



**Department of Energy**  
**National Nuclear Security Administration**  
 Washington DC 20585

November 28, 2016

OFFICE OF THE ADMINISTRATOR

MEMORANDUM FOR: MARK HOLECEK  
 MANAGER  
 KANSAS CITY FIELD OFFICE

FROM: MADELYN R. CREEDON  
 PRINCIPAL DEPUTY ASSISTANT

SUBJECT: Honeywell Federal Manufacturing & Technology, DE-NA0002839  
 Fiscal Year 2016 Award Fee Determination

The National Nuclear Security Administration (NNSA) has completed its assessment of Honeywell Federal Manufacturing & Technology (FM&T), performance of the contract requirements for the period of October 1, 2015 through September 30, 2016, as evaluated against the Goals defined in the Performance Evaluation and Measurement Plan (PEMP). Based on assessments provided in the NNSA Performance Evaluation Report, award fee amounts are as follows:

	<u>At Risk</u>	<u>Available</u>	<u>Final</u>	<u>Percent</u>
Goal-1: Manage the Nuclear Weapons Mission	40%	\$11,733,200	\$10,677,212	91%
Goal-2: Reduce Nuclear Security Threats	7.50%	\$2,199,975	\$1,891,979	86%
Goal-3: DOE & Strategic Partnership Projects Mission Objectives	2.50%	\$733,325	\$674,659	92%
Goal-4: Science, Technology & Engineering (ST&E)	5%	\$1,466,650	\$1,422,651	97%
Goal-5: Operations & Infrastructure	35%	\$10,266,550	\$9,650,557	94%
Goal-6: Leadership	10%	\$2,933,300	\$2,786,635	95%
<b>Total</b>		<b>\$29,333,000</b>	<b>\$27,103,693</b>	<b>92%</b>

In addition, the fixed fee and total fee summaries are provided below for your information:

Fixed Fee	\$0	\$0
SPP (Fixed Fee)	\$13,980,000	\$13,980,000
Total Fixed Fee	\$13,980,000	\$13,980,000
<b>Total Summary</b>	<b>\$43,313,000</b>	<b>\$41,083,693</b>





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National Nuclear Security  
Administration

Honeywell FM&T

Fiscal Year 2016  
Performance Evaluation  
Report (PER)

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NNSA Kansas City Field Office

Performance Period:  
October 2015 – September 2016

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November 15, 2016

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## Executive Summary

This Performance Evaluation Report (PER) provides the assessment of Honeywell Federal Manufacturing and Technologies (FM&T), LLC performance for the period of October 1, 2015 through September 30, 2016, as evaluated against the objectives defined in the Fiscal Year (FY) 2016 Strategic Performance Evaluation & Measurement Plan (PEMP). The National Nuclear Security Administration (NNSA) took into consideration and consolidated all input provided (e.g. CAS, Program Reviews, etc.) from NNSA Program and Functional Offices both at Headquarters and in the field.

Honeywell Federal Manufacturing & Technologies submitted a Performance Self-Assessment Report that covered the rating period. FM&T is to be commended for the thoroughness of its report, which embraced the expectation of being self-critical as well as highlighting accomplishments. NNSA reviewed the self-assessment report and considered it in conducting its evaluation.

**Goal 1: Manage the Nuclear Weapons Mission (40% of At-risk fee).** Overall, Honeywell FM&T effectively executed development program, enduring stockpile system production and Limited Life Component (LLC) requirements. The vast majority of hardware was delivered on-time, within budget, and manufactured in a safe and secure environment. W76-1 AF&F deliveries were below the Program Control Document requirement, but remain ahead of Pantex assembly needs. Operational efficiencies and expanded use of Additive Manufacturing generated more than a \$9M cost avoidance to NNSA. Earned Value Management System (EVMS) implementation did not advance as expected and three cost estimation issues occurred. Three of four quality metric goals were achieved. FM&T continued enhancing and sharing Nuclear Enterprise Assurance (NEA) and supplier risk management strategies to ensure Nuclear Security Enterprise (NSE) weapon program requirements were effectively accomplished.

