcame were the unavailability of USAF aircraft, the risk associated with the B-2 ejector, and funding support for the W87 FENG. Nonetheless, Sandia was successful in exceeding the suite of Level II Milestones reflected in PO-1, PO-2 and PO-3. The work represented goes beyond the expectations embodied in the FY 2009 suite of Level II Milestones.

Significant Accomplishments

Highlights of Sandia's efforts include the following:

- Sandia completed one non-National Ignition Campaign (NIC) milestone two months early and two others three months early. The stretch goal was to complete three non-NIC milestones at least 30 days ahead of schedule
- Sandia exceeded the goal for Z shot rate and frequency, achieving nine shots on nine consecutive workdays in February and demonstrating the ability to complete four shots per week on average by May 1, 2009.
- Sandia implemented a communication protocol to provide a balanced program for critical experiments on the Z machine.
- Sandia supported LANL and LLNL in high energy density science goals. Eight of 23 mission-related proposals that were allocated Z-shot time supported projects submitted by one or both of the other Labs or involved joint collaboration with them.
- Sandia completed demonstration of an advanced power supply system four months ahead of the PI-1 target date.
- Sandia integrated electrical and mechanical components for enhanced surety on the B61 transportation environments three months ahead of schedule.
- Sandia stood up a production capability to deliver 170 W78 NG Timer/Drivers for product acceptance by the end of January 2009. This in-house capability enabled the scheduled delivery of NG product and allowed time to qualify a new supplier after a no-bid response from the existing timer/driver supplier.
- Sandia reduced destructive sample testing for W76 and W78 NG sub-assemblies (NGSA), reducing product span time and cost.
- Sandia completed seven unfunded Trainer Maintenance milestones requiring drawing updates for Type 5 trainers on multiple weapon systems. Completion of these milestones supported Pantex in their response to a DNFSB finding.

Opportunity for Improvement

None.

Performance Measure 1.1

Exceed the PO-1 Level II milestones to focus on the development and maintenance of the science and engineering capabilities, facilities, and associated infrastructure needed to contribute to a flexible and responsive nuclear weapons complex, as described in the target(s) below.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
1.1.1 Deliver a prediction, with bounded uncertainties, of a representative W76-1 circuit component under a combined neutron/gamma hostile environment defined by military requirements	Unscored	Unscored	This goal represented a stretch beyond two QASPR Level II Milestones – Advanced Simulation and Computing (ASC) Milestone #3157 and Nuclear Survivability Engineering Campaign (EC) Milestone #3112. The completion of both Level II Milestones #3112 and #3157 was critical to establishing the validated models with uncertainty bounds required to complete the stretch goal. Because the completions of milestones #3112 and #3157 were delayed until FY 2010 and the end of FY 2009, respectively, as a result of budget and re-scoping issues, it was impossible to accomplish this stretch goal. The intent of this stretch goal was to extend the work performed as part of QASPR Level II Milestones #3157 and #3112 from circuit performance in prescribed experimental radiation testing environments, to predicting circuit performance under more realistic threat conditions associated with a hostile engagement during reentry body delivery. Nuclear Survivability EC (NS/EC) Milestone #3112 originally required completion of the QASPR silicon circuit prototype exercise. Uncertainty quantification (UQ) was planned as an integral part of the effort and was captured by ASC Level II Milestone #3157. The work involved development and implementation of a computational UQ methodology for the QASPR silicon circuit prototype, employing rigorous V&V (verification and validation) and UQ methods, and integrating data from a suite of simulation tools (including non-ASC codes, and elements of the ASC RAMSES software), along with data from various experimental test facilities. Successful and timely completion of both milestones #3157 and #3112 was critical to establishing the validated models with uncertainty bounds required to complete this stretch goal. In addition to the milestone activities, a methodology for quantification of uncertainty for device damage due to the predicted threat condition was necessary. The QASPR program is managed as a single, integrated project that is funded jointly by the NS/EC, ASC and RTBF Program Readiness programs. The loss or reduction of any one piece requires a re-baselining of the overall project. Budget issues in FY 2009 resulted in the nearly complete shutdown of non-ASC/RTBF QASPR activities in February and March of 2009 due to a lack of nuclear survivability EC funding under the continuing resolution. In FY 2009, Sandia's President's Budget Future Year Nuclear Security Plan (FYNSP) expectation for the NS/EC was approximately $19M (Spring 2008 site splits). While QASPR does not receive the entirety of the NS/EC Sandia budget, the QASPR milestones and requirements for 2009 were

			predicated on receiving a significant fraction of this budget. Under the continuing resolution (CR), Sandia received $7.6M for the NS/EC which resulted in a 75% reduction in the contribution to the QASPR program. Both the ASC and RTBF programs were able to provide their planned contributions to QASPR. In mid January 2009, with no additional NS/EC funds for QASPR forthcoming, Sandia began the shutdown of the NS/EC part of QASPR. Sandia transferred personnel to other programs. With the end of the CR in April, Sandia's NS/EC budget was restored, full funding was provided to QASPR and the project was restarted. Given the current landscape, the QASPR team, with the help of Sandia's weapons system circuit designers, re-baselined the QASPR project in order to determine how best to meet the overarching QASPR goal of providing support for the W88 in FY 2014. As a result of this planning, QASPR funding was reprioritized to accelerate development of compound semiconductor (III-V) heterojunction bipolar transistors (HBTs) that could not be delayed until after completion of the silicon circuit prototype exercise (original plan) and still have QASPR meet the technology maturation needs of the W88. This resulted in substantial changes, with NNSA HQ program personnel's concurrence, in the NS/EC QASPR Level II Milestones.
1.1.2 Complete10% of established Sandia non-National Ignition Campaign (NIC) milestones more than 30 days ahead of schedule.	Outstanding	Agree	Sandia accomplished this performance target, exceeding the stretch goal criteria, by completing three of seven non-NIC Level II Milestones more than 30 days ahead of schedule (43%). Sandia completed ICF Level II Milestone #3222, "solicit mission-related proposals for FY 2009 Z experiments and evaluated them via a formal review process," in December 2008, more than three months early.
1.1.3 Demonstrate Z's operational capability by achieving 4 shots per week for 2 weeks by FY 2009 4th quarter, and acquire first image of neutron emission from a fusion plasma on Z.	Good	Agree	Sandia exceeded expectations with respect to the rate and frequency of Z shots in FY 2009. Sandia met the stretch goal requirement in February 2009, demonstrating Z's operational capability and achieving nine shots on nine consecutive work days from February 10-20, 2009. Also between February 27 and March 5, 2009, Sandia conducted five radiation-producing shots on five consecutive work days and set a new current record for a radiation-producing load (24.2 MA) This performance – four shots per week on average – continued through the remainder of Quarters three and four. Approximately 150 shots on Z were performed in FY 2009. Sandia was not able to complete the second part of Performance Target 1.1.3 – "acquire first image of neutron emission from a fusion plasma on Z." Sandia developed a diagnostic in collaboration with National Security Technologies (NSTec) and LLNL, to acquire neutron emission imaging on Z and first fielded the diagnostic in March 2009. While the initial experiments provided neutron yields above the threshold required by the diagnostic, the images were obscured by the large hard x-ray background, and additional shielding needed to be developed. Priorities demanded that staff focus significant effort on meeting the ICF Level II deliverable of cryogenic magnetically-driven implosion on Z. However, work continued on developing the necessary shielding and this goal will be fully addressed in FY 2010.

1.1.4 Demonstrate substantial progress in making Z shot information available to LANL and LLNL research communities. The shot information shall be sufficiently descriptive for evaluation of its utility for use by the other NNSA laboratories.	Outstanding	Agree	As part of the implementation of the Z Governance Plan, the Z shot schedule is socialized annually with the Z Science Advisory Committee (SAC), which includes management representation from LANL and LLNL. Information presented to the SAC in October 2008 summarized the actual shot allocation among various stockpile stewardship areas and Z's performance during FY 2008. Also presented was the proposed FY 2009 shot distribution and details about these proposed experiments, including the notable risks associated with some experiments, as well as a list of experiments that could not be accommodated in FY 2009 In addition, high-level information on recent Z shots is communicated at the bi-weekly Science and ICF Exec teleconferences, which include representatives from HQ, LANL, LLNL, and others. Detailed Z shot data and results are shared via video teleconferences, formal presentations, and informal meeting with LANL and LLNL on an "as requested" basis. Sandia also implemented a communication protocol to provide a balanced program for maximum programmatic and scientific impact. The protocol clarifies expectation of the experimental community and creates a common data package set for each critical experiment on the Z machine. This protocol, which was proposed in response to a SAC discussion in the fall of 2008 now applies to all principal experimenters – Sandians and non-Sandians alike. Principal experimenters are required to ensure that: (1) Each shot on Z is followed by a brief email update describing the status of the experiment and a very preliminary look at the performance of the machine; (2) After completion of an experimental series and associated data analysis, the results are to be presented at a seminar or other appropriate venue; (3) After completion of an experimental series, there is an annual written report of similar quality to those expected for a SAND report summarizing the results for each area of investigation; and (4) For an unclassified experimental series, a refereed journal article is expected to be submitted within three years following completion of the experiments.
1.1.5 Demonstrate inter-laboratory cooperation by applying substantial resources to another laboratory's projects in high energy density science.	Outstanding	Agree	Sandia applied substantial resources to LANL's and LLNL's projects in high energy density science. In FY 2009, Sandia solicited mission-related proposals for Z experiments and evaluated them via a formal review process per the requirements of Level II Milestone #3222. Of the 30 mission-related proposals received for Z experiments in FY 2009, 23 were allocated shot time. In addition to Z shots, Sandia also contributed directly to NIC experiments. Providing a lead designer for the 4-beam National Ignition Facility (NIF)-early-light connection experiments and the 96- and 192-beam vacuum hohlraum experiments on the National Ignition Facility (NIF) that were conducted in Q3 and Q4. Other contributions to the NIC in FY 2009 included: (1) participation in the simulated ignition campaign (NIC SimCam) as a Red Team member by supplying "virtual" data to tune the target prior to the first ignition experiments; (2) design and acquisition of an x-ray streak camera and snout that will be evaluated on the

			Z-Beamlet laser and used to measure the implosion trajectory of a surrogate ignition capsule on NIF; (3) participation in diagnostic working group Red Team meetings for the neutron-time-of-flight diagnostic and the bang and burn history diagnostic; and (4) design and execution of shots on the University of Rochester's OMEGA laser to obtain ablation rate data for candidate outer shells (i.e., germanium-doped CH and copper doped beryllium) of NIF ignition targets. Moreover, during FY 2009 Sandia implemented and tested the velocity interferometer system for any reflector (VISAR) diagnostic and the Cygnus rod-pinch source at U1a in preparation for LANL's FY 2010 Barolo experiments at NTS.

Performance Measure 1.2

Exceed the PO-2 Level II milestones to increase development of capabilities to assess and improve the safety and security of nuclear weapons through the use of non-nuclear components, as described in the target below.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
1.2.1 Demonstrate measurable surety design improvements, as determined by various metrics, e.g. increased delay times, of nuclear weapon systems through the integration of various electro-mechanical, communication and related technologies.	Outstanding	Agree	Sandia completed a risk/benefit analysis against surety design options and submitted the report to NNSA for review in February 2009. Sandia partnered with Savannah River Site (SRS) to complete tritium loading of a prototype advanced power supply system, completing Multi-Site Level II Milestone #3310, demonstration of an advanced power-supply system, four months ahead of schedule. This unit was placed into secondary containment storage and a regular performance measurement procedure was established by both Sandia and SRS. Sandia completed PO-2 Level II Milestone #3106, to integrate electrical and mechanical components for enhanced surety on the B61 in transportation environments three months ahead of schedule. Sandia defined weapon interface requirements, prototyped functionality of the first application, and demonstrated a preliminary prototype unit in a field test unit. Sandia completed Transportation Attachment Device (TAD), Transporter Interface Module (TIM) and Cable Routing and Management System subsystem integration and demonstrated end-to-end functionality of the system.
1.2.2 Demonstrate leadership and improved management of enhanced surveillance activities by completing the following: an independent review of ESC non-nuclear activities, including the provision to NNSA of a summary report on the review by the end of the third quarter of FY09; cost-benefit analysis and refinement of the integrated priority list (IPL) per HQ guidance by the end of the first quarter of FY09; completing FY08 ESC site annual report per approved guidance by January, 2009; and, conducting site risk assessment per the ESC risk plan	Outstanding	Agree	An independent review of the Sandia non-nuclear activities was performed in March 2009 and a report was submitted to NNSA on April 14, 2009. Sandia completed a cost/benefit analysis for major activities in the Enhanced Surveillance Campaign (ESC) program per HQ guidance and prioritized work to determine requirements over target. The prioritization is captured in the IPL format requested by HQ and delivered to NNSA in December 2008. Sandia submitted the FY 2008 Enhanced Surveillance Campaign (ESC) Annual Report to NNSA HQ on December 22, 2008. Additionally, Sandia completed the site risk assessment for the two high priority Sandia Enhanced Surveillance activities per NNSA risk assessment procedure.

and providing updated site risk report to HQ by the end of FY09.			

Performance Measure 1.3

Exceed the PO-3 Level II milestones pertaining to the maintenance of the existing stockpile while supporting stockpile transformation, and to the development and application of modern production capabilities and capacity for weapons refurbishment or development projects, as described in the target(s) below.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
1.3.1 Incorporate advanced system architecture approaches into system testbeds (beyond air delivered) or into core product roadmaps for stockpile transformation, which improve nuclear safety, use control and security to address current vulnerabilities and to support complex transformation objectives.	Outstanding	Agree	Sandia established a technology demonstration vehicle focused on reentry system technologies and architectures, with the intent of providing a vehicle to exercise system engineering and integration skill sets, creating also a test bed to mature technologies to Technology Readiness Levels (TRLs) 5 and 6. This will support a ground test in FY 2011 and a flight test in FY 2013 or FY 2014. This activity validated the CASA process to develop a system architecture that maximizes surety and is adaptable to the W88/Mk5, W78/Mk12A, and W87/Mk21 aeroshells. The project designed a ground test unit based on the W88/Mk5 implementation of the high surety architecture. Sandia also provided a technology roadmap for future design of reentry body/reentry vehicle (RB/RV).
1.3.2 Develop and deploy methods to incorporate QMU and other quantitative measures of product and process performance into qualification and product assurance.	Outstanding	Agree	Sandia continued the QMU within NG Production via the principle-based system called the Product Assurance Model developed in FY 2008. Sandia teams focused early in FY 2009 on the build of the MC4379A Timer/Driver to support the delivery of 170 W78 Timer/Drivers for product acceptance by the end of January 2009 in a compressed five-month period. The resulting yield was greater than 90% parts accepted. Sandia staff developed standard work to make consistent life predictions for NGs in the existing and future stockpile. This resulted in NG life extensions for the W78 and B61 systems. These life extensions provide Sandia's DoD and NNSA customers with greater flexibility in stockpile scheduling resulting in direct savings to NNSA and DoD.
1.3.3 With Federal Program Manager approval, exceed unit production objectives documented in Production and Planning Directive and Program Control Documents or other federally approved requirements.	Outstanding	Agree	Sandia's NG production schedules were in jeopardy during the first two quarters of FY 2009. Funding limitations under the CR resulted in budget shortfalls that hampered efforts to increase NG production capacity. In addition, the stand-down of explosive material operations limited the work that the NG enterprise could accomplish and resulted in the total depletion of finished goods inventory for NGs. Sandia completed a life extension analysis for the W78 customer that resulted in a reduced need for shipment of NGs to support the W78 system. Sandia met all requirements for resumption of operations in time to meet all scheduled deliveries and by the end of FY 2009 increased its inventory position to over four months in order to meet FY 2010 demand. This allowed the Sandia to recover inventory position and

			exceed the Production and Planning Directive (P&PD) schedule at the finished NG level.
1.3.4 With Federal Program Manager approval, accomplish validated but unfunded FY 2009 work scope from the DSW site-specific stretch goals list or other emerging issues work scope. These site-specific deliverables are identified by the DSW federal program manager to address FY 2009 emerging issues and critical success factors that are not contained in the DSW base program (work scope to be defined in the FY 2009 DSW Program Plan, Implementation Plans, Enhanced Management Plans, and Work Authorizations).	Outstanding	Agree	Funding limitations for ESC CME activities early in the year jeopardized milestones associated with the W78 system current and future assessments. Resolution of these funding issues came late in FY 2009, yet Sandia was able to meet the FY 2009 deliverables. The new W78 system lab tester development was delayed due to funding restrictions early in FY 2009, but Sandia was able to complete qualification evaluation release (QER) of the new tester as well as the principal lab tests of four W78 testbeds. Sandia reprioritized FY 2009 resources and work scope to complete seven Trainer Maintenance Level II milestones, requiring update of drawings for Type 5 trainers on multiple weapon systems. These unfunded milestones, received early in FY 2009, supported Pantex in the development of a weapon trainer maintenance program, plan and schedule in resolution of a DNFSB finding.
1.3.5 With Federal Program Manager approval, successfully recover scheduled milestones adversely affected by externally driven events.	Outstanding	Agree	Due to the funding issues including the lengthy continuing resolution, funding support of the W87 FENG, and the unavailability of USAF aircraft or B-2 issues in FY 2009, Sandia was challenged to recover schedule in multiple areas. This included NG Production operations, TTR flight test support and 7 surveillance lab test and flight test milestones. Sandia worked the issues to closure, met all directive schedule requirements and completed each of the surveillance milestones as detailed in the Sandia Surveillance Baseline Performance document.
1.3.6 Accomplish 100% of milestones and deliverables per the site's authorized FY 2009 Readiness Campaign projects while either increasing or accelerating federally-approved work scope. Increased work scope to be authorized per demonstrated efficiency improvements. Accelerated work scope to be authorized in a manner that de-conflicts resources necessary to meet other federally approved milestones, such as "Get the Job Done" milestones or future year milestones.	Outstanding	Agree	Sandia's Readiness activities incorporated additional work scope to meet multi-system DSW priorities without affecting existing Readiness commitments. In order to accomplish this Sandia's efforts included the support of an early start of critical radar development at the KCP. Additionally, Sandia leveraged expertise at Savannah River in the upgrade of Sandia's mass spectrometer and facilitated the qualification of the PT4198 tester at Pantex. This tester qualification will support three upcoming FPUs, including the W88 JTA2 Sandia established a static and dynamic burn-in capability for the Permafrost 2, Gunner, and Festus ASIC electronic components. The first use of this capability will support W76-1 production. Sandia upgraded Lead probe electronics to neutron measurement capability at Sandia, KCP and WETL. Sandia leveraged ADAPT funding at KCP for advance plastics project in direct support of Surety Campaign Level II Milestone #3103. Sandia negotiated increased design-to-buy process development funding for integration of CL20 powder technology into the small ferroelectric neutron generator (FENG).

Performance Measure 1.4

Capitalize on NA-10-sponsored international interactions so that benefit accrues to all parties involved and so that these interactions become even more fully an integral part of Defense Programs missions, as described in the target(s) below.

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
1.4.1 Develop and Implement a strategy for leveraging MDA international interactions to both accomplish Defense Programs missions as well as enhance laboratory capabilities. Establish metrics that will be used to document the value added of international interactions, including any cost savings or cost avoidance.	Outstanding	Disagree Good	Sandia developed and partially implemented a two phase strategy for leveraging MDA international interactions to both accomplish Defense Programs missions as well as enhance Laboratory capabilities. The first phase includes the definition and integration of ongoing activities for both the United States/United Kingdom (US/UK) and the United States/French (US/FR) programs. Sandia began a mapping and linking project to integrate all Sandia activity associated with the US/UK program and began the data entry phase. This activity is still in the process of being implemented and will not be completed until December 15, 2009. The implementation of the US/FR program will not start until November 1, 2009 and will be completed by February 15, 2010. Sandia began assessing possible metrics for use by Joint Operations Working Groups (JOWOGs) and Enhanced Collaborations but has yet to complete the metrics as described in the target. The metrics will be monitored for utility and value during the first two quarters of FY 2010 and considered for broader deployment or modification at the time of the March 10, 2010 comprehensive review. Based on not fully implementing the strategy and not establishing the metrics, this is rated as Good.

Other Considerations

None

PERFORMANCE OBJECTIVE 4 – Defense Nuclear Nonproliferation (NA-20)

Develop and maintain science and engineering capabilities and facilities required to support detection, prevention, and reversal of the proliferation of weapons of mass destruction.

Adjectival Rating
OUTSTANDING

Summary of Performance

A comprehensive evaluation of this Performance Objective for the Defense Nuclear Nonproliferation (NA-20) program was conducted with input from NA-20.

Four performance areas were evaluated:
4.1 Global Threat Reduction (NA-21)
4.2 and 4.3 Nonproliferation Research and Development (NA-22)
4. 4 Nonproliferation and International Security (NA-24)
4.5 International Material Projection and Cooperation (NA-25)

Evaluation of performance measures are based on a set of established targets related to programmatic performance.

Overall Sandia's performance in Defense Nuclear Nonproliferation is regarded as outstanding. In nearly all target areas Sandia was rated outstanding. Some minor support and technical issues contributed to the few areas that did not receive an outstanding. However, the technical performance and completion of specific contract deliverables were first-rate supporting an outstanding rating for this Performance Objective.

Significant Accomplishments

The following provide evidence of Sandia's performance. Sandia had several key accomplishments this year contributing to their outstanding performance in this objective area.

Global Threat Reduction Initiative (GTRI): Sandia spearheaded efforts to design In-Device-Delay (IDD) and successfully launched a National Implementation Plan for work with MDS Nordion units. They later took on additional units for IDD upgrades for machines inherited from Domestic Security Program (DNDO). They also provided technical expert advice through GTRI to the NRC led interagency Radiation Source Protection and Security Task Force.

Nonproliferation Research and Development: Sandia successfully executed the multi-agency, multi-laboratory Full Toss exercise at the Nevada Test site. Culminating over twelve months of intensive work, Sandia led the NA-22 technical effort with excellent support and collaboration from all participating laboratories. Sandia also supported two launches of the NNSA Global Burst Detector (GBD) payload on the Global Positioning System (GPS) satellite.

Nonproliferation and International Security: Sandia supported the Highly Enriched Uranium (HEU) Transparency Implementation Program including technical management of the seal program. Sandia provided expertise in containment and surveillance as well as secured communication for high-visibility projects in South America, Europe, and East Asia exceeding expectations in achieving the objectives of the actions sheets on time and on budget.

International Material Protection and Cooperation: Sandia successfully completed physical protection upgrade tasks, including final acceptance of security upgrades at five sites in support of the Bratislava summit agreement. Sandia significantly exceeded the performance target for the Second Line of Defense (SLD) Core Russia Core non-Russia, and Megaports initiative.

Opportunity for Improvement

None

Performance Measure 4.1

Strengthen global nuclear and radiological security through the application of capabilities to assess the vulnerabilities of, and secure, remove, and facilitate the disposition of high-risk nuclear and other radiological materials. (NA-21).

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
4.1.1 Support Global Threat Reduction Initiative (GTRI) efforts to retrofit 50 irradiators with in-device security/delay upgrades.	Outstanding	Agree	Sandia spearheaded efforts to design IDD kits and successfully launched a National Implementation Plan for work with MDS Nordion units. In the latter half of the fiscal year, Sandia accepted the mission to install IDD kits on machines inherited from DNDO and awarded contracts to begin work on CIS and JL Shepherd machines.
4.1.2 Complete the physical protection activities related to an additional 12% of the work toward long-term storage of the BN-350 spent fuel for a cumulative 91% project completion using Earned Value Management System criteria.	Outstanding	Agree	The physical protection system was successfully installed at the Baikal-1 Cask Storage Facility. Sandia performed system testing and checkout to verify system operability. Also, Sandia worked with the Kazakhstanis to implement the Force Protection Plan for the shipment of 300 metric tons of spent fuel 3,500 kilometers across Kazakhstan.
4.1.3 Complete security upgrades for an additional 4 reactors under the Domestic Security Program.	Outstanding	Agree	Sandia provided the basis for the pilot efforts, which have evolved into a national program. The four reactors presented unique challenges and Sandia provided innovative solutions to address their diverse security needs.
4.1.4 Complete security upgrades at 30 radiological sites in support of the Domestic Security Program.	Good	Disagree Satisfactory	Sandia completed security upgrades at 19 radiological sites and has accurately noted in their self evaluation areas in need of improvement.

Performance Measure 4.2

Develop improved tools, technologies, and procedures that will support the national security community's ability to detect and prevent nuclear proliferation. (NA-22).

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
4.2.1 Advance remote sensing capabilities and algorithms to enable detection and exploitation of nuclear proliferation signatures worldwide.	Outstanding	Agree	Sandia research is cutting edge. The Laboratory's caliber of work is seen as the standard, making Sandia a leader in the community.
4.2.2 Improve sample collection and analysis tools for detection and characterization of declared and undeclared Uranium and Plutonium production facilities.	Outstanding	Agree	Sandia has brought unique capabilities and talent to this research area. Furthermore, the ability to transition hardware from a research phase into the hands of operational organizations demonstrates Sandia's ability to move science into reality.
4.2.3 Advance detector materials, detector technologies, and/or signal enhancement methods to detect Special Nuclear Material (SNM) movement.	Outstanding	Agree	Sandia brought together a series of projects that have markedly improved NNSA and US Government (USG) capabilities.

4.2.4 Provide NA-22 with timely and accurate reports on merit-reviewed publications and presentations; financial reports on industrial, small and disadvantaged businesses; and academic involvement in all NA-22 funded portfolio projects.	Outstanding	Agree	Sandia significantly exceeded all goals and metrics in this area.

Performance Measure 4.3

Design, develop, and deliver nuclear event detection capability to satisfy national level requirements for treaty verification and nuclear proliferation monitoring. (NA-22, Nuclear Detonation Detection (NDD))

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
4.3.1 Fabricate, test and deliver Burst Detector Optical, Burst Detector Analyzer, and Burst Detector Processor sensor and support systems that meet performance specifications for Global Burst Detector (GBD) payloads.	Outstanding	Agree	Sandia significantly exceeded all deliverable metrics – costs, schedule and quality. Sandia strenuously applied quality assurance techniques that allowed for early detection of a potential problem, ensuring the success of these payloads.
4.3.2. Integrate, test and deliver the SNL and Los Alamos National Laboratory (LANL) sensor and support systems in accordance with Government Furnished Equipment delivery dates to the Air Force satellite contractor that meet the performance specifications for the GBD payloads for the space-based Nuclear Detonation Detection systems.	Outstanding	Agree	Sandia met and exceeded all deliverables associated with this metric. Sandia's effective program and project management resulted in enhanced efficiencies. For example, the total time for GBD testing was reduced to less than three days, which is an outstanding achievement.
4.3.3 Conduct risk reduction engineering and design work to prepare for Block IIIA/B GBD payloads and stretch goal size/weight/power reductions for Block IIIC/D GBD payloads.	Outstanding	Agree	A forward leaning and innovative approach to communication allowed Sandia to effectively overcome a potentially insurmountable conflict of interest issue that would have significantly impacted program deliveries. Furthermore, Sandia's new Systems Engineering Department has aggressively moved forward on GPS GBD designs that have proven to be significantly more efficient in size, weight and power.
4.3.4 Provide on-orbit analysis and support for legacy launched and delivered, but not yet launched, Space Nuclear Detonation Detection systems.	Outstanding	Agree	Sandia has provided outstanding support to both launch as well as on-orbit services of GPS NUDET systems. The willingness and capability of Sandia to quickly reprioritize to new, unanticipated mission needs and then return to standard operations is a testament to Sandia's unparalleled capabilities.

4.3.5 Research and develop new geophysical data processing and analysis technologies, investigate and characterize sensor technologies, and deliver Sandia integrated research products into the NNSA Knowledge Base to improve ground-based nuclear explosion monitoring capabilities.	Outstanding	Agree	Sandia has contributed fundamental research advances to the U.S. and international capability to detect and identify foreign nuclear detonations. Sandia's ability to team with other national laboratories to advance state-of-the-art technology demonstrates its ability to look beyond parochial interests. Continual feedback from operational agencies shows that Sandia truly connects NNSA sponsored research to real world requirements.

Performance Measure 4.4

Counter global proliferation and non-state actor threats through the application of capabilities to support policy and provide technical support for dismantlement and transparency, global security engagement, and development and implementation of international regimes and agreements. (NA-24).

