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National Nuclear  
Security Administration

FY 2013 PEP

NATIONAL SECURITY  
TECHNOLOGIES, LLC  
Performance Evaluation  
Report

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**NEVADA FIELD OFFICE  
NNS**

**Performance Period:**  
October 2012 – September 2013

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**December 16, 2013**

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## Executive Summary

The Nevada National Security Site (NNSS) is managed and operated by National Security Technologies, LLC (NSTec) for the U.S. Department of Energy, National Nuclear Security Administration (NNSA). Each of the five performance objectives (PO) described below are used to determine the contractor's performance and impact on the NNSA mission. Contributing factors and applicable site specific outcomes were assessed in aggregate to establish adjectival performance ratings for each performance objective.

For **PO #1**, NSTec's performance for the programmatic commitments for the nuclear weapons program was **EXCELLENT**. The multi-organization Pollux subcritical experiment was a highlighted achievement. NSTec successfully overcame significant technical and logistical challenges (especially with vessel procurement) to enable the successful execution of Pollux, the first-of-a-kind subcritical experiment in the U1a Complex, with 100% data recovery on an extremely compressed schedule. NSTec deployed the Optical Cavity Probe and the Multiplexed Photonic Doppler Velocimetry (MPDV), which combined with the Cygnus radiographs provided unprecedented data that showed never before seen observations of special nuclear material. NSTec also successfully supported Joint Actinide Shock Physics Experimental Research (JASPER) experiments, including seven Pu (as well as the successful deployment of redesigned targets) and six surrogate experiments. The data obtained from these experiments directly contributes to the enhanced understanding of weapons science, material properties, and component performance for the nuclear weapons stockpile future. NSTec continued refining and executing the Device Assembly Facility (DAF) integrated plan, enabling more efficient project introduction and performance while maintaining a larger set of concurrent operations to maintain the facility in a safe and secure manner. Key DAF accomplishments included 26 National Criticality Safety Experiments, seven JASPER experiment builds, the Pollux subcritical experiment build, and the international OPSIS emergency response exercise, all while reducing the DAF maintenance backlog. NSTec also worked to support the B61 Life Extension Program by developing a classified machining capability (at minimal cost) to alleviate some National Security Laboratories critical path issues. The proactive engagement of NSTec to work with the laboratories allowed critical laboratory deliverables to be met on time. Areas for improvement are the quality and timely completion of safety basis documents that govern mission execution and inconsistent cost estimates for NA-15 projects.

For **PO #2**, NSTec's support of the broader National Security Mission is rated **VERY GOOD**. NSTec effectively managed scope changes and a significant number of data calls associated with the uncertainties of Continuing Resolutions, sequestration, and lapse in appropriations. Impacted programs included Defense Nuclear Non-proliferation (DNN), National Emergency Response (NER), and Environmental Management (EM). In response to reduced NNSA funding, NSTec successfully balanced the NNSA mission portfolio with Interagency Work to avoid personnel reductions that would negatively impact mission while effectively keeping stakeholders aware of mission execution status and changes. NSTec Global Security, including DNN and NER, achieved greater than 99% of mission deliverables on-time and within budget. The DNN programs at NSTec saw successes in Global Threat Reduction Initiative, Comprehensive Inspection Technologies, and Chain of Custody projects. For DNN, NSTec missed an important milestone for the Source Physics Experiment (SPE) due to lack of integrated support and slow response to the issues encountered. For the NER program, NSTec was successful in supporting the multi-agency 2013 Presidential Inauguration, the International OPSIS nuclear exercise at the Device Assembly Facility (DAF), 1st time Coast Guard Nuclear/Radiological Advisory Team (NRAT) exercise in Kodiak, Alaska, Consequence Management (CM) & Disposition and Forensic Evidence Analysis Team (DFEAT) exercises. NSTec Aviation program also won the U.S. DOE Jeff Snow Aviation Program Memorial Award. For the EM Program,

cost and schedule performance for the NNS Environmental Management activities positively exceeded performance targets, all Federal Facility Agreement and Consent Order (FFACO) deadlines were met, and all post-closure inspections maintenance and reporting were completed. NSTec also maintained the capability to receive and dispose of up to 1.2 M ft<sup>3</sup> of low-level waste. NSTec showed leadership in proactively preparing for the receipt of the Consolidated Edison Uranium Solidification Program (CEUSP) waste stream and the BUP-500 despite significant scrutiny of the program by the State of Nevada. This work scope supported Oak Ridge National Laboratory's efforts to reduce their nuclear facility footprint.

For **PO #3**, NSTec's performance in support of the science, technology and engineering mission was **EXCELLENT**. NSTec developed a very effective and relevant R&D program with a relatively modest budget of ~\$7M per year. NSTec contributions resulted in an R&D 100 award in FY13 for the Demonstration Using Flat-top Fissions (DUFF) experiment, a collaborative effort with Los Alamos National Laboratory (LANL) and National Aeronautics and Space Administration (NASA). NSTec deployed the Advanced Optical Cavity with MPDV systems on Gemini, developed the next generation MPDV system, and expanded its use to Dual Axis Radiographic Hydrodynamic Test (DARHT) Facility at LANL and Site 300 at Lawrence Livermore National Laboratory (LLNL). These diagnostics provided unprecedented, high quality data that revealed never before seen observations of surrogate and special nuclear material. The data collected from these revolutionary diagnostics is now requiring the weapons designers and physicists to reevaluate their understanding of both nuclear and non-nuclear material performance. This data will provide better assessments of weapons performance in the current stockpile by helping characterize aging and providing fundamental data for those systems undergoing modernization. In addition, NSTec developed a NNS Technology Needs Assessment for Research and Development that is establishing a roadmap to address the national security challenges. To meet those demands, NSTec continued working with external entities (HQ, National Security Laboratories, University of Nevada Las Vegas (UNLV), Idaho State University, NASA, Intelligence Community, etc.) to identify areas in which properly tailored research and development will stimulate innovation and produce technological solutions.

For **PO #4**, NSTec's overall performance for Security, Infrastructure, Environmental Stewardship, and Institutional Management was **VERY GOOD**. NSTec effectively and efficiently managed site operations while maintaining an NNSA enterprise-wide focus and demonstrated accountability for mission performance under their purview. Positive performance metrics were demonstrated by no Technical Safety Requirement (TSR) violations and a high level of safety system operability. NSTec performed excellently in the execution of the worker health and safety programs, effectively implemented the environmental protection program, disposed excess weapons components for the NNSA complex saving \$1.3M, led back office consolidations for the site resulting in savings of ~\$965K annually, Dispositioned personal property generating over \$2.77M in revenue, achieved pension lump-sum payouts reducing overall liability by \$26M, and enacted retiree medical coverage changes saving an estimated \$24M over 10 years. NSTec performed very well in comprehensive emergency management, security, material control and accountability, financial operations, supply chain management, property management, information services, facilities management, sustainability, regulatory deliverables, the voluntary protection program for environment safety and health (receiving the Superior STAR award), litigation services, the cognizant systems engineering (CSE) program and quality programs. Some opportunities for improvement exist for NSTec including timely closure of security incidents, consistent completion of smaller projects within projected cost and schedule, adequacy and timeliness in the development of nuclear safety basis documentation, and demonstrated progress in meeting the objectives of the procedural adherence initiative.