**Goal 2: Reduce Global Nuclear Security Threats Mission (7.5% of at-risk fee).** FM&T is successfully executing nuclear security mission work across the Defense Nuclear Nonproliferation, Nuclear Counterterrorism and Counter Proliferation, and Nuclear Incident Response missions in a safe and secure manner by leveraging staff expertise gained fulfilling the nuclear weapons mission and through proactive collaboration across the NSE. Through innovation and process improvement FM&T realized over \$1.45M in cost savings while continuing to provide exceptional support of NA-80 Programs. This year, FM&T provided all deliverables on time and below budget.

**Goal 3: DOE and Strategic Partnership Project (SPP) Mission Objectives (2.5% of at-risk fee).** FM&T executed and delivered significant value to the DOE and Strategic Partnership Project mission in a safe and secure manner. Leveraging this work, FM&T strengthened and expanded capabilities, facilities, and skill sets at the KCNSC. Included in this execution was the effective management of 1529 unique projects and shipment of ~72,000 deliverables to planned cost, scope and schedule; exceeding almost all expected tasks and expectations associated with this performance objective. In a year-to-year comparison, FM&T SPP realized a noteworthy increase of 26% (FY15 \$276M to FY16 \$349M) in executed scope encompassing a broad, diverse and expanding set of technologies and disciplines. This exceptional growth has, however, both stretched existing resources and required additional focus on FM&T's internal business systems in areas such as Finance/Rates and Project Management. FM&T has satisfactorily addressed the material rate concern and has several initiatives and corrective actions in place to

strengthen project management. Continued attention in these and associated areas remains an NNSA expectation.

Goal 4: Science, Technology & Engineering (ST&E) and Other DOE Mission Objectives (5% of at-risk fee). FM&T is continuing to evolve in business excellence for technology portfolio management. Groups of similar technologies, Centers of Excellence (COE), with a common goal are being managed in six technology focus areas. Selection criteria value is given to emerging technologies, workforce development and business strategies that align with the goals of the NNSA. The COEs now report to the newly created Chief Technology Officer (CTO) of Engineering. This organization continues to improve product development and production processes, increasing intellectual property portfolios, strategically addressing critical skill needs, and engaging in Technical Exchanges and partnerships across the Nuclear Security Enterprise (NSE).

Goal 5: Operations and Infrastructure (35% of At-risk fee). Overall, FM&T performed above expectations in its ability to meet the DOE/NNSA mission by ensuring Site Operations and Infrastructure were maintained. FM&T provided exceptional support of the NNSA disposition activities of the Bannister Federal Complex. FM&T safety performance remains better than industry with Total Reportable Case (TRC) rate of 0.13 and a Days Away From Work Cases (DAFWC) rate of 0.00. FM&T continues to meet, and in many cases, exceed expectations related to business operations. Through the utilization of management controls and an enterprise-wide focus, FM&T demonstrates accountability and commitment to mission performance. Business operations activities are being sustained at a high level with solid results and prompt measures have been implemented to avoid a recurrence of errors.

Goal 6: Leadership (10% of at-risk fee). Overall, FM&T performed above expectations in effectively providing leadership to support the achievement of NNSA's vision and mission in Kansas City and around the NSE. Effective leadership across the business resulted in strong mission performance and enterprise collaboration. FM&T led impactful enterprise-wide initiatives including:

- FM&T continues to lead Enterprise Risk Management Efforts within NNSA.
- Executed key Science, Technology Engineering, and Mathematics (STEM), collaboration agreements with Universities.
- FM&T continues to exceed performance targets in safety related Occupational Safety and Health Act (OSHA) recordables, quality escapes, and on time ship performance.
- HOS Gold effort drives a results oriented culture of continuous improvement at the Kansas City National Security Campus (KC-NSC) and globally. FM&T is on track to meet 30% improvement in operating efficiency as well a full roll-out of Functional Transformation to all Divisions.
- Saved approximately \$250 million in strategic sourcing savings compared with the FY16 target for NNSA and EM contractors of \$139 million.
- Regional agreements for industrial supplies were awarded to nine small businesses (SB), totaling \$240M.
- FM&T worked with New Mexico's Congressional delegation to host an informational meeting for small businesses held in NM in February.