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
4.4.1 Manage the contract with VNIITF (All Russia Scientific Research Institute of Technical Physics) to conduct radioactive source replacements at the Blend-Down Monitoring Systems installed at three sites in Russia, and provide technical management of all program seal activities for monitoring visits at four sites in Russia.	Outstanding	Agree	The Sandia team provided outstanding support to the HEU Transparency Program. Sandia made significant contributions to the U.S.-Russia technical meeting on Blend Down Monitoring System (BDMS) radioactive source changes and expertly modified the contract with VNIITF on radioactive sources. This enabled safer and more efficient (and less costly) BDMS operations. Also important, Sandia extended the term of the contract so that it will cover the duration of the program through 2013. Sandia provided technical and facility experts for successful Special Monitoring Visits to Russian uranium-processing facilities. Sandia provided technical management of tamper-indicating seals used by U.S. monitors, as well as seals and technical guidance. Also, Sandia tracked seal usage and provided ideas for improving efficiency of using seals while minimizing vulnerabilities. The contract management, monitoring, and seals work are essential to the continued success of the Program and ensuring that the nonproliferation objectives of the HEU Purchase Agreement are met.
4.4.2 Host workshop on Authentication of Monitoring Equipment to confirm the presence or absence, or the dismantlement, of nuclear weapons-related components of a potential future nonproliferation agreement or confidence building measure based on approved workshop scope, subject to receipt of specific tasking and associated funding.	Outstanding	Agree	Sandia co-hosted an Authentication Workshop, which was held at Sandia in March 2009. The objective of this workshop was to provide US and United Kingdom (UK) participants with an opportunity to review past and present US and UK contributions to the development of authentication strategies, which include concepts of operations, authentication procedures, hardware, software, data, and system authentication-and to explore the possibilities for future US-UK collaborations in this area. The workshop was a huge success. Sandia has also provided expert level technical input to NA-241. Sandia also provides support, specifically, for transparency technology development for future agreements, as well as other activities within the office.
4.4.3 Complete International Nonproliferation Export Control Program country planning and associated implementation activities as assigned and funded. If Country Lead, create and deliver	Outstanding	Agree	Sandia continues to provide high-quality technical support in analysis and management of export control engagement in South Asia. Sandia subject matter experts met all DOE HQ requests for event planning, staffing, and execution.

country and event planning documents by assigned due dates and execute implementation schedule as negotiated. If supporting multi-lab tasks, deliver assigned materials and services on time and to expected quality standards.			
4.4.4 Provide oversight and subject matter expert support to management of Cooperative Monitoring Center – Amman partnership	Outstanding	Disagree Good	Sandia has provided good technical support in a number of areas, including assisting in the development of technological capacity building planning.
4.4.5 Train foreign experts in the areas of Advanced Containment and Surveillance, and Secure Communications, as specified in approved Action Sheets, and engage in ten International Cooperation technology collaborations for the purpose of enhancing the effectiveness of International Safeguards and reducing the risk of proliferation of nuclear weapons of mass destruction, subject to the availability of funding for both Sandia and the international partner; and provide training and support in civil nuclear energy infrastructure technology development, including Additional Protocol (AP), UNSCR 1540, and Global Initiative outreach integration activities.	Outstanding	Agree	Sandia's expertise in containment and surveillance as well as secured communication is unparalleled. They are involved in high-visibility projects in South America, Europe, and East Asia, and have exceeded expectations in achieving the objectives of the action sheets on time and on budget. In addition, Sandia's critical relationships and understanding of the issues facing developing countries interested in nuclear power has made the lab an invaluable asset to DOE/NNSA's efforts to establish nonproliferation infrastructures in such countries.
4.4.6 Engage cumulative total of over 60 Weapons of Mass Destruction (WMD) scientists through Global Initiatives for Proliferation Prevention (GIPP) grants in ongoing GIPP projects, and develop two GIPP projects to the point where they can be commercialized by a U.S. or Russian industry partner.	Outstanding	Agree	In FY 2009, Sandia engaged 95 Russian scientists, engineers and technicians in GIPP projects, of which 69 are considered as having had WMD experience during the Soviet era. This year, two of Sandia's projects in Snezhinsk at Spektr-Konversia reached the point where they are on the cusp of commercialization. Furthermore, Sandia engaged 77 Iraqi scientists, engineers and technicians. 70 of the 77 scientists have WMD backgrounds. Sandia has also engaged over 1,700 Russian scientists, engineers and technicians since the program's inception; over a thousand of these scientists have a WMD background. Based on engaging a total of 69 WMD scientists out of a target of 60, the target is rated Outstanding.
4.4.7 Provide technical analyses and studies for interdiction analysis, and support to NNSA on the Proliferation Security Initiative.	Outstanding	Agree	Currently, Sandia continues to provide good technical analyses in each of the Interdiction Technical Analysis Group (ITAG) arenas. We receive weekly input from our Missile Technologies Action Group (MTAG) and SHIELD leads, as well as bi-weekly input by our Nuclear Interdiction Action Group (NIAG) lead. Sandia has contributed to regular, detailed reports by tracking the State Department Demarche actions, and we continue to receive excellent support from our missile lead at Sandia. Overall, Sandia continues to play an important role in the overall ITAG program and its

			elements.
4.4.8 Conduct eight physical protection training courses such as the International Training Course and Regional Training Courses; conduct ten physical protection bilateral collaborations such as workshops or topical meetings; and support six physical protection assessment missions, including U.S.-origin nuclear materials and International Atomic Energy Agency (IAEA) IPPAS.	Outstanding	Agree	Sandia continues to provide excellent support to NA-243's international physical protection (PP) program. Sandia staff provides quality support across six major program areas, which has the overall impact of advancing USG and DOE physical security interests abroad and contributing to strengthened security measures in multiple countries. It's noteworthy to mention that Sandia has the technical lead in assisting NA-243 and the USG in advancing the revision of IAEA/INFCIRC/225 internationally, where Sandia, in particular, has provided tireless efforts towards the development of this critical document. Additionally, Sandia provides critical support to USG bilateral physical protection assessments, led by DOE, to foreign facilities holding U.S.-obligated material under our 123 Agreements. Lastly, Sandia provides critical training to foreign officials on PP, including contributing to multiple IAEA training courses, including International Training Courses, including ITC at Sandia.
4.4.9 Provide timely technical reviews on Commerce dual-use export license application for missile technology, and provide a training seminar on dual-use items controlled for missile reasons.	Outstanding	Agree	Sandia has provided timely support to license reviews; successfully conducted the course Fundamentals of Missile Production Technology Relevant to Dual-Use Export Controls; and provided timely response to technical referrals in support of U.S. Government export enforcement officials. Sandia has provided high-quality support to the Biological Weapons Program and Fissile Material Cut-Off Treaty (FMCT) Program during the fiscal year. Regarding the Biological Weapons Program, they provided outstanding products relating to Biological Weapons Convention Outreach and Education. As for the FMCT Program, Sandia has proven to be a vital part of the development of DOE/NNSA FMCT policy.
4.4.10 Provide timely submission of the initial Additional Protocol declaration.	Good	Agree	Sandia has corrected all issues that resulted in the FY 2008 submission delay, and communication and review problems.
4.4.11 Provide timely deliverables for Safeguards Technology Applications pending receipt of specific tasking and associated funding.	Outstanding	Agree	Sandia's performance in this area primarily has been limited to work on data security and authentication under NA-24's Next Generation Safeguards Initiative.
4.4.12 Provide timely support to the NA-24 Policy Office for both rapid turnaround and longer term studies and analysis of key nonproliferation issues.	Outstanding	Agree	

Performance Measure 4.5

Enhance global nuclear warhead and weapons material security by supporting development and application of upgraded security systems at nuclear sites, consolidation of materials at secure sites, and development and application of detection and interdiction systems at international borders. (NA-25)

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
4.5.1 Provide effective support for the timely completion of remaining comprehensive nuclear security upgrades in Russia.	Outstanding	Agree	Sandia staff working on comprehensive nuclear security upgrade projects in Russia have: produced timely and effective documents; generally responded efficiently to HQ requests; managed projects and associated budgets well; met project goals within their control; effectively managed international negotiations and relationships.
4.5.2 Support radiation detection system upgrades at 20 Russian border crossings as part of the Second Line of Defense (SLD)-Russian cooperative program to upgrade 100 percent of their border crossings.	Outstanding	Agree	Sandia supports the Core program by conducting site surveys and acceptance tests in Russia, letting contracts for installation of radiation detection equipment in Russia, and purchasing long-lead items for use in other countries. Sandia also assists with site surveys in countries other than Russia. In support of the Core Russia project, Sandia conducted site surveys and participated in acceptance testing at about 40 sites in Russia. Sandia signed and administered multiple design and construction contracts for sites in Russia, as well as supported quarterly meetings, technical reviews, and other exchanges. Sandia showed flexibility in technical approach as well as contracting. As a result of Sandia's efforts, the SLD Program met its metric requirements for new sites completed in FY 2009. Sandia's management of this project was excellent, and the number of sites completed was restrained only by limited Russian resources. The team has done an outstanding job. Regarding purchasing of long-lead equipment for other countries, Sandia helped to support timely completion of over 14 sites in Kazakhstan and Ukraine. Sandia has continued to refine the process for ordering the monitors, and has shown flexibility and originality in contracting. Sandia has provided site survey expertise in countries other than Russia on an as-needed basis. These surveys have contributed to improved designs at complicated sites, airports and seaports. At a program level, Sandia also provides communications and IT-related technical expertise In FY 2009, Sandia developed and implemented a CONUS test bed to test communications solutions provided by the Design, Integration, Construction, Communication, and Engineering (DICCE) contractors against the program-level Communication System Design Requirements Documents (CSDRD). This project came in on time and within budget. Sandia participates fully in supporting the configuration management process at headquarters, with particular focus on communications issues and has provided outstanding support in this area. Overall, project management was Outstanding. Sandia has done an

			excellent job managing funds and tracking projects, and it has been very responsive.
4.5.3 Support radiation detection system upgrades in 25 countries as part of the SLD Megaports Initiative and Core non-Russian countries.	Outstanding	Agree	For Megaports, Sandia developed and maintains the Maritime Prioritization Model used by DOE/NNSA as a decision tool to identify ports that pose the greatest risk to the United States in terms of the potential for illicit trafficking in nuclear and other radioactive materials. Sandia continues to perform at a high level in updating and refining the data. Sandia is responsible for preparing the Design Requirements Documents and the CSDRD for all Megaports within the SLD Program. After construction and installation of equipment at ports, Sandia in conjunction with the host country's seaport officials and other DOE laboratories, conducts the formal system level acceptance test (SLAT). Sandia completed nine SLAT Reports for Megaports in FY 2009.

Other Considerations

Performance Measure 4.1: Sandia provided ongoing technical support to the Task Force's Radiation Source Sub-group, creating a Radioactive Material Down selection and Source Prioritization Methodology report that became the backbone of the subgroup's report to the Task Force. In addition, prompted by other proposed actions by the Task Force, Sandia developed a methodology and report to identify the relative risk reduction that may be achieved by substituting one form or radionuclide with another. The first increment was on CsCl and Co60. This enables decision makers to decide if the risk benefit would offset the costs to develop the alternative, retrofit devices and dispose of the materials currently used.

Progress on FY 2009 Opportunities for Improvement::

Achievements recognized: Sandia has made progress towards OFIs identified in FY 2009.

OFI #1: Sandia has changed WFO D&Cs Forms to include the following statement: "Involves work related to foreign activities Y/N" – if yes the proposals are sent to NA-20, NA-21, and NA-22, and NA-24 so they will be informed. This is augmented with a communication plan that was developed for OFI #2 to ensure timely communications.

OFI #2: The Global Security Program Director met quarterly with NA-20 COO to review program status and summaries of WFO activities. Additional discussion included Sandia's broader global engagement activities in China, Middle East, and South and Central Asia where applicable. Progress has been made toward better communications with the improved process Sandia implemented in FY 2009.

PERFORMANCE OBJECTIVE 5 – Science & Technology

Enhance and foster a strong science and technology base in support of DOE/NNSA's mission and strategic objectives. Leverage SNL's science, technology & engineering capabilities in support of the national security needs of Other Federal Agencies (OFAs) and Technology Partnerships in a manner which benefits the maintenance of technical capabilities for strategic and national security objectives.

Adjectival Rating
OUTSTANDING

Summary of Performance

A comprehensive evaluation of this Performance Objective was conducted with input from both external and internal DOE/NNSA sources.

Select program/functional areas were evaluated for FY 2009, including four performance measures:
5.1 – *DOE/NNSA Research Foundations*, including Engineering Sciences, Material Sciences and Technology, and Microelectronics and Microsystems
5.2 – *DOE/Office of Science (SC) and Laboratory Directed Research and Development (LDRD) Programs*
5.3 – *DOE/Energy and Environmental Technology Programs*, including Office of Energy Efficiency and Renewable Energy (EE), Office of Electricity Delivery and Energy Reliability (OE), and Office of Nuclear Energy (NE) Programs
5.4 – *Institutional Programs*, Other Federal Agencies (OFA)/Work for Others (WFO)

Evaluation of the performance measures is based on a set of targets related to programmatic performance, management and planning; quality of science, technology and engineering; performance in the technical development and operations of major facilities (if applicable); and, relevance to national needs and agency mission.

Overall, Sandia's performance in the Science and Technology Performance Objective is regarded as Outstanding. Sandia's success in advancing science, technology and engineering this past performance period has been impressive. Sandia's unique technical skills focus, and dedication to national security continues to bring credit to the Department of Energy's national security mission. Sandia has successfully maintained critical skills and has adopted innovative ways to maintain technical capabilities. Sandia continues to advance science which enables innovative technologies that help to sustain, modernize and protect the nuclear arsenal; prevent the spread of weapons of mass destruction; protect national infrastructures; defend against terrorism threats; protect the homeland; enhance capabilities to the armed forces and national defense; lead the way to ensure the stability of the nation's energy and water supplies; and, has made major contributions towards the creation of a firm platform for increased U.S. economic development.

Sandia continues to demonstrate leadership in science, technology and engineering by strategically concentrating on the science that underpins and enables technology for DOE missions. Sandia is able to maintain and further develop expertise, facilities and equipment to create world-class science that pushes the frontiers of knowledge, in anticipation of future emerging threats and other mission needs.

5.1 – DOE/NNSA Research Foundations
Sandia's performance was Outstanding in the three select research foundation areas evaluated this performance period, including: Engineering Sciences, Material Sciences and Technology, and Microelectronics and Microsystems. Work performed in these research foundation areas is critical for maintaining the strong science and technology base required to support DOE/NNSA missions and strategic objectives. Sandia had a very successful year supporting the goals of these three research foundations that directly support the nuclear weapons stockpile and other national security missions. In an environment of declining budgets and limited resources, Sandia has strategically and proactively managed its corporate investments and technical capabilities to maintain essential expertise and a strong technical capability base.

The Sandia Science Advisory Board, comprised of credible executives, scientists, engineers and former laboratory directors, successfully completed external reviews of all three research foundation areas and comments from reviewers about Sandia's research foundation areas and overall science and technology programs are consistently positive, regarding Sandia's science, technology and engineering programs as national assets that are regarded as "world-class" and "outstanding."

5.2 – DOE/Office of Science and LDRD Programs

Office of Science (SC)
Sandia's contributions toward advancing science and support of SC sponsored programs are outstanding, directly contributing towards DOE strategic planning goals to strengthen "scientific discovery and innovation" for the nation. Major contributions and significant accomplishments in the areas of Basic Energy Sciences (BES), Advanced Scientific Computing Research (ASCR), Biological and Environmental Research (BER), and Fusion Energy Sciences (FES) were performed during this evaluation period.

Laboratory Directed Research and Development (LDRD)
The Sandia Laboratory Directed Research and Development is rated outstanding for FY 2009. Sandia is an active participant in the NNSA LDRD Quarterly Working Group (WG) meetings. Sandia strives to improve overall LDRD program, such as collections of statistics on all metrics assigned to the LDRD program and continues to accomplish major scientific breakthroughs that are relevant to national needs and DOE/NNSA mission. On behalf of DOE, Sandia coordinated this year's LDRD Symposium held in Washington, DC, August 2009. Sandia's LDRD program was well presented and received by the science community at the FY 2009 Annual LDRD Symposium, DOE Program Review and LDRD Day (held at Sandia Albuquerque). In addition, the programmatic performance, management and planning is regarded as outstanding, with the leadership of the Sandia Chief Technology Officer and active involvement of the Corporate Investment Area Managers. Sandia has an effective and well-documented project selection process and method for peer review, especially for the larger Grand Challenge projects.

5.3 – DOE/Energy and Environmental Technology Programs
Office of Energy Efficiency and Renewable Energy (EE)
Sandia's support of EE sponsored programs is outstanding, directly contributing towards DOE strategic planning goals to strengthen "energy security" for our nation. Major contributions and noteworthy accomplishments in the areas of Freedom Car & Vehicle Technologies, Hydrogen, Fuel Cells & Infrastructure Technologies, Geothermal Technologies, Solar Energy Technologies, and Wind & Hydropower Technologies were performed this evaluation period.

Office of Electricity Delivery and Energy Reliability (OE)
Sandia provided outstanding support to OE in the area of Energy Storage technologies, successfully performing state of the art R&D and collaborating with state energy agencies, utilities and industry to develop and characterize advanced stationary energy storage technologies and to determine the benefits of deploying stationary energy storage systems on the grid.

Office of Nuclear Energy (NE)
Sandia continues to provide outstanding NE support in the development of advanced nuclear energy technologies in the areas of Nuclear Hydrogen Initiative (NHI), Generation IV Initiative, Radioisotope Power Systems, and Advanced Fuel Cycle Initiative programs.

5.4 – Institutional Programs, Other Federal Agencies/Work for Others (OFA/WFO)
Sandia continues to have the most robust, diversified, and recognized WFO Program within the DOE and NNSA Enterprise. Sandia continues to ensure that the appropriate systems, processes, procedures, and facilities are available to support approximately 500 active WFO projects worth approximately $940M. Of this amount, approximately 96% was provided by Other Federal Agencies (OFAs) demonstrating a strong commitment and relationship to homeland security and defense related programs. During FY 2009, the Sandia WFO Program was reviewed by numerous congressional, regulatory, and external and internal committees and advisory boards, and in each case these entities have been impressed with the breadth and depth of the ST&E resources and capabilities that are available at Sandia to support the Nation and national security. Sandia continues to apply appropriate levels of management attention and support to the WFO program. They have been responsive to NA-121.4 WFO requests for information, maintaining a program that supports the DOE/NNSA missions, goals, and objectives, and maintaining a customer focus. Sandia has maintained a higher level of funding from other non-DOE/NNSA federal sources, while at the same time maintaining a stable technical workforce.

Significant Accomplishments

The following represents select examples of Science and Technology achievements and accomplishments in FY 2009, including:

Achievements and Accomplishments Recognized

- Impressive scientific breakthroughs and substantial progress on various Laboratory Directed Research and Development (LDRD) and LDRD Grand Challenge Projects, including Network Discovery, Quantum Information, Metamaterials, Featureless Tagging Tracking, Advanced Circuit Integration, and SunShine to Petrol.
- Achieved major scientific discoveries and accomplished significant technology deployments.
- Accomplished numerous tasks that directly supported DOE strategic goals in the areas of Nuclear Security, Energy Security and Scientific Discovery and Innovation.
- Numerous patents, awards and scientific recognition across all Sandia science, technology and engineering programs, including six R&D 100 awards.
- Significant accomplishments that directly supported national security mission of Other Federal Agencies.
- Successful development and implementation of Science, Technology and Engineering strategic planning.
- Sandia established ST&E performance metrics and metrics dashboard to make informed corporate decisions on future direction of science and technology.
- Sandia's designation as DOE Lead Laboratory in a variety of major DOE and NNSA sponsored programs.

Major Advancements, Building Foundations for Scientific Advancement

- Sandia ion trap team successfully demonstrated a unique MESA micro-fabricated silicon ion trap with surface electrode topology which will ultimately enable advanced quantum information computing.
- Sandia computer scientists successfully booted one million Linux kernels as virtual machine, an achievement that will allow them to more effectively observe behavior found on malicious botnets.
- New Type of Polymer Electrolyte Membrane (PEM) fuel cell membrane developed at Sandia may help make hydrogen hybrid cars a reality.
- Sandia's MESA achieved DoD 'trusted design' accreditation and trusted foundry accreditation.
- Sandia signed MOUs with Japan's National Institute of Advanced Industrial Science and Technology and China's Tsinghua University, focusing on low carbon energy and nano materials.
- Sandia worked collaboratively with industry and academia to investigate new smart systems, sensors, methods, and engineering improvements for operating wind turbines, solar energy systems, and enhanced geothermal systems.
- Sandia successfully completed a 'smart-bed' Na-hydride hydrogen storage system for General Motors.
- Sandia was awarded lead laboratory in the Energy Frontier Research Center's Solid State Lighting center, and Sandia will participate in another seven centers.
- Successfully established the NINE Institute, a Sandia-University-Industry collaboration formed to help develop the next generation of nano-engineering innovation leaders for the nation.

5.1 – DOE NNSA Research Foundations

Sandia received numerous awards and honors, including six R&D 100 Awards mentioned above, and for their ongoing excellence in research that continues to build on their long history of awards and honors. The awards represent the strong science and technology base, very high quality of staff and the broad and international recognition of their sustained excellence in science, technology and engineering. The success of DOE/NNSA mission is dependent upon the successful planning and execution of its research foundations. Sandia's Chief Technology Officer, Research Foundation Directors, and ST&E managers continued to provide outstanding leadership in this performance objective area, and responded to a variety of national security issues.

5.2 – DOE/Office of Science and LDRD Programs

Office of Science (SC)

There are many noteworthy accomplishments performed by Sandia in support of a broad spectrum of DOE Office of Science sponsored projects, including significant scientific advances including: commencement of new core program task on "Artificial Microtubules"; participation in seven new Energy Frontier Research Centers that will result in nearly $40M in advanced research through the next five years; successful operations of the BES CINT, securing ARRA appropriations for the CINT Facility, ongoing biosciences advances supporting the Joint BioEnergy Institute of which Sandia is a major partner, numerous papers published in peer-reviewed journals, numerous professional awards and positive external reviews of SC sponsored programs. Sandia has provided outstanding support of DOE/SC

sponsored projects in the areas of Material Sciences, Chemical Sciences, Geosciences, Advanced Sciences and Computer Research, Biological and Environmental Research, and, Fusion Energy Sciences.

Laboratory Directed Research and Development (LDRD)

Sandia's LDRD program plays a key role in fostering strong science, technology and engineering foundations. Sandia has made significant program improvements such as ongoing efforts to improve operating efficiency, to strategically sustain directed research that is directly tied to national security needs, coupled with maintaining the laboratory's scientific and technical vitality. Sandia's LDRD program works closely with SSO to assure that all LDRD projects are administered with all applicable rules and regulations, mindful of project outcomes and focus on financial oversight. Sandia's Chief Technology Officer, in coordination with LDRD staff, Investment Area (IA) teams, Senior Steering Council (SSC) and Senior Managers have implemented several LDRD process improvements that have proven to further leverage project outcomes that benefit a broad spectrum of laboratory and DOE/NNSA goals and objectives. LDRD continues to be the genesis of innovative science and technology breakthroughs that lead to very promising research, strategic partnerships, and ultimate technology deployments.

5.3 – DOE/Energy and Environmental Technology Programs

Office of Energy Efficiency and Renewable Energy (EE)

Sandia's has made major accomplishments, contributing towards advances in renewable and energy efficiency technologies, such as solar energy (concentrating solar energy and photovoltaics), wind & hydropower, geothermal, hydrogen, fuel cells and infrastructure, and vehicle technology programs. These advances in technologies are helping our nation to reduce its dependence on foreign energy sources. Several technology development and deployment successes were achieved in FY 2009, including: *Geothermal* – successful design, fabrication and testing of high-temperature seismic tool for extended deployment associated with high-temperature enhanced geothermal systems, and development of advanced sensors and tools for use in high-temperature, down-hole applications for high resolution monitoring of drilling and geothermal exploration activities; *Wind* – Sandia has made exceptional progress in further developing methods and tools for advanced sensors and components used in wind technologies, including blade reliability and overall systems operations; *Solar* – major advances in concentrating solar power technologies such as parabolic troughs, dish-engine and central receiver technologies, including the successful commercialization of dish-engine technologies. *Photovoltaics* – major advances in solar efficiencies and material sciences which have produced advanced methods for enhancing performance and reliability of photovoltaic systems; *Vehicle/Combustion* – Sandia made significant progress in engine research and provided the science base for U.S. industry to develop a new generation of high-efficiency, clean engines for transportation; *Hydrogen, Fuel Cells and Infrastructure* – Sandia has successfully secured funding for several DOE sponsored projects which have resulted in several breakthroughs in the areas of hydrogen storage, hydrogen systems analysis, solar thermal hydrogen production, development of advanced codes and standards, and metal hydride research.

Office of Electricity Delivery and Energy Reliability (OE)

Sandia has made significant technical progress in support of OE sponsored programs, with a primary focus on the development of state-of-the-art energy storage systems that will provide a significant new and needed tool in the electric grid of the future. The Sandia Energy Storage Program is central to the development and deployment on these technologies in the grid. Sandia successfully accomplished numerous technology advances, including: commencing development efforts for the design, fabrication and testing of a 10MVA, emitter turn-off thyristor (ETO) based Static Synchronous Compensator (STATCOM) unit with Silicon Power Inc.; Electrochemical Solution Growth on Gallium Nitride for substrates for power electronics; data collection and analysis of utility grid data in collaboration with California Energy Commission; carbon enhanced lead-acid battery testing; advanced sodium-sulfur (NaS) battery energy storage system development with NY State Energy Research and Development Authority; initial development of EPRI/DOE Energy Storage handbook; U.S. Coast Guard National Distress System electrical power system optimization study; and, DOE support of municipal utilities throughout the country including states of Iowa, Minnesota and Dakotas to develop 13,400 MWh of compressed air energy storage systems.

Office of Nuclear Energy (NE)

Sandia has made significant contributions to DOE/NE program in the areas of advanced nuclear energy technologies. Sandia's primary focus has included the Space Nuclear Power Program, the Gen IV Initiative, the Nuclear Hydrogen Initiative, and Advanced Fuel Cycle Initiative. Sandia successfully completed a milestone by producing the Final Safety Analysis Report that directly supports the Presidential Launch Approval Process as part of the Mars Science Laboratory program; successfully developed advanced power conversion cycles for use with next generation nuclear reactors that have the potential for higher efficiency and lower capital cost, including the

supercritical CO2 Brayton cycle; successful research on two high temperature thermochemical hydrogen production processes, including the Hydbrid-Sulfur (HyS) and Sulfur-Iodide (S-I) methods; and, significant science-based research and development of technologies that directly supported the Advanced Fuel Cycle Initiative program which is focused to develop viable options to the current nuclear fuel cycle to enable the safe, secure, economic and sustainable expansion of nuclear energy while reducing proliferation risks.

5.4 – Institutional Programs, Other Federal Agencies/Work for Others (OFA/WFO)
Sandia was successful in supporting other federal agencies in many of their major program areas, while at the same time sustaining and broadening core DOE and NNSA competencies and capabilities. Major federal sponsors include the Department of Defense, Intelligence Agencies, Department of Homeland Security, Department of State, NRC, and NASA. There are numerous WFO projects within the Sandia WFO Program portfolio that are making significant contributions to the Nation and national security by providing innovative solutions in areas such as: Synthetic Aperture Radar (SAR); RF, optical, cyber, microwave engineering, nonproliferation, micro and nano technologies, missile defense, sensors development, satellites, risk assessments, physical security, cyber threat/security, modeling and simulation, cognitive sciences, risk assessments, emerging threats, test and evaluation, robotics, counterterrorism, systems engineering, energy, electronics, computing, materials and material response.

FY 2009 has been a difficult year for WFO/OFA Program due to the increased level of interest and visibility of the program; however, Sandia has done an outstanding job of keeping up with the changing requirements, and increased expectations during this time.

As an example, Sandia has made significant progress in responding to the Missile Defense Agency's (MDA's) quality concerns, and responding to MDA's new contracting and business model. In addition, Sandia has supported the SSO by addressing facility related issues such as lease space at MN, Ktech, as well as the need for SCIFs, and the plan to excess NNSA facilities/structures in Hawaii. Sandia also undertook rewriting and rebaselining the WFO SOW to better identify the AF security requirements at Tonopah.

Opportunity for Improvement

FY 2010 Opportunities for Improvement:

5.2 and 5.3 – DOE Programs (non-NNSA DOE Programs)
Sandia should post all DOE progress reports, as submitted to DOE/HQ program offices, on Sandia ILMS.

5.3 - DOE Programs - OCRWM/YMP: It is OCRWM's desire that the licensing contention process be approached with the same rigor and high technical quality as the RAI process within the budgetary and time constraints that exist. Additionally, communication with OCRWM and their M&O will be key in FY 2010 for Sandia as work scope evolves, especially when competing task activities conflict due to the budgetary and time constraints of the program.

5.4 – Institutional Programs, Other Federal Agencies/Work for Others (OFA/WFO)
Sandia should support SSO operational oversight by increasing the WFO program/project ILMS/CAS "transparency." Invitations to demonstrations, select internal and external project and/or program reviews, briefings, tests, as well as providing notifications concerning significant technological developments would aide in keeping NNSA better informed of activities and accomplishments. Increased communications between SSO and Sandia concerning WFO problem areas, successes, and sponsor concerns would supportand enhance NNSA's operational awareness.

Sandia should ensure that WFO Project Managers are aware of the importance that the SSO places on information communicated in the WFO proposal packages, specifically the Determinations and Certifications (D&C), and ensure that the information contained in the WFO proposal package is accurate and written with the appropriate audience in mind. Although there is a small number of "rejections" the elimination of re-works and requests for clarification will help to reduce cycle-times while improving efficiency.

Performance Measure 5.1

Enhance and foster a strong multidisciplinary science and technology base, inclusive of Sandia's Research Foundations.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
5.1.1 Programmatic planning, management and performance. Evidence: Efficacy of Science, Technology and Engineering (ST&E) Strategic Management Unit (SMU) Research Foundation (RF) strategic plans and implementation in the areas of Engineering Sciences, Materials, and Microelectronics and Microsystems. Factors to be considered in the appraisal/evaluation of the strategic plans include the setting of specific focus areas, metrics, and rationale for Sandia's differentiation. External advisory panel critique and feedback, including RF follow-up to previous year's report, is a consideration. Factors in implementation are to be indicative of stewardship of the RF, for example, the achievement of planned programmatic goals and achievement of target metrics or trends.	Outstanding	Agree	
5.1.2 Quality of science, technology and engineering. Evidence: Indicators of excellence could include, where appropriate, such factors as mission-related research advances and engineering developments, impact on the field as determined by expert opinions from the external review panels, and where appropriate intellectual property, noteworthy technical publications, citations, awards and honors, professional service, sustained achievements, invited talks, and external collaborations.	Outstanding	Agree	
5.1.3 Performance in the technical development and operations of major facilities (where applicable). Evidence: Performance indicators include success in meeting technical and programmatic objectives, performance specifications, and facility availability goals where applicable.	Outstanding	Agree	

5.1.4 Relevance to national needs and agency mission. Evidence: Examples of the impact of research and development and deliverables on the mission and program needs of the DOE/NNSA and other agencies' funded programs, as well as the attainment of national goals in areas where science and technology are factors.	Outstanding	Agree	

Performance Measure 5.2

Enhance and foster a strong multidisciplinary science and technology base, inclusive of DOE Office of Science and Laboratory Directed R&D programs.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
5.2.1 Programmatic planning, management and performance. Evidence: Office of Science funded research: Achievements measured against DOE Program Work Authorizations (WA), including ILMS access to WA reporting requirements. These might include, for example, the achievement of negotiated programmatic goals; establishing and meeting scientific/technical milestones, schedules and budgets; managing program/project resources; satisfying programmatic/project sponsors; planning for the orderly completion or continuation of programs/projects. Results of funding office review of Labs' management when available. Laboratory Directed Research and Development (LDRD) program: Documentation of the call for proposals and its link to SNL's national security missions; description of the proposal review and project selection process; project and program management of resources; portfolio trends across the basic-applied-development spectrum; selection of high-risk, leading edge ideas; and tracking of direct project outputs, such as publications, technology advances, follow-on proposals.	Outstanding	Agree	The Combustion Research Facility (CRF) is no longer designated as an SC user facility, but has successfully transitioned into a collaborative laboratory/facility with significant continued impact in the combustion science community, both nationally and internationally. The Office of Basic Energy Sciences, working jointly with the Office of Energy Efficiency and Renewable Energy is expanding the CRF capability in computational science through the construction of a new computational laboratory extension to the CRF. The CRF also won a midscale instrumentation award in FY 2009 that will enhance computational science at the laboratory. Sandia received one of the Energy Frontier Research Center (EFRC) awards made by BES in FY 2009; they will be the lead institution on the EFRC: "Energy Frontier Research Center for Solid-State Lighting Science." In addition, Sandia is participating as a partner institution on several other EFRCs led by other institutions.
5.2.2 Quality of science, technology and engineering. Evidence: Results from peer reviews organized by offices within the Office of Science and of	Outstanding	Agree	LDRD: The LDRD program continues its outstanding performance. They conducted a workshop to identify what the LDRD program was doing well and what could be improved in FY 2009. This led to a few changes in how they manage the program. Sandia has a proposal call system laid out in their program plan that ensures

NNSA/DOE program reviews or from the external scientific or engineering communities. Indicators of ST&E excellence might include objective evidence of significant research advances and engineering developments, impact on the field, professional awards and honors, professional society service, invited talks, intellectual property, noteworthy technical publications, citation trends, external collaborations, and results from external advisory panels.			top quality project are picked and are focused on future technology Sandia feels will benefit the investment areas, Sandia and NNSA. Sandia was picked as the first site for the IG review of the LDRD program focusing on the proposal call and selection process. In the out brief the IG had no findings or suggested improvement for the program. The IG review was later terminated, and the director of NA-121.4 commended Sandia on their program and attributed part of the termination of the IG review to Sandia's excellently run program. Sandia's LDRD program contributes to the success of the Laboratory with publications and awards. Approximately 21% of all refereed publications are from LDRD programs, 48% of all technical advances can be attributed to LDRD, and 58% of all R&D 100 awards are a result of the LDRD program. Sandia has a very strong and measurable program designed to meet the future needs of NNSA, its customers, and our nation. Office of Science: The BES supported compound semiconductor work continues to be a unique capability. The newly observed fractional quantum Hall effect (FQHE) state is one of the solid state material systems discussed for quantum information science. A Sandia researcher was one of eight DOE researchers selected to receive the Presidential Early Career Award for Scientists and Engineers (PECASE). This researcher, supported by BES, was cited for his leadership in experimental many-particle physics that explores new states of matter and community outreach work. Sandia's strategic vision for the BES supported efforts in materials sciences is still being developed. As a result of the Sandia-CA review, one of the two projects was discontinued. BES reviewed the Combustion Chemistry Program in the CRF in FY 2009, and this program received generally excellent reviews. The reviewers noted the overall high caliber of CRF research in this area, the excellent utilization of SC user facilities (notably the Advanced Light Source at LBNL), the cohesion and synergy among the investigators, and the continuing excellent track record of collaborative science and impact across the broader combustion chemistry community
5.2.3 Performance in the technical development and operations of major facilities (where applicable). Evidence: Performance indicators include success in meeting technical and programmatic objectives, performance specifications, and user availability goals. Other considerations may include the quality of user science performed, extent of user participation and user satisfaction, operational reliability and efficiency, and effectiveness of planning for future improvements.	Outstanding	Disagree Good	The CINT facility has been responsive to recommendations from the initial triennial operations review in April 2007 and the user base has continued to grow as the facility approaches steady-state operations. All indications suggest effective and efficient operations and significant involvement in outreach and other aspects of user facility activity. While CINT received substantial resources for capital equipment in the allocation requests from DOE-SC-BES Nanoscale Science Research Centers (supported at a particularly high level overall in 2009 due to the Recovery Act), the facility has room for improvement in prioritizing and justifying such requests based on utility to users, scientific impact, and alignment with the core capabilities, staff, and mission of CINT.

5.2.4 Relevance to national needs and agency mission. Evidence: Examples of the impact of research and development on the national security missions and program needs of the DOE/NNSA, Department of Homeland Security and other agencies' funded programs at Sandia, as well as the attainment of national goals in areas where science and technology are factors.	Outstanding	Agree	Sandia's success in the highly competitive EFRC funding opportunity demonstrates scientific leadership and presents an opportunity to enhance grand-challenge and use-inspired basic energy research in the laboratory.