For **PO #5** NSTec senior management demonstrated effective leadership in supporting the direction of the overall NNSA mission and was rated **VERY GOOD**. NSTec undertook several initiatives that demonstrated a high level of leadership in supporting the overall NNSA mission. Strong enterprise

leadership was demonstrated by NSTec through effective partnering with the National Security Laboratories on several key experiments including the successful execution of GODIVA startup activities, the multi-organization Pollux subcritical experiment, 13 JASPER experiments, and the Phoenix experiments. NSTec management also demonstrated strong leadership and collaboration towards improving NNSA risk management objectives (e.g., first Enterprise Risk Management workshop). Long-term partnerships were enabled through the establishment of agreements with various educational institutions to leverage and incorporate credible academic expertise. Interagency integration was shown through NSTec's effective collaboration with a variety of entities across assorted national security activities. Leadership excellence was demonstrated through the achievement of an R&D 100 award for DUFF and receiving the 2012 U.S. Department of Energy Jeff Snow Aviation Program Memorial Award. In addition, NSTec Corporate partners provided resources to deal with issues such as cyber and physical security, nuclear safety, and risk management.

While NSTec demonstrated strong leadership at both the site and enterprise levels, there are key areas where improvements can be made. Leadership in resolving the SPE experiment issues was not proactive. While driven in part by budget limitations, facility issues with DAF required more leadership attention. Finally, programmatic issues that are impacting Environmental Management (EM) activities at the site can benefit from better outreach activities, including those with State and Congressional leaders.

## Performance Objective 1: Nuclear Weapons Mission

### Narrative Summary

EOY Adjectival

**Excellent**

NSTec's performance for the programmatic commitments for the nuclear weapons program was EXCELLENT. The multi-organization Pollux subcritical experiment was a highlighted achievement. NSTec successfully overcame significant technical and logistical challenges (especially with vessel procurement) to enable the successful execution of Pollux, the first-of-a-kind subcritical experiment in U1a, with 100% data recovery on an extremely compressed schedule. NSTec deployed the Optical Cavity Probe and the MPDV, which combined with the Cygnus radiographs provided unprecedented data that showed never before seen observations of special nuclear material. NSTec also successfully supported JASPER experiments, including seven Pu (as well as the successful deployment of redesigned targets) and six surrogate experiments. The data obtained from these experiments directly contributes to the enhanced understanding of weapons science, material properties, and component performance for the nuclear weapons stockpile future. NSTec continued refining and executing the DAF integrated plans, enabling more efficient project introduction and performance while maintaining a larger set of concurrent operations to maintain the facility in a safe and secure manner. Key DAF accomplishments included 26 National Criticality Safety Experiments, seven JASPER experiment builds, the Pollux subcritical experiment build, and the international OPSIS emergency response exercise, all while reducing the DAF maintenance backlog. NSTec also worked to support the B61 Life Extension Program by developing a classified machining capability (at minimal cost) to alleviate some Nuclear Security Laboratories critical path issues. The proactive engagement and willingness of NSTec to work with the laboratories allowed the lab's deliverables to be met on time. Areas for improvement are the quality and timely completion of safety basis that impact mission execution and inconsistent cost estimates with slow response times for NA-15 projects.

NSTec completed all 15 national milestone deliverables on time and on budget with a customer satisfaction rating of 98.5% satisfied or highly satisfied.

NSTec performed mission activities, including the Readiness in Technical Base and Facilities (RTBF) program within the allocated budget, properly managing risks and priorities. NSTec properly managed scope changes and a significant number of data calls associated with the uncertainties of the Continuing Resolutions, sequestration activities, work force reprioritization, and challenges from HQ restructuring activities. NSTec identified schedule variances early in FY13, caused by budget uncertainties; however, these were effectively managed throughout the year.

NSTec successfully overcame significant technical and logistical challenges (especially with vessel procurement) to enable the successful execution of Pollux, the first-of-a-kind subcritical experiment in U1a, with 100% data recovery on an extremely compressed schedule. NSTec provided the overall infrastructure support at U1a and diagnostics in the form of the Optical Cavity Probe and the Multiplexed Photonic Doppler Velocimetry (MPDV), which combined with the Cygnus radiographs provided an unprecedented amount of high quality data that showed never before seen observations of special nuclear material.

NSTec successfully supported JASPER programmatic activities providing facility, technical support, and equipment necessary to collect essential data for enhancing the Equation of State (EOS) for the Stockpile Stewardship Program. JASPER completed seven Pu (including the successful deployment of redesigned targets) and six surrogate experiments during FY13. Throughout FY13 NSTec successfully collaborated with LLNL to resolve difficult technical challenges associated with gun

performance while still obtaining high quality data and meeting national level milestones. NSTec also began enhancing the diagnostic capabilities at JASPER supporting the future use of LLNL's sound speed diagnostics and the deployment of PDV and radiometry to augment shorting pins on hydrodynamic experiments. The data collected from JASPER is defining the equation of state of special nuclear material to help weapons physicists reevaluate their understanding of material performance.

NSTec continued refining and executing the DAF integrated plans, enabling more efficient project introduction and project performance while maintaining a larger set of concurrent operations to maintain the facility in a safe and secure manner. All the FY13 programmatic activities were successfully coordinated and negotiated with HQ, National Security Laboratories, as well as, local and external partners. Close interaction with HQ and the field elements were maintained throughout the year, communicating integrated lists and strategies for executing current-year activities effectively.

NSTec changed management operational personnel and practices at DAF establishing a Security Projects integration board and a construction management organization to execute construction activities within the DAF. These changes enabled NSTec to make significant progress on the DAF Legacy projects, penetration seal repairs, failed infrastructure replacements (i.e., compressors), the HEPA filter ventilations system repairs, high mast light poles replacements, and limited scope Fire Suppression System (lead-in lines ) corrective maintenance activities. In addition, NSTec instituted in FY13 DAF scheduled maintenance outages that were successfully planned and executed to minimize impact to mission and operations.

DAF accomplishments include:

- execution of 26 National Criticality Experiments Research Center (NCERC) experiments,
- seven JASPER experiment builds,
- the Pollux experiment build, and
- the OPSIS international emergency response exercise requiring over 2 months of activities.

NSTec consistently executed or supported U1a missions and effectively teamed up with the National Security Laboratories and NNSA/HQ to strategize achievement of near term and future goals including:

- establishing an Out-Year Subcritical Experiment (SCE) Project which has procured vessels for the next SCEs;
- resolving Terms and Conditions for approval of the request for permanent exemption from the Fire Protection Requirements at U1a;
- continuing Cygnus runs and machine improvements now exceeding its life by 700%;
- establishing a U1a Program Manager to develop and implement a U1a Integrated Plan; and
- establishing an Integrated Project Team for the Advanced Fielding of Dynamic Experiments, which is currently expanding the U1a footprint to accommodate the next series of SCEs.