Specific observations for each of the Performance Objectives are provided in the following pages.



**Goal 1: Manage the Nuclear Weapons Mission, 40% of fee allocated.**

Successfully execute Nuclear Weapons mission work in a safe and secure manner in accordance with DOE/NNSA Priorities, Program Control Document and Deliverables, and Program Implementation Plans, and Weapon Quality Assurance Requirements. Integrate across the National Security Campus, while maintaining a DOE/NNSA enterprise-wide focus, to achieve greater impact on a focused set of strategic national security priorities.

Under this goal, Honeywell FM&T earned a rating of excellent and 91% of the award fee allocated to this goal. Overall, Honeywell FM&T effectively executed development program, enduring stockpile system production and Limited Life Component (LLC) requirements. The vast majority of hardware was delivered on-time, within budget, and manufactured in a safe and secure environment. W76-1 AF&F deliveries were below the Program Control Document requirement, but remain ahead of Pantex assembly needs. Operational efficiencies and expanded use of Additive Manufacturing generated more than a \$9M cost avoidance to NNSA. Earned Value Management System (EVMS) implementation did not advance as expected and three cost estimation issues occurred. Three of four quality metric goals were achieved. FM&T continued enhancing and sharing Nuclear Enterprise Assurance (NEA) and supplier risk management strategies to ensure Nuclear Security Enterprise (NSE) weapon program requirements were effectively accomplished.

**Goal 2: Reduce Global Nuclear Security Threats, 7.5% of fee allocated.**

Successfully execute authorized global nuclear security mission work in a safe and secure manner to include the Defense Nuclear Nonproliferation, Nuclear Counterterrorism, and Counter Proliferation and Incident Response missions. Integrate across the NNSA enterprise to achieve greater impact on a focused set of strategic national security priorities.

Under this goal, Honeywell FM&T earned a rating of very good and 86% of the award fee allocated to this goal. FM&T is successfully executing nuclear security mission work across the Defense Nuclear Nonproliferation, Nuclear Counterterrorism and Counter Proliferation, and Nuclear Incident Response missions in a safe and secure manner by leveraging staff expertise gained fulfilling the nuclear weapons mission and through proactive collaboration across the NSE. Through innovation and process improvement FM&T realized over \$1.45M in cost savings while continuing to provide exceptional support of NA-80 Programs. This year, FM&T provided all deliverables on time and below budget.



**Goal 3: DOE and Strategic Partnership Project Mission Objective, 2.5% of fee allocated.**

Successfully execute high-impact work for DOE and Strategic Partnership Project (SPP) Mission Objectives safely and securely. Demonstrate the value of the work in addressing the strategic national security needs of the U.S. Government.

Under this goal, Honeywell FM&T earned a rating of excellent and 92% of the award fee allocated to this goal. FM&T executed and delivered significant value to the DOE and Strategic Partnership Project mission in a safe and secure manner. Leveraging this work, FM&T strengthened and expanded capabilities, facilities, and skill sets at the KCNSC. Included in this execution was the effective management of 1529 unique projects and shipment of ~72,000 deliverables to planned cost, scope and schedule; exceeding almost all expected tasks and expectations associated with this performance objective. In a year-to-year comparison, FM&T SPP realized a noteworthy increase of 26% (FY15 \$276M to FY16 \$349M) in executed scope encompassing a broad, diverse and expanding set of technologies and disciplines. This exceptional growth has, however, both stretched existing resources and required additional focus on FM&T's internal business systems in areas such as Finance/Rates and Project Management. FM&T has satisfactorily addressed the material rate concern and has several initiatives and corrective actions in place to strengthen project management. Continued attention in these and associated areas remains an NNSA expectation.

Specific evidence in support of the above performance objective is detailed in the following:

**Objective-3.1**

FM&T continues to aggressively pursue and perform high-impact scope for DOE through sound business processes and planning, making the Kansas City National Security Campus (KCNSC) an attractive and viable partner. Of special note, FM&T is leveraging, sustaining, and strengthening skills and capabilities to increase scope in support of additive manufacturing, and container development and manufacturing.