Performance Measure 5.3

Leverage Sandia's strong multidisciplinary engineering, science, & technology base to ensure success of programs for DOE Energy and Environmental Technology Offices in a manner which strengthens the base capabilities needed to support strategic and national security objectives.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
5.3.1 Programmatic planning, management and performance. Evidence: Achievements measured against DOE Program Work Authorizations.	Outstanding	Agree	YMP – Licensing: OCRWM commends Sandia, (the Lead Laboratory or LL) for the aggressive management of its workscope and funding during and after the severe downsizing of the Sandia workforce in response to the mid-year funding reduction imposed by Congress on OCRWM. Licensing constituted the highest priority for OCRWM in FY 2009. Despite the difficulties of downsizing Sandia managed its resources proactively to meet the tight schedules for responding to at least half of the 576 Requests for Additional Information (RAIs) received by the DOE in FY 2009. Technical responses were of the highest quality and resulted in few supplemental requests from the NRC staff (see 5.3.3). In Total Systems Performance Assessment (TSPA), Sandia displayed exceptional planning and responsiveness to YMP's decision to close the Sahara Data Center on short notice as a cost-reduction effort. Sandia procured and qualified new servers which simultaneously increased the efficiency (decreased the run time) for TSPA calculations in support of licensing while avoiding the costs associated with the larger footprint of the antiquated equipment. Additional information contributing to this rating: The replacement of 14 TSPA server racks housed at the Sahara Data Center plus 4 server racks from building 3, with 2 new, high efficiency server racks purchased by OCRWM provided the following savings and performance improvements: Reduction in overall electrical power usage (equipment and cooling) – 145.1 kW Monthly utility cost savings (using average yearly cost of $0.125/kWh) - $13,063 Monthly estimated data center lease savings (based on

			14 server racks) - $22,000 System performance 40% faster than the previous best system configuration Additionally, once the specifications were finalized and authorization provided, Sandia completed the planning, procurement, testing, installation, and sanitization and removal of existing equipment, in approximately three months and ahead of the OCRWM schedule. YMP – Test Coordination: Activities at the Yucca Mountain site were subjected to intense scrutiny by NRC onsite representatives and the OCRWM QA organization. The primary challenge faced by the Test Coordination Office (TCO) was "maintenance of the site as described in the license application" under the severely reduced budget scenario dictated by Congress and the resulting curtailment of access to the site. Despite loss of experienced personnel, Sandia has performed very well in maintaining the chain of custody of the Q-samples at the Sample Management Facility and in performing required inspections, maintenance, seismic monitoring, precipitation monitoring, and borehole security. The TCO has been instrumental in inventorying and maintaining the security of OCRWM boreholes, as part of protecting the technical basis for the Yucca Mountain license application. The LL TCO has been quality conscious in the oversight of Measurement and Test Equipment (calibrations) and developing procedures and checklists (as opposed to scientific notebooks) for routine activities performed at the site. On short notice the TCO proactively organized and executed the transfer of corrosion specimens weighing 30 to 35 thousand pounds from Lawrence Livermore to Sandia and the Sample Management Facility, under the strict controls required by the OCRWM Quality Assurance Program. The single deliverable submitted under the TCO group was TDR-MGR-GE-000011 Technical Report: Geotechnical Data from 2007 and 2008 for a Geologic Repository at Yucca Mountain Nevada. The product had been extensively reviewed in draft form by DOE leads prior to submittal. The resulting document was a high quality product that was accepted by DOE when formally submitted as a deliverable.
5.3.2 Provide evidence in the form of quarterly updates for key project (Yucca Mountain) and inform SSO of key issues affecting progress. Evidence: Quarterly update for key project (Yucca Mountain).	Outstanding	Agree	Sandia stands out among OCRWM program participants for its commitment to quality improvement through use of the Corrective Action Program (CAP). OCRWM commends Sandia for self-identification of conditions affecting safety and quality and identification of opportunities for improvement. They are commended for the high percentage of corrective action plans and condition reports (CRs) completed on time, and for being the first organization granted authority to close its own condition reports based on the quality of its corrective actions and documentation.
5.3.3 Quality of science, technology and engineering. Evidence: Results from program reviews, awards and recognition, intellectual property, significant	Outstanding	Agree	OCRWM continues to be impressed with the technical quality and technical depth displayed by Sandia both before and after the major funding and staffing reductions that took place in mid-year. The quality of work by Sandia authors and other personnel in preparation of key licensing-related technical

technical publications, and external collaboration.			documents (e.g., Responses to Requests for Additional Information (RAIs) from the NRC, Licensing Change Requests and Error Reporting Documents) was noted in the 2009 audit of OCRWM licensing activities.

Performance Measure 5.4

Leverage Sandia's strong multidisciplinary engineering, science, & technology base to ensure success of programs for Other Federal Agencies and Technology Partnerships in a manner which strengthens the base capabilities needed to support strategic and national security objectives.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
5.4.1 Execute Work for Others/Other Federal Agency programs in accordance with Work for Others (WFO) Department of Energy Acquisition Regulation (DEAR) clause and DOE Order 484.1, Reimbursable Work for the Department of Homeland Security. Evidence: (1) Less than 5% of Sandia WFO/OFA proposals and agreements are rejected by the SSO Programs for issues related to WFO DEAR and DOE O 484.1 requirements. (2) Assessment of WFO processes against Sandia's SSO approved WFO Management and Administrative Plan reflects material compliance with WFO DEAR clause and DOE O 484.1.	Outstanding	Agree	
5.4.2 Maintain a Customer Mean Loyalty Rating* of 8.5 or higher for key OFA customers included in the biennial survey. Loyalty Rating = Average of the Overall Satisfaction, Willingness to Continue with SNL, and Willingness to Recommend	Outstanding	Agree	
5.4.3 Provide transparency into the Integrated Technology System (ITS) Strategic Management Group/Strategic Management Unit (SMG/SMU) management assurance process for key projects to the SSO via Sandia's ILMS. Evidence: Key project status (e.g., such as quad charts) will be updated quarterly on the FY 2009 ITS SMG management assurance website. Inform the SSO of high risk issues	Outstanding	Disagree Good	The SSO Programs CAS assessment of the ITS SMUs has revealed a number of areas where improvements and enhancement are needed (see P010 for further discussions on CAS). In addition, starting in the third quarter of FY 2009, shortly after the SSO Programs CAS interviews and demonstrations, Sandia made significant changes to the ILMS/CAS architecture and procedures. As a result, there was limited (to no) "transparency" into the Sandia ITS SMG/SMU management assurance process related to CAS, through ILMS, during this time, illustrating that the Sandia CAS is still a work in progress. In addition, Sandia has not fielded the Mission Execution Policy area in FY 2009.

			Overall, ongoing discussions between the SSO Programs and Sandia are constructive in clarifying ILSM/CAS expectations.
5.4.4 Sandia's WFO activities provide support to laboratory capabilities benefiting national security objectives. Evidence: Examples of WFO programs support operational costs of laboratory capabilities	Outstanding	Agree	
5.4.5 Sandia's WFO activities result in a reduction in operational / overhead costs for NNSA. Evidence: ITS programs will continue to pay their proportionate share of indirect costs.	Outstanding	Agree	

Other Considerations

FY 2009 OFI Achievements recognized: Sandia completed or made progress towards *Opportunities for Improvement* identified in FY 2009.

1) OFI No.1: As part of Sandia's Technology Partnerships Program, Sandia significantly improved the Partnerships, Agreements, and Licensing System (PALS) for tracking Cooperative Research and Development Agreements (CRADAs), Licenses and Intellectual Property.

2) OFI No. 2: As part of the work performed by Sandia in support of Yucca Mountain Project, Sandia significantly improved its technical reporting system by treating all technical reports as milestones in the (project management) technical baseline, resulting in increased communications between Sandia and DOE OCRWM.

5.3 – DOE/Energy and Environmental Technology Programs
The efforts of multiple Sandia managers have been highlighted by DOE HQ sponsors and are very complimentary. DOE HQ sponsors are pleased with Sandia's ability to accomplish major goals and objectives established at the beginning of FY 2009, despite the Continuing Resolution. Sandia contributions in the areas of Energy Efficiency and Renewable Energy, Nuclear Energy, and Science are regarded by all program managers as outstanding, highlighting Sandia as being responsive, timely and exceeding expectations.

In addition, Sandia continues to support the Office of Civilian and Radioactive Waste Management (OCRWM) sponsored Yucca Mountain Project (YMP). The project established schedule and content requirements for the License Agreement, including supporting documents requirements that were very ambitious. Sandia continues to work hard to meet OCRWM goals and objectives, despite the unclear future of Yucca Mountain Project and the undefined path forward for high level waste disposition. SSO is pleased with the level of communication and coordination with Sandia staff regarding YMP work activities. Sandia continues to keep SSO informed on critical issues and activities in a timely manner. As a result SSO has been in a strong position to support OCRWM's Yucca Mountain Project.

PERFORMANCE OBJECTIVE 6 – Operations – Essential

Sandia will manage and operate its emergency management; nuclear operations; safety basis programs; and facilities and project management functions in an efficient and cost effective manner through the utilization of the Integrated Laboratory Management System (ILMS) and the Contractor Assurance System (CAS) to fully support successful accomplishment of mission, while protecting the public, the worker, the environment, and national security assets in accordance with the terms and conditions of the contract.

Adjectival Rating
Good

Summary of Performance

The Sandia Site Office continues to be concerned with the general safety culture that exists at Sandia National Laboratories. Other, less severe, events than the sled track incident of October 2008 contribute to this lingering concern. The intentional defeating of safety interlocks on lasers, the overpressurization of the high pressure air line, and issues at AML are examples of a persistent weakness in the Sandia safety culture. The PER addresses those concerns in PI-4.

Sandia's operation of the nuclear facilities, however, has shown marked improvement from previous years. Specifically, early in the fiscal year, TA-V brought in an assessment team from the Institute for Nuclear Power Operations (INPO). This team confirmed issues that the SSO had previously identified, such as the need to shift from an expert-based methodology to one that is process-based, utilize performance indicators, and ensure clear communication of management expectations. TA-V has begun to address these issues by formalizing processes, implementing management changes, sending key staff members to INPO training courses, reengineering their organizational structure and integrating Human Performance Improvement (HPI) into day-to-day operations. Where these actions have been performed, low consequence events are scrutinized and issues are dealt with before they rise to the level of serious events. The expansion of this approach to other Sandia facilities, both nuclear and non-nuclear, should be considered.

Sandia continues to make progress in implementing a comprehensive emergency management system that meets the requirements of DOE Order 151.1C. The technical foundation for the program has been properly established and has resulted in the development of appropriate and effective implementing procedures. Results of external inspections indicate that, although improvements can be made in the areas of corrective action tracking, issues management, and the tools for implementing protective actions, the Sandia emergency management program continues to progress at an acceptable level of performance. The successful and timely emergency response to the Sled Track incident provides an indication of the improvements that have been made to the operational aspects of the program to ensure a quick and effective response to an emergency. Sandia is working toward full integration of the remote site emergency management programs into corporate processes, and routine support to implementation of the remote site programs is provided by the SNL/New Mexico emergency management staff. Sandia successfully obtained funding to acquire the required hardware and software for installation and implementation of WebEOC, and overcame significant roadblocks in establishing WebEOC connectivity with DOE Headquarters. Sandia has completed all of the milestones associated with implementation of DOE Order 150.1 Continuity Planning and has made significant strides in implementing procedures for responding to pandemic and epidemic events.
Sandia demonstrated outstanding performance in the functional areas of Utilities and Energy and Maintenance. Sandia demonstrated good performance in the areas of Real Property, Site Planning, and Project Management for Line Item and General Plant Projects. Sandia Facilities continues to lead in its use of ILMS to demonstrate, and benefit from, a functioning CAS.

Significant Accomplishments

Sandia (TA-V) made great strides in this reporting period by establishing performance metrics and instituting a condition reporting log. The performance metrics have helped to reinforce the TA-V management expectations as well as establish a monitoring tool. The condition reporting log has become a useful management tool to support tracking and trending of issues.

In the areas of Utilities and Energy; Real Property, Maintenance, Site Planning, and Project Management Sandia had the following accomplishments:
Sandia/New Mexico saved a significant amount of energy (2.5%) and water (14%) compared to FY 2008 and is on track to meet or exceed the 33 goals indentified in DOE O 430.2B, Departmental Energy, Renewable Energy and Transportation Management, dated 02-27-08 that are within their control.
The performance of the IBL project has been favorable with a Cumulative SPI of 1.15 and SPI of 1.24. Sandia mitigated the impact associated with funding delays. Equipment delivery is 5 months ahead of schedule.
Space utilization improved to 82%, which is a 6% improvement.
Sandia has reduced the footprint by 55,131 gross sq. ft. without planned Transformation Disposition funding.
Sandia has been the only site or one of the few sites that has met NNSA FCI goals of 5% for mission critical facilities and 7% for mission dependent facilities.

Opportunity for Improvement

While Sandia set out to achieve corporate-wide improvements following the sled track event, there is a persistent weakness in safety culture. The preliminary improvements that have been observed due to the implementation of HPI are encouraging. Sandia should consider the expansion of this approach to other facilities, both nuclear and non-nuclear.

In the areas of Utilities and Energy; Real Property, Maintenance, Site Planning, and Project Management Sandia has the following opportunities for improvement:

- Sandia's FY 2009 effort to demonstrate project cost and schedule efficiencies relative to previous years is absent or nontransparent for capital projects between $500K and $5M.
- The open corrective actions from the Earned Value Management System (EVMS) Surveillance conducted by HQ DOE/OECM introduce unnecessary risk associated with obtaining new projects and measuring performance on existing projects.
- Continued improvements in Real Estate processes are needed to minimize rework on Preliminary Real Estate Plans (PREPs) submittals and to ensure lease PREP requests are submitted in a timely manner.
- All future leases must include a preference for Gold Certification per the Leadership in Energy and Environmental Design (LEED) rating system and facility temperature set-backs.

Performance Measure 6.1

Timely and compliant Safety Basis documentation is developed for Sandia hazard category (HC)-2 & 3 nuclear facilities.

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
6.1.1 Develop and maintain Safety Basis Documents for HC-2 & 3 nuclear facilities in accordance with 10 CFR 830.	Outstanding	Disagree Good	Sandia performance has ensured that annual updates and new DSA submittals were provided in a timely manner. Sandia self assessments and improvement actions indicate a maturing program. Sandia continued the implementation of a standardized approach for postings, procedures, criticality safety analyses (CSAs) and criticality safety indices (CSIs) that was started in FY 2008. The Sandia criticality safety program was active with the closure or reduction of material below threshold limits at Buildings 810 and 819 and the Tonopah Test Range and the startup of activities at the Auxiliary Hot Cell Facility and the SPR Critical Experiments. Facility walkthroughs and

			assessments by SSO showed improvement in Sandia's self-assessment program and training program. This was further evidenced by the CDNS assessment of the Sandia program that had no issues with the Sandia criticality safety program.

Performance Measure 6.2

Nuclear facility operations are conducted in compliance with applicable directives to assure safe and efficient operation. The nuclear facilities are able to meet programmatic commitments while operating in a manner that is safe and compliant.

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
6.2.1 Sandia will complete the startup of the Onsite Transportation of Hazard Category 3 Radioactive Material activity in FY 2009.	Good	Agree	Sandia provided a resource loaded schedule in June 2009 indicating when HC3T and Auxiliary Hot Cell Facility (AHCF) startups were needed to support the deinventory of Mixed-TRU Waste from Sandia by December 2010. Both HC3T and AHCF startups need to be operable in second quarter FY 2010 to support deinventory. Additionally, Sandia's efforts to achieve HC3T readiness were significantly diverted late in fourth quarter FY 2009 due to the discovery of new information concerning the material in storage. Sandia's declaration of a Potentially Inadequate Safety Analysis demonstrates a willingness to report that has been lacking in the past.
6.2.2 Sandia will complete all necessary activities in FY 2009 to startup the Auxiliary Hot Cell Facility.	Good	Agree	Delays in the resolution of the Basis for Interim Operation led to delays in the overall schedule. The startup will take place in FY 2010. Again, no adverse impact is expected to the schedule for TRU waste deinventory.
6.2.3 Sandia will develop and implement a nuclear operations and maintenance assessment program that is independent of the nuclear facility operations line management (up to Center level). This program will be established in the first quarter of FY 2009 and regular assessments will begin no later than the beginning of the second quarter of FY 2009. The assessments will be periodic, but at least annual. The assessments will be both announced and unannounced. The assessments will focus on rigor and formality of nuclear operations and maintenance at all Sandia nuclear facilities. The personnel performing the assessments must be knowledgeable and experienced in nuclear operations and maintenance. The issues arising from the assessments will be tracked and addressed in the condition reporting system that is being used at the nuclear facilities.	Outstanding	Disagree Satisfactory	Sandia brought in an assessment team from INPO and established an independent process that performed three assessments (two at TA-V and one at MNF) in the reporting period. The TA-V condition reporting log is used to track issues to closure The program got a late start because the program was not established until the second quarter. The lack of assessments at all nuclear facilities, particularly ACRR and the limited value and quality of the assessments demonstrate only a satisfactory program that needs further work to reach a program worthy of nuclear professionals and a rating of outstanding.

6.2.4 The Sandia nuclear facility operations will develop a set of metrics in the first quarter of FY 2009 that clearly define performance and implement them for the remainder of FY 2009 as a measure of nuclear safety at the facilities.	Outstanding	Agree	TA-V developed metrics in the first quarter and has tracked performance against those metrics. System Health Reports are also tracked. Discussions are underway to refine the metrics, as some are more useful than others.
6.2.5 The Sandia nuclear facilities will demonstrate in FY 2009 that all conditions at the facilities are being identified in a condition log, properly managed, corrected in a timely manner, and any trends are being identified and actively engaged.	Outstanding	Agree	The condition reporting log is used to document issues and actions. It is reviewed on a periodic basis to identify priorities and resources for the issues.
6.2.6 Sandia hazard category 2 and 3 nuclear facilities are operated in accordance with the applicable DOE regulations, nuclear safety rules, and directives as part of evaluating Milestone 3251.	Good	Agree	The MNF Potential Inadequacy of the Safety Analysis (PISAs) were self-identified and self-disclosed. This resulted in the identification of one Technical Safety Requirement (TSR) violation. In previous years, Sandia has been reluctant to declare PISAs. The manner in which Sandia handled the discovery of the event and subsequent evaluation demonstrates an awareness of the attributes of a nuclear safety culture.

Performance Measure 6.3

Provide a satisfactory and effective Emergency Management Program that is in compliance and meets applicable requirements. (NA-40 PO40.1).

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
6.3.1 Complete new Emergency Planning Hazard Assessments (EPHAs) in accordance with a formal schedule approved by Sandia and the SSO management. The schedule must reflect a completion date for each EPHA and must be submitted to the SSO by November 1, 2008. The schedule must be placed under a formal change control process where changes to the schedule are approved by the SSO.	Good	Agree	EPHAs have been completed in accordance with the "SNL/NM HS/EPHA Preparation Update Schedule" and subsequent revisions. Sandia has placed the schedule under a formal change control process and has consistently provided formal baseline change requests for the HS/EPHA schedule. The initial schedule was submitted to SSO on 11/18/2008. Subsequent schedule changes have gone through a formal change control process and have been approved by SSO. SSO is currently reviewing Version 6 for approval. Sandia has developed and maintained the EPHA/HS schedule under formal change control process.
6.3.2 Complete Temporary Orders with associated protective actions for new EPHA facilities by December 31, 2008	Good	Agree	No new Temporary Orders were required by the December 31, 2008 deadline. Temporary Orders continue to be completed in accordance with the SSO-approved schedule and approved schedule revisions. It was noted by SSO that some identified Temporary Orders have been overcome by Sandia EM taking credit for Limited Scope Quantities.
6.3.3 Update existing EPHAs in accordance with the 3-year update	Outstanding	Agree	EPHAs are being updated and delivered to SSO for comment in accordance with the "SNL/NM HS/EPHA

period, or when significant changes in inventory occur, as required by DOE Order 151.			Preparation Update Schedule." and in accordance with DOE O 151.1C
6.3.4 Achieve full compliance with SNL self assessment and issues management corporate process requirements and emergency management procedures by the end of 1st Quarter FY 2009.	Good	Disagree Satisfactory	In January 2009, the Office of Independent Oversight and Performance Assurance (HS-63) examined these processes as part of their review of the Readiness Assurance program element. HS-63 determined that, while progress has been made by Sandia to improve the self assessment and issues management processes, additional time is needed for these processes to mature and confirm that weaknesses have been addressed, and to demonstrate the long-term effectiveness of these processes. Because of these weaknesses, HS-63 gave the Readiness Assurance Program element a rating of "Needs Improvement." It should be noted, however, that no findings were issued in this program element. In the April 2009 SSO assessment of the Sandia Readiness Assurance program element, SSO raised some concerns regarding follow up on implementation of corrective actions. Items entered into the internal tracking system are not being acted on within expected time frames. There are some issues with understanding the functionality of the Issues Management and Resolution System (IMaRS). A corrective action plan was prepared to address the SSO concern that includes establishing an EM Issues Management Review Board; issuing IMaRS with some enhanced capabilities; IMaRS training; and periodic meetings of the Review Board and OFI owners to ensure timely actions. An EM Corrective Action Review Team has been established and is working to enhance the corrective action management process. SSO will perform quarterly reviews of the corrective action and issues management processes beginning in FY 2010. Finding 8 from the 2006 SP-43 emergency management inspection remains open while these processes mature. It is anticipated that SSO validation and closure of this finding will occur in FY 2010. A recent surveillance conducted by the SSO Office of Facility Operations resulted in one deficiency and three weaknesses. The deficiency related to the use of cleaning materials in a manner that is inconsistent with manufacturer's recommendations which could result in serious harm to the user. Sandia is developing a corrective action plan to address this deficiency. Of concern to SSO is that, although Org. 4127 performed a self assessment of the Sandia Corporate Respiratory Protection Program in the Oct/Nov 2007 timeframe, neither Building 803 (where respiratory equipment is housed) or Organization 4136 are being identified as being within the scope of the review. This indicates that the self assessment process could be improved to ensure that a comprehensive and all-inclusive assessment is conducted.
6.3.5 Integrate applicable	Good	Agree	Completion of this target was validated by SSO during the annual emergency program management

emergency management and response activities at SNL/California and the Tonopah Test Range by March 31, 2009.			assessments at Tonopah Test Range (June 2009) and SNL/California (September 2009). The NM, CA, and TTR Emergency Plans are integrated. The NM Consequence Assessment Team (CAT) provides support to CA and TTR. The draft Continuity of Operations (COOP) Implementation Plan addresses NM, CA, and TTR. The EM contractor assurance procedures are applicable to NM, CA, and TTR. During CY08 there were quarterly video teleconferences with NM, CA, TTR to review emergency management program actions, accomplishments, and issues. These are now monthly telephone conference calls to continue information sharing and integration activities. The NM site can make offsite notifications for CA and TTR when needed. The IMaRs for tracking program Opportunities For Improvement is being modified for use by CA and TTR. CA is incorporating the NM EM Program terminology and program documentation. During CY09 there has been increased involvement between NM and CA regarding annual assessments and drills/exercise activities. Sandia continues to make progress in integrating emergency management activities at remote sites. The 2009 SNL/CA annual emergency preparedness drill included an objective to test interface between SNL/CA and SNL/NM during an event at SNL/CA. SNL/NM is continues working with the remote site to alleviate inconsistencies with document management.
6.3.6 Establish connectivity with DOE Headquarters utilizing Web EOC by August 31, 2009. (NA-40 PM 40.1.2).	Outstanding	Agree	Computers have been installed in the Emergency Operations Center and training was conducted July 6-10, 2009. Communications have taken place between ESI, Sandia, and DOE HQ on the use of the Web Fusion application to demonstrate connectivity. Connectivity with DOE Headquarters using WebEOC was accomplished ahead of the August 31, 2009 deadline.
6.3.7 All emergency management program elements are rated Satisfactory during the SSO, NNSA or DOE oversight activities.	Good	Disagree Satisfactory	For the most part, Sandia emergency management continues to make improvements to the various elements of the program. However, weaknesses in decision making processes and the tools used to support effective decision making were identified by the results of the limited scope performance tests conducted during the HS-63 inspection. Sandia line management attention is warranted to thoroughly evaluate and address these weaknesses, specifically construction of Emergency Action Levels to ensure timely and accurate emergency response decision making. Attention is also needed to sustain Sandia's efforts to fully implement the revised Sandia emergency management issues management processes and to demonstrate their long-term effectiveness. Overall inspection results resulting from the DOE HQ Office of Emergency Management Oversight (HS-63) in January-February 2009 was determined to be Satisfactory. The SSO assessment of SNL/NM Emergency Management conducted in April-May 2009 stated, "Results of the assessment indicate that SNL/NM continues to make progress in implementing a comprehensive emergency management system that

			meets the requirements of DOE Order 151.1C." The HS-63 inspection resulted in five SNL/NM findings. The June No Notice Exercise (NNX) reconfirmed some of these findings. CAPs for the HS-63 findings have been developed, but are not yet fully implemented.
6.3.8 Sandia will implement the contractor requirements in DOE Order 150.1, Continuity Program, within the required 1-year implementation period, with the exception of the four requirements listed below: - Contractor Requirements Document (CRD) Section 1.d.: The Continuity of Operations Program (COOP) Implementation Plan or Business Recovery Plan must be approved by the DOE field element. -CRD Section 2.b.: Provide for planning to ensure the capability exists for performance of identified essential functions/activities. -CRD Section 2.e.: Provide for internal procedures for executing Mission Essential Functions (MEF), Primary Mission Essential Functions (PMEFs), and Essential Supporting Activities (ESA) that have been devolved from DOE Headquarters or field elements. -CRD Section 2.i.: Identify and provide alternate operating facilities with capabilities for performing essential functions. These four requirements shall be implemented in accordance within the timeframe specified in the SNL implementation plan, which must be approved by the SSO.	Outstanding	Agree	SSO conducted an Operational Awareness Activity (OAA) in March 2009 and determined that Sandia was on schedule for implementing the milestones in the Sandia COOP Implementation Plan (IP). The OAA included review of the Sandia Draft COOP Plan; integration of Sandia Mission Essential Functions (MEF) with the DOE/NNSA MEFs; and designation of the Sandia Continuity Emergency Response Group and Sandia mission critical personnel. SSO will continue to monitor the IP milestones until all are completed. All implementation plan milestones have been completed except for integration of COOP into the SNL/NM Readiness Assurance Program, which will occur during regularly scheduled updates of Sandia plans and procedures. The Sandia Continuity Plan and Disease Response plan have been drafted. The Pandemic Influenza Plan has been approved and plan elements were verified during the H1N1 outbreak in Spring 2009. Lines of sight to DOE Mission Essential Functions have been identified. Comments on the DOE HQ COOP Plan were provided to SSO, and subsequently provided to the DOE Continuity Manager. The Manager, Emergency Plans and Support, completed the Federal Emergency Management Agency Federal Emergency Management Agency (FEMA) COOP Planner's course and presented the COOP Manager's course in August 2009. Sandia has completed all COOP implementation plan milestones on time or ahead of schedule. In addition, three of the four milestones for which an extension was requested (2.b., 2.e., and 2.i) were completed by the original September 3, 2009 deadline. To ensure that all requirements of DOE 150.1 were met, Sandia performed a self assessment of the Sandia COOP plan using the DOE/NNSA assessment tool which is based on the FEMA Readiness Reporting System. This assessment resulted in achieving an overall "GREEN" status for the Sandia COOP program. Sandia still needs to provide COOP awareness training to the workforce, and continue to develop and enhance COOP implementing procedures.

Performance Measure 6.4

Sandia shall implement efficient and cost-effective programs in the functional areas of Utilities and Energy; Real Property, Maintenance, Site Planning, and Project Management.

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
6.4.1 Sandia will implement an energy management program that is in compliance with Executive Order 13423 in implementing NNSA guidance for meeting reductions in energy intensity; water intensity; expanding energy use from on-site renewable sources; metering electrical, thermal, and water usage; achieving Leadership in Energy and Environmental Design (LEED) Gold certification for all new construction and major building renovation, and installing state-of-the-art sustainable building components.	Outstanding	Agree	Sandia is on track to meet or exceed the DOE Order goals. However, Sandia needs to ensure that all future leases include a preference for LEED Gold Certification and facility temperature set-backs, which are monitored and enforced.

6.4.2 Sandia will track, trend, and meet the Real Property and Space Management requirements in a quality and timely manner as demonstrated by the following -Contingent upon receipt of funding from the Transformation Disposition (TD) program, Sandia will execute its decontamination and demolition program, removing planned square footage by the end of the fiscal year, including demolition and waste removal. - Sandia will conduct a validation self-assessment of the Facilities Information Management System (FIMS) data using NNSA HQ guidance to ensure FIMS data reporting is timely, data is accurate and complete, and information is consistent with the Ten Year Site Plan (TYSP). - Office Utilization at Sandia/New Mexico (NM) and Sandia/California (CA) (formerly Building Capacity Based on Office Space at NM) will improve 2% over the FY 2008 office utilization. - Utilizing the space bank to reduce the overall size of the NNSA Complex footprint, Sandia will remove 1.5 square foot for every new building constructed or new lease square foot that is funded (fully or partially) by DOE or NNSA. Specific square footage waivers may be obtained from NA-10.	Outstanding	Disagree Good	Sandia has exceeded the established office space utilization goal to achieve a 2% improvement in FY 2009. Space utilization improved to 82%, which is a 6% improvement. Facilities successfully completed the planned FY 2009 Structure Improvement Activities (SIAs) which has resulted in improved space utilization, reduction in space requests, and improved space data. Sandia has removed 55,131 gross sq. ft. without Transformation Disposition funding. However, two major areas need improvement. 1) With respect to FIMS, SSO issued a deficiency (for conducting the validation on only 1 of its 4 sites). 2) Continuous improvements in Real Estate processes are needed to minimize rework on PREPs submittals and to ensure lease PREP requests are submitted in a timely manner. Although several PREPs were submitted on or ahead of schedule, improvement is needed in tracking PREPs for lease requests. The Innovation Parkway Office Center (IPOC) PREP request to exercise an option year was submitted several months late. Reworks were required on the AML and Minnesota PREPs. Sufficient upfront planning and preparation of PREPs within the periods Sandia and SSO have established and agreed to are critical. Sandia's internal process for PREP submittals must be followed
6.4.3 Sandia will track, trend, and meet the requirements of the established Maintenance program to support mission as demonstrated by maintenance metrics and: -Sandia will fund annual maintenance to prevent the growth of new Deferred Maintenance (DM). Maintenance expenditures will be maintained within the suggested guideline of a minimum of 2% of the representative asset replacement plant value, and Sandia will meet the NNSA/HQ DM reduction goal as described in the annual work authorization as part of evaluating Milestone 3263. - Assuming funding is received as planned, Sandia will stabilize DM growth such that the Facility Condition Index (FCI) for mission	Outstanding	Agree	Maintenance expenditures at the end of the fiscal year are projected to be 2.44% of the Replacement Plant Value (RPV), therefore exceeding the minimum of 2% RPV. Sandia has been the only site or one of the few sites that has met the NNSA FCI goals of 5% for mission critical facilities and 7% for mission dependent facilities.

critical facilities will meet the FY 2009 goal of Mission Critical facilities less than or equal to 5% and FCI for mission dependent facilities is less than or equal to 7% as part of evaluating Milestones 3246 and 3247.			
6.4.4 Sandia will continue to conduct quality site planning activities in a timely manner. -Sandia will produce a high-quality, Freedom of Information Act (FOIA) releasable TYSP that is complete and accurate, meets Sandia mission needs, and adheres to the format and content required by the DOE/NNSA NA-52 guidance. - Develop and implement a siteing and zoning process that includes a board made up of the SSO and Sandia by May 30, 2009. --Produce and deliver viable options for the development, maintenance and use of capital assets at Sandia-operated installations that will sustain or enhance national security objectives and performance while reducing long-term capital investment requirements, operating costs and obligations. Sandia-operated installations include the facilities and property at the SNL/NM Technical Areas, SNL/CA, the Tonopah Test Range (TTR), and the Kauai Test Facility (KTF). Develop and provide the draft schedule for the deliverables for this effort by November 26, 2008, and a final schedule by December 15, 2008. The deliverables will include a) a Long Range Site Plan containing options proposed by SNL to SSO, b) an analysis of the options proposed to include cost benefit and return on investment analysis for the various options, and c) a single long range capital investment plan which would address all requirements for the selected options regardless of funding source to include line items, General Plant Project (GPP), Institutional General Plant Projects (IGPP), expense funded efforts, all Decontamination and Demolition (D&D), and others (with the exception of customer funded or unplanned maintenance projects.) The proposed schedule must	Good	Agree	SSO agrees with Sandia's self-rating. However, the transparency of the corporate planning process should be improved.

include the SSO review and participation time as SSO will be involved in the decision-making related to the options proposed.			
6.4.5 Sandia will complete line-item construction projects (>$5M) within approved performance baselines as demonstrated by the cumulative Cost Performance Index (CPI) and Schedule Performance Index (SPI) ≥ 0.95.	Outstanding	Disagree Good	The cumulative CPI and SPI for all line item projects were > 1.0, which exceeds the goal of 0.95. However, the OECM EVMS Surveillance issued fourteen corrective action requests. The surveillance results were not anticipated or favorable. Sandia's EVMS self-assessment, which preceded the surveillance, was not effective in detecting or correcting the problems that OECM found. These open corrective actions introduce an unnecessary risk associated with obtaining new projects and measuring performance on existing projects.
6.4.6 Sandia will meet the program goals for capital projects between $500K and $5M in a quality and timely manner as demonstrated by the following: - Sandia will accomplish at least 95% of projects within the authorized working baseline budget - Sandia will accomplish at least 95% of major milestones for projects within the current authorized baseline schedule. -- Sandia will demonstrate process efficiencies for cost and schedule relative to previous years.	Outstanding	Disagree Good	Sandia's GPP Program is reflected well by monthly GPP dashboard status reporting and delivery of projects to support mission. However, there is a need to provide more detail in project approval documentation and more depth in Sandia's Program Plan self-assessments. In addition, Sandia has not yet demonstrated process efficiencies for cost and schedule relative to previous years. Sandia's end of year performance self-assessment notes that Facilities is considering several efficiency metrics, such as reducing contingency and retainage on projects, closing projects out more quickly after construction is complete, and reducing the amount of time for project authorization.