NSTec expanded the use of the Optical Cavity Probe and the MPDV in the world of plutonium through the Pollux subcritical experiment, developed and deployed the 2<sup>nd</sup> generation MPDV system at DARHT at LANL and deployed the MPDV at Site 300 in LLNL. These revolutionary technologies are already impacting understanding of special nuclear material and surrogate data for all stockpile needs. NSTec also continued enhancements to its technological advances as demonstrated by, deployment of the Zoom Lens System at Sandia National Laboratories (SNL), and the ongoing improvements in diagnostics for the JASPER facility.

NSTec proactively worked with the National Security Laboratories to see where they could help the labs meet their program deliverables. NSTec identified an area in classified parts machining that helped the labs meet critical path schedules. NSTec, with minimal investment, turned a portion of

their unclassified machining capability into a classified capability and initiated fabricating classified parts for the NWE, including machining of parts for LANL that support weapon modernization program deliverables like the B61 LEP. By establishing this capability, NSTec de-stressed the Laboratories' classified machining production line and is fabricating classified shapes for experiment platforms at LANL and LLNL, SCEs at U1a, and for source R&D at SNL.

Within the NNSS, the Advanced Fielding of Dynamic Experiments, Flat Plate experiments, JASPER, DAF and NCERC operations, programs and projects supported by NSTec provide crucial knowledge to the NWE and continue expanding the R&D envelope to enhance the knowledge and the certification capabilities of the stockpile. The Advanced Fielding of Diagnostic Equipment Project and the Out-Year SCE Project are examples of unfolding strategies which establish the platform, instrumentation, diagnostics, infrastructure, and R&D strategies required for future planned experiments at the U1a, including the next generation of SCEs and Flat Plate experiments.

NSTec led the development of the 5-Year *Integrated* Plan being utilized by HQ (NA-11 and NA-113). The plan defines the program, major deliverables, and schedules; establishes priorities; enables right-sizing of LANL, LLNL, SNL, and NNSS resources; and directly supports the Predictive Capability Framework (PCF) and Science, Technology, and Engineering framework (ST&E). This 5-year plan *integrates* the Dynamic Plutonium Experiments Program, Radiographic Strategy, Plutonium Strategy, and other program requirement plans and initiatives that collectively, rather than individually, support the certification requirements of the nuclear weapon stockpile. To complete the Plan, NSTec established effective relationships with HQ and external stakeholders and actively participated in a December 2012 Predictive Capability Framework (PCF) Summit in which pegposts, milestones, and priorities for Out-year initiatives were reviewed. Previously, NNSS had little involvement in the development of plans that impact the NNSS.

NSTec led an initiative and partnership with SNL to explore advance experiment radiographic capabilities underground to perform core punch integral experiments at various scales on systems undergoing modernization.

NSTec supported the future weapons mission via efforts supporting LLNL and LANL in reanalyzing UGT data.

NSTec strengthened science and engineering capabilities for the Nuclear Weapons Enterprise (NWE) through introduction of next generation diagnostics at key NEW facilities throughout the complex: the MPDV system at the DARHT Facility at LANL and Site 300 at LLNL; diagnostics at the National Ignition Facility (NIF) and High Explosive Application Facility (HEAF) at LLNL, Z at SNL; the Stanford Synchrotron in California; as well as radiographic upgrades of JASPER and the U1a Complex at NNSS.

NSTec expanded collaborations with the UNLV and Idaho State University supporting engineering programs, specific to diagnostic development, that enables scientific growth and creates a potential source of future scientists.

NSTec continued to successfully identify and prioritize programmatic needs and develop planning strategies to meet the NNSA mission milestones while staying within the established budgets and policies. NSTec developed the Ten and Five Year Planning Basis documents, in close collaboration with NA-11, LANL, SNL, and LLNL, identifying the necessary experiments or activities that provide data for stockpile certification and underpinning science of the future stockpile.

NSTec led the integration of the NSTec, LANL, SNL, Wackenhut Services Inc. (WSI), Pro2Serve team to successfully resolve the risks of bursting Godiva and its potential impacts on the DAF security



systems. The team's Godiva startup plan was successfully executed and demonstrated safe operations without jeopardizing the reliability of the DAF security infrastructure.

NSTec expanded the Critical Skills Program to strategically acquire key personnel to retain/build specific capabilities for current mission needs with the goal of providing a workplace with the required depth and responsiveness to support projected future mission assignments. This program was defunct two years ago and is now fully re-established.

Although the completion of national milestones was not impacted, an area for improvement is the quality and timely completion of safety basis documentation supporting mission execution.

NSTec needs to improve communication and performance with NA-15 related to cost estimates and facility issues.

## Performance Objective 2: Broader National Security Mission

### Narrative Summary

NSTec's support of the broader National Security Mission is rated VERY GOOD. NSTec effectively managed scope changes and a significant number of data calls associated with the uncertainties of the Continuing Resolutions, sequestration, and lapse in appropriations. Impacted programs included Defense Nuclear Non-proliferation (DNN), National Emergency Response (NER), and EM. Due to reduced NNSA funding, NSTec successfully balanced the NNSA mission portfolio with Interagency Work to avoid personnel reductions that would negatively impact mission, while effectively keeping stakeholders aware of mission execution status and changes. NSTec Global Security, including DNN and NER, achieved greater than 99% of mission deliverables on-time and within budget. The DNN programs at NSTec saw successes in Global Threat Reduction Initiative (GTRI), Comprehensive Inspection Technologies, and Chain of Custody projects. For DNN, NSTec missed an important milestone for the SPE due to lack of integrated support and response to the problems created and encountered. For the NER program, NSTec was successful in supporting the multi-agency 2013 Presidential Inauguration, the International OPSIS nuclear exercise at the DAF, 1st time Coast Guard NRAT exercise in Kodiak, CM and DFEAT exercises. NSTec Aviation program also won the U.S. DOE Jeff Snow Aviation Program Memorial Award. For the EM Program, cost and schedule performance for the NNSS Environmental Management activities positively exceeded performance targets, all FFACO deadlines were met, and all post-closure inspections maintenance and reporting were completed. NSTec also maintained the capability to receive and dispose of up to 1.2 million cubic feet of low-level waste disposing of approximately 1.1 million cubic feet of waste. NSTec showed leadership in proactively preparing for the receipt of the Consolidated Edison Uranium Solidification Project (CEUSP) waste stream and the BUP-500. This work scope supported ORNL's efforts to reduce their nuclear facility footprint.