Supporting examples included:

- FM&T leveraged expertise from the Nuclear Weapons Program (NWP) mission to execute nonproliferation scope for NNSA and DOE that impacted policy and the national security mission.
- Supported the mission through computer modeling, component fabrication, testing, and analytic reporting. FM&T has supported over 25 analytic quick-turn requests for seven organizations and leveraged the project knowledge base to host a 3-day training course attended by representatives from six organizations. In FY16 the project team has produced and shipped 214 components and published four analytic reports including two that were posted on the Capitol Network for Congressional access.
- Supported the NNSA's mission to assemble/disassemble nuclear weapons and weapon components through the use of Additive Manufacturing (AM) to reduce development and tooling cost. In a joint effort among three NSE sites, this relatively new AM technology was used to redesign a safety critical tooling for Pantex.
- FM&T is currently supporting NA-531 (Office of Packaging and Transportation) and the Atomic Weapons Establishment (AWE) as the Production Agency for shipping containers. This support includes participation in Product Realization Team (PRT) activities to qualify manufacturing processes and procure packaging/containers to meet NNSA and Design Agency requirements.

**Objective-3.2**

FM&T completed an SPP mission segmentation study and sponsor requirements planning during the reporting period. The purpose of this was to identify new sponsors and expand upon the current sponsor base. FM&T targeted initiatives that require the use of existing, as well as new, technologies and skills that will prove beneficial to future national security missions.

Supporting examples included:

- Developed, and is executing, a plan to establish a capable Micro-electronic Production and Analysis Center (MePAC). The MePAC will meet customer needs for the nondestructive analysis of devices and circuit card assemblies. The new capability is projected to add an approximated \$65M in new scope for FY17–FY21.
- Established a new business relationship with the goal of improving support for obsolete and non-procurable parts. The new relationship envisions a “clearinghouse” of non-procurable parts. The clearinghouse system is scheduled to be operational in early Q2 FY17 and provide a more efficient avenue to address the demand for obsolescent parts caused by Diminishing Manufacturing Sources and Material Shortages.
- Implementation of the design, testing, and prototype development of a modular biological agent detector.
- Expanded into areas of chemical and biological (CB) detection leveraging knowledge gained from NNSA. Initiatives include the design and upgrade of the electronics. The CB partnership couples the basic and applied CB scientific expertise with the engineering and manufacturing expertise at FM&T.
- Awarded a trailer refurbishment project trailers and two tractors. This tasking leverages and continues growth in the skills and knowledge developed during the KCNSC’s support of the Office of Secure Transportation (OST).



## Goal 4: Science, Technology, and Engineering (ST&E), 5% of allocated fee.

Successfully advance national security missions and advance the frontiers of ST&E in accordance with budget profile, scope, cost, schedule, and risk while achieving the expected level of quality, safety and security. Effectively manage National Security Campus Directed Research and Development (PDRD) and Technology Transfer programs to Component Manufacturing Development (CMD) advance the frontiers of ST&E for insertion into Nuclear Weapon Program (NWP) processes.

Under this goal, Honeywell FM&T earned a rating of excellent and 97% of the award fee allocated to this goal. FM&T is continuing to evolve in business excellence for technology portfolio management. Groups of similar technologies, Centers of Excellence (COE), with a common goal are being managed in six technology focus areas. Selection criteria value is given to emerging technologies, workforce development and business strategies that align with the goals of the NNSA. The COEs now report to the newly created Chief Technology Officer (CTO) of Engineering. This organization continues to improve product development and production processes, increasing intellectual property portfolios, strategically addressing critical skill needs, and engaging in Technical Exchanges and partnerships across the Nuclear Security Enterprise (NSE).

### Objective 4.1

The COE strategy is documented in Technology Roadmaps, which are used in identifying and prioritizing Plant Directed Research and Development (PDRD) projects, early Technical Readiness Level (TRL)/Manufacturing Readiness Level (MRL) CMD projects, capital equipment, and needed skills to close skill gaps. The foundation of this managed approach includes possessing the “Right Technology at the Right Time” to execute the mission for both Defense Programs (DP) and Global Security (GS). In order to create this strategy, COEs collaborate with Systems Engineering and Program Management to identify technologies desired by DP and GS customers. FM&T also researches new technologies that provide productivity as well as efficient and effective solutions to NSC internal business processes. In addition, FM&T has developed focus areas within the COEs and the associated engineering staff. These focus areas are regularly evaluated to ensure that the research being pursued is relevant, appropriate, and effective.