Other Considerations

Two days after the sled track incident, Sandia's Chief Operating Officer suspended all energetic material operations. While a stand down was appropriate, it wasn't until October 23, 2009 that the Energetic Materials Resumption process, with an independent review process for activities with similar risks to the rocket sled track test was developed (established through Internal Directive 016). Although clear restart criteria (ID016) were crafted, the time lines to execute the criteria created programmatic concerns whether energetic operations will be available to support necessary schedules. The stand own included Type 0 (78 in total), Type 1 (103 in total), and Type 2 (74 in total) Energetic Material operations. Of the 78 Type 0 operations, sixty were restarted during the 1st Quarter of FY 2009, ten during the 2nd, four during the 3rd, and four still are suspended. Of the 103 Type 1 operations, sixty-one were restarted during the 1st Quarter of FY 2009, twenty-five during the 2nd, four during the 3rd, one during the 4th, and twelve remain suspended. Of the 74 Type 2 operations (which require the most rigor for restart), thirty were restarted during the 1st Quarter of FY 2009, eight during the 2nd, one during the 3rd, one during the 4th, and thirty-four still are suspended. Although Sandia learned much about safety from this event, the down time and cost/resources devoted toward re-start was extensive. Majority of energetic resumed operations in the first quarter. Mission objectives and schedule were taken into consideration throughout the resumption process.

PERFORMANCE OBJECTIVE 7- Safeguards and Security -Essential

Sandia will manage and operate its operational safeguards and security and counterintelligence functions in an efficient and cost effective manner using the ILMS to fully support successful accomplishment of mission, while protecting the public, the worker, the environment, and national security assets in accordance with the terms and conditions of the contract.

Adjectival Rating: GOOD

Summary of Performance

Sandia demonstrated continued adherence to applicable physical security and counterintelligence requirements to include protection and control of special nuclear materials (non-category I/II) and classified matter through cost-effective implementation of safeguards and security (S&S) and counterintelligence (CI) programs that are compliant with applicable DOE Orders and NNSA Policy Letters (NAPS). Performance with respect to safeguards and security will be measured in accordance with the performance measures and targets presented below. Emphasis will be placed on identifying, controlling, and assessing high and moderate-risk security activities, such as Special Nuclear Material (SNM) use, shipment and storage operations, Top Secret, Accountable Classified Removable Electronic Media (ACREM), the Safeguards and Security Performance Improvement Program (SPIP) Initiative and the Security Systems Replacement Project (SSRP). For CI, performance will be measured with an emphasis on Sandia's ability to detect, deter and mitigate Foreign intelligence collections and espionage efforts and international terror threats against NNSA personnel, classified and other sensitive programs and information architecture.

In most cases Sandia met or exceeded basic performance expectations in the areas of S&S. The information presented in the PEAR for this objective is generally representative of the conditions observed by NNSA during survey and oversight activities to include the shadowing of Sandia self-assessments. During the period of performance, the NNSA/SSO S&S staff conducted risk-based assessment and oversight activities that resulted in a comprehensive compliance and performance-based evaluation of the effectiveness of Sandia's S&S program. There were no external inspections focused solely on S&S by the Office of Independent Oversight (OIO) during this particular performance period. However, the DOE Office of Enforcement (OE) did conduct two separate site visits and program reviews during the performance period. These reviews were focused on safety and security. The reviews did address a couple of specific S&S program elements including, incidents of security concern, self-assessments, and corrective action management. The reviews also touched upon the classified matter protection and control program (CMPC) at SNL/NM. The reviews identified program strengths, weaknesses and observations. Sandia is responding with corrective measures for those issues and concerns raised during the first Integrated Program Review; however, the final report for the second review will not be published and released for response until November 2009 according to OE. The Sandia Security organization, as well as the line organizations, has demonstrated its ability to sustain satisfactory levels of performance in most elements of the S&S programs at the New Mexico, Tonopah Test Range and California sites as well as at Sandia's remote site operations. With the exception of one topical element and excluding the Cyber Security topic, each S&S topic assessed by SSO resulted in "Satisfactory" ratings which represent the highest attainable rating. With the exception of the issues related to the Physical Security topic at SNL/CA, none of the other reported findings had any adverse impact on the remaining topical ratings; however, some of the S&S subtopical program elements were assigned less than Satisfactory (Marginal) ratings.

The Sandia CI program continues to exceed performance expectations during this performance period. The information presented in the PEAR for this metric is representative of the conditions observed by NNSA during day-to-day interactions and oversight activities at the target level. However, Sandia's measure summary for Performance Measure 7.4 provides the results of the April 2008 DOE Inspection of the Sandia CI Program as its basis for an outstanding measure and does not objectively provide an assessment of overall performance in the CI

Program for FY 2009. There were no external reviews or inspections of the Sandia CI Program during this

performance period.

Overall, the less-than-outstanding ratings on some targets within this performance objective resulted in and assigned rating of Good.

Significant Accomplishments

Sandia's Technical Security Systems department continues to manage and execute the SSRP in a manner that has resulted in significant cost-savings, cost avoidances and scheduling efficiencies. The project has been on schedule and within scope and cost for the entire performance period with no major issues. All changes to the project have been appropriately processed using the approved change control procedures. All required quarterly updates to SSO were provided. An approximate $2.3M cost savings was realized by the SSRP project during this performance period.

Sandia S&S actively participated in an initiative established by the NA-70 Security Leadership Coalition regarding the development of an NNSA-wide S&S management system assurance program. Sandia provided management level participants that worked as part of a working group with the responsibility to develop a recommended strategy for consistent reporting of site-specific S&S performance using existing systems, processes and procedures. Sandia S&S also volunteered to Beta test the agreed upon Management System Assurance Program Report (MSAPR) (format and content) for two quarters. Upon completion of the third quarter MSAPR, SSO completed the Beta test process by submitting the completed contractor report along with the requisite Federal component to NA-70.

Opportunity for Improvement

Based on the results of the OE assessments, Sandia must be responsive in terms of enacting as quickly and effectively as possible regarding those actions and corrective measures identified within the project plan for the SPIP Initiative in order to be able effectively demonstrate, through compliance and performance, that the intent of the DOE requirements implemented by the site has been met and validated.

As Sandia and SSO move forward with the implementation of the model contract, risk-based oversight and contractor assurance, Sandia S&S must continue to self-identify and improve their self-assessment and corrective action management processes which represent two major attributes of assurance. The line-line portion of the current self-assessment program represents a significant weakness in the overall self-assessment program in that it has been determined to be ineffective. Sandia must take action to remedy this component of the overall process as soon as possible.

Performance Measure 7.1

Plan and resource an effective and efficient security program. Defense Nuclear Security *(DNS) Goal 1: Effective and efficient security operations.*

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
7.1.1 Site security planning activities effectively integrates requirements, resources, and capabilities across all topical areas	Outstanding	Agree	
7.1.1.1 Requirements traceability is incorporated across all security planning documentation (Site Implementation Plan, Budget, and Site Safeguards and Security Plan).	Outstanding	Agree	Sandia has successfully integrated the Performance Execution Guidance (PEG), Program Implementation Plan (PIP), Line Oversight and Contractor Assurance System (LOCAS) and SSO performance expectations throughout the budget development process as well as in the PEP and NNSA-approved annual operating plans for S&S.
7.1.2 Site Security Planning activities fully support DOE and NNSA planning, programming,	Outstanding	Agree	See 7.1.1.1 above

budgeting, and evaluation requirements.			
7.1.2.1 The contractor Site Implementation Plan (IP) is developed and submitted for approval in accordance with established time lines.	Outstanding	Agree	Sandia has developed and submitted the requisite documentation as required by this target notwithstanding some quality control and content issues that were identified by SSO during the joint review process. Sandia was cautioned about these issues and SSO will continue to monitor Sandia's performance in this area.
7.1.2.2 Successfully accomplish all performance targets contained in the approved FY 2009 Safeguards & Security (S&S) IP.	Outstanding	Agree	Sandia has continued to be successful in managing the annual S&S implementation plan (IP) through the use of tools such as the milestone reporting tool to ensure approved goals, milestones and deliverables (NNSA and Sandia) are met accordingly. Throughout this performance period, Sandia was able to meet 90% or more of the deliverables and milestones every quarter. Additionally, NA-70 has recognized the Sandia S&S FY 2009 S&S AIP for its quality and content and especially for its linkages and crosswalk to established performance execution guidance. At the conclusion of this performance period, Sandia has successfully completed 6 out the seven Goals contained in the FY 2009 AIP. Additionally, Sandia has successfully completed approximately 91% (96/106) of all milestones and deliverables in accordance with established schedules in the FY 2009 AIP. The 10 site deliverables that were not met by the conclusion of the fourth quarter included: 1.2.4.1.3 (maintaining facility clearances), 1.2.4.4.2 (Operations Security [OPSEC] reviews), 1.2.4.4.3 (OPSEC assessments), 1.2.4.4.4 (OPSEC awareness); 1.2.9.1.14 (timely processing of work for others documentation), 1.2.9.4.1 (line self-assessment effectiveness reviews), 1.2.9.6.3 (implement enhanced process and schedule for performance testing), 1.2.9.6.4 (adjust enhanced process and schedule for performance testing), 6.1.1.1.3 (prepare Quarterly Analysis and Trending Reports), and 6.1.1.1.4 (analyze results of actions taken to determine effectiveness and provide results in quarterly trending reports). The following two targets were also shown as incomplete at the end of the fourth quarter: 1.2.4.4 (OPSEC) and 1.2.9.4 (Policy Oversight and Administration). SSO will continue to monitor Sandia's progress in completing these actions as carry over items in FY 2010. In addition to the site deliverables and targets noted above one Goal was not completed and was rated Yellow (requires moderate management attention) from the second quarter through the end of the fiscal year. Goal 7 was to "Develop and execute to the documented Sandia Security Performance Improvement Initiative." There were some actions that were completed with respect to the tasks and activities reflected in Sandia's Safeguards and Security Performance Improvement Initiative's project plan; however, delays in project execution resulted in less than

			adequate performance in this area. This issue was one of the weaknesses noted during quarterly joint performance council presentations as well as during the OE program reviews conducted during the performance period. As a result, an enforcement action may be assessed against Sandia for failure to successfully complete this Goal. Refer to Performance Target 7.2.1.2 below for additional details. While the FY 2009 annual IP was deliverable–based, Sandia worked with the SSO to begin to develop the FY 2010 annual operating plan as a results-based platform for measuring program effectiveness.
7.1.2.3 The contractor FS-20 Budget Submission is performance-based and clearly links resources to outcomes.	Outstanding	Agree	The Sandia budget process has been subjected to exhaustive review by both SSO and NNSA HQ with respect to this target with no issues identified. Sandia S&S experienced significant budget reductions, appropriately risk-ranked the residual funding, and identified additional work-for-others funding to offset some of the impact of the reductions.
7.1.3 S&S Staffing: Sustain efforts toward managing the security program challenges of personnel recruitment, retention, development and training.	Outstanding	Disagree Satisfactory	Sandia S&S has established several different mechanisms to address recruitment, retention, development and training; however, SSO has observed some evidence of potential skill mix issues; i.e., conduct of self-assessment activities, and will continue to closely monitor program performance.
7.1.4 S&S Replacement Project: Complete Safeguards & Security project-related tasks and activities in accordance with approved Project Plans and schedule.	Outstanding	Agree	The Sandia TSS staff has continued throughout this performance period to provide outstanding management of this multi-year, multi-layered project. All scheduled tasks have been completed on time or ahead of schedule, change control has been used effectively to keep the various tasks of this project correctly aligned and timed in a manner that has yielded efficiencies in both time and dollars. A savings of approximately $2.3 million dollars has been achieved this performance period.

Performance Measure 7.2

Operate an effective and efficient physical security program.

NNSA Rating: Satisfactory

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
7.2.1 All security topical and sub-topical area self-assessments meet DOE order requirements and are effective in identifying significant deficiencies or weaknesses.	Satisfactory	Agree	Several issues with the self-assessment program itself were noted during the annual SSO assessment of that subtopical element. Two findings were identified, the most significant being that Sandia's self-assessment program effectiveness is weakened because Sandia did not always ensure self-assessment team members possessed appropriate qualifications and most importantly experience for assigned topics and

			subtopics including the conduct of the self-assessment activity itself. The lack of experience in some cases observed by SSO resulted in less-than-effective self-assessments being performed. For purposes of the PEP, those results have been reported under PO-10 since the Sandia S&S self-assessment is directly tied to contractor assurance.
7.2.1.1 Use integration of data, analysis and trending to identify risks and issues for effective and efficient management of the Security Program.	Good	Agree	SSO recognizes that Sandia has been effective at gathering compliance and performance data and has been attempting to establish an effective trending and analysis function within the S&S organization over the past couple of years; however, Sandia is still maturing in its ability to translate that data into information that will accurately characterize system performance through a combination of effective performance-based leading and lagging indicators and result-based metrics designed to measure system effectiveness all of which are capable of highlighting new and emerging risks and issues before they become problematic. In addition to the local performance assurance efforts, Sandia S&S has worked with SSO and NA-70 to establish an evaluation and performance assurance program that was deployed across the NNSA-in the fourth quarter of FY 2009. As part of this process, Sandia S&S volunteered to work with SSO and has conducted a series of beta tests regarding the Management Systems Assurance Program Report which provides a uniform method for reporting performance-related data to NA-70 quarterly. The results of the Beta test were accepted by NA-70 in October 2009 and the template and format used in the test has been adopted as the current standard.
7.2.1.2 Develop and execute to the documented Sandia Security Performance Improvement Initiative.	Unsatisfactory	Agree	During this performance period, the DOE Office of Enforcement conducted two separate visits to evaluate the Sandia regulatory compliance assurance programs. The OE reviewed Sandia S&S incidents of security concern, corrective action management, the self-assessment and the classified matter protection and control programs. In November 2008 during the first visit characterized as an Integrated Program Review, there were several strengths and weaknesses identified in each of these programs. Again in mid-August 2009, the OE conducted another onsite visit and evaluation of these same areas to consider what if any improvements Sandia had been able to accomplish. During the August visit the OE found inconsistent/inaccurate categorization of security incidents, lack of effective causal analysis and corrective actions for security incidents; lack of analyses of security incident data for trending purposes(the OE noted that Sandia has great data but doesn't effectively use the data for identification of trends); lack of accountability for personnel that are found to have violated CMPC requirements; and weakness in the self-assessment of the CMPC program (See PO-10 for details). In the end, OE evaluated Sandia's Safeguards and Security Performance Improvement Initiative's project plan and determined that while Sandia's intentions are

			worthy, there has been a lack of action taken (less than effective analysis of data) and to date the plan has not yielded the desired results. As noted in Performance Target 7.1.2.2 above, this project plan was also included in the FY 2009 S&S AIP as Goal 7. It was identified as the only AIP goal not successfully completed.
7.2.2 All security topical and sub-topical areas achieve a rating of Satisfactory as part of Sandia's self-assessment, SSO periodic survey program, or NNSA or DOE oversight inspections.	Good	Disagree Satisfactory	During FY 2009, Sandia and SSO both deployed an integrated "continuous" assessment schedule for SNL/NM that spanned the last three quarters of FY 2009. Snap-shot assessments were conducted at SNL/CA and SNL/TTR exclusive of each other in terms of SSO and Sandia assessment activities. There were no external oversight inspections of the Sandia S&S program at any of the Sandia sites or facilities during this performance period. Sandia S&S Self-Assessment Results: Although none of the topical elements of the SNL/NM program were rated less-than-satisfactory by the Sandia self-assessment program, Sandia did assign Marginal ratings in the following five subtopics: Incident Management and Reporting; Facility Approval and Registration Activities; Security Management in Contracting; Basic Requirements (Information security) and Operations Security (OPSEC). The SNL/CA self-assessment resulted in all Satisfactory ratings for the topics and subtopics evaluated. Sandia had originally planned to conduct a self-assessment at SNL/TTR early in the second quarter of FY 2009; however as a result of scheduling conflicts and timeline constraints in both the SSO and Sandia assessment schedule, the annual SSO assessment took precedence and a self-assessment at TTR was rescheduled for August 2009. Subsequently, Sandia has submitted a request for extension; however, the request for exception was submitted to SSO on September 8, 2009 after the rescheduled date had already passed thereby putting Sandia out of compliance for FY 2009 with regard to TTR. SSO S&S Assessment Results: The SSO assessments conducted this at SNL/NM, SNL/CA and SNL/TTR reflected the following: For SNL/NM: Excluding the Cyber Security Topic which is discussed separately as part of PO-9, there were seven subtopical ratings of Marginal assigned and only one topic was rated Marginal. The seven subtopics included Safeguards and Security Planning and Procedures; Incident Reporting and Management; Facility Approval and Registration of Activities; and Security Management in Contracting; (Program Management and Support); Basic Requirements and Operations Security (Information Protection); and Control of Classified Visits (Personnel Security Program). The Program Management and Support topical

			area is rated Marginal. The basis for the Marginal rating in this topic is largely related to the less-than-adequate performance in the Incident Reporting and Management subtopic and multiple subtopical Marginal ratings noted above. A composite rating of Satisfactory is assigned to the overall SNL/NM S&S Program. For SNL/CA: Excluding the Cyber Security Topic which is discussed separately as part of PO-9, there were six subtopical ratings of Marginal assigned and only one topic was rated Marginal. The six subtopics included Surveys and Self-Assessments (Program Management and Support); Security Management in Contracting (Program Management and Support); Access Controls (Physical Security); Intrusion Detection and Assessment Systems (Physical Security); Basic Requirements (Information Protection); and Control of Classified Visits (Personnel Security Program). The Physical Security topical area is rated Marginal. The basis for the Marginal rating in this topic is classified and cannot be elaborated on in this document. A composite rating of Satisfactory is assigned to the overall SNL/CA S&S Program. For TTR: Excluding the Cyber Security Topic which again is discussed separately as part of PO-9, only one subtopical ratings of Marginal was assigned and all Physical Security Program topical areas were rated Satisfactory. The one subtopical area to be assigned a Marginal rating was Management under the Protective Force topic. A composite rating of Satisfactory is assigned to the overall SNL/TTR S&S Program.
7.2.2.1 Protective Force Program topical area is rated Satisfactory.	Outstanding	Disagree Good	The Sandia PF program in general meets program objectives and most performance expectations; however, they continue to struggle with establishing effective formality of operations as evidenced by change control issues at SNL/NM and the lack of coordinated response to formal actions related to an Unintentional Discharge observed during this performance period. Additionally, PF management has made little progress on management succession planning and development. Given the historic turnover rate and expert-based system, succession planning and personnel development is critical to the continued success of the program. During PF assessment activities at the TTR site SSO observed performance difficulties associated with a poorly implemented change in PF duties resulting from the overall change in mission at TTR to a non-special nuclear material site which resulted in an SSO finding. There were no rating impacting or repeat findings issued against this topic during SSO's annual assessment activities.
7.2.2.2 Physical Security Program topical area is rated Satisfactory.	Outstanding	Disagree Satisfactory	Although the Physical Security Programs at SNL/NM and SNL/TTR were assigned Satisfactory ratings during this performance period, SNL/CA received a Marginal rating in this topic. Findings

			that led to the less-than-satisfactory rating are classified and cannot be elaborated on in this document.
7.2.2.3 Unclassified Visits and Assignments by Foreign Nationals topical area is rated Satisfactory.	Good	Agree	During this performance period, four incidents of security concern have been assessed in this program topic. This coupled with a repeat finding related to incomplete/inaccurate data in the foreign Access Central Tracking System (FACTS) indicate some room for improvement in this topical element.
7.2.2.4 Information Security Program topical area is rated Satisfactory.	Good	Disagree Good	Taking into full consideration the results of the visits conducted by OE and their observations of pieces of this overall topic, SSO disagrees with Sandia's assessment that "accomplishments in this area include successful classified workstation assessments by the CMPC program as well as corrective action plans (CAPs) and SIMP data analysis to improve classified protection processes." This statement is contrary to what the OE and SSO both observed with regard to the number, depth and breadth of Tier III line self-assessments, especially those related to CMPC. SSO also finds the statement regarding OPSEC that states "the SNL/NM program has not made any progress in addressing concerns identified during the last assessment that led to the marginal rating" concerning in that nowhere in the Sandia assessments is there a clear path forward and corrective action discussed. SSO will continue to monitor Sandia's actions to remedy this less-than-satisfactory program subtopic.
7.2.2.5 Personnel Security Program topical area is rated Satisfactory.	Good	Agree	Overall the Personnel Security topic is rated Satisfactory. However, while Sandia rated the Classified Visits subtopic as Satisfactory, through their self-assessment process, SSO disagreed and assigned a rating of Marginal through the SSO assessment process. The basis for this difference in rating resulted from the following. SSO shadowed the self-assessment for this particular subtopic and noted several observations in the assessment report that explain the differences in ratings. One significant contributor to this difference was that the self-assessment team did not present all of the issues and concerns noted during the self-assessment activity to the Quality Review Board. As a result, SSO identified the deficiencies that the team omitted thus resulting in the less-than-satisfactory rating. The other three remaining subtopics were assigned Satisfactory ratings. Sandia has undertaken a lab-wide initiative to begin reducing the numbers of clearances (Q and L). To date the reduction effort has yielded minimal results but an increase is expected throughout FY 2010. SSO will continue to monitor Sandia's progress with respect to this initiative.
7.2.2.6 Materials Control & Accountability topical area is rated Satisfactory.	Outstanding	Agree	There have been two separate incidents involving the shipment of nuclear materials from Sandia sites in the past couple of months, and it was determined that the Materials Control & Accountability (MC&A) program practices and procedures were not at fault.

			Instead, the series of MC&A checks and balances caused the anomalies to be noticed. Additionally, during this performance period in support of mission-related activities, the Sandia MC&A staff has been actively engaged in discussions with SSO and LANL regarding the movement, storage, termination of safeguards and final disposition of materials associated with the LANL Pu-ICE experiments being planned for 2010 and beyond.
7.2.2.7 Program Management topical area is rated Satisfactory.	Good	Disagree Unsatisfactory	As noted above in Performance Target 7.2.2 above, several subtopics in this topical element alone were rated Marginal during this performance period. The overall topical rating was also determined to be Marginal.

Performance Measure 7.3

Plan for a site Security "footprint" and capacity requirements to meet the Complex Transformation preferred alternative. (*DNS Goal 3: Complex Transformation)*

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
7.3.1 Develop integrated facility/system improvement/replacement plan for input into the TYSP (Maintenance of Building 872.	Outstanding	Agree	
7.3.2 iPASS Redevelopment Project - Complete project related tasks and activities in accordance with approved Project Plans and schedule.	Good	Agree	
7.3.3 Effectively transition to a Threat Level 3 site with Threat Level 4 protection requirements applied in accordance with the 2005 DBT policy.	Outstanding	Agree	Sandia has effectively transitioned the entire S&S program at SNL/NM in accordance with this target. Sandia continues to work on updating security documentations including plans and procedures to accurately capture the changes in the overall security posture that reflect the Threat Level 4 requirements. At TTR; however, SSO noted during performance tests conducted as part of the SSO annual assessment that the TTR protective force had some issues during the transition from a Category I protection posture to a Threat Level 4 posture for TTR. During limited scope performance tests it became clear that the TTR PF were unsure as to how to correctly respond to routine alarm events. This misstep clearly reflected an ineffective transition of the TTR PF from an "offensive" strategy previously deployed to the current strategy used to meet Threat Level 4 requirements.

Performance Measure 7.4

Counterintelligence Program - Detect, deter, and mitigate Foreign Intelligence collections and espionage efforts and international terrorists' threats against NNSA personnel, classified and other sensitive programs, and information architecture. (SSO-4)

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
7.4.1 Counterintelligence Training and Awareness Program – Provide a counterintelligence training and awareness program that will assist personnel with their understanding of the general risks posed by foreign intelligence services and international terrorist organizations.	Outstanding	Agree	
7.4.2 Counterintelligence Investigations Program – Implement and manage an effective counterintelligence investigations program that addresses the latest specific threats through the investigation and assessment of any suspicious activities that may occur during contacts between NNSA employees and persons from sensitive countries or international terrorist organizations.	Outstanding	Agree	
7.4.3 Counterintelligence Information and Special Technologies Program – Implement and manage a counterintelligence information and special technologies program capable of identifying and mitigating cyber-based threats against NNSA.	Outstanding	Agree	
7.4.4 Counterintelligence Analysis Program – Provide a counter-intelligence analysis program capability that can effectively analyze, compile and provide appropriate threat information to senior leadership in NNSA, Department of Homeland Security and other elements of the U.S. intelligence community.	Outstanding	Agree	

Other Considerations

None

PERFORMANCE OBJECTIVE 8 – Environmental, Safety and Health (ES&H) and Fire Protection Programs - Essential

Sandia will manage and operate its environmental, safety, and health and fire protection functions in an efficient and cost effective manner through the utilization of the Integrated Laboratory Management System (ILMS) and the Contractor Assurance System (CAS) to fully support successful accomplishment of mission, while protecting the public, the worker, the environment, and national security assets in accordance with the terms and conditions of the contract.

Adjectival Rating
GOOD

Summary of Performance

This Objective contains a measure for ISM having sixteen targets, and a measure for Fire Protection having seven targets. Of the twenty-three targets, seven are rated as Outstanding nine rated as Good, six rated as Satisfactory, and one rated as Unsatisfactory. Overall performance is considered as Good.

Safety performance measures at Sandia have improved this year. Sandia has improved their Days Away Restricted Transferred Case Rate (DART) and the Total Recordable Case Rate (TCRC). TRCR was 2.5 in FY 2005, 1.9 in FY 2007, and is now 1.4 in FY 2009. DART was 1.4 in FY 2005, .9 in FY 2007, and is now .4 in FY 2009. Electrical safety also improved, with a reduction of reportable electrical occurrences from 22 last year to 4 this year and a reduction in the overall severity of the events from 26.3 last year to 7.6 this year.

Sandia issued a new ES&H Manual Chapter 23, Contracted Activities, which should drive desired flowdown and oversight activity and if/when effectively implemented should yield positive results. While there were fewer Occurrence Reporting Processing System (ORPS) and Computerized Accident/Incident Reporting System (CAIRS) events at Sandia in FY 2009 in general, it was not clearly established that flowdown of requirements or oversight of subcontractors have contributed to it nor was a case for exceeding expectations in reduced incidents provided. Late in FY 2009, SSO assessed and identified that oversight of Service Repair and Warranty (SRW) contractors was not substantially improved or even evident in some cases, which would not meet expectations. Flowdown of requirement especially with SRW subcontractors is lacking.

Sandia achieved Environmental certification of ISO 14001 in New Mexico and recertification in California. The New Mexico Environment Department conducted a no-notice hazardous waste Compliance Evaluation Inspection of Environmental Programs and Assurance in January 2009 with no findings or violations for the second consecutive year. However SNL/CA continued to receive violations (2 for FY 2009) for exceeding standards on its waste water discharges and Sandia has had problems in meeting the regulatory requirements in other environmental areas as well which are detailed in 8.1.3 and 8.1.4.

Sandia Fire Protection has made improvements over the year. Some accomplishments are not captured by the FY 2009 PEAR. These accomplishments include the performance of the Baseline Needs Assessment of emergency response, along with the follow-on National Fire Protection Association (NFPA) 1500 Evaluation of Occupational Safety and Health for emergency responders, and a Master Plan to prioritize and budget resources for responding to gaps noted by both the Baseline Needs Assessment and the NFPA 1500 Evaluation. Sandia Fire Protection also sponsored a successful Annual DOE Fire Safety and Emergency Services Workshop this year. SSO noted that the overall program health of Fire Protection has improved this year.

Significant Accomplishments

The DART and the Total Recordable Case Rate (TCRC) continue to decrease. TRCR was 2.5 in FY 2005, 1.9 in FY 2007, and is now 1.4 in FY 2009. DART was 1.4 in FY 2005, .9 in FY 2007, and is now .4 in FY 2009. Sandia's FY 2009 DART CR and TRCR were below the NNSA average.

Electrical Safety (ES) performance continues to improve. Significant reduction in electrical incidents and severity of incidents since last year. The formality attached to the line-embedded Electrical Safety Advisors (ESA) program, attention to communication, tracking and trending of issues and use performance metrics, with improvement plans, are lauded as having an impact.

Sandia issued new a corporate process and procedure for Activity Level WP&C and, working to gain lab wide acceptance, took multiple and diverse actions to communicate the expectations and requirements. Assistance Teams worked with implementing organizations to improve their organization-specific process descriptions and procedures to ensure these met corporate requirements.

Sandia achieved Environmental certification of ISO 14001 in New Mexico and recertification in California.

Sandia created a new AP-241, "Integration of Documented Safety Analyses and Fire Hazards Analyses" procedure (WFS992666), which defines a more structured approach to achieving integration. This new AP is jointly approved by both Fire Protection and Safety Basis management to formalize the integration process

Sandia completed the Site Fire Alarm Upgrade by the end of FY 2009. The original project was designed and budgeted to be completed with FIRP funds, which ran out two years ago. Sandia senior management found and applied the resources to complete this site-wide project by the end of FY 2009.

Opportunity for Improvement

Safety Culture - As identified by the Executive Safety Board Review, Sandia has not fully demonstrated the attributes of a Learning Organization and the FY 2010 PEP includes an incentive for Sandia to pursue means to improve its workforce awareness and engagement in identifying organizational latent weaknesses and error precursors. Sandia has not yet institutionalized the use of HPI tools to further improve system safety. Additional details are discussed in PI4

Line Implementation of Work Planning & Control – With the issuance of corporate WP&C processes and procedures Sandia has set the stage to establish effective activity level hazard identification, analysis and control. As indicated in the PEAR, operational events continue to occur for a variety of reasons associated with lack of awareness which may not be resolved by procedure if implementing organizations are blind to their gaps or weaknesses and overly reliant on skill of worker s substitute for complete hazard analysis and control. Discussion on this point related to the Rocket Sled Track incident is in PO6.

Subcontractor Oversight – With the issuance of ESH Manual Chapter 23 Sandia has set the stage to establish effective oversight of subcontracted activity. Sandia has yet to demonstrate that effective oversight is occurring in all types of contracted activities and to demonstrated effectiveness in reducing incidents that would be attributed to incomplete flowdown or execution of requirements.

Electrical Safety Program – While Electrical Safety has improved this year, continued effort for configuration management of the Sandia single-line diagram of distribution and transmission systems is encouraged. Sandia is encouraged to continue safety oversight of line-directed electrical work and continue to provide corporate training and qualification process for Sandia employees and subcontractors performing electrical work.

Environmental Compliance – Sandia needs to determine the cause for the SNL/CA violations and implement all corrective actions identified to date. Sandia also needs to improve meeting the National Pollution Discharge Elimination System Permit requirements including timeliness of inspections, certifications and permit coverage and in following SSO National Environmental Policy Act processes.