EOY Adjectival

**Very Good**

NSTec balanced the NNSA mission portfolio with other DOE and Interagency Work to avoid personnel reductions that would impact mission and effectively kept stakeholders aware of mission execution status and changes in both the National Nuclear Response and Non-Proliferation Global Security Programs due to reduced NNSA funding. NSTec properly managed scope changes and impacts associated with the significant uncertainties of Continuing Resolutions, sequestration, and lapse in appropriations. NSTec identified schedule variances early in FY13, caused by budget uncertainties, but effectively managed the impacts throughout the year.



NSTec continues to demonstrate effective operations and implementation of policy in the National Nuclear Response and Non-Proliferation Global Security programs. NSTec Global Security achieved greater than 99% of mission deliverables on-time and within budget.

In an effort to meet NNSA and Department of Homeland Security (DHS) proof of concept objectives, NSTec collaborated with another NNSA Work for Others (WFO) customer to successfully complete a proof of concept installation, flight, and data transmission of an Aerial Measurement System (AMS) on an Unmanned Aerial Vehicle. The collaborative efforts were completed within a few weeks for an objective that NNSA HQ and DHS had unsuccessfully attempted with other entities for three years. In addition to the NSTec routine operations with respect to Radiological Emergency Response, the AMS was called out on a no-notice response exercise to Kodiak, Alaska. The exercise hinged on the first time integration of NSTec AMS equipment in a US Coast Guard (USCG) helicopter, and successfully conducting a radiological search of a defined area in Alaska.

NSTec developed the iSAGA (Situational Awareness Geospatial Application) tool which provides a unique capability to federal, state, and local agencies to use in various emergency response situations. The City of New York recently became the first purchaser of the iSAGA tool. The application is also being applied to the NNSA/NA-46 International Radiological Mapping Application (IRMA) for use by several international countries.

For the Science and Technology Program (TI and RS R&D), the contractor completed 95% of the program's deliverables, with 74% of these completed on time, which, compared to the program as a whole, is an average completion and on-time rate. There were some reporting and project cost overrun issues, but the contractor performed some additional work in response to emerging NA-42 needs.

NSTec maintained operational readiness in support of the Disposition and Forensic Evidence Analysis Team (DFEAT).

NSTec not only maintained, but was able to enhance, the Emergency Communications Network program in support of the HQ Emergency Operations Center (EOC). This FY has seen growth in the ECN's infrastructure as well as mission support requirements. Major accomplishments include the completion of the technical work associated with Corrective Action Plan-08 using internal funding, the beginning of technical engineering for increased satellite capability, the continued development of "Any Time, Any Where, Any Means" communications capability and the operational activation of several FBI nodes on the East Coast and at the NNSA. They also made effective use of an infusion of funds provided for the replacement phone system for the Ops Center and the Alternate OCC and the procurement of long deferred infrastructure items.

The Headquarters DOE Office of Aviation Management (OAM) presented NSTec's Remote Sensing Laboratory (RSL) Aviation Department the 2012 U.S. Department of Energy Jeff Snow Aviation Program Memorial Award. This marks the fifth time in nine years the NSTec team has received this award recognizing them as the most outstanding DOE aviation program.

NSTec merged the previously established Search Response Team and other specialized skill sets into the NRAT-West asset. NSTec established the training requirements necessary to have a fully trained and qualified NRAT West response team in place and active to meet the NA-42 requirements. NSTec successfully met all NA-42 implementation requirements and exceeded those requirements in some areas by having additional personnel also qualified for the teams to better position the team to meet FY 14 goals. NRAT/Radiological Assistance Program (RAP) 0 had a readiness score of T-4 at the beginning of the calendar year for about two months. However, the contractor was very responsive in meeting emerging NA-42 requirements and on balance is rated meets expectations.

NSTec supported the annual readiness requirements for RAP 7 Team 3. Their people are trained and proficient, equipment is well maintained, and response personnel are ready and able to deploy.

NSTec's RSL-Nellis Consequence Management (CM) program successfully conducted a unique drill at the NNSS. The planning and conduct of the drill required coordination and cooperation of multiple NSTec departments at the RSL and NNSS. The successful conduct of the drill met a high priority training objective of the NA-42 CM Emergency Response Assets.

Over a period of several months, NSTec successfully supported the multi-organization OPSIS *International* Emergency Response Exercise to train national and international radiological emergency response team members. Significant integration was accomplished to allow access and nuclear operations by the international community in the NNSA Device Assembly Security Category 1 Nuclear Facility.

NSTec deployed several new pieces of Emergency Response Communication Hardware for radiological search data that gave the Federal Management Teams (including FBI, DHS, FEMA, etc.) unprecedented reliability and accurate situational awareness during the Inauguration activities that can now be used in all other future deployments.

NSTec partnered with eight RAP regions, the NRAT-West, four Weapons of Mass Destruction Civil Support Teams and the Defense Threat mission support with NNSA personnel stationed at the FBI Washington Field Office All Hazards Center to support the Preventive Radiation Nuclear Detection mission response for the 57<sup>th</sup> Presidential Inauguration in January 2013. In addition, NSTec developed and deployed several new pieces of communication hardware for radiological search data that gave the Federal Management Teams (including FBI, DHS, FEMA, etc.) unprecedented reliability and accurate situational awareness during the Inauguration activities that can now be used in all other future deployments.

NSTec has done an outstanding job of maintaining the NNSA aircraft at full mission capability despite the age of the aircraft (several platforms over 30 years old). Through efficiencies, NSTec effectively maintained the aged aircraft in a time of declining budgets. NSTec has made multiple unsuccessful funding requests to HQ for aircraft replacements without which it will become difficult not to impact mission in the future.

NSTec was responsible as the overall integrator for the Test Evaluation #3 (TE-3). NSTec coordinated with LLNL, Pacific Northwest National Laboratory (PNNL) and SNL to provide a test bed for the labs' electronic tags, sensors and overall integration technologies used for tracking nuclear items (materials, components, and systems). LLNL, PNNL and SNL successfully demonstrated their technologies integration with the SNL backbone system at the NNSS. NSTec provided exceptional effort to meet tight schedule and reduced cost requirements.

The first time Comprehensive Inspection Technologies (CIT) Particle Release Experiment was successfully performed at the NNSS, with several first time completions of sampling collections, surveys, and on-site laboratory analyses. This new experiment was successfully conducted within tight schedule and budget constraints. The project scope included active collaboration on the design of chemical explosion experiments, deployment of necessary sensors, acquisition of background and experimental data, and analysis necessary to verify compliance with the Comprehensive Test Ban Treaty (CTBT).

The design and prototype of a transportable GPS-based timing and firing system for use in multiple high explosives was completed and is available for use by the NNSA Laboratory complex, Other Government Agencies, and the WFO community.

The multi-agency National Center for Nuclear Security (NCNS) Program at NSTec successfully demonstrated the application of a new design for the shielding and injection system for radiological tracers and a new technology of muon tomography which will greatly increase the capability to positively identify and follow nuclear material cradle-to-grave for treaty verification compliance.

NSTec Industrial Hygiene (IH) worked closely with the customer to develop an alternative work schedule that fully supports critical tunnel operations. This alternative work schedule reduces the number of IH personnel assigned to projects, enhances the ability of IH personnel to support other mission activities, and resulted in cost savings of approximately \$13,000 per week.

The FY 2013 GTRI Russia Project exceeded its FY 2013 metric with the recovery and disposition of 745 radioactive sources totaling 53,790 curies at seven sites in Russia. The GTRI Belarus Project exceeded its revised FY 2013 metric with the installation and acceptance testing of physical protection upgrades at two radiological sites in Minsk, Belarus.

NSTec demonstrated outstanding technical and oversight efforts in the execution of the first time multi-agency and multi-organization Defense Threat Reduction Agency (DTRA) accelerator research and development work conducted at the NNS. As significant challenges occurred, NSTec worked to find safe solutions that could be implemented meeting regulatory requirements.

NSTec contributed to the DHS Domestic Nuclear Detection Office (DNDO) test team's successful review for the Government sponsored Backpack, Handheld, and Vehicle-Mounted (GBHVM) test. This included test planning, personnel training, test set-up, dry runs and dress rehearsals. The effort was completed on schedule and under budget which allowed a significant increase in testing scope to be completed during test execution.

NSTec developed many one-of-a-kind unique systems for the DOE and other government communities. The Security Trailer, a joint effort by NSTec STL and RSL, was a sophisticated, custom security trailer equipped with sensors, communication, and mechanical features for use by DOE/HSS. NSTec met an extremely aggressive schedule (less than two weeks) at a savings of more than \$3M under projected cost.

Cost and schedule performance for the NNS Environmental Management activities positively exceeded performance targets. All FFACO deadlines were met and all post-closure inspections maintenance and reporting were completed. Almost all milestones were delivered on or before the due date, three of which represented significant drilling milestones, were delivered early.

NSTec maintained capability to receive and dispose of up to 1.2 million cubic feet of low-level waste disposing of approximately 1.1 million cubic feet of waste. NSTec successfully facilitated the receipts and disposition of 69 Classified Component Disposition shipments to support de-inventory and disposition initiatives throughout the DOE complex. NSTec's strong performance in this area is supported by a robust assessment program with increasing utilization of the issues management program.

NSTec showed leadership in proactively preparing for the receipt of the CEUSP waste stream and the BUP-500. In both efforts NSTec engaged in active dialogue to facilitate successful completion of numerous cross site and cross organizational challenges to support DOE initiatives at other sites. Of particular note, NSTec effectively and efficiently integrated new work scope (BUP-500) midway during

an annual update to the Area 3/5 Radioactive Waste Facilities Documented Safety Analysis and Technical Safety Requirements. The work scope supports ORNL's efforts to reduce their nuclear facility footprint.

NSTec successfully facilitated the receipt and disposition of 69 Classified Component Disposition shipments to support de-inventory and disposition initiatives throughout the DOE complex.

The contractor failed to meet the most significant resource and visible NA-20 sponsored measure, which was to successfully execute SPE- 4. The failure of this priority project, which had no resource constraints, demonstrated a lack of integrated technical experimental capability and focus in support of nuclear nonproliferation and treaty verification objectives. In addition, programmatic issues that are impacting EM activities at the site can benefit from better outreach with State and Congressional leaders.

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

#### Narrative Summary

NSTec developed a very effective and relevant R&D program with a relatively modest budget of ~\$7M per year. NSTec contributions resulted in an R&D 100 award in FY13 for the Demonstration Using Flattop Fissions (DUFF) experiment, a collaborative effort with LANL and NASA. NSTec deployed the Advanced Optical Cavity with MPDV systems on Gemini, developed the next generation, and expanded their use to DARHT at LANL and Site 300 at LLNL. These diagnostics provided unprecedented, high quality data that revealed never before seen observations of surrogate and special nuclear material. The data collected from these revolutionary diagnostics is now requiring the weapons designers and physicists to reevaluate their understanding of both nuclear and non-nuclear material performance. This data will provide better assessments of weapons in the current stockpile by helping characterize aging and providing fundamental data for those systems undergoing modernization. In addition, NSTec developed a NNSA Technology Needs Assessment for Research and Development that is establishing a roadmap to address the national security challenges. To meet those demands, NSTec continued working with external entities (HQ, NSE Laboratories, UNLV, Idaho State University, NASA, Intelligence Community, etc.) to identify areas in which properly tailored research and development will stimulate innovation and produce technological solutions.

EOY Adjectival

**Excellent**

NSTec R&D efforts enhanced NNSA diagnostic and predictive capabilities in a significant manner. These activities also enabled national security missions and provided a pipeline for future engineers and scientists into the NSE from academia in the areas of applied science and instrumentation. NSTec collaborated with several universities increasing their ideas and problem-solving capabilities and recruited several students to work at NNSA on Site Directed Research & Development (SDRD). The following leading-edge activities and technologies are examples of an effective NSTec R&D portfolio of initiatives geared towards expanding the science in support of the NNSA and national needs:

- the successful deployment of the MPDV for the Gemini series,
- the Demonstration Using Flattop Fissions (DUFF) experiment in collaboration with NASA and LANL which earned an R&D 100 award;

- the Raptor X situational awareness software received DoD certification for use in their operations;
- began investigations in new methods of using dynamic X-ray diffraction and image enhancement and ultra-high-resolution interferometric data combined with high resolution multi-frame, multi axis radiography;
- collaborated with LANL to publish a paper on material temperature measurement which provided insights towards the Equation of State determination
- two NSTec engineers received “Certificates of Distinction” from one government sponsor for their expertise as applied for intelligence activities;
- completed R&D on security for wireless networks (collaborating with the University of California Santa Barbara);
- worked with Idaho State University to transfer a dormant NLV TriMev radiographic source to the university for scientific effects studies;
- increased collaboration with the University of Nevada Las Vegas on their 2<sup>nd</sup> year of a sensor and diagnostic equipment development program

NSTec not only successfully fielded the SDRD-developed Advanced Optical Cavity with MPDV systems on Gemini at NNSA, but has also extended those revolutionary diagnostics (and now next generation for FY13) to experiments at DARHT in LANL and Site 300 in LLNL. These diagnostics, developed through the SDRD program and now implemented through the weapons program, have returned unprecedented, high quality data that showed never before seen observations of surrogate and special nuclear material. The data collected from Pollux of the Gemini series, DHART, and Site 300 is now requiring the weapons designers and physicists to reevaluate their understanding of surrogate and nuclear material performance. This will provide better assessments of weapons in the current stockpile, help characterize aging, and provide fundamental data for those systems undergoing modernization.