Performance Measure 8.1

The Sandia Integrated Safety Management System (ISMS) is comprehensive and effectively implemented using the ILMS by all line organizations to ensure worker safety, safety of the public, protection of the environment and mission success.			
		SSO Rating:	
Performance Target	**Sandia Self-Assessment Rating**	**NNSA Agreement**	**Comments**
8.1.1. Implement Long-Term Stewardship (LTS) Annual Work Plan and Long-Term Environmental Stewardship (LTES) Program Plan. Changes will be controlled through change control board.	Outstanding	Agree	Agree with discussion in PEAR. Particular accomplishments that significantly exceeded expectations include the creation of Operational Area Environmental Evaluations for Sandia's operational areas. These documents will help with site planning by showing areas with environmental concerns or sensitivities. The number of required Institutional Controls Site Inspections was exceeded by 50%. The LTES Program also worked toward enhancing life-cycle management. A draft Life-cycle Management Order was prepared in partnership between Sandia and NNSA/SSO. A Life-cycle Management Cost Accounting proposal was also drafted by the LTES Program for submittal to NNSA/HQ to address a new accounting system for environmental cleanup.
8.1.2 Achieve and maintain third party International Organization for Standardization (ISO) 14001 certification for Sandia Environmental programs at SNL/New Mexico.	Outstanding	Agree	Agree with discussion in PEAR. The requirement of DOE Order 450.1A for Environmental Management System (EMS) is to be 'fully implemented' by June 30, 2009. Sandia elected to seek ISO14001 certification as a means to certify via 3rd party that this requirement was met, although ISO certification is not required by the Order. BSI Management Systems conducted the ISO14001 Stage II audit during the week of May 11, 2009. Four auditors conducted over 45 interviews and facility visits across the site to obtain objective evidence that Sandia/New Mexico's EMS met the requirements of the standard. The audit identified minor non-conformances which required submission of a root cause analysis and corrective action plans. Sandia completed the ISO 14001 certification process including approval of the corrective action plans months ahead of the satisfactory target date of September 30, 2009. Sandia/California also accomplished recertification.
8.1.3 Meet the regulatory requirements of Storm Water Permits.	Satisfactory	Disagree Unsatisfactory	The original purpose for this Target was to address problems with Sandia meeting all the CGP requirements. Based on the metrics Sandia developed for this target and presented to SSO, Sandia should have rated themselves Unsatisfactory. "More than two noted deficiencies in the required inspection reports per program/project per FY." In addition per the 2008 EPA Construction General Permit, Sandia must conduct inspections at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. These inspections must be signed and certified by a responsible corporate official. Review of the inspection reports indicate that most of the inspections reports have not been certified in a timely manner. In reviewing ILMS this was noted by Sandia

			(Org 4133) as a significant finding in 2009. For the Construction General Permit (CGP) permits that require both SSO and Sandia certifications zero have been returned to SSO for certification. The process is that SSO certifies after Sandia completes there certification. The PEAR Path forward addresses the delayed certifications only and not the initial summary target of timeliness of inspections.
8.1.4 No issued Notices of Violation and ensure environmental regulatory compliance as part of evaluating Milestone 3249.	Good	Disagree Satisfactory	In FY 2009, Sandia/California received two violations, for exceeding standards on its waste water discharge and another excedence occurred on September 8, and a third violation is anticipated. Although several corrective actions have been completed, the regulator has yet to issue a return to compliance based on the previous violations. In addition Sandia had several areas of environmental non-compliance identified by SSO in FY 2009, see the following examples. In the August 2008 timeframe, a 30m mobile meteorological tower was placed by SNL/NM at the East Anchor of the Aerial Cable Site on Kirtland Air Force Base (KAFB). A NEPA SME reviewed the project and made the decision that this action was covered under existing NEPA documentation. However, NEPA SNA04-0376, provided SSO determination that Sandia can approve 10 meter towers with no anchors without further SSO review. However, this example exceeded the height and stabilization requirements. Sandia had earlier submitted an Air Force 813 form (NEPA Checklist) for the placement of a 50M anemometer tower at another location on Air Force land. The Air Force required a consultation with US Fish and Wildlife. The tower placement still has not been approved by the Air Force for the 50M tower. In the mean time, Sandia placed a 30m tower at the cable site on Air Force land without submitting another Air Force 813 form. SSO requested that the tower be removed. The 30m tower was removed a few months later. In 1997 SSO categorically excluded the placement of ordnance mines in TA-III at SNL/NM. In the checklist Sandia committed to removing the mines at the end of the project in 2000. The mines are still in place and no documentation has been located that changes the original commitment to remove the mines in 2000. Unauthorized discharge of SNL/CA wastewater and off-site car wash wastewater to SNL/CA sewer system. SSO discovery that SNL/TTR was operating outside time allowed in their permit. As a result, SNL/NM issued a stop work for the project until proper permits were obtained. Sandia and SSO worked with the State of Nevada for resolution and no violations were issued. SSO discovered for the Liquid Natural Gas (LNG) burn that Sandia's contractor performing the work had not obtained the proper CGP permits. Permits

			were obtained prior to the burn but after the land disturbance had already occurred. The Satisfactory rating is based on the fact that the two SNL/CA violations and the environmental events could have been avoided and indicate that improvements are needed in the environmental area. SSO however is pleased that there were no NMED Hazardous Waste violations for the 2nd year in a row.
8.1.5 Develop and monitor key Work Planning and Control (WP&C) performance indicators. Baseline current level of process and implementation effectiveness at the Center level at a minimum. Identify and share lessons learned, develop and implement actions and demonstrate continuous improvement.	Outstanding	Disagree Good	The HS-64 Finding concerning WP&C stressed that Sandia had not provided adequate corporate guidance in Activity Level WP&C processes and procedures. The HS-64 CAP extends beyond FY 2009. In FY 2009, Sandia improved the corporate process and procedure and took action to communicate the requirements and expectations. Sandia continued to refine and simply processes and procedures to gain site wide acceptance. This effort by Organization 4000 to gain site wide acceptance and assist line organizations exceeds the standard of performance in many areas. The Assistant Teams efforts to work with line organizations to communicate requirements, expectations, and share lessons learned is considered to be Good. Sandia has yet to demonstrate continuous improvement in implementation by line organizations that would significantly exceed expectations. The impact of a revised corporate process and procedure on performance in implementing organizations will require time as they only recently became effective as requirements.
8.1.6 Demonstrate implementation of the Industrial Facility Safety Basis process.	Outstanding	Disagree Good	The target had focused on the process to effectively assure safety basis was in place for moderate facilities and accelerators. Performance was not without issue (e.g. first large scale LNG test classification) but Sandia met expectations and exceeded in terms of providing substantial support in ID016 related resumption of activities at Sandia.
8.1.7 Implement corporate required training accountability process to improve ES&H training compliance rate and close corporate issue (#34).	Outstanding	Agree	Sandia actions addressed longstanding corporate issue. Training accountability system made timely substantial process in improving training compliance rate. Actions included an accountability component that was previously missing. Improved rates were sustained through FY 2009.
8.1.8 Execute a formal critique process for unplanned ES&H events (occurrences and NOTES). The process defines thresholds for involvement of Sandia management at various levels (e.g., Level I, Level II, Director, and Vice President).	Outstanding	Disagree Satisfactory	Sandia performed 83% of critiques within two days of categorization (85% within three days, and over 95% within 5 days). For 'Outstanding', over 90% should have been conducted with 2 days. While the process is formal and involvement thresholds defined for management, SSO observed some critiques where employees that were involved in the event were not included in the critique meetings.
8.1.9 Demonstrate ES&H continual improvement by monitoring, analyzing and learning from ES&H performance indicators including but not limited to Occurrence	Outstanding	Disagree Good	Sandia has performed trending of occurrence reports and Non-Occurrence Trackable Event (NOTES) for a number of years. The first few years Sandia utilized statistical analysis and trending codes taken from the DOE causal analysis tree. In the last 15 months,

Reporting Processing System (ORPS), Notes and Near Miss Reports.			Sandia has changed their trending methodology and now utilize Human Performance Improvement codes along with statistical analysis to develop their quarterly performance analysis reports. The development and the quality of the quarterly performance analysis reports are good. Within the past year, a charter has been developed for the ES&H Council to state their roles and responsibilities. They are responsible for reviewing the Quarterly Performance Analysis (QPA) report and taking any necessary action on any identified trends. Sandia needs to take further proactive initiatives to strengthen the ES&H council by taking actions on identified trends rather than putting them on a 'watch list' to monitor if the trend continues or changes.
8.1.10 Timeliness of Occurrence Reports meets DOE Order requirements.	Outstanding	Disagree Good	According to FY 2009 DOE FR data, Sandia performed timely categorization 81.8%. Sandia's analysis resulted in 84.9% for timely categorization. While there is some variation in analysis between SSO and Sandia, the performance does not equate to Outstanding.
8.1.11 Improve the Days Away, Restricted, or Transferred Case Rate (DART-CR) to meet the NNSA average.	Outstanding	Agree	DART has improved over the last year. DART was 1.45 in FY 2005, .9 in FY 2007, and is now .44 in FY 2009.
8.1.12 Improve the Total Recordable Case Rate (TRCR) to meet the NNSA average as part of evaluating Milestone 3250.	Good	Agree	TRC improved over the last FY. TRCR was 2.5 in FY 2005, 1.9 in FY 2007, and is now 1.4 in FY 2009.
8.1.13 Reduce the number of electrical incidents that have the possibility of serious or fatal injury for Sandia employees and/or contractors.	Outstanding	Agree	In FY 2007, Sandia had 18 electrical safety incidents, in FY 2008 there were 14, and in FY 2009 Sandia had 3. While Electrical Safety has improved this year, continued effort for configuration management of the Sandia single-line diagram of distribution and transmission systems is encouraged. Sandia is encouraged to continue safety oversight of line-directed electrical work and continue to provide corporate training and qualification process for Sandia employees and subcontractors performing electrical work.
8.1.14 10 Code of Federal Regulation (CFR) 835 Project Plan, Rev 1 dated 3/28/08, is implemented on schedule.	Outstanding	Agree	The project plan is being met consistent with plan. In addition, Sandia radiation protection has monitored the plan and changed strategies based on lessons learned. Effective communications has been targeted to educate line organization which will be impacted by changes to sealed source requirements/neutron doses. Quarterly meeting track progress which in general has been ahead of schedule. Sandia is on track for implementation of the revised 10CFR835.
8.1.15 Improvements to requirements flowdown and oversight of effective subcontractor execution yield a reduction of	Good	Disagree Satisfactory	The target had focused on both the flowdown and the oversight of subcontractors, including Service Repair and Warranty (SRW) contractors. Sandia issued a new ES&H Manual Chapter 23, Contracted Activities, which should drive desired flowdown and oversight

subcontractor incidents from the most recent fiscal year data.			activity and if/when effectively implemented should yield positive results. While there were fewer ORPS and CAIRS events at Sandia in FY 2009 in general, it was not clearly established that flowdown of requirements or oversight of subcontractors had contributed to it nor was a case for exceeding expectations in reduced incidents provided. Late in FY 2009, SSO assessed and identified that oversight of SRW contractors was not substantially improved or even evident in some cases, which would not meet expectations. In aggregate, the target is rated as "satisfactory". Flowdown of requirement especially with SRW subcontractors is lacking.
8.1.16 Sandia Divisions with the highest numbers of recordable injury cases in FY 2008 (e.g. 1000, 2000, 3000, 4000, and 5000) benchmark peers to reduce injuries without compromising integrity of reporting.	Outstanding	Disagree Satisfactory	Benchmarking activities resulted in creation of the Division Operation Coordinators' Council as a forum to share information, sharing information on the Division Coordinator's SharePoint site, development of a "Moving with Safety in Mind" one page handout that Sandia provides to Members of the Workforce before office moves, and development of the Ergonomic Injury Reduction Initiative. Ergonomic injuries were the leading cause of workplace injuries in Divisions 2000, 5000, 10000, and 12000. Additionally, Division 1000 conducted external benchmarking of the TempurPedic production facility in Albuquerque. Organization 5000 has shown significant improvement from last year (TRC from 2.06 to 0.63, and DART from 0.54 to 0.13). The TRC and DART data for Organizations 3000, 4000, and 10000 indicate improvement since FY 2008, but these three organizations continue to be above Sandia institutional averages (for FY 2008 and FY 2009).

Performance Measure 8.2			
Sandia's Fire Protection Program is effective, efficient, and has a management system in place to demonstrate compliance. ***NNSA Rating: Good***			
Performance Target	**Sandia Self-Assessment Rating**	**SSO Agreement**	**Comments**

8.2.1 Sandia develops a certificate of occupancy process in compliance with the applicable building code.	Outstanding	Disagree Satisfactory	SSO agrees with the FY 2009 PEAR that this year Sandia has developed a Certificate of Occupancy (COO) process that addresses both new and existing facilities. Sandia has begun to prototype the process on some selected construction projects (e.g., Ion Beam Laboratory). The COO process has been integrated into the project delivery system for both Sandia in New Mexico and California. The California Sandia model will serve as a guide for executing projects at other remote sites. These checklists will standardize the building-code-required plans examination and construction inspections that support the issuance of a COO. SSO agrees with the FY 2009 PEAR that Sandia has made significant progress this year in approach and deployment. Sandia has developed an archiving system using the corporate Web File Share (WFS) system. This information management system will be the repository for all COOs. In addition, AP-230 defines how Sandia maintains the COO for existing buildings. But before this process can be approved by DOE (and authority delegated), Sandia will need to factor COO maintenance by Site Fire Marshal into the COO process that has already been developed.
8.2.2 Sandia has a fire protection program implemented that demonstrates compliance with DOE fire protection requirements.	Outstanding	Disagree Good	SSO agrees with the FY 2009 PEAR that Sandia has updated the Corporate Fire Protection Program (CFPP) document (WFS275691) to better align it with DOE Order 420.1B and to align with other internal Sandia changes to the ES&H Manual but disagrees that Sandia's fire protection program has demonstrated "outstanding" compliance with contract requirements over the course of the whole year NNSA Chief of Defense Nuclear Safety (CDNS) rated Sandia's fire protection program as not meeting DOE expectations in December 2008. Corrective actions were developed to address the CDNS finding and rating. Of positive note was the initiative by Sandia to host the Annual DOE Fire Safety and Emergency Services Workshop in June 2009.
8.2.3 Sandia updates nuclear facility Fire Hazards Analyses following the model used by the Manzano Nuclear Facilities Fire Hazard Analysis (MNF FHA).	Outstanding	Disagree Good	SSO agrees with the FY 2009 PEAR that Sandia has been following the Manzano Nuclear Facility (MNF) model to update all nuclear facility FHAs in FY 2009. Although DOE Order 420.1B only requires the FHA to be updated every three years, Sandia will update the nuclear facility FHAs every year to align with the annual update cycle of the documented safety analyses (DSAs). A list of these FHAs are available in WebFileShare: WFS945461. In addition, Sandia is performing annual code compliance assessments via the AP-230 procedure, to

			ensure code deficiencies are captured in the same way throughout the site. These activities allow Sandia to evaluate systemic issues regarding code compliance and deals with issues separately from safety basis issues that the FHA addresses. Sandia created a new AP-241, "Integration of Documented Safety Analyses and Fire Hazards Analyses" procedure (WFS992666), which defines a more structured approach to achieving integration. This new AP is jointly approved by both Fire Protection and Safety Basis management to formalize the integration process. While there were no significant revisions, all of the nuclear facility FHAs were revised this year. In addition, Sandia took a major step this year to integrate the FHA with facility safety analyses by instituting an integration process (AP-241, Rev.1, "Integration of DSAs and FHAs Admin. Proc), which worked well during the AHCF BIO review. These improvements to the process are considered "good" –not "outstanding"—since the process application is still new. This new process will require some time to mature with trending of results.
8.2.4 Sandia maintains access to an adequate number of fire protection engineering staff who meet the qualification and training standards defined in DOE-STD-1066-99.	Outstanding	Disagree Good	SSO agrees with the FY 2009 PEAR that Sandia updated its fire protection staffing analysis in FY 2009. Sandia lost one staff position this year, but otherwise was able to retain all staff from last year and added some additional matrix support (see PO 8.2.2, above) to address staffing needs. In addition, the staffing analysis indicates that an additional fire protection engineer (FPE) is needed to fully implement the fire protection program. Sandia has an external job posting to acquire this needed additional resource. Sandia retains contract FPE support to address new requirements, special studies, or fluctuations in workload due to unplanned events. Sandia also is pursuing a new hire under the Special Masters Fellowship Program. This program will hire a new BS engineering graduate and send him or her to obtain a MS in fire protection engineering. This new hire will be mentored by current staff to bolster succession planning. However, according to the revised staffing analysis, Fire Marshal tasks overburden present staff.
8.2.5 Sandia will meet the plan and schedule to upgrade site-wide fire alarm panels. The plan and schedule must be approved by SSO. The schedule will be maintained under formal change control requiring SSO approval for any changes. Performance will be measured by adherence to the approved schedule.	Outstanding	Agree	SSO agrees with the FY 2009 PEAR that Sandia completed the Site Fire Alarm Upgrade by the end of FY 2009. The original project was designed and budgeted to be completed with FIRP funds, which ran out two years ago. The reason SSO rates performance on this target as "outstanding" is because Sandia senior management found and applied the resources to complete this site-wide project by the end of FY 2009.
8.2.6 Sandia will develop performance indicators (leading and lagging) to measure the state of health of the fire protection program by the 1st Quarter of FY 2009, monitor and improve	Outstanding	Disagree Good	SSO agrees with the FY 2009 PEAR that Sandia has developed a set of metrics (WFS936054) to help manage the fire protection program. Examples include: - maintenance workload backlog (WFS945145) - fire alarm system events analysis (WFS945937) and

performance throughout the year.			event report (WFS945936) - 2008 annual fire loss data (WFS948437); 2006-2008 data (WFS948440) - scheduling of FPAs and associated deficiencies (WFS945901) - monitoring of fire department response times to ensure they are within BNA requirements. The development of these indicators is considered Good. Additional indicators will be developed in the future.
8.2.7 Sandia will develop a plan and schedule to achieve compliance with life safety requirements for Vault Type Rooms	Outstanding	Disagree Satisfactory	SSO agrees with the FY 2009 PEAR that Sandia performed a site-wide analysis this year of all locksets and doors for Vault Type Rooms (VTRs) and SCIFs and delivered a plan to SSO via a letter dated April 17, 2009. In this letter Sandia identified the VTRs that were compliant and requested an exemption against replacing most of the non-compliant VTR locksets, as the cost of replacement is very high. Sandia also decided to replace those locksets on facilities performing explosive operations as the analysis indicated benefit could be realized in certain accident scenarios. SSO has seen the life-safety-compliant locksets installed in new construction, however the equivalency request for the locksets on nine VTR doors in explosives storage has not yet been submitted. The analysis found 66 VTRs compliant. The highest risk operations in 11 VTRs involve use or handling of explosives. These 11 will be upgraded to the compliant locksets over the next two years. Of the remaining 333 locks/door (166 VTRs and 167 SCIFS), SSO has not responded to Sandia's request for an exemption.

Other Considerations

The WFO electronic process is lacking in detail and accuracy (inactive, out of date PHS (Primary Hazard Screen) references, incomplete information, etc.) It is not clear if the WFO proposals received by SSO were subject to QA checks to ensure hazard categorization is consistent with the current PHS (e.g. Business Occupancy hazard class is referenced in the proposal where PHS hazard is categorizes as low non nuclear hazard.

PERFORMANCE INCENTIVE 2 – Quality Assurance – Stretch

Sandia must demonstrate by documented objective evidence that the Quality Management Systems (QMS) meet applicable quality requirements. (QC-1, DOE Order 414.1C, Quality Assurance). A focus on quality performance is the main highlight of this performance objective and will be demonstrated through a collection of objective measures that will include: Sandia and SSO assessments of effectiveness/performance to requirements.

Adjectival Rating – GOOD

Summary of Performance

Overall Sandia Quality Assurance Performance is higher than FY 2008. Improvements were often negated by issues that demonstrate gaps continue to exist and the Quality Management System (QMS) is not nearly as mature as it could be.

Significant Accomplishments

Overall performance was greatly helped in the following areas:

- Sandia's management involvement on QA issues that led to many improvements in communication and participation of Senior QA Technical Experts , major move to a policy of prevention instead of detection, major movement to developing a challenge path important for QER evaluations and other product realization activities,
- Quality Assurance Survey (QAS) 2 response for Sandia Conditional QERs at Pantex (PX) had excellent acceptance of the Finding by Sandia, excellent causal analysis and corrective action plan and was quickly accepted by SSO and HQ QA,
- Senior QA Technical Leadership/Expertise assistance to Sandia Management, Weapons QA program, and many other serious QMS gaps,
- Senior QA Technical Leadership/Expertise used to understand and resolve many QA issues for Concurrent Design and Manufacturing (CDM) and IG, Sandia's self assessment, and additional training efforts.

Opportunity for Improvement

Quality Assurance Opportunities for Improvement include:

- Many near misses in weapons quality assurance and many issues worked informally,
- Sandia's overall entity possessing responsibilities and authority to address non-weapons and weapons QMS is non-existent and prevents aggressive and integrated QMS improvements to both processes,
- Causal analysis continue to be inadequate,
- Independent assessments to focus on prevention and issues early not fully implemented,
- Corrective action plans that solve the systemic issues and prevent recurrence not effective,
- Acceptance of findings is a continuing issue,
- Sandia use of Quality Subject Matter Expert (SME) Professionals with extensive experience in the Nuclear Weapons product realization processes is needed to improve Sandia QMS gaps between corporate processes and the line, and
- Lockheed Martin Corporation (LMC) recommendations are consistent with SSO recommendations although Sandia has not fully embraced and implemented the full intent.

Performance Measure 2.1

Sandia will significantly reduce the number of systemic and repeat findings associated with the Nuclear Weapons Quality Program with documented objective evidence demonstrating their performance against QC-1 requirements including Product Realization activities. Significant performance improvements are expected in FY 2009 resulting from 1) causal analysis and corrective actions identified in FY 2008 as the result of the SSO Quality Assurance System (QAS) and Inspector General (IG) Supplier Management

Reports and 2) Realize Product Sub-System implementation (RPSS).

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
2.1.1 Sandia is expected to reduce escapes for nuclear weapon products manufactured by Sandia or procured from commercial vendors through the Concurrent Design and Manufacturing (CDM) Program that are delivered beginning in FY 2009, with the goal of having zero escapes during FY 2009. Escapes that are identified as having a cause that could not have been precluded in the product realization and assurance processes will not be counted. Escapes are defined as products that have to be screened or evaluated after product acceptance due to suspected quality problems. Examples of escapes that have occurred in the past include the missing screw in a neutron generator assembly, the QE lot of the detonators, and the W76-1 ASICs. Sandia will baseline FY 2008 and present FY 2008 and FY 2009 data on a quarterly basis beginning with the first JPC meeting in January 20, 2009.	Outstanding	Disagree Good	Sandia reduced the number of escapes from five to three but did not substantially reduce the number of escapes.
2.1.2 Sandia is expected to improve first-time product acceptance rates with a goal of 100% through reducing both pre-acceptance and Sandia acceptance defects. Sandia will establish processes to measure and review Sandia pre-acceptances with the goal of reducing acceptance issues each quarter. Sandia will baseline FY2008 and present FY 2008 and FY 2009 data on a quarterly basis beginning with the first JPC meeting in January 20, 2009.	Outstanding	Agree	Sandia acceptance rates to SSO were maintained at 100% and the average number of defects for pre-acceptance and Sandia final acceptance improved. The Sandia acceptance rate improved from 74% to 98%. However, Sandia should have begun to eliminate pre-acceptances which were a compensatory arrangement that began in FY 2008 due to numerous supplier management issues by Sandia.

2.1.3 Sandia is expected to improve the clarity and adequacy of change descriptions and justifications in its Engineering Authorizations (EAs). Sandia will establish a process for monitoring the clarity and adequacy of justifications for design changes (the why) as well as the descriptions of the changes (the what). The goal is to establish baseline metrics for FY 2008 by reviewing all Advance Change Orders (ACOs), Final Change Orders (FCOs) and Specification Exception Releases (SXRs) for the MC4368A and the MC4368B Neutron Generator Sub-Assemblies (NGSA) in the NG Production Program and by reviewing a statistically valid sample of ACOs, FCOs, and SXRs across the active CDM Production Program component population. In addition Sandia will establish a process to bin the justifications (the "whys" for the changes and exceptions) for the purpose of detecting patterns indicating recurring problems or common root causes. These metrics will be tracked on a quarterly basis in FY 2009 and compared to the FY 2008 baseline with a goal of a decreasing trend in the number of Engineering Authorizations (EAs) with unclear and inadequate change descriptions and justifications.	Outstanding	Disagree Good	Sandia has made improvement in the EA changes. Clarity and adequacy of justifications improved in FY 2009 by 17% for ACOs, by 38% for FCOs, and by 47% for SXRs, compared to their respective FY 2008 baselines. However, many of the Engineering Authorization changes throughout the year continue to require discussions by SSO WQ with the Sandia Design Agency (DA) and Production Agency (PA) organizations to understand the technical path taken along with any associated corrective actions. The number of discussions with the DA and PA organizations did not decrease significantly because the EA documentation did not stand on its own.

2.1.4 The SSO will validate the effectiveness of processes by which Sandia realizes nuclear weapon product(s) through the SSO QAS and Quality Assurance Inspection Plan activities, and expects that there will be no repeat findings as compared to FY 2008 and no findings that disrupt production more than 5 days. Sandia is expected to have a Nuclear Weapons QMS that is robust and consistently demonstrates 1) effective self-assessments (find issues), 2) effective corrective action management (identify causes and correct the issues) and 3) effective performance assurance (verifies fixes are working).	Good	Disagree Satisfactory	SSO agrees that improvement in this area was made. Overall performance here was greatly helped by the following areas: 1) Sandia's management involvement on QA issues that led to many improvements in communication and participation of senior QA Technical Experts, major move to a policy of prevention instead of detection, major movement to developing a challenge path important for QER evaluations and other product realization activities, 2) QAS 2 response for Sandia Conditional QERs at PX had excellent acceptance of the Finding by Sandia, excellent causal analysis and corrective action plan and was quickly accepted by SSO and HQ QA, 3) Senior QA Technical Leadership/Expertise assistance to Sandia Management, Weapons QA program, and many other serious NWSMU QMS gaps, 4) Senior QA Technical Leadership/Expertise used to understand and resolve many QA issues for CDM and IG, 5) Sandia's self assessment, and 6) additional training efforts. However, the Sandia PEAR did not include SSO rejection of two Sandia responses to two QAS 3.0s for the Glass Ceramic Header and MC4379 Lot 1. SSO also rejected informally the Sandia IG response. Sandia identified one FY 2009 repeat QAS finding. However, the PEAR minimizes the repeat as only a timing issue where a self-assessment had not completed a report. Sandia continues to resist accepting external assessments/surveys/audits, issues and/or minimizing these issues. In general, SSO still sees QMS gaps and weaknesses with inadequate causal analysis, corrective action and technical justification on engineering releases for components such as timers, detonators and neutron generators. Failure to indicate timely closure of corrective actions or the corrective action is unclearly stated, lacking details, or too narrow in scope indicates improvements are needed with the Sandia QMS. Still see discrepancies in vendor assurance systems where nonconforming items (such as dimensional requirements of piece parts) are passed, missed by pre-acceptance and only found by the last line of defense, Sandia Quality acceptance. Also, neutron generator testing was adversely affected as deviations in results of testing as well as conduct of testing (operators missing or repeating steps) required numerous engineering releases to accept submitted lots. SSO agrees that the QMS is not consistently high across the organization and believes progress could have been much better had Sandia utilized more of Senior QA Technical Experts to address QMS gaps earlier in the fiscal year.
Performance Measure 2.2			
Continue to improve implementation and performance in non-weapons quality in accordance with DOE O 414.1C "Quality Assurance".			

NNSA Rating: Good			
Performance Target	**Sandia Self-Assessment Rating**	**NNSA Agreement**	**Comments**
2.2.1 Improve implementation of quality requirements as demonstrated by the following: -Corporate Quality review and approval of all Quality Assurance Plans and correction of identified deficiencies. -Annual review of the Corporate Quality Assurance Plan. -Assessment of DOE O 414.1C requirements as part of Policy Area Self Assessments. -Provide objective evidence of the effectiveness of the implementation of Quality Assurance measured through Sandia processes and assessments.	Outstanding	Disagree Good	There has been positive development in the Sandia Corporate QA implementation of site-wide QA. These include the development and refinement of the Suspect/Counterfeit Items awareness, emphasis on safety significant software QA, and review and approval of several Sandia local QA Plans. However, outstanding performance would have to encompass self-driven performance from Sandia with little or no need for SSO Oversight direction in regards to QA implementation. Although the Sandia corporate QA group has provided new tools and processes, there are indications that Sandia organizations may not be using the tools effectively (e.g., root cause analysis). A corporate driver to implement usage of tools, procedures, and processes would be beneficial for Sandia. The Policy Areas scheduled 22 assessments for FY 2009 and completed only 16 of those committed (73%). It is not clear what the level of quality improvements from the results of these assessments will be for Sandia.
Other Considerations			
None			

PERFORMANCE INCENTIVE 3 – Removal of Materials from SNL - Stretch

Sandia will safely and efficiently remove nuclear material from the site.

Annual Rating
OUTSTANDING

Summary of Performance

Sandia has performed exceptionally well in the disposition of no defined use nuclear material, explosives and unneeded materials and chemicals. Sandia's diligence has resulted, in some cases, in exceeding the objective.

Significant Accomplishments

Sandia persistently pursued the disposition of no defined use nuclear material, excess energetic material, and unneeded chemicals and materials. Despite a variety of obstacles and complications, Sandia persevered in their efforts and met or exceeded their objectives.

Opportunity for Improvement

Sandia has been sluggish in its identification of the specific material that will be processed through the Auxiliary Hot Cell Facility. Without a clear plan, the concept of operating the AHCF for a limited duration is not defensible.

Performance Measure 3.1

Sandia will safety and efficiently remove nuclear material from the site.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
3.1.1 Sandia will complete removal (from Technical Area V ((TAV)) the remaining Nuclear Material Storage Facility (NMSF) items Engineering Type B Unit, Sealed Sources and Fission Foils by March 30, 2009.	Outstanding	Agree	Sandia completed this removal, achieving the complete disposition of the no defined use material that had been in the Nuclear Material Storage Facility.
3.1.2 Sandia will remove the following material groups: - 124 each NDU depleted uranium items in the form of oxides and metal. The total mass of depleted uranium to be removed is approximately 1,700 kg. - 19 each NDU enriched uranium items contained in Fission Chambers. The total mass of enriched uranium to be removed is approximately 32 grams. The fission chambers require drilling for internal pressure relief prior to repackaging for disposal. (This requirement increases the operational complexity and amount of effort required for disposal as compared to a similar amount of	Outstanding	Agree	When certified containers were not available for the specific material originally identified, Sandia renegotiated this target to focus on other no defined use material. Sandia pursued the concept to continue to remove no defined use material from the site.

bulk uranium).			
3.1.3 Sandia will complete removal (from the Manzano Storage Bunkers) of the 8 containers of Fresh Enriched Uranium Oxide by September 30, 2009.	Outstanding	Agree	In order to complete this objective Sandia had to obtain permission to terminate safeguards on this material. Sandia first had to confirm there was no need in the complex for this material. Then, Sandia had to provide a justification package to NNSA for review and approval. Sandia accomplished these requirements in an expeditious manner to achieve this objective.
3.1.4 Identify and validate all unneeded Category 1 & 2 sealed sources in accordance with DOE Notice 234.1, Reporting of Radioactive Sealed Sources, and provide that list to the SSO by December 15, 2008.	Outstanding	Agree	Sandia completed this target in the first quarter of the fiscal year.
3.1.5 Identify disposition paths for the unneeded Category 1 & 2 sealed sources at SNL/CA and SNL/TTR and physically remove them from their respective sites by September 30, 2009.	Outstanding	Agree	Sandia coordinated with external contractors to complete the safe removal of these two sets of sources.

Performance Measure 3.2

Sandia will safely and efficiently remove excess explosives/material and work towards staging the transuranic (TRU) waste until its removal in FY 2010.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
3.2.1 Sandia will deliver an integrated plan and schedule in the 3rd Quarter of FY 2009 for meeting the Federal Facility Compliance Act, Mixed TRU Waste Compliance Agreement requirement, to remove TRU waste not later than December 31, 2010. The plan and schedule must be approved by SSO. The schedule will be maintained under formal change control requiring SSO approval for any changes. Performance will be measured by adherence to the approved schedule.	Outstanding	Agree	Sandia completed this objective and continues to work with evolving expectations from the Carlsbad Field Office. The dynamic nature of this activity has required Sandia to adapt and adjust their approach, while keeping focus on the ultimate objective of dispositioning the TRU.
3.2.2 Sandia will continue to work with the Kirtland Air Force Base Explosive Ordinance Division on the disposal of excess explosive materials. During FY2009, a minimum of 30,000 pounds of explosive material will be sent for disposal.	Outstanding	Agree	Sandia exceeded this target despite the limited availability of KAFB EOD resources and the need to negotiate with DoD elements to disposition rocket motors.
3.2.3 Sandia will remove 85% of unneeded materials and chemicals (UMC) by September 30, 2009.	Outstanding	Agree	At one point, when funding was not forthcoming, Sandia pursued dispositioning other candidate material. Sandia worked to achieve the objective by substituting material that was targeted for future disposal. The funding issue was subsequently resolved and due to Sandia's action, resulted in significantly exceeding the

			objective.

Performance Measure 3.3

Sandia will provide support to the Office of Secure Transportation (OST) mission work.

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
3.3.1 The Secure Transportation Asset, NA-15, is a federal transportation asset with limited resources that must be efficiently allocated to meet the deliverables and Transformation Goals of NNSA and DOE. To achieve integrated shipping efficiencies across the complex, Sandia will: (1) Accurately forecast future shipping requirements using the Transportation Resource Integrated Planning System (TRIPS). (2) Submit Transportation Shipping Requests (TSR) to the Office of Secure Transportation (OST) according to the time and data requirements on OST TSR Form 1540.5 (NA-15 PIP, Appendix P), (3) Provide loading/off-loading support to OST according to schedule. (4) Package and prepare shipments according to submitted TSRs.	Good	Agree	Sandia worked closely with OST to meet the Transportation Shipping Request requirements. This close coordination ensured that the needs of the customer were integrated with the operational environment of OST.

Other Considerations

None

PERFORMANCE INCENTIVE 4 – Culture and Management Issues That Lead to Repeat Findings and Inadequate Implementation - Stretch

Analyze the causes of inadequate culture and management issues, which are observed as lack of line ownership, lack of accountability, inadequate and inconsistent implementation, inadequate quality, as observed in near misses, occurrences, incidents and repeat findings or other similar observations; develop a plan to address the causes identified above; implement the plan; verify that the corrective actions have been implemented as planned and validate effectiveness at appropriate times. Deal with the issue of culture with respect to all policy areas, but with particular emphasis on achieving a safety conscious culture.

Adjectival Rating
GOOD

Summary of Performance

Sandia made exemplary progress meeting the scheduled milestones in the D-2 Corrective Action Plan, utilizing management of change and culture experts in developing the Executive Safety Review Board / Corporate Issue # 36 corrective action plan and in reducing the recurrence of repeat findings.