NSTec developed a Technology Needs Assessment (TNA) for Research and Development which guides the research in emerging areas and special opportunities to address the national security challenges to be undertaken. The TNA represents the roadmap for accomplishing technical and programmatic challenges for areas within NNSA, DHS, DoD, IN, and other government agencies. Maintaining alignment with external entities is critical and ensures NSTec R&D efforts are directly linked towards benefitting NNSA and the nation. To meet those demands, NSTec continued working with external entities (i.e., HQ, NSE Laboratories, University of Nevada Las Vegas, Idaho State University, NASA, Intelligence Community) to identify areas in which properly tailored research and development will stimulate innovation and produce technological solutions. Future efforts, documented in the Technology Needs Assessment (TNA) include developing the next generation of diagnostics geared towards further enhancing current cutting-edge technologies to directly support stockpile stewardship and national security objectives.

NSTec developed a very effective and relevant R&D program with a relatively modest budget of ~\$7M per year. NNSA project selection process included technical merit expert review by subject-matter experts from LANL and LLNL and strategic alignment review by programmatic reviewers in order to ensure the quality of science and relevance to missions. The SDRD program at NSTec helped to enhance NNSA’s vibrant research environment to retain and advance technical workforce competencies and research capabilities through the application of the ~25 SDRD projects that were funded in FY13. Many of these projects are taken from inception through application in the stockpile stewardship and national security arenas. In addition, NSTec successfully worked on many joint Laboratory Directed Research and Development (LDRD) & SDRD activities with the other NNSA labs.

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

### Narrative Summary

NSTec's overall performance was VERY GOOD for effectively and efficiently managing site operations while maintaining an NNSA enterprise-wide focus, and demonstrated accountability for mission performance under their purview. Positive performance metrics were demonstrated by no TSR violations and a high level of safety system operability. NSTec performed excellently in the execution of the worker health and safety programs, effectively implemented the environmental protection program, disposed excess weapons component for the NNSA complex saving \$1.3M, led back office consolidations saving ~\$965K annually, dispositioned personal property generating over \$2.77M in revenue, achieved pension lump-sum payouts reducing overall liability by \$26M, and enacted retiree medical coverage changes saving an estimated \$24M over 10 years. NSTec performed very well in comprehensive emergency management, security, material control and accountability, financial operations, supply chain management, property management, information services, facilities management, sustainability, regulatory deliverables, the voluntary protection program for environment safety and health (receiving the Superior STAR award), litigation services, the cognizant systems engineering program and quality programs. Some opportunities for improvement exist for NSTec including timely closure of security incidents, completion of smaller projects within projected cost and schedule, adequacy and timeliness in the development of nuclear safety basis documentation, and further implementation of the procedural adherence initiative.

EOY Adjectival

**Very Good**

NSTec had no TSR violations this year and improved safety system operability.

NSTec maintained high-level certifications in the following areas:

- ISO 9001 (Quality Management System)
- ISO 14001 (Environmental Management System)
- VPP Superior Star
- Earned Value Management System (EVMS)

NSTec performed the comprehensive emergency management program mission activities as defined and managed the risks associated with the FY 13 budget uncertainties. NSTec successfully executed all required exercises and ensured all Emergency Response Organization (ERO) Cadres training and qualifications were maintained throughout the year. In addition, NSTec facilitated and successfully implemented the "DOE/NNSA Emergency Management Approach for Severe Event Response Based on Lessons Learned from the Fukushima Nuclear Accident," Draft 2 guidance, with the Beyond Design Basis Event (BDBE) "BADGER-13" Full Scale Exercise.

The Office of the Chief Defense Nuclear Safety (CDNS) conducted a Biennial Review to evaluate the NNSC's nuclear safety performance and there were no findings concerning the NNSC contractor's implementation of DOE's Comprehensive Emergency Management Program (CEMP). The contractor successfully conducted an Annual Exercise involving a security incident near the DAF that included participants from local, state, and DOE/NNSA HQs. The emergency response organization successfully demonstrated 84 out of 104 objectives.

NSTec proactively supported NA-122 and the security enterprise in providing a disposition alternative for the sanitization and disposal of nuclear weapon high risk personal property. This disposition support resulted in a cost-avoidance for the Kansas City Plant of approximately \$1.3M. This alternate

disposal option leverages NNSC capability and provides the security complex an option that could result in substantive complex-wide cost avoidance.

NSTec Material Control & Accountability (MC&A) continues to successfully support multiple projects in the DAF and other experiments using nuclear material at the NNSC. NSTec MC&A has established and maintains an excellent partnership with the Nuclear Security Laboratories in support of various National Security and Global Security interests. NSTec MC&A proactively supported the Oak Ridge Office of Environmental Management in completing preparatory actions to support U233 CEUSP waste disposal. NSTec MC&A provides support for the Laboratory Scientist and Engineers to complete their National Criticality Safety and other National Security work at the NNSC. NSTec MC&A assisted the Nuclear Materials Management Group with the creation and submission of the Nuclear Material Forecast Plan to Headquarters

“Back Office” activities, a multi-year NSTec business initiative which is leading to the consolidation of administrative responsibilities for activities across the Nevada Complex (including federal and other NFO contractors), resulted in projected annual savings of \$963K with a continued projected increase for out-year savings.

NSTec received an “Outstanding” rating on the FY 2013 Annual Property Assessment. In addition, NSTec was acknowledged for managing their internal and external excess property activities which they received an Area of Excellence.

The excess property management disposition campaign that was initiated in FY 2012 generated over \$2.77M in revenue during FY2013. This campaign continued to generate data to refine the environmental liability estimate, clean-up areas on the NNSC, and generate revenue to defer operating costs.

NSTec implemented a lump-sum pay out program for eligible terminated vested participants of the pension plan which will reduce the overall liability of the pension plan by approximately \$26M and will reduce pension premiums in future years.

NSTec implemented changes to retiree medical coverage which saved \$900K in FY 2013 and will save an estimated additional \$24M over the next 10 years.

NSTec successfully implemented a Self-Select Voluntary Separation Program (SSVSP) to address reprioritization within missions, changing missions, and an organizational realignment that required eliminating some positions to align current workforce skills more appropriately with future needs.

NSTec’s performance in Financial Operations exceeded expectations for fiscal year 2013. The overall rating from OFFM for FY13 was a Good (highest rating available). STARS submissions exceeded expectations for timeliness, accuracy even with the implementation of the R12 financial system during the fourth quarter. Support to the sequestration activities was exceptional. NSTec Accounts Payable experienced system and staffing issues resulting in a significant invoice backlog and a number of late payments to vendors.

NSTec exceeded all NNSA Supply Chain Management and eSourcing Goals and awarded 59% of subcontracts to small businesses exceeding their overall Small Business (SB) Goal of 52.0%. NSTec also exceeded their goals for Woman-Owned SB (WOSB), HUB Zone Business, and Service-Disabled Veteran-Owned SB (SDVOSB). NSTec fell just short of meeting its FY13 goals for Small-Disadvantaged Business (SDB) and Veteran-Owned SB (VOSB) due in part to the unavailability of sources in the SDB and VOSB subcategories as well as unforeseen budget reductions and constraints. NSTec experienced systemic procedural compliance issues with their Purchase Card program.



NSTec established a training and qualification program that supports the execution of mission activities for the NNSS. They established the required processes and systems to support NSTec personnel in attaining qualifications and certifications and worked with the national laboratories to establish effective and efficient reciprocity agreements to reduce time and costs on mission execution activities. NSTec revised and strengthened its work planner qualification and proficiency requirements, especially for planners that support nuclear and high hazard work.

NSTec Information Services supports nine critical Operations Coordination Center systems (Networks, Servers, and Workstations) to support daily and emergency operations in support of the national security mission. The overall uptime for these critical systems year-to-date is 99.97% and was 99.89% during the 4th quarter, significantly exceeding the annual uptime goal of 99.75%. This level of reliability supports confidence that these critical systems will be available during the time of crisis.

The R12 financial business system upgrade including OBIEE, a previously separate and unfunded project, was successfully completed four months ahead of schedule with a cost overrun of less than 5% at \$5.2M; significantly less than other similar R12 upgrades at NNSA sites which are estimated to be between \$15M and \$20M.

NSTec was able to deliver a secure network that enabled the Nevada Enterprise (NvE) mission, therefore, meeting this objective. NSTec needs to further continue improvements in efficiency and effectiveness including the following three areas: 1) The Virtual Desktop Infrastructure End User Experience Project; 2) Formalization of project deliverables and milestones, increased rigidity in gathering project requirements and prerequisites, and increased adherence to schedule; and 3) Integration of Cyber Security and Information technology.

NSTec successfully developed and continued executing integrated plans for DAF operations which fully support all of the identified DAF missions concurrently, while maintaining the facility in a safe and secure manner. Although there were significant budget uncertainties for FY13, NSTec made proper adjustments to align with the allocated budgets and support the FY activities. NSTec continued to make significant progress on the DAF Legacy projects, penetration seals repairs, failed infrastructure replacement (i.e. compressors), and the HEPA filter ventilation system repairs, etc.

NSTec consistently executed or supported U1a missions and effectively teamed up with the weapons laboratories and NNSA/HQ to strategize achievement of near term and future goals by establishing an Out-Year SCE Project which has procured vessels for the next SCEs; resolving Terms and Conditions for approval of the request for permanent exemption from the Fire Protection Requirements at U1a; continuing Cygnus runs and machine improvements now exceeding its life by 700%.

NSTec is implementing a successful program that is making progress towards achieving the majority of the DOE/NNSA sustainability goals out of existing funding. Of note, the NNSA corporate water intensity reduction goal is 12% and NNSS reported a > 50% reduction through Q4. NNSS metered all the data centers exceeding the DOE interim goal of 80%. NNSS also exceeded the DOE fleet goals of increasing alternative fuel consumption by 114% and reducing petroleum consumption by 16%. NSTec earned four of 17 energy awards -- the second highest number in the NNSA complex. Two goal areas remain weak due to resource limitations: on-site renewable energy and High Performance and Sustainability Buildings (HPSB).

In terms of maintaining NNSS facilities, NSTec's FY 13 facility condition index (FCI) is 7.12% and mission-critical (MC) FCI is 5.29%. The trend for overall FCI is steady with overall FCI about 2% above target and the MC FCI trending above target.

NSTec is effectively meeting the Environmental Protection requirements. All regulatory deliverables were submitted by the required due date and no fines or penalties were incurred. External regulatory assessments (e.g., state of Nevada) did not identify substantive issues or systematic failures. Only minor weaknesses noted, mostly related to quality of deliverables. NSTec took timely action to improve quality issues where noted. Overall, performance has improved in this area from previous years. Of note, NSTec showed leadership in working with DOE and other DOE EM contractors in developing an integrated approach for groundwater monitoring at NNSS.

NSTec maintained effective worker safety and health programs while providing responsive and value-added support to multiple program activities and operations. The contractor's Worker Safety and Health statistics were well below comparable industry averages. The contractor continued to effectively implement essential components of the DOE's Voluntary Protection (VPP) Program and received the Superior STAR award. The contractor attained American Industrial Hygiene re-accreditation for their analytical laboratory.

NSTec IH worked closely with the customer to develop an alternative work schedule that fully supports critical tunnel operations. This alternative work schedule reduces the number of IH personnel assigned to projects, enhances the ability of IH personnel to support other mission activities, and resulted in cost savings of approximately \$13,000 per week.

NSTec is effectively coordinated with LANL and LLNL (the other NNSS Contractors conducting fissile material operations) to implement an integrated Nuclear Criticality Safety Program at the NNSS. This includes the approval of an integrated document and the establishment of an integrated criticality safety committee.

NSTec managed litigation in a risk reducing and cost effective manner, through use of in-house counsel where appropriate, effective use of alternative dispute resolution, and careful oversight of outside counsel legal strategies and costs.

NSTec demonstrated effective Implementation of the fire protection functional area into operational activities by successfully addressing identified risks and optimizing resource utilization. For example, NSTec's development of the "draft" Underground Safety and Health Plan addresses/identifies criteria for safety and health risks for underground activities that were not established by DOE. This "draft" Underground Safety and Health Plan will also be utilized by the DOE/Contractor Subterranean Working Group (SWG) established by DOE HQ HSS to develop fire safety criteria for underground activities across the DOE complex, i.e., NSTec's Lead Fire Protection Engineer is co-chairing the DOE/Contractor SWG to address fire protection criteria for all DOE underground activities/facilities.

NSTec's implementation of stringent quality requirements into their Nondestructive Examination (NDE) program optimized risk-based utilization of nondestructive examination inspectors needed for mission-critical work. NSTec's improved conduct of operations ensures NDE hold points and inspection acceptance criteria are properly integrated into work packages directly contributing to reduced re-work and engineering evaluations thus reducing project delays.

NSTec Senior leadership effectively integrated with the Security Protective Force and Security Services contractor to review security-related metrics, as well as ongoing activities and operations in order to facilitate the early identification of security issues and to establish a cooperative approach to resolving them. This activity provides NFO's management visibility and transparency into security issues of concern. NSTec was a key partner in addressing and supporting site-wide security concerns throughout the year.

NSTec established fully qualified primary and backup Cognizant System Engineers (CSE) for all safety systems and ensured operability of safety systems in support of operations. With a fully qualified staff of CSE and backups, NSTec was able to provide CSE support to multiple maintenance

and security projects at the DAF while maintaining complete coverage of all safety systems. However, NFO noted that improvements are needed in the Vital Safety System assessments performed by the CSE. NSTec established and implemented a site-wide configuration management program at all nuclear facilities.

NSTec developed a strategic framework to guide the development of a strategic implementation plan that will enable NSTec to become more efficient, effective, and sustainable in using the unique capabilities of the NNSS to support national security requirements. NSTec continues to improve on its tracking and trending mechanisms mainly through metric review and analysis.

NSTec made substantive improvements in utilization of Contractor Assurance System (CAS) and the system continued to mature. NSTec continues to improve and expand its capabilities through measurable metrics and utilization of the NSTec Dashboard. NSTec assisted in development of federal metrics and analysis for HQ input.