Sandia received ISO14001 certification for Environmental Management. However, Sandia did not seek certification in Safety and Health nor was it evident that the development and implementation of leading and lagging performance measures resident in PerformanceSoft Views allowed Sandia to identify and correct negative performance / compliance trends before they become significant issues consistent with contract Clause H-3, Contractor Assurance, and Clause H-5, Accountability. PerformanceSoft Views reports the status of leading /lagging performance indicators, but not the analysis, identification and correction of negative performance trend results. Sandia provides statistical process control charts in the ES&H dashboard as part of the quarterly analysis of ES&H performance data as reported in the ES&H Quarterly Performance Analysis Report and the quarterly ES&H Policy Area Management Assurance Report.

Significant Accomplishments

Leveraging nationally recognized culture / organizational expertise in developing the ESRB / CI – 36 Safety Improvement Plan, completion of HSS-64 D-2 CAP deliverables, and working to complete the establishment and / or reinforcement of the importance of operational excellence as an integral part of mission success.

Opportunity for Improvement

Sandia needs to make a corporate commitment to seeking third party certification in Safety and Health like other NNSA and DOE sites. Sandia needs to make additional progress in developing and implementing actions, specifically, measures that reflect management and staff attitudes, values, and culture regarding safety, quality, and operational excellence, line ownership and accountability to establish and/or reinforce the importance of operational excellence as an integral part of mission success

Performance Measure 4.1

Execute Integrated Action 16, *Inadequate Culture (Accountability)*, according to the schedule in the HS-64 Corrective Action Plan for finding D-2.

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
4.1.1 Meet the scheduled deliverables in the D-2 CAP shown below, and meet the FY 2009 milestones in the CAP that results from the 11/17/08 deliverable. -Corporate Issue Owner - Corporate Issue Team Membership - Root Cause Analysis - CAP with Resource Loaded Schedule 11/17/08	Good	Agree	
4.1.2 Ensure recognized culture or change management expert(s) are incorporated as subject matter experts in the inadequate culture root cause analysis and involved in the implementation of resulting corrective actions.	Outstanding	Agree	
4.1.3 Effectively communicate the laboratory's intent and vision with respect to line ownership, accountability, quality and a safety conscious culture. Communicate the corrective actions resulting from the root cause analysis to the workforce, and regularly update the workforce on progress on the CAP.	Good	Agree	

Performance Measure 4.2

As part of the 11/17/08 CAP, identify, analyze, and correct cultural issues so that Sandia culture integrates the "can do" spirit for mission success with similar pride in operational excellence.

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
4.2.1 In addition to or as part of the corrective actions resulting from the 11/17/08 CAP in Target 4.1.1 above, develop and implement actions for the following to establish and/or reinforce the importance of operational excellence as an integral part of mission success: ----	Outstanding	Disagree Good	Significant progress was made in this measure. However, several targets were not fully completed, those being 1. thresholds that trigger upper levels of management to engage in incident investigation (see comments below), and development of leading and lagging performance measures that reflect management and staff attitudes, values, and culture regarding safety, quality, and operational excellence, line ownership and accountability. Including regular survey intervals investigation (see comments below).
-Roles, responsibilities, authorities and accountabilities for the workforce.	Outstanding	Agree	
-The extent to which management regularly reinforces and rewards a culture that values operational excellence, safety, security, quality, accountability, and line ownership.	Good	Agree	
-Thresholds that trigger upper levels of management to engage in Incident Investigation to insure first hand knowledge and visible management presence.	Outstanding	Disagree Good	While Sandia incorporated an incident and occurrence threshold engagement table into corporate procedure CG100.4.3, *Report Issues and Events* effective September 30, 2009, the two most critical Policy Areas, ES&H and S&S will not modify relevant occurrence and incident procedures to explicitly reference this change until sometime in FY 2010.
-Corporate policy and strategic plans that emphasizes safely and securely performing the mission while protecting the environment.	Outstanding	Agree	
-Establishing performance objectives for all employees regarding line and personal ownership and accountability for ILMS/CAS and safe and secure mission performance.	Good	Agree	
-Developing and implementing leading and lagging performance measures that reflect management and staff attitudes, values, and culture regarding safety, quality, and operational excellence, line ownership and accountability.	Good	Disagree Unsatisfactory	Sandia did not fully meet the intent of the target. Sandia began using the Lockheed Martin Pulse Survey which focuses on employee attitudes and concerns regarding issues in the workplace. Sandia added seven safety / culture questions to the Pulse Survey. However, the target was to gauge

Including regular survey intervals, institutionalize the survey and analysis procedures, and regular management reviews.			management and staff attitudes, values, and culture regarding safety, quality, and operational excellence, line ownership and accountability and to develop and implement leading and lagging performance measures to institutionalize the survey and analyze the results. Results and analysis of the survey were received in September. This survey is conducted on a semi-annual interval.). Had Sandia fully implemented this target, developing and implementing leading and lagging performance measures that reflect management and staff attitudes, values, and culture regarding safety, quality, and operational excellence, line ownership and accountability, including regular survey intervals, institutionalized the survey and analysis procedures, and implemented regular management reviews, this could have facilitated further progress in achieving a safety conscious culture and avoided accidents like the rocket sled track. See comments in Other Considerations
-Perform a study to evaluate how to transform ES&H to more efficiently and effectively support mission work, while encouraging ownership for ES&H by the worker and his/her line management.	Outstanding	Agree	Sandia conducted an independent ES&H Transformation Review and included external expertise. The Team provided recommendations to address an assessed lack of ES&H operational effectiveness attributed to unclear roles, responsibilities, accountability and authority; an inadequate understanding of risk and compliance; an atmosphere of distrust and ineffective communications. The recommendations were integrated with the ESRB-CI-36 Safety Improvement Plan.

Performance Measure 4.3

As part of the 11/17/08 CAP, identify, analyze, and correct lack of management processes and/or roles and responsibilities that contribute to inadequate implementations of management controls.

NNSA Rating: Satisfactory

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
4.3.1 Seek third party certification in ES&H (e.g. VPP ISO 9001 or ISO 14001), audits, peer reviews and independent assessments with external certification or validation consistent with Contract Clause H-3. Achieve certification within two years.	Outstanding	Disagree Unsatisfactory	Progress was made in this measure. Sandia met the intent of the target relative to Environmental which was already on-going but did not meet the intent relative to Safety and Health. This was intended to be a stretch goal. It should be noted that Sandia achieved ISO14001 certification, one year earlier than the target. Seeking third party certification in ES&H (e.g. VPP), audits, peer reviews and independent assessments with external certification or validation consistent with Contract Clause H-3,could have facilitated further progress in achieving a safety conscious culture, line ownership, accountability, consistent implementation, quality, reduced near misses, occurrences, incidents and repeat findings or other similar observations. The intent of this target is to improve the overall safety program in order to avoid accidents like the rocket sled track See comments in Other Considerations.

4.3.2 Develop and implement leading and lagging performance measures that allow Sandia to identify and correct negative performance/compliance trends before they become significant issues consistent with contract Clause H-3 and Clause H-5.	Outstanding	Disagree Unsatisfactory	Leading and lagging performance measures exist in PerformanceSoft Views, however, Sandia has not provided evidence that their use can be attributed to or credited with identifying actionable negative trends which were corrected. Sandia has not demonstrated that the leading indicators undergo formal statistical process control with defined criteria to ensure consistent and timely determination of adverse trends based on deviation from a mean and formality in the taking of action to address the concern. PerformanceSoft Views reports the status of leading/lagging performance indicators, not analysis. Identification and correction of negative trends results. The Sandia Management Assurance Reports (MARs) process requires Policy Areas and Line Entities to complete and document a review of identified performance measures and identify required action to address negative performance trends. The MARs process does not require or implement a Sandia corporate or institutional statistical process control process or methodology. Sandia provides statistical process control charts in the ES&H dashboard. None of the control charts revealed a negative trend in FY 2009.Action is taken as a result of quarterly reviews/MARs, etc., consistent with the SSO approved Sandia CAS.)
4.3.3 Establish principles and business rules that implement procedures to assure sustainability of new management controls as they are designed and implemented.	Good	Agree	

Performance Measure 4.4

Sandia resolves findings to prevent recurrence.

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
4.4.1 The quality of HS64 corrective action milestone deliverables is acceptable to SSO and milestones are completed on time for the following Repeat Findings C-1 Work Control C-2 Hazard Control re Facility Management Operations Center (FMOC) maintenance C-3 Construction contractor hazard analysis D-2 Inadequate assessment program D-4 Ineffective corrective action program.	Outstanding	Disagree Satisfactory	Sandia completed a significant amount of effort in this area; however, timeliness and quality were an issue. SSO received 100% of the corrective action milestone deliverables due in FY 2009 (62 of 62); 9.7% of these deliverables were late (6 of 62); and 16.1% had issues (10 of 62)

E-2 Configuration management program in TA-V E-3 Safety software quality of. TA-V facility E-4 Failure of TA-V to document quality problems E-6 TA-V Cognizant System Engineer program not implemented			
4.4.2 Sandia implements effective corrective action in response to SSO findings to prevent recurrence.	Outstanding	Agree	For FY 2009, Sandia's repeat finding rate for SSO findings was low. This low rate indicates Sandia is making progress in addressing systems level issues. The overall repeat finding rate was 3.5%. The Sandia Corporate Governance Policy area includes this measure as part of their Critical Measures.

Other Considerations

Sandia contract requires implementation of an assurance system and that the contractor is accountable for the quality of its products and self-assessments. Sandia's current management assurance systems collect data but analysis of the data to predict an adverse event before a significant event happens is lacking. For example, SSO would expect to see an active safety and health data analysis system that examines near misses (actual and/or potential), determines event interval, root cause and develops systems/management practices to reduce incidents by learning from the near-miss events. In addition we would expect that safety and health assessments would be based on identified and documented priorities/risks for S&H topical and sub-topical areas.

The Rocket Sled Track (RST) accident was an important event for Sandia in FY 2009. During a sled track test involving a Super Zuni rocket motor on October 9, 2008, an arming and firing technician was injured when the rocket motor unexpectedly fired. The technician was hospitalized with a broken leg and first and second degree burns to his hands and arms. DOE initiated a Type-B Accident Investigation and issued the final report in November 2008. DOE Office of Enforcement investigated the accident but has not yet issued a final report.

Results from the Type-B Accident Investigation revealed a number of troubling weaknesses related to Sandia's organizational safety culture and inadequate work planning and control, indicating a lack of line management implementation of Integrated Safety Management (ISMS). The Judgment of Needs (JON) from the Type-B Accident Investigation Report include:

- Sandia needs to develop and implement a plan to fulfill their responsibilities under 10 CFR 851, Worker Protection and the DOE M 440.1-1A, Explosives Safety Manual to control explosives hazards.

- Sandia management needs to ensure violations of explosives safety requirements and deviations from established practices are detected and corrected.

Sandia took a number of appropriate actions in response to the incident and previous criticisms of the ES&H program which SSO acknowledges as positive steps toward building a healthier culture. For example, Sandia has demonstrated some improvements in safety culture, notably:

- initiated an energetics stand-down affecting more than TA-3 after the RST event;
- developed rigorous restart criteria for bringing up energetics operations;
- imitated a lab-wide safety review (ESRB), bringing in renowned expertise from industry;
- studied lessons learned from the Nevada Joint Actinide Shock Physics Experimental Research plutonium issue for applicability at Z Machine;
- delayed the operational readiness review for Hazard Category 3 Transportation to ensure Sandia readiness when the schedule no longer required Auxiliary Hot Cell Startup in FY 2009;
- established an intent to eliminate pre-acceptance on weapons quality and to focus on building quality in;
- performed a Type B-like investigation on the Ruptured Pressure Line Outside Bldg. 6920 F" (NA--SS-SNL-6000-2009-0001);

- performed a readiness assessment prior to the Liquefied Natural Gas burn in TA-3;
- TA-5 has recently adopted Human Performance Improvement to enhance their safety culture.

Notwithstanding those actions, Sandia should recognize that safety can effect personnel, diminish or drive expenditure of costs and unplanned resource usage. For this accident resources were spent that were not anticipated. (i.e., potential customers, lost work, consultants, studies, CAP management, potential OE fines, ESRB, training and retraining, stand down and start-up activities, and SSO monitoring of CAPs).

This event highlighted long-standing cultural issues surrounding safety. On November 17, 2008, an ESRB was commissioned by Sandia. In their December 2008 report, the ESRB stated "safety is a priority at Sandia, but it is not a value as reflected by the attitudes and behaviors of all Sandia employees" and "Sandia does not exhibit the characteristics of a learning organization, further compromising its ability to prevent accidents. As a result, there should be concern about whether work is routinely performed with adequate layers of defense against hazards and whether accidents will be prevented."

Senior Sandia management understands this issue. The FY 2009 PEAR states "Safety culture (lab-wide): Safety-related incidents continue to occur, such as the sled track misfire resulting in the DOE Type B investigation in October 2008, the Advanced Material Laboratory (AML) fume hood incident that caused physical exposure to fumes in February 2009, the near-miss Technical Area (TA)-III high-pressure air line rupture incident in April 2009, and the defeat of laser welder interlocks in May 2009. These events continue to occur because of lack of adequate Work Planning & Control activity-level work processes, inadequate management awareness and oversight of risk/hazards and their controls, unsafe behaviors, lack of appropriate procedures that match the work being conducted, and inconsistent hazard analysis." Current Sandia processes fail to identify event precursors and latent organizational weaknesses, and in general do not incorporate elements of Human Performance Improvement (HPI) in their causal analysis and corrective actions. Additionally, a recent Sandia Org. 12870 report on benchmarking best Sandia practices report states "While no quantifiable data is available to estimate accurately the number of organizations with several of the (successful org) above factors, their existence seems undisputed. Their existence may have led to the situation, found by Intel, DuPont and ESRB of a pervasive inadequate safety culture with only "islands of excellence."

SSO evaluated the performance measures and targets in PO 6, PO 8, and PI 4 objectively with regards to the individual measures and targets that seek to drive continuous improvement. In spite of these objective scores, the ESRB, and the other recent Sandia accomplishments, SSO overall evaluates the Sandia safety culture as Good. A decrement of $881,603 is taken from this performance incentive in lieu of any potential 10CFR851 fines, and for unnecessary costs to the government.

PERFORMANCE OBJECTIVE 9 – Business System Performance - Essential

Sandia will manage and operate its Business functions in an efficient and cost effective manner using the ILMS to fully support successful accomplishment of mission, while protecting the public, the worker, the environment, and national security assets in accordance with the terms and conditions of the contract. Business functions include: Information Technology, Cyber Security, Supply Chain, Human Resources, Finance, and Litigation.

Adjectival Rating
OUTSTANDING

Summary of Performance

Effective business programs and functions are integrated into all work activities throughout Sandia to maintain effective and efficient operations and support mission objectives. Performance in the areas of Supply Chain, Contractor Human Resources Information Technology (IT), and Cyber Security were measured through negotiated performance objectives matrices developed for each of these programs, in conjunction with a subjective assessment of their overall policy area program performance. The Finance program was evaluated through objectives and measures established by the NNSA Chief Financial Officer (CFO). To sustain improvement and mature work processes, Sandia continued their effort to seek or maintain third party certification in several business areas. Additionally, Sandia demonstrated complex-wide leadership with implementation of initiatives in cyber security, human resources, and information technology. In cyber, Sandia and the Site Office conducted the first of kind joint assessment of classified and unclassified security plans and controls. Sandia successfully implemented two-tiered benefits for new employees to address burgeoning health care and pension costs. These parameters were also negotiated into two labor contracts, allowing standard application across the non-represented and represented workforce. The Sandia Blackberry Pilot Program demonstrated Sandia's approach to leveraging technology to enhance workforce productivity and better serve their customers. Sandia exceeded the standard of performance by deploying integrated business processes throughout its infrastructure in support of mission and other work activities. NNSA rated business system overall performance as outstanding.

Significant Accomplishments

Sandia should be commended for their effort on a number of business fronts during this fiscal year. Sandia's management of long term liabilities was Outstanding particularly with regard to their pursuit of an overall health benefits strategy that is aimed at reducing costs while remaining competitive with the market and their successful labor negotiations. Sandia Fleet Services received "The 100 Best Fleets in North America" award which was quite an accomplishment considering there were 38,000 public fleets and 760 applications. Sandia's BlackBerry Pilot Program has provided their workforce a secure way of communicating with each other as well as improving employee productivity. Sandia's FY 2009 Accountability Statement exercise was accomplished in minimal time with an Outstanding score. This exercise ensures that the Government property database accurately reflects bar-coded property and the possessor. Sandia led a Cyber Incident Simulation/Knowledge Transfer exercise in June 2009 at Sandia to share knowledge, tools, and approaches used by cyber defenders at local sites. The exercise also included simulating a cyber incident to include hands-on experience to incident responders. Participants included Sandia, LNL, LLNL, KCP, ORNL, DOE- CIRC and the FBI. The simulation facilitated a better understanding of the incident response approach applied by each site to defend against similar cyber attacks and paved the way toward increased collaboration between sites for future incident response activities. Sandia's litigation study accurately identified and analyzed several causal factors, including the New Mexico court system, Sandia's culture, and the makeup of its workforce. The study discussed weaknesses in personnel performance management and described Sandia's efforts to improve. Finally, a healthy partnership formed between the Sandia Legal and Human Resources (HR) Divisions. The collaboration produces a "Managing within the Law" course for Line Management that should work to mitigate risk of employee-based litigation.

Opportunity for Improvement

Two areas providing opportunity for improvement in the Business measure are in supply chain and cyber security. SSO has concern with Sandia's Purchase Card (P-Card) Program. Despite additional self-assessment activities conducted, Sandia's Internal Audits 2008-I-0006 and 2009-I-0042 indicate there are gaps in P-Card policies, processes and procedures that increase risk to the P-Card which questions a) the effectiveness of corrective actions implemented; and b) whether the P-Card self assessments are sufficient in robustness; sampling size and appropriateness. Additionally, the large number of P-Card holders continues to add risk to the program.

Sandia failed to meet its FY 2009 implementation plan milestone for deployment of FIPS 140 compliant encryption methodologies to protect mobile devices and removable media. Sandia was formally notified by SSO in February 2007 of the need to comply with requirements for protecting sensitive information on portable/mobile devices, but has not fully met those requirements to date Senior management involvement is needed to ensure the required protections are deployed and validated as quickly as possible in FY 2010.

Performance Measure 9.1

Business System: Business programs and functions are integrated into all work activities throughout Sandia to maintain effective and efficient operations and support mission objectives.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
9.1.1 Sandia will operate its Supply Chain Management program and functional area in an effective and efficient manner and in accordance with applicable Federal requirements. Performance will primarily be measured as stipulated in the FY 2009 Supply Chain Objectives Matrix. Performance results will be reported on a quarterly basis to ensure operations are within established control levels and in accordance with Federal requirements. Prompt action will be taken on any negative performance trends. Performance reports will be loaded into ILMS in a timely manner and available for SSO review.	Outstanding	Agree	Sandia Supply Chain Management (SCM) earned an "Outstanding" rating in 19 of the 20 metrics in the FY 2009 SCM Objectives Matrix. The remaining metric for Vehicle Utilization was rated as "Good". Sandia has made significant strides in contract file documentation to ensure that appropriate and quality documents are included in each contract file. Additionally, it was observed through the Sandia Site Office (SSO) shadowing of Sandia's Contract File self-assessment, that Sandia has placed more attention and rigor into the self-assessments in this area. Sandia awarded 56.6% of their subcontracts to small businesses which significantly exceeded their FY 2009 goal of 48%; an increase of 8.6%. Sandia Fleet Services was one of the top 100 fleets to receive "The 100 Best Fleets in North America" award which was quite an accomplishment considering there were 38,000 public fleets and 760 applications. Sandia had a successful completion to the two-year Transportation Concept Initiative Implementation Pilot approved by Thomas D'Agostino. The Pilot indicated that although it's unlikely that a "one size fits all" transportation model be used across the Complex, Sandia's completion of the Pilot produced a more efficient and effective Fleet Management. Areas that require Sandia Management's attention are: SSO has concern with Sandia's Purchase Card (P-Card) Program. Despite additional self-assessment activities conducted, Sandia's Internal Audits 2008-I-0006 and 2009-I-0042 indicate there are gaps in

			Card policies, processes and procedures that increase risk to the P-Card which questions a) the effectiveness of corrective actions implemented; and b) whether the P-Card self assessments are sufficient in robustness; sampling size and appropriateness. Additionally, the large number of P-Card holders continues to add risk to the program. The scheduled FY 2010 Q3 self-assessment will validate the effectiveness of the increased sample size and corrective actions taken to address the audit findings. Timely dissemination of new or changed prime contract requirements to ensure a) SCRs and SDRs are aware of changes and have proper communication; b) subcontractors are provided an opportunity to assess impact of changes; c) subcontracts are revised accordingly; and d) subcontract compliance with all requirements. Corporate Storage gap analysis and corrective action. While Sandia's achievements in the Small Business and Women Owned Small Business categories areas are noteworthy, Sandia fell short of the targets for Small Disadvantaged Business, HUBZone Business, Veteran Owned Small Business and Service Disabled Veteran Owned Small Business despite Sandia's efforts to host Town Hall Meetings targeted specifically for these categories.
9.1.2 Sandia will operate its Finance program and functional area in an effective and efficient manner and in accordance with applicable Federal requirements. Performance will primarily be measured through the NNSA Office of Field Financial Management's Contractor Performance Measures and Rating Criteria. Performance results will be reported on a quarterly basis to ensure operations are within established control levels and in accordance with Federal requirements. Prompt action will be taken on any negative performance trends. Performance reports will be loaded into ILMS in a timely manner and available for SSO review.	Outstanding	Agree	Sandia raised performance in two areas above the first and second quarter rating of unsatisfactory to outstanding in the fourth quarter. Additionally, Sandia increased the number of measures that were rated as outstanding. By year end, 67% (42 of the 54 rated measures) were rated outstanding. Sandia also had a few notable practices or improvements this year. Sandia's cash flow analysis model was used as a template by OFFM and was the catalyst for a complex critical needs analysis request under the CR. Sandia also reduced the number of overcosts for FY 2009 to one. A dramatic improvement compared to FY 208
9.1.3 Sandia will operate its Human Resources program and functional area in an effective and efficient manner and in accordance with applicable Federal requirements. Performance will primarily be measured as stipulated in the FY 2009 Human Resources Objectives Matrix. Performance results will be reported on a quarterly basis, unless otherwise specified in the objectives matrix, to ensure operations are within	Outstanding	Disagree Good	Sandia did not "significantly exceed" the standard of performance in all areas and achieved the following Objective Matrix ratings for 21 measures and percent of total measures: Outstanding = 7 or 33% Good = 10, 48% Satisfactory = 3, 14% Unsatisfactory = 1, 5% Sandia was rated unsatisfactory for the Offers to

established control levels and in accordance with Federal requirements. As agreed to, annual metrics will be reported once per year. Prompt action will be taken on any negative performance trends. Performance reports will be loaded into ILMS in a timely manner and available for SSO review.			Acceptance Ratio of Minorities. Sandia struggled with this measure last year as well but they are aggressively working to improve performance in this area. In addition, Sandia has taken the initiative to improve results of the Diversity Maturity Model survey. Sandia significantly improved from last year in terms of obtaining NNSA advance coordination or approval as may be contractually required (e.g., Security Policy Association labor parameters, seniority right-of-first refusal and severance changes). SSO appreciates the attention HR has given to this area. Moreover, communication between HR and NNSA is very good. Sandia has made noticeable effort to keep SSO abreast of significant issues. Sandia also planned and coordinated Workforce Restructuring efforts with SSO and the Service Center. No issues resulted. Sandia's labor negotiations with the Office and Professional Employees International Union (OPEIU) and Metal Trades Council (MTC) were successfully achieved within approved parameters. However, subcontracting the MTC operation became an issue. Sandia was in the middle of negotiations when this became a huge issue. The NNSA was brought into the matter late and without the benefit of Sandia internally vetting the matter. The issue almost derailed negotiations. An opportunity for improvement is in providing supporting documentation for their proposals. Sandia does not always provide sufficient information to allow NNSA to make a well informed decision without having to request additional supporting documentation and/or rationale. For example, the Labor negotiations package did not include plan documents for benefit changes, which were a key component of negotiations. Sandia's proposal to enhance the pension formula for bargaining employees and to combine plan assets with the non-bargaining pension plan was not fully documented. The same is true for the proposed on-site pharmacy. Proposals should be fully substantiated and be able to stand on their own merit. There is one point in the PEAR that needs clarification. SSO did not perceive HR "owned" Sandia actions related to the ARRA. The SSO was merely inquiring what HR's role was in terms of identifying and tracking job creation or preservation and how HR would accomplish reporting. HR informed SSO they have no direct involvement. This is merely a clarification and is not intended as a strength or weakness.
9.1.4 Sandia will operate its Information Technology program and functional area in an effective and efficient manner and in accordance with applicable Federal requirements. Performance will primarily be	Outstanding	Agree	Sandia Information Management earned an "Outstanding" rating in all but one metric in the FY 2009 IT Performance Objectives Matrix. Sandia continued to maintain their ISO 9000 Certification in several of their functional elements and expanded efforts to manage their Computer

measured as stipulated in the FY 2009 Information Technology Objectives Matrix. Performance results will be reported on a quarterly basis to ensure operations are within established control levels and in accordance with Federal requirements. Prompt action will be taken on any negative performance trends. Performance reports will be loaded into ILMS in a timely manner and available for SSO review.			Footprint through their virtualization initiative. The virtualization effort continued in FY 2009 with a move to the desktop environment with deployment for 1000 users. This latest initiative should produce significant savings in hardware and maintenance. The virtualization of servers has produced another $145K in savings with the conversion of 62 more machines. Another initiative undertaken by Sandia has been using BlackBerries inside the limited area as part of a Pilot Program. This effort has provided their workforce a secure way of communicating with each other as well as improving productivity. Approximately 100 users are carrying BlackBerries. This innovative program demonstrates Sandia's approach to leveraging technology to enhance workforce productivity and better serve their customers. Sandia has made improvements in their Disaster Recovery (DR) program to improve the reliability and availability of data. All DR measurements were met for FY 2009. This effort incorporated a role-based matrix for remote access that could be used to support emergency conditions that would limit primary site access like a pandemic. IT reductions in staff have occurred throughout FY 2009 and this issue was identified at Joint Performance Review Team (JPRT) quarterly meetings. Sandia has utilized their staff to strengthen skills in other areas. In doing so they have become more efficient in supporting IT departments and have maintained their high level of service despite a talent drain in the IT career field. Evidence in ILMS indicates Sandia have encrypted 87% of their in-use laptops. Although the goal is 100%, Sandia has shown significant strides in obtaining this goal and have declared an encryption method for 7200 units.

Performance Measure 9.2

Cyber Security: Execute an effective and efficient program for Cyber Security, operated in accordance with applicable Federal requirements, that balances confidentiality, integrity and availability of information and information systems to guard against unauthorized access, modification or denial.

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
9.2.1 Sandia will provide SSO quarterly reports on performance results for the cyber security targets identified by this plan. Performance will be measured through a variety of means to include the established goals in the negotiated performance measures matrix for Cyber Security that demonstrate compliance with the following	Good	Agree	The overall rating for the 9.2.1 performance target is based on Sandia having provided comprehensive quarterly program review briefings addressing performance as well as the combined ratings of the four sub-targets.

subtargets.			
9.2.1.1 Sandia ensures that managers, cyber security professionals, and users are made aware of the applicable requirements and security risks associated with their activities through the dissemination of Corporate Process Requirements and ensuring that organizational personnel are adequately trained to carry out their assigned cyber security duties and responsibilities.	Outstanding	Agree	Sandia's annual completion percentage exceeded 99 percent for both users and managers, well above the threshold established for outstanding performance on these metrics. Training for Information System Security Officers was developed and deployed and additional modules addressing elevated privileges, one-page security plans, and the network connection approval process are under development. Eleven threat awareness briefings were presented to management and 28 cyber security awareness tips were posted on the Sandia Web Portal.
9.2.1.2 Sandia must: (1) establish an operational incident handling capability for all systems that includes adequate preparation, detection, analysis, containment, recovery, and user response activities; and (2) track, document and report incidents to appropriate organizational officials and/or authorities.	Good	Agree	Two cyber security incidents were not reported in accordance with timeline requirements. An SSO finding was issued to Sandia to address incident reporting process deficiencies. Sandia is in the process of implementing new incident reporting process guidance that corrects the issues identified in the SSO finding. Sandia also took the lead for NNSA on hosting a Cyber Incident simulation exercise involving numerous NNSA entities and the Federal Bureau of Investigation.
9.2.1.3. Sandia must provide effective oversight of the tools, techniques, mechanisms, and personnel used to provide information system security, to include annual assessments of the effectiveness of implemented security controls on all systems.	Good	Agree	Sandia has made great strides in improving the depth and breadth of its assessment program for Cyber Security, culminating in the first ever joint SSO/Sandia assessments of classified and unclassified security plans and controls in July and August. However, Sandia's assessment program does not yet appear to be fully effective in measuring compliance with documented requirements for unclassified systems as SSO issued seven findings to Sandia under the Unclassified Cyber Security subtopical area in FY 2009.
9.2.1.4 Sandia regularly assesses all systems for vulnerabilities and performs timely maintenance to mitigate or eliminate new vulnerabilities as they are identified.	Outstanding	Agree	Sandia consistently scans more than 96% of its network assets for vulnerabilities and remediates 100% of high-risk vulnerabilities within four hours of identification.
9.2.2 Sandia must (1) meet all SSO approved Corrective Action Plan and FY 2009 Cyber Security Annual Operating Plan milestones; and (b) perform trend analysis of negative indicators from the cyber security performance measures matrix and take appropriate remediation actions.	Outstanding	Disagree Satisfactory	SSO rates Sandia's level of performance against target 9.2.2 as satisfactory primarily due to Sandia's failure to meet its implementation plan milestone for deployment of FIPS 140 compliant encryption methodologies to protect mobile devices and removable media. Sandia was formally notified by SSO in February 2007 of the need to comply with requirements for protecting sensitive information on portable/mobile devices. SSO also formally advised Sandia in the performance review of cyber security for the second quarter of FY 2009 that a failure to meet the June 30 milestone for deployment of encryption methodologies would impact Sandia's cyber security ratings in the third quarter and the annual Performance Evaluation Report. A request to extend the milestone was received from Sandia on June 10, but was rejected by SSO as it lacked sufficient detail regarding shortcomings of the previously proposed solutions and new milestones associated with the development of alternate solutions. Upon Sandia's failure to meet the June 30 milestone, SSO declared target 9.2.2 to be red in the third quarter

			performance review of cyber security. A revised Sandia request for extension of the milestone until December 18 was approved by SSO on September 24. As indicated by the DOE Office of Enforcement during their August 2009 investigation, Sandia also needs to conduct a more thorough analysis of classified e-mail incident metric source data to determine potential causes of periodic spikes in the number of incidents.

Performance Measure 9.3

Litigation Management: Manage litigation in accordance with Clause I-91, Insurance--Litigation and Claims, DEAR 970.5228-1, (MARCH 2002); 10 C.F.R. Part 719; and the SSO-approved Sandia Corporation Legal Management Plan, as modified from time to time, in order to ensure the conduct of litigation serves broader NNSA and Sandia interests.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
9.3.1 Sandia shall conduct a self-critical assessment of Sandia litigation to identify causal factors and develop and implement specific responsive strategies for risk identification, prevention, and mitigation. Results shall be provided to SSO by October 31, 2008. At a minimum, such assessment shall include:	Outstanding	Agree	The Sandia Legal Division provided the self-critical assessment to SSO on 10/28/08. In response to NNSA OGC's interest in further information on the specific preventive strategies Sandia is employing, Site Counsel requested that Sandia supplement the assessment report and identify the specific measures Sandia employs to prevent litigation, assess the effectiveness of those measures, and identify additional preventive measures as a result of benchmarking activities or otherwise that Sandia could evaluate for possible implementation at Sandia National Laboratories. Sandia timely responded on 8/10/09 with a supplemental report that detailed five additional preventive strategies Sandia has either implemented or is in the process of implementing: (1) the Sandia Legal Division provides quarterly litigation lessons learned briefings to Laboratory Leadership Team (LLT), and recently began providing information tailored specifically for distribution to all management; (2) HR is implementing Full Spectrum Leadership; generally speaking, better leadership is recognized as an effective litigation prevention strategy; (3) in consultation with the Sandia Legal Division, HR strengthened management of its HR Business Partners and focused on achieving consistency in the advice provided to managers and supervisors on personnel actions via regular, frequent, and targeted training; (4) Sandia is in the process of implementing a major overhaul of the Integrated Job Structure (IJS) which should significantly reduce the risk of Equal Pay Act claims over the long-term; and (5) the Sandia Legal Division is participating in a study of the financial, operational, and litigation risks associated with Sandia's heavy reliance on Staff Augmentation contractors; [Note: this study is scheduled for completion at the end of October 2009.] Strategies 1 and 3 are likely to produce the most immediate and tangible benefits. The Sandia Legal Division also took on a far more active role in the training of new managers at all levels (e.g. Managing Within The Law) a one-day course, is now required for all levels of management; the Sandia Legal Division now holds a quarterly meeting with new managers to provide training

			on specific legal topics and presents training to all Sandia Centers on the legal pitfalls associated with e-mail communication. This has served to emphasize to managers the importance of obtaining legal advice and counsel on personnel management issues. Over time, such measures are expected to effectively mitigate Sandia's litigation risk to the greatest extent possible, and further strengthen Sandia's ability to successfully defend employment litigation when cases are inevitably filed.
9.3.1.1 Retrospective study of litigation occurring from FY 2004 through FY 2008.	Outstanding	Agree	Sandia's litigation study accurately identified and analyzed several causal factors, including the New Mexico court system, Sandia's culture, and the makeup of its workforce. The study discussed weaknesses in personnel performance management and described Sandia's efforts to improve same, some of which are noted in the comments above. Sandia specifically addressed in detail the five cases identified by the NNSA General Counsel as notable for their defense/resolution costs and/or the nature of the allegations at issue.
9.3.1.2 Effectiveness of current tracking mechanisms.	Outstanding	Disagree Good	The Sandia Legal Division loads all litigation lessons-learned self-assessments into LESA. Corrective actions that require implementation by Sandia management are identified and entered into CATS. To facilitate SSO review, the Legal Division's otherwise thorough self-assessment document could be improved by the inclusion of a summary of data from LESA, CATS, and the limited access WebFileShare site. The Sandia Legal Division effectively tracks litigation costs by timely submission of cost data into the DOE General Counsel's Legal Management Tracking System.
9.3.1.3. Identification of trends.	Outstanding	Disagree Good	The Sandia Legal Division's self-assessment included a brief section on identification of trends. The Legal Division noted that the three new cases filed against Sandia in FY 2009 were all employment-related and did not involve the same issues and complaints, but the analysis lacked any further detail. Litigation lessons-learned memoranda note similarities in fact patterns between cases and address possible trends. In the exercise of professional legal judgment, the Legal Division routinely advises Site Counsel as to any perceived emerging trends in litigation during monthly litigation management meetings. In the course of ongoing benchmarking activities with the Association of Corporate Counsel and like organizations, the Legal Division should continue to explore the availability of formal processes and tools for identification and analysis of trends.
9.3.1.4 Formal benchmarking, e.g. Altman Weil In-house Law Department Benchmarking and/or General Counsel Roundtable, or similar benchmarking, to compare litigation costs, law department resource and staffing, organizational structure, business practices, and the like.	Outstanding	Agree	The Legal Division participated in the General Counsel Roundtable Best Practices in Litigation Management webinar and selected several strategies for possible implementation at Sandia, including: (1) evaluation of alternative fee arrangements with outside counsel; (2) establishment of a budget based upon the type of case; (3) careful selection of outside counsel based upon a variety of factors, including expertise and cost; and (4) effective utilization of in-house resources. SSO's review of the training material leads to the conclusion that Sandia's litigation management practices, on the whole,

			comport with many recognized best practices in the private sector corporate arena. Sandia's analysis, however, suggests that DOE requirements, e.g., 10 C.F.R. Part 719, are an impediment to legal cost management. Where cost savings and improved effectiveness might thereby be achieved, Sandia should seek waivers, exemptions, or deviations from requirements of 10 C.F.R. Part 719, and propose revisions to the Legal Management Plan. Sandia's self-assessment noted that hourly rate increases for outside counsel were only infrequently approved in FY 2009, but documentation was not provided. SSO recognizes the value of early settlement to save defense costs and achieve finality in the resolution of issues that could otherwise lead to protracted litigation, in appropriate cases. Improvements in Sandia's analysis and documentation of the rationale for early settlement will enable SSO to respond timely and favorably, and continue to force a downward trend in the number of cases. The Legal Division has done an outstanding job of partnering with Human Resources (HR) and line management to provide training in areas of higher legal risk and providing legal support in connection with the overhaul of corporate policies to clarify requirements. SSO recognizes this as an excellent use of in-house resources to mitigate legal risk in the long-term and prevent the filing of meritless or highly defensible cases. The Sandia Legal Division benchmarked against a study entitled Incisive Legal Intelligence, Law Department Legal Outsourcing Study: Important Trends for Law Firms, March 15, 2009. As a result, the Legal Division has identified a number of considerations that might be useful to DOE in evaluating 10 C.F.R. Part 719 for possible revision, e.g., private sector corporations value quality of legal advice, responsiveness and service over cost and billing transparency. SSO notes that the focus of the regulation is clearly on costs and detailed billing practices rather than the overall quality and effectiveness of legal services obtained from outside law firms, and could be improved in that regard. The Sandia Legal Division reviewed the current Boardroom Guide to Litigation: An Analysis of the Legal Climates In All 50 States, and confirmed that the existing business environment in New Mexico, as in past years, tends to encourage the filing of meritless lawsuits. The Legal Division appropriately takes this into account in evaluating cases for settlement and in developing strategies to mitigate legal risk and prevent litigation.
9.3.2 The Sandia Legal Division shall identify and implement applicable best practices designed to effect reduction of litigation costs, including outside counsel fees and costs, costs of in-house counsel, costs of judgments, awards, and settlements.	Outstanding	Agree	The Legal Division has now fully implemented a litigation lessons-learned process. Lessons-learned memoranda are available to SSO Site Counsel at a WebFileShare site accessible via ILMS. All lessons-learned memoranda for litigation resolved in FY 2009 have been completed and made available to SSO Counsel. This formal process appears to be unique among NNSA contractors. Sandia gave a presentation on its process at the Annual NNSA Counsel's Meeting in February 2009. The presentation generated considerable interest and may well foster implementation of similar processes at other NNSA

			sites. As noted above, the Legal Division partnered with HR to provide a training course, Managing Within the Law, now mandatory for all levels of management. SSO Counsel reviewed the training materials and found them to be an excellent supplement to the in-house legal resources routinely provided by the Legal Division. Topics covered include employment law protections, prevention of harassment, avoiding pitfalls associated with the *Americans With Disabilities Act (ADA)* and the *Family and Medical Leave Act (FMLA)*, hiring the best-qualified job candidates, managing employee performance, effective performance documentation, and navigating the *Fair Labor Standards Act (FLSA)*. The training materials appear to be designed for quick-reference and are presented in a manner that encourages appropriate interaction with the Legal Division to obtain advice on specific issues. The Legal Division teamed with HR to study people management practices at Sandia, in response to concerns expressed by NNSA about the level of employment-related litigation at Sandia in comparison with other NNSA sites. A report was published on 1/3/09 and made recommendations in the following areas: (1) executive leadership, (2) inconsistent application/implementation of personnel management policies and practices, (3) management roles and responsibilities, (4) constant change and ineffective communication, (5) making people management a higher priority, (6) management requirements and expectations, (7) performance ratings and compensation, (8) hiring criteria, and (9) management resources. Owners of specific recommendations have been assigned, but data supporting the status toward completion have not been provided in a cohesive, integrated package. In addition to the training and briefings provided by the Legal Division, and the partnering activities with HR noted above in PT 9.3.1, the Legal Division collaborated with the Business Conduct and Advisory Council, the Ethics and Business Center, and Corporate Investigations Center to provide training on HR-related employee misconduct and effective communication to the workforce of information about disciplinary actions taken.

Performance Measure 9.4

Undertake and implement a strategy in 2009 for reduction of long-term pension and benefit costs while maintaining quality, value and employer of choice.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
9.4.1 Implement NNSA approved Sandia Corporation two-tiered pension and benefit plan that transitions new employees to a market-based pension plan.	Outstanding	Agree	Sandia implemented the two-tiered plans for new employees hired to Sandia on January 1, 2009 and successfully negotiated the two-tiered plans the OPEIU and Metal Trades Council MTC effective July 1, 2009 and July 1, 2010, respectively. This is an outstanding achievement for Sandia.

9.4.2 Implement practical adjustments to Sandia's benefit plans that result in moving Sandia Corporation towards greater compliance with the contractual benefit value (Ben-Val) requirements.	Outstanding	Agree	The employer paid value index for two-tiered benefits for bargaining and non-bargaining employees equates to 104.2. However, some of the other benefit changes that Sandia implemented for current employees will reduce the employer paid value index from 121.7 to 115 for salaried employees. In addition, the implementation of the caps to retiree health is expected to reduce that number by a significant margin. Sandia's health care changes were sought for years by the NNSA and will save the government millions of dollars in the long term. The NNSA looks forward to Sandia's continuous efforts to move towards greater compliance with the contractual Ben-Val requirements.
9.4.3 Provide evidence of actions taken or planned to implement a strategy for reducing long-term liability, while remaining an employer of choice.	Outstanding	Agree	Sandia's changes in retiree health care coverage are expected to significantly reduce long term liabilities while Sandia offers a benefit package competitive with industry.

Performance Measure 9.5

Undertake and fully implement targeted process improvement in Laboratory-wide Finance, Human Resources, Procurement, and Information Technology processes. Reform, as defined and measured by the 2006 Hackett benchmark activity.

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
9.5.1 Provide the Sandia updated baseline against Sandia's 2006 Hackett Implementation Plan. Plan for current and completed process improvement activities in Laboratory-wide Finance, Human Resources, Procurement and Information Management undertaken in response to the Hackett benchmarks. Provide expected progress toward Hackett benchmarks. Deliver Sandia's plan and improvement schedule with milestones by November 30, 2008:	Outstanding	Disagree Satisfactory	The overall plan featured four different formats of which one was outstanding, two were barely adequate and one was unsatisfactory. SSO required Sandia to resubmit in a standard and more comprehensive format. The final acceptable product was not received until January 27, 2009.
9.5.2 Provide SSO with quarterly reports beginning in FY 2009 2nd Quarter that summarize progress-to-plan toward relevant Hackett benchmark targets identified in the 2005 Hackett benchmark for completion and closeout not later than FY2010.	Outstanding	Agree	Sandia completed the majority of the FY 2009 milestones. By individual area, HR completed all 14 milestones, Procurement completed all 4 of their FY 2009 milestones and had previously closed out 12 recommendations, IT completed all 14 milestones, and Finance completed 15 of 22 milestones, and have 2 that are basically complete pending closeout, and closed out 4 recommendations in prior years. There was reasonable justification to defer five milestones to FY 2010: One of the five is basically complete, but final testing is scheduled for October, 2010; one requires Finance partnership with LMC for an IT solution that required extensive partnering to resolve; another is in progress but required an additional Request for Quotation (to broaden the qualified subcontractor pool) due to a high bid from a subcontractor; and 2 milestones were moved to FY 2010 due to non-availability of technical solution during the first two quarters and FY

			closeout took priority. Overall milestone completion was 91%.
9.5.3 Capture and report quarterly savings/cost avoidances resulting from progress toward Hackett benchmarks starting in the second quarter. Validate full implementation of improved processes through self-assessment and record in ILMS.	Good	Disagree Satisfactory	Most of the implemented milestones did not result in savings, or were not implemented early enough in the year to achieve meaningful FY 2009 savings. It is noted many implemented recommendations were improvements to policy/procedure, augmented the customer interface, or incurred other operational or policy area benefits not captured as cost savings. Although, ILMS and the quarterly report did not adequately identify what, if any, savings were achieved and required face-to-face meetings to sufficiently gain an understanding of the benefits realized. Finally, Sandia did not complete self assessments or validation of the process improvements but provided acceptable rationale for not accomplishing this element.

Other Considerations

None

PERFORMANCE OBJECTIVE 10 – Contractor Assurance System (CAS) - Essential

Sandia Corporation will manage the Laboratories through the utilization of the Integrated Laboratory Management Systems (ILMS) Assess, Assure and Improve (AAI), contract Clause H-3, Contractor Assurance System (CAS), Clause H-5, Accountability and Clause H-6, Standards Management to ensure that the programs are managed in an effective and efficient manner, continuously improving, and support the accomplishment of mission.

Adjectival Rating
SATISFACTORY

Summary of Performance

Continuous improvement in the transparency and population of data in the Integrated Laboratory Management System (ILMS) / Contractor Assurance System (CAS) has greatly increased over the past FY. Progress is needed in continuous improvement being consistent across all of the entities at Sandia. While some functional areas have found evidence that Sandia is meeting the intent of the management system as documented, other areas have trouble finding the necessary depth and breadth of data and more importantly, analysis of the data, especially in the SMU/SMG areas.

Critical Policy Area activity and decisions are still not being incorporated into the ILMS/CAS. Currently, comprehensive assurance evidence is not being provided in all of the nine Policy Areas that align with the thirty-seven SSO functional areas of oversight within ILMS/CAS. As was evidenced in one of the Sandia Assurance Review Board (SARB) reports, quantity does not translate to quality and the "So What?" is not readily apparent in much of the data resident in the system. The Sandia Facilities Organization has not developed and implemented performance measures, other than in the PEP, that are aligned with their responsibilities. The flow-down of performance measures is not always clearly determined and documented (i.e., to, from, and within). SSO is still not able to see the flow up of risk assessments from centers to entity risk matrices and fully understand the mitigation of risk, especially in the determination of necessary self-assessments.

SSO is not able to utilize the Sandia CAS to determine the management decisions, expectations, path forward decisions, etc., that are being made to drive continuous improvement after Sandia management review and discussion of institutional cross-cutting assurance data as this data is not transparent to SSO. SSO is not able to utilize the CAS to determine Sandia compliance with either DOE or Sandia requirements nor Sandia's self-assessment of the effectiveness of implementation of the policies, processes, and procedures that are the implementing documents at the individual requirements level. Sandia produced an assessment report relative to the effectiveness of the CAS process and procedures (CG100.6 series) which was quite detailed in its evaluation of the effectiveness of implementation of CAS. These were key measures and targets within PO10 in FY 2009 that were not met. In addition, movement towards national / international standards and best business practices has not been evident in the last two years which is disappointing to SSO in that this has not only been a performance measure in the PEP, but is a contractual requirement in contract clause H-6. Sandia has very actively pursued ISO 9001 and ISO 14001 registration. The ISO 14001 registration was achieved in June 2009. The ISO 9001 registration audit for ILMS was completed in October 2009 with no nonconformances. Registration is expected in November 2009.

The overall rating for the Performance Objective is Satisfactory

Significant Accomplishments

Sandia has made progress in demonstrating linkage between the DOE Directive requirements and their policies, processes and procedures. Sandia implemented a Performance Assurance System and has continued to improve performance measurement through PerformanceSoft Views.

Opportunity for Improvement

The following discussion details opportunities for improvement in key functional areas.

ES&H: Understanding how risks are viewed and documented for ES&H topical and sub-topical areas continues to be a challenge. The various activities under Sandia's Performance Assurance System all start with understanding risk. Sandia's Org 4000 recognizes this challenge and is working on a Management Assurance process to better address how risks are viewed and documented at the topical and sub-topical area.

Program: The Mission Execution Policy Area that includes all six SSO Pegasus Functional Areas was not fielded at the close of FY 2009. For this Policy Area in general, there continues to be a need to increase transparency in CAS, laterally and vertically, to effectively link risk management with self assessments, and to post additional mission execution and assurance data into CAS for Operational Awareness.

Business: Sandia evaluates risk as part of their existing processes. The frequency is only evident by the change in dates on existing documentation and in some case doesn't track with other evidence. Compliance exists but quality is suspect. While Sandia self-assessment and the associated evidence have improved over the past fiscal year, it continues to lack the maturity necessary to rely solely on CAS/ILMS to ascertain program health. Business functionals rely heavily on JPRTs and operational awareness activities to fill in the gaps and understand/interpret data found in the ILMS. Business area corrective action management is much improved over the past year. It is apparent senior management involvement has paid dividends. While corporate issues or lessons learned are not mandated in any policy area, it is surprising that an organization with a $2.4B budget has no corporate issues or lessons learned in any business policy area. SSO business functionals can't determine whether the management assurance process works because the results don't manifest themselves in changes to the risk matrices or process modifications.

S&S: Throughout FY 2009 SSO S&S conducted periodic reviews of different aspects of Sandia's S&S CAS implementation. During the first two quarters, SSO S&S evaluated risk management, corrective action management and self-assessments. The S&S metrics supporting both the Sandia S&S Program and Line S&S Implementation dashboards were also reviewed. This assessment resulted in the identification of three observations. The first observation noted that a less-than-comprehensive self-assessment of the SNL/CA S&S program was conducted. The second observation noted a decline in the approval rates of corrective action plans and associated change control requests and the third observation indicated a lack of corporate-wide line level metrics designed to measure progress of Sandia's efforts to reduce the overall security footprint. During the third and fourth quarters SSO S&S also monitored self-assessment and corrective action activities through oversight activities including assessments, operational awareness activities, etc. Some consideration was given to Management Assurance. Sandia S&S has not fully integrated the corporate CAS requirements and S&S-specific process for self-assessments and corrective action management.

Performance Measure 10.1

The Contractor Assurance System will yield improved reliability and responsiveness in institutional performance as well as improved ability to anticipate and avoid problems through risk management, self-identification, issues management, corrective action, effective performance measurement and management assurance.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
10.1.1 Using site-specific performance metrics, Sandia will meet the NNSA Line Oversight and Contractor Assurance System (LOCAS) Performance Measures requirement to report performance in the LOCAS categories of credible performance, integrated management, effective resource management, and continuous improvement. These measures will be combined into an overall index of performance as defined by the LOCAS methodology. Effectively implement the ILMS AAI procedure on Measure Performance.	Outstanding	Agree	

Performance Measure 10.2

Continue to improve implementation, use, communication, and assurance results from the ILMS/CAS in accordance with Clause H-3 "Contractor Assurance System," and Clause H-5 "Accountability" of the contract.

NNSA Rating: Satisfactory

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
10.2.1 Perform AAI effectiveness self assessments throughout the year, analyze and trend data and measure and report performance with leading and lagging indicators to provide CAS effectiveness at a minimum by Policy Area and SSO functional areas on a quarterly basis. Effectiveness will include transparency of outputs and will utilize a consistent and rigorous methodology. All functional areas will be reported on annually.	Outstanding	Disagree Unsatisfactory	Sandia did not perform the AAI effectiveness assessments called for in this target at the individual requirements level throughout the year, analyze and trend data and measure and report performance with leading and lagging indicators to provide CAS effectiveness at a minimum by Policy Area and SSO functional areas on a quarterly basis. Development of a consistent and rigorous methodology at the requirement level used at a minimum by all policy areas is not evident. An annual report was not provided for all SSO functional areas. Sandia did however evaluate information associated with 29 of the 34 functional areas. Where information existed for specific functional areas, that information was captured and included in a table in the PEAR. The PEAR was the reporting vehicle. The annual report called for in the target was not generated. The intent of this measure was for Sandia to provide on-going assessment of implementation of the CAS (policy / process / procedure) elements as written. Leading indicators would focus on effective implementation of the system elements and lagging

			indicators would focus on results. SSO acknowledges that Sandia identified 16 performance measures that measure the health of the Sandia performance assurance system and that Sandia performed a number of assessments that align with the SSO functional areas; however, these are not the assessments or measures called out in the performance target. Sandia did perform extensive assessments and establish performance targets to meet the intent of this target.
10.2.2 On a quarterly basis, Policy Areas will assess a risk-based selection of requirements from Appendix G DOE Directives. The assessment will address line implementation of the Policy Process or Procedures that implement the requirements that are associated with the selected directives and compliance with the Appendix G directive requirements. Annually, provide a summary of compliance with all Appendix G requirements to SSO.	Outstanding	Not Rated	Sandia did not assess a risk-based selection of requirements from Appendix G DOE Directives on a quarterly basis. SSO acknowledges that Sandia assessed 20 directives from 6 policy areas; however, the assessments did not address line implementation of the Policy, Process, or Procedures that implement the requirements that are associated with the selected directives and therefore, did not assess compliance with the Appendix G directive requirements. Sandia provided a spreadsheet of the directives that were related to the risks which were identified within each policy area. An annual summary of compliance with all Appendix G requirements was not provided to SSO. SSO further acknowledges that verbal agreement was given that this target would be removed from the PEP early in the FY, however, at a meeting in July, SSO requested Sandia conduct any assessments that could be completed in the 4th quarter and to identify any assessments done in the earlier quarters that met the intent of this target but in any case, to provide an annual roll-up with whatever data was available of compliance with all Appendix G requirements. The assessments do not appear to have been performed in the fourth quarter and an annual roll-up was not provided.
10.2.3 Establish documented linkages between Sandia Policy, Processes, and Procedures (PPP) and individual Appendix G requirements. Using the SSO Federal Oversight Requirements Spreadsheet (FORS) as a baseline, in FY 2009 implement this for the Safeguards & Security (S&S) and ES&H policy areas and for nuclear safety as follows: - For S&S execute the FY 2009 elements of the plan for S&S requirements. The FY 2009 plan will be developed by December 19, 2008. In FY 2009, Sandia will address DOE Orders/Manuals and the 470.4 series (and other requirements as applicable).	Outstanding	Agree	

-For ES&H execute the FY 2009 elements of the plan for ES&H requirements. The FY 2009 plan will be developed by December 19, 2008. In FY 2009, 30% of the ES&H requirements will be addressed. -For nuclear safety, execute the FY 2009 elements of the TA-V project plan that will complete this activity by the end of CY 2009. The orders that will be addressed are DOE O 414.1C, 420,1B, 425.1C, 433.1A, 5480.19, 5480.20A. Where Sandia is unable to find evidence of PPP or implementation of a requirement, determine what is required to implement the requirement and prepare separate plans that include implementation schedules. In addition: -By December 19, 2008 provide a plan to SSO for FY 2010 and beyond to implement this linkage for the remaining requirements and policy areas. The plan will include the approach for updating the linkages for new or revised Appendix G directives.			
10.2.4 Provide SSO a summary of improvements to management performance and effectiveness, gains in mission and operational efficiency resulting from maturation of the Model Contract and how these efficiencies were redirected	Outstanding	Disagree Good	Sandia provided an excellent summary of improvements to mission and operational efficiency, and management performance and effectiveness, but did not provide information on how these efficiencies were redirected.
10.2.5 Ensure quarterly Executive Office/Laboratory Leadership Team (EO/LLT) assurance briefings by Sandia Assurance Review Board (SARB) capture the "so what" by documenting management decisions, expectations, etc., that resulted from review and discussion of institutional cross-cutting assurance data that are intended to drive continuous improvement so that results and path forward are transparent to SSO.	Good	Disagree Unsatisfactory	At the conclusion of FY 2009, Sandia has made incremental progress in addressing this target. Sandia did not ensure quarterly Executive Office / Laboratory Leadership Team assurance briefings by the Sandia Assurance Review Board capture the "so what" by documenting management decisions, expectations, etc., that resulted from review and discussion of institutional cross-cutting assurance data that are intended to drive continuous improvement so that results and path forward are transparent to SSO. SSO acknowledges that Sandia changed SARB reporting from the LLT, a non-decision making body, to the Laboratory Transformation Leadership Council, and made other critical decisions as a result of SARB recommendations including reporting of SARB issues and COO decisions at partnering meetings; however, this does not meet the intent of the measure in FY 2009.

Performance Measure 10.3

Identify best commercial standards that have been developed by leading national organizations through reviews of practices across industries. Work with the SSO to gain acceptance of those standards that will yield efficiencies and/or improve performance with acceptable risk, as substitutes (not line-by-line replacements) for DOE Orders. Where suitable industrial standards do not exist and the potential for large improvements in efficiency are clear, perform limited benchmarking initiatives to develop suitable standards. Perform the above in accordance with contract Clause H-6 "Standards Management."

NNSA Rating: Unsatisfactory

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
10.3.1 Execute the *Adopt Standards and Best Business Practices Procedure* resulting in movement towards national/international standards and best business practices. FY 2009 deliverables will include: -A prioritized list of DOE Orders or Sandia processes to be evaluated for replacement by national/international standards. - Proposals for replacement of DOE Orders (in whole or in part with preference for entire replacement) with industry standards.	Outstanding	Disagree Unsatisfactory	This target was not met. Evidence was provided that the Adopt Standards and Best Business Practices procedure was adopted resulting in movement towards national / international standards and best business practices. A lengthy list of prioritized DOE Orders or Sandia processes to be evaluated for replacement by national / international standards was provided, however, only one Order, DOE O 414.1C was provided for replacement of DOE Orders (in whole or in part with preference for entire replacement) with industry standards. Sandia did engage with SSO on an ambitious effort to broadly replace existing contract and DOE Directives processes with industry practices in response to the Secretary's Reform Initiative. Sandia responded to NNSA's request for ideas and concepts to improve efficiency and effectiveness of governance and has followed up (in partnership with SSO) with executive participation in NNSA and DOE panels and committees on this subject as well as a substantial effort to redefine the Sandia contract. The effort continues into FY 2010 and has the potential to fundamentally improve efficiency by adopting industry practices

Other Considerations

Sandia is to be commended for the incorporation of a number of performance metrics in PerformanceSoft Views in FY 2009.

PERFORMANCE OBJECTIVE 11 – Systems Integration Technical Support (SITS) - Essential

Provide systems integration technical support to Federal Program Managers within Defense Programs for: (1) strategic management of the NW enterprise, including strategic planning, (2) strategic management of weapon and stockpile activities to include Life Extension Programs, stockpile analyses, other weapon modernization activities, and on-going stockpile surveillance; (3) the maintenance and improvement of federally-directed requirements processes; and (4) other tasks as requested by the program managers to include independent research and analysis, tradeoff studies, cost analyses, and systems analyses. As agreed upon with the Assistant Deputy Administer for Strategic Planning, Resources and Integration, provide planning, research, analyses and studies, as well as integrated schedule management, products and other systems engineering and integration activities as required.

Adjectival Rating – OUTSTANDING

Summary of Performance

SITS provided critical and impactful input to many portions of DP's Strategic Execution Plan (SEP) that was designed to implement the 2008 Defense Programs Strategic Framework. SITS provided extensive reviews and comments for SEP document; conducted and delivered benchmarking studies; inventoried critical skills across the National Security Enterprise (NSE); and updated the NSE functional analysis. Consistent with the FY 2009 Program Plan, SITS made major contributions to its Federal customers within DP.

SITS, through the RMI Program Office, which was activated in December 2008, supported the maintenance and improvement of the RMI implementation. All members of the RMI Action Committee (RAC) agreed to the revised Project Execution Plan. In March 2009, the RAC approved the Product Realization Process (PRP) Management & Operating Contractor Agreement (MOCA) charter at its Gate 1; the Technology Readiness Level/Manufacturing Readiness Level (TRL/MRL) went through Gate 3 (final Gate). The B61 LEP went through Phase Gate A on August 5 and was given a pass to proceed. The RMI Integrated Phase Gate (IPG) representative who facilitated the meeting was integral in preparing much of the Gate package, and trained LEP personnel on the requirements for implementing IPG. In addition to completed FY 2009 activities, the team crafted a plan for FY 2010 efforts, which involves prototyping the development of a staged Transition Plan which could be expanded for the entire enterprise. SITS delivered many products in support of strategic management of the weapon and stockpile activities. For the B61 Life Extension Program, SITS delivered numerous major program control documents (e.g., Program Management Plan, Risk Management Plan, Integrated Master Schedule, etc.). SITS continued its support of the Readiness Campaign; supported other Campaigns; and performed several studies and delivered the results to customers throughout DP.

Significant Accomplishments

Specific deliverables are listed below.

1. Provided extensive reviews/comments for the Strategic Execution Planning document. (NA-141)
2. Prepared a draft white paper that summarizes and integrates the results of Nuclear Security Enterprise-wide baselining/benchmarking activities and identifies other direct/indirect functional areas where potential cost savings and efficiencies may be realized. (NA-141)
3. Developed and socialized scenarios for uncertain futures for NNSA; briefed Sandia corporate planning, Systems Integration Leadership Council (SILC), and the Sandia Integration Advisory Board.; developed a SharePoint

collaboration site for capturing scenario planning information. (NA-141)

4. SITS led an effort to inventory capabilities/skills at the M&O sites by developing an inventory method and structure, interviewing dozens of weaponeers across the NSE, and reviewing applicable documents. A section on critical skills was provided as input to the Nuclear Posture Review (NPR). (NA-141)
5. Conducted an in depth analysis study to differentiate cost between different stockpile sustainment strategies. (NA-141)
6. Delivered the SITS Team report, *A Comparison of NNSA Facilities Data To Private Industry* to meet the data and information needs of the Corporate Physical Infrastructure Business Plan (CPIBP) document (NA-141)
7. Delivered the SITS Team report, *Functional Analysis of the Nuclear Weapons Complex – Phase 1 Report 2007 Updated June 2009 for the CPIBP*. (NA-141)
8. Wrote the guidance for NNSA-Labs-DTRA (Defense Threat Reduction Agency) MOU project negotiations that is pioneering a partner-relationship rather than the traditional customer-supplier-relationship. (NA-121)
9. Co-authored the Stimson Panel Statement of Work. Cited in the acknowledgements for support to the effort. (NA-121)
10. Created the conceptual framework around which the Focus Area 4 shared governance model has evolved. Prepared briefings of this model for Lab Directors, NNSA Administrator, the Under-Secretary for Science, Congressional Staff, and other agency leaders. (NA-121)
11. Published the FY 2010 Technical Basis for Stockpile Transformation Planning (TBSTP) and FY 2010 TBSTP Executive Summary. (NA-121.3.)
12. Completed a report on the Strategic Reserve with recommendations for aligning the composition of the Strategic Reserve (pits and CSAs) with a range of potential future stockpile scenarios. (NA-121.21)
13. Performed an Enhanced Surety Technical Options analysis by collecting and integrating technical and programmatic information for stockpile enhanced surety options. Data was gathered to provide an initial rough-cut analysis of the capabilities, capacities and costs of those options, along with their current status (Technology Readiness Level [TRL], Manufacturing Readiness Level [MRL], development plans, etc). (NA-122.2)
14. Completed the Complex Transformation Supplemental Programmatic Environmental Impact Statement (SPEIS) Administrative Record with materials considered directly or indirectly by the NNSA decision makers in developing the SPEIS ROD. (NA-141)
15. Performed an Energy Operating Cost Study to understand the energy cost increases for electricity, natural gas, LP Gas, fuel oil #2 and coal purchased for consumption by the M&O Site Contractors within the Nuclear Weapons Complex in FY 2009. (NA-17)

Opportunity for Improvement

None

Performance Measure 11.1

Demonstrate that Systems Integration Technical Support (SITS) is improving the integration of the complex through meaningful initiatives and excellent deliverables.

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
11.1.1 Submit by November 1, 2008, an updated SITS Program Plan for NA-14 approval that identifies a strategy for achieving measurable increase in the integration of the NW Program.	Outstanding	Agree	The SITS FY 2009 Program Plan and Strategy was submitted as Revision 1 for comment to NA-14 on October 27, 2008 and approved by NA-14 on January 28, 2009. The program plan describes the drivers for the plan and strategy and outlines the FY 2009 scope of work for SITS.

Performance Measure 11.2			
Assist Federal Staff in Strategic Planning.			
NNSA Rating: Outstanding			
Performance Target	**Sandia Self-Assessment Rating**	**NNSA Agreement**	**Comments**
11.2.1 Support the development of an NNSA Operational Plan consistent with the Strategic Planning Effort begun in FY 2008.	Outstanding	Agree	SITS provided critical input to portions of DP's strategic execution plan that is designed to implement the 2008 Defense Programs Strategic Framework. Aspects of this input included: providing extensive reviews/comments for the Strategic Execution Planning document; summarizing and integrating the results of the Nuclear Security Enterprise-wide baselining/benchmarking activities; identifying other direct/indirect functional areas where potential cost savings and efficiencies may be realized; capturing scenario planning information; leading an effort to inventory capabilities/skills at the M&O sites; hosting a meeting to set the future role and objectives for NA-143; comparing NNSA facilities data to private industry benchmarks; constructing an updated functional analysis of the Nuclear Weapons Complex; preparing FY 2009 NNSA budget charts, and developing a draft response to Congress on issues associated with the WFO Program. In support of NA-121, SITS also played a key role in the development and implementation of a long-term strategy for the health of NNSA Science and Technology. SITS created the conceptual framework for the shared governance model for the partnership. SITS prepared briefings for Lab Directors, the NNSA Administrator, the Under-Secretary for Science, Congressional Staff, and other agency leaders. SITS chaired an inter-agency working group (DoD, DOE, Director of National Intelligence [DNI], Department of Homeland Security [DHS], National Security Council [NSC], Office of Science and Technology Policy [OSTP]) to create an agreement for joint strategic capability planning for ST&E needs provided by the NNSA Labs.