Management and Independent Assessments and CAS data confirm that the quality assurance system is being implemented in operational activities, and where weak, issues are identified. The depth of selected Quality Assurance (QA) related self-assessments were found to be much improved. The current quality management system provides data upon which decisions can be made to improve the quality of mission products and services.

NSTec demonstrated a high degree of transparency and openness in reporting executive level feedback from the Contractor Assurance System. The NSTec President's Report delivered in August 2013 was notably self-critical of the health of the organization and provided clear commitments for improvements over the next performance cycle.

While NSTec is successfully executing and/or supporting some of the security projects at the DAF (i.e. Legacy project, High Mast Lighting, and installation of new SNM Portals), NSTec failed to complete two projects (Entry Guard Station Expansion project and installation of access road barriers) as planned.

NSTec's Classification Office maintained 179 fully qualified Derivative Classifiers and performed approximately 60,000 reviews during 2013. NSTec coordinated multiple classification guidance reviews with other government agencies. However, the NSTec Classification Office did not meet their internal procedure that explicitly states that NSTec will meet the DOE Order requirements as described in the Classification Program Evaluations. The NSTec Classification Office failed to demonstrate the development and implementation of Self-assessments and classification decision review requirements throughout the FY2013. In addition, the NSTec Classification Office has neglected to address adequate corrective actions tracked in CaWeb.

NSTec had issues closing security incidents within the required timeframe and subsequently was issued a finding for non-compliance of DOE M 470.4-1, Section N, for failing to closeout three incidents of security concern inquiry reports. Currently there are three overdue reports which have been open an average of 104 days. Significant contributors to this are the inadequate conduct of inquiries and poor quality of inquiry reports. NSTec has closed 17 of 21 IOSCs in FY 13. However the average number of days to close these 17 IOSCs is 107 days. The requirement is 30 to 60 days depending on the Impact Measurement Index (IMI) category. Four of the IOSCs in FY 2013 were associated with the failure to protect classified matter.

While field implementation of NFO-approved safety basis documents remains sound, NSTec has not demonstrated the ability to efficiently and effectively develop nuclear facility safety basis documents. NFO issued an Assessment report of the NSTec USQ process in which three of the five findings were recurring issues from previous NFO assessments. The initial NSTec root cause analysis and corrective plan was determined to be deficient by NFO. A second root cause analysis

and a revised corrective action plan were submitted for NFO approval seven months after the original submittal. This causes rework which takes scarce resources from current activities and potentially affect mission if significant safety basis impacts are identified (e.g., a negative USQD should have been identified as “positive” [i.e., requires DOE/NNSA approval]). With respect to ongoing activities, positive performance metrics (e.g., no TSR violations, safety system operability – high) and routine federal oversight provided assurance of adequate protection of workers, the public, and the environment.

NSTec continued to maintain and improve key tools and programs related to issues management systems through the use of an Issues Screening Team and the improved processing of Root Cause Analyses. However, additional improvements, as previously described, are still needed as they relate to the acceptance of issues, self-identifying concerns, effectively managing response times, and ensuring issue closures are effective.

## Performance Objective 5: Contractor Leadership

### Narrative Summary

In FY 2013, NSTec senior management undertook several initiatives that demonstrated a high level of leadership in supporting the overall NNSA mission. A primary example was the development of a weapons program strategic roadmap that aligns the requirements of the customer, the capabilities of the site, and technology investments, and integrates into the NNSA Strategic Plan. In addition, NSTec developed a strategy to better leverage the capabilities of the NNSS to more efficiently provide a complex-wide solution to the Weapons Dismantlement and Disposition Program (e.g., completion of two classified component shipments from the Kansas City Plant, and a shipment from Hill Air Force Base (cost avoidance of \$1.3M)). Internally, NSTec continued back office consolidation efforts that resulted in ~965K savings and executed an excess personal property initiative that generated ~\$2.77M in revenue from excess property sales in FY13. Further, the pension lump-sum payouts initiated in FY2013 will reduce the overall pension liability by over \$26M and retiree medical coverage changes will save an estimated \$24M over 10 years.

EOY Adjectival

**Very Good**

Strong enterprise leadership was demonstrated by NSTec through integration with the NSE laboratories on several key experiments including the successful execution of GODIVA startup activities, the multi-organization Pollux subcritical experiment, 13 JASPER experiments, and the Phoenix experiments. NSTec management also demonstrated strong leadership and collaboration in improving NNSA risk management objectives (e.g., first Enterprise Risk Management workshop). Long-term partnerships were shown by establishing a contract with UNLV to leverage and incorporate credible academic expertise into Criticality Safety Review Committee, implementing multiple scholarship programs to help invest in the skills that NSTec will need in the future, and collaborating with several universities in multiple SDRD projects during FY13.

Interagency integration was shown when NSTec leveraged the Special Technologies Laboratory (STL) science and engineering staff across a variety of national security activities including supporting DOE stockpile stewardship, nonproliferation, DOE HSS, and assigned intelligence mission work. NSTec's senior leadership also collaborated with LANL and the NASA Glenn Research Center on the DUFF experiments. DUFF is the first demonstration of a space nuclear reactor system to produce electricity in the US since 1965 and confirms basic nuclear reactor physics and heat transfer for a simple, reliable space power system. Internally, key accountability and responsibility attributes were demonstrated with the implementation of a structured and transparent employee performance management system to ensure that clear expectations and objectives were clarified for employees and measured annually.

NSTec's leadership for establishing a work environment that achieves compliance was highlighted with emphasized safety and procedural adherence improvements through the Procedural Adherence Initiative. This effort included the establishment of a cadre of Change Agents to highlight the importance of procedural adherence. Commitment to improvement was also demonstrated through the development and use of key products/resources to address long-standing issues, including an Integrated Management Improvement Plan, a self-critical perspective on performance delivered through the Annual President's report, and a high quality FY13 Annual Assessment Report.

Professional excellence included winning an R&D 100 award for DUFF and NSTec's RSL Aviation Department receiving the Headquarters DOE Office of Aviation Management 2012 Jeff Snow Aviation Program Memorial Award. NSTec maintained ISO9001, ISO14001, VPP Superior Star and EVMS

high-level certifications. From a people perspective, NSTec senior leadership partnered with NFO to implement a foundational leadership development program through *Learning as Leadership*. The cost for the NSTec senior executives' participation in this program was borne by the corporate partners.

NSTec Corporate partners provided key resources in areas such as cyber and physical security, nuclear safety, and risk management to address long-standing and emerging issues. The Parent Oversight Organization Committee also conducted assessments to evaluate progress against repetitive problem areas.

Areas for leadership improvement include integration across the organization and heightened attention for the DAF Facility in order to more proactively manage the facility given the significant budget challenges that exist. In addition, proactive leadership in significant experiments could reduce the risk of failure as seen in SPE-4. Finally, programmatic issues that are impacting EM activities at the site can benefit from better outreach activities, including those with State and Congressional leaders.