Performance Measure 11.3			
Assist Federal staff in Program Integration.			
NNSA Rating: Outstanding			
Performance Target	**Sandia Self-Assessment Rating**	**NNSA Agreement**	**Comments**
11.3.1 Assist Federal staff in the development of integrated program plans and implementation plans for Campaigns, DSW, and RTBF. Conduct an analysis and provide recommendations to develop a model for RTBF that creates consistency across the NWC and provides better integration with Campaigns, DSW and Complex Transformation activities.	Outstanding	Agree	SITS made significant contributions in the development of integrated program plans and implementation plans for customers in the Campaigns, DSW, and RTBF. SITS developed and delivered major program control documents in support of the B61 Life Extension Program while supporting the program in achieving its Integrated Phase Gate (IPG) Gate A review. SITS continued its support to the Readiness Campaign Integrated Priority List while also supporting it with its strategic planning and technology maturation process. SITS supported transformation activities in Surveillance through an evaluation of the B61 Surveillance Program and supporting the Federal Program Manager with the identification, documentation, and implementation of actions to institutionalize changes to the NSE surveillance program. SITS also conducted and delivered major analyses to the RTBF program. SITS supported activities for the B61 LEP including: 1. Merged the Technical Planning and Controls Plan into the Program Management Plan Rev B 2. Delivered Program Management Plan Rev B 3. Supported Quantification of Margins and Uncertainties (QMU) activities 4. Revised the Risk Management Plan 5. Facilitated the B61Gate A Review August 5, 2009 a. Documented Gate A related Lessons Learned b. Managed Gate A Dry Run for all presenters c. Managed Gate A Dry Run classified VTC d. Provided Gate A Gatekeeper Training VTC e. Prepared the final Gate A Report/Package for shipment to team members 6. Delivered 6.2/6.2A Integrated Master Schedule (IMS) Rev A Developed a draft Document Control Process (change management for plans, processes, and other documents directing work activities
11.3.2 Develop a tool to support the			SITS supported the development of the Integrated

development and implementation of a zero based budgeting tool. This tool will ensure greater integration between Campaigns, DSW, RTBF, line item construction, and which incorporates the Records of Decision for the SPEIS. It will also support "budgeting" and be tied to the Strategic Planning Process, all in an effort to transform how NA-10 implements PPBE at NNSA	Outstanding	Agree	Budget Tool (IBT) to support the NNSA budget decision making process. The IBT includes detailed and comprehensive information about budgets and budgeting rules as well as programmatic activities and other costs including DSW, campaigns, RTBF operation of facilities, RTBF construction, and the Secure Transportation Asset. The model takes as input prioritized enterprise and fixed cost activities and, using an optimized competition for resources, derives a new budget allocation plan that honors budget constraints and shows the impact of these decisions on the future programs. Results of the model can be used by federal program managers to assist them during the budget decision making process.

Other Considerations

None

PERFORMANCE INCENTIVE 5 - NA-10 Multi-Site

NA-10 Multi-Site

Adjectival Rating: GOOD

Summary of Performance

Sandia had leadership responsibilities for three of the Multi-Site performance targets in FY 2009: Performance Target 5.2.4 (Implement Elements from NNSA developed Multi-Site Enterprise Information Technology [IT] Strategic Plan), Performance Target 5.3.4 (Demonstrate all of the components of an advanced initiation system), and Performance Target 5.3.5 (Demonstrate an advanced power-supply system). Sandia's leadership resulted in outstanding performance in fulfillment of the performance target expectations. For Performance Target 5.3.6 (Deliver a suite of Advanced Simulation & Computing models) – Sandia did not play a role in meeting the performance target expectations. In the other eleven performance targets, Sandia contributed to the Complex's response to the performance target expectations.

The one target not rated as passing by NNSA was Target 5.3.1 to complete a cumulative 50% progress in replacing key empirical parameters in nuclear explosive package assessment and simulation codes with improved physical data and physics-based models. The target was not met in getting data on Plutonium at Joint Actinide Shock Physics Experimental Research (JASPER) and other NA-10 facilities caused by: M&O test design failures; M&O test execution failures; and M&O failure to use procedures with previously proven acceptable risks. For Sandia, this included not completing Pu tests at the Z-machine.

The one target not rated by Sandia as outstanding was to achieve W76 LEP scheduled deliveries to the Navy and graded as unsatisfactory. The inability to meet the PCD delivery schedule was the result of the MC4710 Intent Stronglink (ISL) failing to meet a safety requirement in a specific abnormal environment. The MC4710 ISL failed to meet its Compatibility Drawing (CD) component safety requirements. This failure was based on a problem in the Sandia ISL design that was detected by Sandia and has been closely monitored by NNSA. Sandia's efforts resulted in the development and implementation of the MC4710 ISL Code Blue recovery plan to support the revised NNSA and Navy Delivery schedules associated with the W76-1 LEP. The Code Blue activities, undertaken to address MC4710 ISL and MC4713 launch accelerometer (LA) technical design and production issues, delayed delivery of the MC4700 Arming, Fuzing & Firing (AF&F) to Pantex. Sandia was able to successfully deliver against the recovery plan schedule as renegotiated with the NNSA and the Navy but at additional costs to the Complex and after a reduction in the requirement for the Navy.

For all fifteen targets, the grading and comments supplied by NNSA is followed by a summary of Sandia contribution to the target.

Significant Accomplishments

- Sandia completed the qualification test activities in support B61-7/11 ALT 357 satisfying the requirements of this multi-site milestone a month early of the due date.
- Sandia provided weapon systems engineering and weapons response technical support to Pantex in support of Authorization Basis (AB) approvals necessary to enable completion of greater than PCD required dismantlements.
- Sandia provided technical development and support to Pantex for the PGS system that will further streamline dismantlement operations on all systems.
- Sandia exceeded objectives by producing over four months of finished goods inventory even though production was interrupted by Sandia's energetic stand-down.
- Sandia worked with Savannah River Site (SRS) and completed requisite activities four months ahead of

schedule in completing the filling of a prototype unit with tritium gas in December, 2008 and January, 2009 and demonstrating an advanced power-supply system for future stockpile applications.

Opportunity for Improvement

MC4710 ISL and MC4713 Launch Accelerometer (LA) technical design and production issues delayed delivery of the MC4700 AF&F to Pantex. The MC4700 AF&F product flow at the KCP was impacted by a MC4710 ISL design issue that permits electrical unlock following a lockup event given a unique set of abnormal environments referred to as abnormal electrical unlock (AEU) susceptibility. The MC4700 AF&F was also impacted by MC4713 LA design modifications and production process improvements made to increase LA production yield and reliability. This resulted in the inability to meet W76-1 rate production as defined in the NNSA PCD. NNSA declared a Code Blue activity to manage the high risk MC4700 AF&F delivery schedule from KCP to Pantex and the shipments to support IOC. The Code Blue activity resulted in requiring increased funding to the W76-1 Program of over $10.5M for the NNSA Complex for FY 2009. Sandia staff worked diligently with staff at Kansas City and Pantex to meet the new schedule and resolved the ISL and other problems as they occurred. Sandia Senior Management should ensure timely resolution of issues to assist NNSA in making risk informed decisions.

Performance Measure 5.1

Stockpile

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
5.1.1 Achieve the W76 LEP scheduled deliveries to the U.S. Navy (DSW).	Unsatisfactory	Agree	All renegotiated deliveries were met as scheduled. The one target not rated by Sandia as outstanding was to achieve W76 LEP scheduled deliveries to the Navy. Sandia rated this as unsatisfactory. MC4710 ISL and MC4713 Launch Accelerometer (LA) technical design and production issues delayed delivery of the MC4700 AF&F to Pantex. First it is recognized that through diligence Sandia found the issue with the ISL, worked to develop an effective screen, implemented lower level of assembly procedure changes that are giving high yields, and quickly developed a low cost high confidence long term fix. Sandia evidenced a deep commitment to nuclear weapon safety. The MC4700 AF&F product flow at the KCP was impacted by the MC4710 ISL design issue that permits electrical unlock following a lockup event given a unique set of abnormal environments referred to as abnormal electrical unlock (AEU) susceptibility. The MC4700 AF&F was also impacted by MC4713 LA design modifications and production process improvements made to increase LA production yield and reliability. This resulted in the inability to meet W76-1 rate production as defined in the NNSA PCD. NNSA declared a Code Blue activity to manage the high risk MC4700 AF&F delivery schedule from KCP to Pantex and the shipments to support IOC. The Code Blue activity resulted in requiring increased funding to the W76-1 Program of about $10.5M for the Complex for FY 2009 of which $3.6M is for Sandia.
5.1.2 Complete the B61-7/11 Alteration 357 LEP builds at Pantex Plant by Dec 08 (DSW).	Outstanding	Pass	Alt 357 completed production and assembly activities one month early in November 26, 2008. All sites successfully supported completion and 100% on-time delivery of Alt 357 units to the Air Force. Completion of

			the CSA refurbishment project restores capability in the B61-7111 strategic deterrent. Sandia's B61 Systems engineering team provided technical engineering support through the final two months of production of the ALT 357 LEP canned sub-assembly (CSA) retrofit of the B61-7, 11 completed at the Pantex Plant in November 2008. Sandia completed the qualification test activities in support of LANL ALT 357 certification. All deliverables and requirements for the B61-7, 11 ALT 357 LEP were completed satisfying the requirements of this multi-site milestone a month in advance of the December, 2008 due date.
5.1.3 Perform B61 LEP Phase 6.2/2A study to include completion of Requirements Development Analysis Stage (DSW)	Outstanding	Pass	B61 Phase 6.212A Study successfully achieved joint DoD and NNSA approval of Integrated Phase Gate A (Source Requirements) on August 5, 2009. Gate A approval marks DoD and NNSA acceptance of study requirements, risks, and risk handling strategies, and authorizes the project to proceed forward with design concept development. The Sandia B61 Systems team began the Phase 6.2 study in October 2008. This effort was rescoped in April to a full Life Extension Program, with participation from LANL. The team completed requirements assessments, developed and analyzed source documents for the Gate A review, and analyzed and validated stakeholder requirements. The draft DoD source requirements were reviewed by teams with both Design Agency and Production Agency representation. The review of the requirements and associated risks were presented at Gate A on August 5, 2009 to the NNSA gatekeepers per the tailored Integrated Phase Gate Process.
5.1.4 Exceed (1>PCD) the scheduled weapon dismantlement quantities at Pantex and CSA dismantlement quantities at Y-12 (DSW).	Outstanding	Pass	Exceeded the scheduled weapon dismantlement quantities at Pantex by 20% and CSA WR dismantlement quantities at Y12. Sandia provided weapon systems engineering and weapons response technical support to Pantex in support of Authorization Basis (AB) approvals necessary to enable completion of greater than PCD required dismantlements. Sandia provided technical development and support to Pantex for the PGS system that will further streamline dismantlement operations on all systems. Sandia completed all W88 readiness activities early or on-schedule. The Sandia B53 and W84 systems and weapons response teams continue to support SS-21 activities per the NNSA project team schedules. Sandia's Component Characterization team completed characterization on over 19,750 parts during FY 2009 in support of the enduring stockpile and retired systems.
5.1.5 Deliver limited life components and alteration kits to the Department of Defense and complete all scheduled surveillance activities per authorized program management documents, i.e., PCDs and MNS Volume III (DSW).	Outstanding	Pass	All limited life components were delivered as scheduled in the MNS Volume III. The 99.9% of scheduled surveillance activities were completed. Only the WETL tester remains outstanding, but is scheduled to be completed the 1st quarter 2010. Neutron generators by weapon system that were

			delivered per the Directive Schedule include 1) 2 W76-1 units in 5 shipments, 64 W76-0 units in 8 shipments, 54 W78 units (MC4381 and MC3051B) in 5 shipments, and 106 Packaging Kits in 10 shipments. Sandia exceeded objectives by producing over four months of finished goods inventory even though production was interrupted by Sandia's energetic stand-down. Sandia's External Production product realization teams completed all delivery requirements for Alt 356, 358 and 359 Spin Rocket Motor (SRM) deliveries for the B61 program, delivering 228 MC4627 SRM to Pantex in five shipments. The final lots of SRMs were accepted by Sandia and SSO August 31, 2009.

Performance Measure 5.2

Accelerate Complex Transformation

NNSA Rating: Outstanding

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
5.2.1 Successfully complete NNSA-approved priority activities in support of Complex/Enterprise Transformation. Activities will be transformational in nature both in direct and indirect, not currently budgeted, and funded through contractor efficiencies	Outstanding	Pass	Eighty-two priority tasks were proposed by the sites in support of Complex/Enterprise Transformation. Seventy-one (over 87%) of these tasks were successfully completed and are Enterprise transformational initiatives that include: KCRIMS activities, Site 300 consolidation, Closing Excess Facilities, Macro Baseline Benchmark (MBB), Energy Reduction, Destruction and Disposal of Classified Parts, etc. The number of successfully completed tasks will probably increase as a few of the Site Offices are still in the process of completing their review of the M&O's documentation packages. Sandia developed a portfolio of projects, representative of the business, operations, efficiency, and program transformation efforts. SSO approved 15 multi-year projects. With the exception of the GTS project, Sandia completed the planned FY 2009 work for all of the identified projects. SSO reviewed the evidence packages for the 14 projects and concurred with the completion. In addition Sandia completed the complex-wide Macro-Baseline/Benchmark (MBB) project in May 2009.
5.2.2 Promote the development and implantation of world-class supply chain attributes of the Supply Chain Management Center (SCMC) and purchasing organizations on a Complex-wide basis, with substantial participation and collaboration from all sites. Reduce the cost of product/service commodities, increase the efficiency of the NNSA- Complex supply chain, and improve the site, the quality and retention of the NNSA Complex contractor wide integration of SCMC tools and processes. Enhance acquisition workforce.	Outstanding	Pass	Completed satisfactorily. Sandia met or exceeded all site goals as they were documented in the NNSA SCMC scorecard. Sandia's specific contributions are as follows: eSourcing events $0-$100K – Met the goal of two events. $100K - $1M – Met the goal of eight events. > $1M – Completed seven events exceeding the goal of three events. Dollars of eSourcing Events - Contribution to this complex-wide goal totaled $39M. Savings from eSourcing Events – Contributed over $10M in savings, 65% higher than the goal of $6M. This was a 26.1% savings, surpassing the goal of

			15%. Spend Analysis – Data Cleansing – Achieved a 94% rate, exceeding the 90% goal. eStore Orders – Met the multi-site goal by processing three production orders through eStore. Software issues limited Sandia's ability to meet the stretch goal of 3,000 orders through eStore in FY 2009. Sandia had paperless transactions of 91% which was slightly short of a goal of 92% paperless transactions.
5.2.3 Complete shipments of SNM for the Hanford de-inventory and remove 8 metric tons of SNM from NNSA sites to proper storage facilities between 01 Oct 08 and 30 Sep 09.	Outstanding	Pass	Completed shipments of SNM for the Hanford de-inventory and removed 8-metric tons of SNM from NNSA Sites to proper storage facilities. Overall, the participating sites did a very commendable job in getting this milestone accomplished, especially with the awarding of the new 12.1-metric ton HEU down-blending contract not occurring until 3QFY 2009. Sandia coordinated with the LANL Source Recovery Program to develop and implement a plan to remove excess sources at Sandia. Sandia successfully executed the Phase III plan to remove No Defined Use material from Sandia. A total of 1.7 metric tons of material was properly dispositioned, of which 8.631 kg was SNM. Sandia continued to support NA-58 with de-inventory lessons learned and consulting services for the transport of the SPR-II at DAF and Aberdeen reactor fuel (at a DoD facility) for eventual disposition at the SRS.
5.2.4 Implement Elements from NNSA developed Multi-Site Information Technology (IT) Strategic Plan. Specifically complete the following: - Develop 2010 – 2016 Multi-Site IT targets. - Develop and communicate an integrated IT/Cyber roadmap to strengthen integration between IT and Cyber Security. - Define an IT services framework for the Nuclear Weapons Complex. - Complete cross-Complex comparison of IT costs and identify best practices and potential cost reductions. - Develop Complex-wide information sharing environment implementation plan. - Develop a real-time or near real-time out-of-band incident and response network which can support unclassified incident management Complex-wide. (NNSA-CIO)	Outstanding	Pass	The IT Multi-Site Team (CIOs and representatives from all 8 - National Security Enterprise (NSE sites)) implemented the second phase of an approved multi-year Complex wide IT plan and successfully completed FY 2009 Milestones. Sandia CIO Art Hale and Kansas City Plant CIO Robert Ottesen led the IT team which included CIOs and representatives from all eight sites. Sandia worked to identify/document targets for implementation in years 2010-2016 with linkage to the NNSA OCIO Strategic Plan. The targets align with the NNSA strategies of 1) "Execute the Mission", 2) "Ensure Security", and 3) "Transform the Complex" are: Improve Incident Response Improve Collaboration Services Define and Deploy Core/Common Services Conduct a Records Management assessment and deliver a roadmap applicable to the complex. Sandia led the effort to document the details of the "Improve Incident Response" section of this target. The team of representatives of all sites generated a report with documentation for each of the four initiatives and provided it to Bob Brese in December 2008. The documentation included a description of initiative phases with specific deliverables by year, as well as the benefits, dependencies, detailed costs, and risks for each target.

Performance Measure 5.3

Science

NNSA Rating: Good

Performance Target	Sandia Self-Assessment Rating	NNSA Agreement	Comments
5.3.1 Replace empirical parameters. Complete a cumulative 50% progress in replacing key empirical parameters in nuclear explosive package assessment and simulation codes with improved physical data and physics-based models. Demonstrate progress by completion of agreed upon level 2 milestone in FY2009 (Science). .	Outstanding	Disagree Fail	Target was not met in getting data on Plutonium at Joint Actinide Shock Physics Experimental Research (JASPER) and other NA-10 facilities caused by: M&O test design failures; M&O test execution failures; and M&O failure to use procedures with previously proven acceptable risks. Sandia's contributions to this multi-site deliverable include both acquisition of physical data and development of physical models for simulation codes. Sandia's efforts relative to six Science Campaign Level II Milestones (2883, 3125, 3128, 3134, 3135 and 3139) demonstrate progress in achieving this stretch goal. Of the six milestones, four were successfully completed in FY 2009. NNSA headquarters (HQ) has agreed to postpone MS3125 and MS3134 until FY 2010. Milestone MS3125 was rescheduled at LANL's request because of the delay in obtaining authorization to conduct the Barolo experiments at the Nevada Test Site, and MS3134 was rescheduled at Sandia's request in order to complete plans for waste disposition and possible decontamination activities associated with the plutonium shot on Z. Concerns with the Pu shot at Z stem from the loss of confinement without the presence of special nuclear materials (SNM) on Z during a high-current test, JASPER's second loss of containment, and lessons learned from Sandia's rocket sled accident raised concerns about conducting further plutonium experiments on Z without additional assessment and action to understand and mitigate the risk. Additional risk analysis was performed in 2009 that indicated additional planning for potential loss of containment was prudent. As a consequence, Sandia implemented an internal independent assessment to review (1) the regulatory compliance documentation for SNM on Z, (2) the JASPER facility and follow-on interviews with operations management, (3) engineering documentation of SNM-on-Z hardware, (4) Z's vacuum insulator stack as secondary containment, and (5) primary containment breach procedures (a decontamination plan). The findings of the internal independent assessment team are described in a 48-page document, dated August 11, 2009. To address items (4) and (5), Sandia engaged LANL Pu subject matter experts who conducted an analysis of containment issues and processes and prepared a 26-page document, LA-CP-09-0794, dated July 31, 2009. Although the Milestones were rescheduled, the Target was not met for the Complex.
5.3.2 Prepare an integrated program of work at the NTS which prioritizes all of the diagnostic development and capability maintenance independent of the particular laboratory or specific	Outstanding	Pass	Completed satisfactorily. Sandia participated in tri-lab and Joint Nevada Program Office (JNPO) planning meetings and submitted detailed input related to a Nevada three-year plan for NSTec lab work. Sandia's input addressed dynamic

subprogram being supported (Science)			materials properties, radiography, high energy density physics, and other support areas. The JNPO submitted the FY 2009-2011 version of the Nevada test Site Tri-Lab Three-Year Plan to NA-121.1 on March 23, 2009. Sandia contributed to a draft version of the FY 2010-12 plan, which was subsequently submitted to NA-121.1. Sandia staff participated in a three-year planning meeting in June to negotiate FY 2010 NSTec resources for radiography, dynamic materials, and secondary assessment. Sandia supported Nevada in producing the final written report.
5.3.3 Complete the National Ignition Facility Construction Project on schedule by March 2009 and conduct the first stewardship relevant experiment (ICF)	Outstanding	Pass	Completed satisfactorily. Sandia had no contribution to the NIF construction project: This was an LLNL-only effort. Sandia contributed technical expertise, as requested by LLNL, to support the first stewardship relevant experiment on NIF. In particular, the lead designer for the 96-beam and 192-beam vacuum hohlraum shots that were conducted during Q3 and Q4 on NIF is a Sandian. Data were obtained on Dante and the streaked x-ray imager.
5.3.4 Demonstrate all of the components of an advanced initiation system that when integrated would provide a new level of safety for future weapon firing systems with the goal of removing any exception to the Major Assembly Release (MAR) (Engineering)	Outstanding	Pass	Both Los Alamos & Sandia coordinated and completed their portions of the advanced initiation design and evaluation. On 03SEP09, the Sandia and LANL Direct Optical Initiation (DOI) team completed the first draft of the "DO1 Operational Concept Description Document; Part 1: Need Statement." The FY 2009 continuing resolution and associated budget decreases resulted in the cancellation of Level II milestone #3105 (Deliver validated DOI requirements document), as reflected in PO-2. Efforts were redirected to execute this multi-site incentive and Sandia worked with LANL to renegotiate the grading and exit criteria due to funding limitations. On September 3, 2009, the Direct Optical Initiation (DOI) Sandia and Los Alamos team completed the first draft of the "Direct Optical Initiation (DOI) Operational Concept Description (OCD) Document; Part 1: Need Statement". The Needs Statement provides the reasoning for an optically initiated firing set based on logic derived from Nuclear Safety Fault Tree Development. FY 2010 DOI work will focus on developing technologies that will meet the need of minimizing the probability of compatible initiation energies present. This memo documents the completion of the NNSA Multi-Site Incentive #3309: "Initiate an integrated system analysis of the C5 Advanced Initiation System designed with the intent to provide a new level of safety for future weapon firing-systems. Both LANL and Sandia coordinated and completed their portions of the advanced initiation design and evaluation.
5.3.5 Demonstrate an advanced power-supply system (proto-typical) for future stockpile applications (Engineering)	Outstanding	Pass	Exceeded expectation of the multi-site incentive. Sandia with the Savannah River Site (SRS) completed their requisite activities four months ahead of schedule and SRS Tritium Production and Savannah River National Laboratory filled a thermoelectric transducer with tritium gas on December 3, 2008 and on January 21, 2009, the unit was placed into secondary containment storage to begin a two-year power performance assessment. The demonstration was completed and documented on April

			16, 2009. Sandia worked with Savannah River Site (SRS) and completed requisite activities four months ahead of schedule in completing the filling of a prototype unit with tritium gas in December, 2008 and January, 2009. This unit was placed into secondary containment storage and a regular performance measurement procedure was established. On December 3, 2008, the Sandia Advanced Power project team, in conjunction with the Savannah River Site Tritium Production and Savannah River National Laboratory completed filling a thermoelectric transducer power system with tritium gas. On January 21, 2009 the unit was placed into secondary containment storage and a regular performance measurement procedure was established. On April 16, 2009, a Sandia memo was issued to document the completion of the NNSA Level Multi-site Incentive Milestone #3310: "Demonstrate an advanced power-supply system."
5.3.6 Deliver a suite of Advanced Simulation & Computing (ASC) models & databases that can be applied to National Technical Nuclear Forensics (NTNF) activities, including debris signature modeling and other nuclear security applications.	Unscored	Unscored	Completed satisfactorily. Sandia did not have any contribution to this target in FY 2009. All deliverables will be produced by LANL and LLNL.

Other Considerations
None

ACRONYM LIST

ACREM	Accountable Classified Removable Electronic Media
ACRR	Annular Core Research Reactor
AF&F	Arming Fuzing and Firing
AHCF	Auxiliary Hot Cell Facility
ALCM	Air Launched Cruise Missile
AML	Advanced Material Laboratory
AP	Additional Protocol
ARRA	American Recovery and Reinvestment Act
ASC	Advanced Scientific Computing
ASC	Advanced Simulation & Computing
ASIC	Application Specific Integrated Circuits
BES	Basic Energy Sciences
BDMS	Blend Down Monitoring System
CA	California
CAIRS	Computerized Accident/Incident Reporting System
CAP	Corrective Action Plan
CAS	Contractor Assurance System
CASA	Common Adaptable System Architecture
CAT	Consequence Assessment Team
CATS	Corrective Action Tracking System
CDM	Concurrent Design and Manufacturing
CDNS	Chief of Defense of Nuclear Safety
CER	Complete Engineering Release
CFO	Chief Financial Officer
CFPP	Corporate Fire Protection Program
CGP	Construction General Permit
CI	Counterintelligence
CINT	Center for Integrated Nanotechnologies
CIS	Company Name
CME	Component and Material Evaluation
CPIBP	Corporate Physical Infrastructure Business Plan
CMPC	Classified Matter Protection and Control
COO	Certificate of Occupancy
COOP	Continuity of Operations
CPI	Cost Performance Index
CRADA	Cooperative Research and Development Agreement
CRF	Computer Research Facility
CSA	Canned Sub-Assembly
CSDRD	Communication System Design Requirements Documents
CX	Critical Experiment
D&C	Determination and Certification
DART	Days Away and Restricted Duty Case Rate
DHS	Department of Homeland Security
DICCE	Design, Integration, Construction, Communication, and Engineering
DM	Deferred Maintenance
DNDO	Domestic Nuclear Defense Organization
DNN	Defense Nuclear Nonproliferation
DNFSB	Defense Nuclear Facilities Safety Board
DoD	Department of Defense
DOE	Department of Energy
DOF	Degrees of Freedom
DOI	Direct Optical Initiation
DP	Defense Program
DSA	Documented Safety Analysis
DSW	Directed Stockpile Work
EA	Engineering Authorizations
EE	Office of Energy Efficiency and Renewable Energy
EFRC	Energy Frontier Research Center
ELNG	Electronic Neutron Generator
EMS	Environmental Management System
EOC	Emergency Operations Center
EPHA	Emergency Preparedness Hazard Assessment
ESC	Enhanced Surveillance Campaign
ES&H	Environment, Safety, and Health
ESRB	Executive Safety Review Board
ETO	Emitter Turn-off Thyristor
EVMS	Earned Value Management System
FBI	Federal Bureau of Investigations
FCI	Facility Condition Index
FEMA	Federal Emergency Management Agency
FENG	Ferroelectric Neutron Generator
FES	Fusion Energy Sciences
FHA	Fire Hazard Analyses
FIMS	Facilities Information Management System
FIRP	Facilities Infrastructure Replacement Program

FMCT	Fissile Material Cut-Off Treaty
FPE	Fire Protection Engineer
FPU	First Production Unit
FSU	Former Soviet Union
FY	Fiscal Year
GBD	Global Burst Detector
GIPP	Global Initiatives for Proliferation Prevention
GNEP	Global Nuclear Energy Partnership
GPP	General Plant Project
GPS	Global Positioning System
GTRI	Global Threat Reduction Initiative
GTS	Gas Transfer System
HATT	Hazard Analysis Task Team
HC	Hazard Category
HEU	Highly Enriched Uranium
HPI	Human Performance Improvement
HQ	Headquarters
HR	Human Resources
HSM	Heating System Modernization
IAEA	International Atomic Energy Agency
IBL	Ion Beam Laboratory
ICF	Inertial Confinement Fusion
IDD	In-Device Delay
ILMS	Integrated Laboratory Management System
INPO	Institute for Nuclear Power Operations
IPG	Integrated Phase Gates
IPOC	Innovation Parkway Office Center
ISL	Intent Stronglink
ISMS	Integrated Safety Management System
ISO	International Organization for Standardization
IT	Information Technology
ITAG	Interdiction Technical Analysis Group
ITAR	International Traffic in Arms
JASPER	Joint Actinide Shock Physics Experimental Research
JNSS	Joint Nuclear Surety Study
JPC	Joint Performance Council
JPRT	Joint Performance Review Team
JTA	Joint Test Assembly
KAFB	Kirtland Air Force Base
KCP	Kansas City Plant
LANL	Los Alamos National Laboratory
LDRD	Laboratory Directed Research and Development
LEED	Leadership in Energy and Environmental Design
LEP	Life Extension Program
LESA	Laboratory Enterprise Self Assessment
LLNL	Lawrence Livermore National Laboratory
LNG	Liquid Natural Gas
LNO	Logistics Nuclear Operation
LTES	Long-Term Environmental Stewardship
LTS	Long-Term Stewardship
MAEC	Mangyshlak Atomic Energy Complex
M&O	Management and Operating
MC	Military Characteristics
MC&A	Materials Control & Accountability
MDA	Missile Defense Agency
MDS	Company Name
MEF	Mission Essential Functions
MESA	Microsystems and Engineering Sciences Applications
MNF	Manzano Nuclear Facility
MOU	Memorandum of Understanding
MSAPR	Management System Assurance Program Report
MTC	Metal Trades Council
NAPS	NNSA Policy Letters
NE	Office of Nuclear Energy
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NG	Neutron Generator
NGSA	NG Sub-Assemblies
NHI	Nuclear Hydrogen Initiative
NIF	National Ignition Facility
NINE	National Institute for Nano Engineering
NMSF	Nuclear Materials Storage Facility
NNSA	National Nuclear Security Administration
NOTE	Non-Occurrence Trackable Event
NRC	Nuclear Regulatory Commission
NSE	National Security Enterprise
NTA	Navy Test Assemblies
NWC	Nuclear Weapons Complex
OAA	Operational Awareness Activity
OCRWM	Office of Civilian Radioactive Waste Management
OE	Office of Electricity Delivery and Energy Reliability
OE	Office of Enforcement

OECM	Office of Engineering and Construction Management
OFI	Opportunities for Improvement
OIO	Office of Independent Oversight
OPEIU	Office and Professional Employees International Union
OPSEC	Operations Security
ORPS	Occurrence Reporting Processing System
ORR	Operational Readiness Review
OST	Office of Secure Transportation
PA	Production Agency
PALS	Partnerships, Agreements, and Licensing System
PCD	Program Control Document
PEAR	Performance Evaluation and Assurance Report
PEG	Performance Execution Guidance
PEM	Polymer Electrolyte Membrane
PEP	Performance Evaluation Plan
PER	Performance Evaluation Report
PGS	Power-free Gas Sampling
PHS	Primary Hazard Screen
PI	Performance Incentive
PIP	Program Implementation Plan
PISA	Potential Inadequacy of the Safety Analysis
PO	Performance Objective
PP	Physical Protection
P&PD	Production & Planning Directive
PREP	Preliminary Real Estate Plan
PRIDE	Product Realization Integrated Digital Enterprise
PRT	Project Realization Team
PX	Pantex
QA	Quality Assurance
QAIP	Quality Assurance Inspection Procedure
QAS	Quality Assurance Survey
QASPR	Qualification Alternatives for the Sandia Pulsed Reactor
QE	Qualification Evaluation
QER	Qualification Engineering Release
QMS	Quality Management System
QMU	Quantity, Margins, and Uncertainties
RAI	Request for Additional Information
R&D	Research & Development
RF	Research Foundation
RMI	Responsive Management Infrastructure
RPV	Replacement Plant Value
RST	Rocket Sled Track
RTBF	Readiness in Technical Base and Facilities
S&S	Safeguards and Security
S&T	Science and Technology
Sandia	Sandia Corporation
SAC	Science Advisory Committee
SAT	Stockpile Assessment Team
SAR	Safety Assessment Report
SAR	Synthetic Aperture Radar
SARB	Sandia Assurance Review Board
SAT	Secondary Assessment Technologies
SC	Office of Science
SCIF	Special Compartmented Information Facility
SCMC	Supply Chain Management Center
SEP	Strategic Execution Plan
SFENG	Small Ferro Electric Neutron Generator
SFT	Stockpile Flight Tests
SIMP	Security Incident Management Program
SITS	System Integration Technical Support
SLAT	System Level Acceptance Test
SLT	Stockpile Lab Tests
SLD	Second Line of Defense
SNL	Sandia National Laboratories
SNL/LL	Sandia Corporation Lead Laboratory
SME	Subject Matter Expert
SMU	Strategic Management Unit
SNM	Special Nuclear Material
SOW	Statement of Work
SPEIS	Supplemental Programmatic Environmental Impact Statement
SPI	Schedule Performance Index
SPR	Sandia Pulsed Reactor
SRM	Spin Rocket Motor
SRW	Service Repair and Warranty
SSO	Sandia Site Office
SSIP	Sandia Safeguards and Security Improvement Project
SSRP	Security Systems Replacement Project
ST&E	Science, Technology and Engineering
STE	System Test Equipment
STS	Stockpile-to-Target Sequence
TCO	Test Coordination Office
TCR	Test Complex Revitalization
TRCR	Total Recordable Case Rate
TRL	Technology Readiness Levels
TRU	Transuranic

TSPA	Total System Performance Assessment
TSR	Technical Safety Requirements
TSS	Technical Security Services
TSS	Technical Security Systems
TTR	Tonopah Test Range
TYSP	Ten Year Site Plan
UK	United Kingdom
UMC	Unneeded Materials and Chemicals
UQ	Uncertainty Quantification
USAFE	US Air Force, Europe
USG	United States Government
UTTR	Utah Test and Training Range
VAFB	Vandenberg Air Force Base
VNIITF	All Russia Scientific Research Institute of Technical Physics
VTR	Vault Type Rooms
WETL	Weapons Evaluation Test Laboratory
WFO	Work For Others
WFS	Web File Share
WG	Working Group
WMD	Weapons of Mass Destruction
WP&C	Work Planning and Control
YMP	Yucca Mountain Project
Z	Z Facility