FM&T has implemented a research strategy and communication plan that clearly aligns discretionary investments, specifically PDRD, to support DOE/NNSA priorities.

- COEs and the PDRD Program Manager implemented a research strategy and communication plan that clearly aligns discretionary investments, specifically PDRD, to support DOE/NNSA priorities. In the original FY16 plan, 80 PDRD projects were allocated across the COEs with a total funding level of approximately \$16.4M. 15 Emerging Projects have been added with a funding level of \$3.6M for a new total allocation of \$20M.
- Forty IDEA projects have been allocated at a funding level of \$500K. These are short term (< 3 month), low cost (<\$25K) projects that explore very low TRL feasibility ideas as an early gate to either a larger and more complete PDRD proposal; or deciding that further investments should not be made. IDEA proposals are reviewed weekly by the COEs and can be vetted and turned on within 2 weeks of submission.
- In FY16 FM&T printed its 25,000th development item since the inception of the Digital Manufacturing initiative. Targeted at driving radical improvements to mission success, it has

avoided >\$45M in costs, reduced typical cycle times from months to weeks, allowed the use of new design processes like Topology Optimization (TO), and taken advantage of “science in manufacturing” to drive productivity.

- The Chief Technology Officer and COE Leaders organized a technical exchange meeting with the Atomic Weapons Establishment, Los Alamos, and Sandia Materials Science Division. Strategies to jointly develop future weapon technology needs were evaluated. This engagement showcased the impact FM&T’s Technology Strategy Management has on the NSE.

**Objective 4.2**

Regular communication of NSC technology roadmaps, implementation plans, and research & development projects with the Kansas City Field Office (KCFO) and periodic visits of COE leaders to NNSA-Headquarters in Washington, D.C. provide ongoing visibility of active research pursuits and benefits. NSC teams partner with the NSE Laboratories on research and process development activities to ensure results have multi-site benefits. These benefits include cost savings, technology insertion, process alignments and efficiencies.

**Technology Roadmaps:** To ensure that research is relevant and mission focused, FM&T performs reviews and annual updates to Centers of Excellence (COE) Technology Roadmaps. Some key review considerations in the development of Technology Roadmaps include alignment with FM&T Grand Challenges, War Reserve (WR) program requirements, and accommodations for new and emerging technologies that have the potential to be revolutionary “game-changers” and transform the business.

**PDRD and CMD Projects:** The COE research strategy guides promising technologies that have been established through Plant Directed Research and Development (PDRD) through the “valley-of-death,” ultimately preparing them for insertion and application into WR programs. The COE leaders have partnered with Component Manufacturing Development (CMD) and Production Support (PS) management, as well as other programs, to coordinate the accurate timing and funding of projects to deliver the right technology at the right time. Many of the current CMD projects have direct ties to earlier PDRD projects (Table 1).

FY16 CMD Projects	PDRD Ties
Encapsulation Development	Early development efforts in PDRD
Additive Metal Manufacturing	Numerous associated prior PDRD projects
Additive Materials Evaluations	
Trusted ASIC Screening	Multiple FY14-15 DWE PDRD projects
Direct Ink Write Technology Development	Early development efforts in PDRD
Computed Tomography (CT) Coordinate Measuring Machine (CMM) Accuracy Evaluation	Proposed as FY16 PDRD, redirected to CMD funding
Thin Film Stress Measurements	Early development in PDRD of Low Temperature Co-fired Ceramics (LTCC) Thin Film
Glass-Ceramic Headers	FY14-15 Glass Ceramic Seal Oxide PDRD project

**Table 1: Examples of CMD Projects with Ties to PDRD**

**Cost Savings and Increased Efficiencies:** Past investments in PDRD and CMD are paying dividends to current WR programs in cost savings and increased efficiencies. Additionally, FM&T philosophy and standard practices are oriented toward development of improved methods that reduce cost. The following are examples of cost savings and efficiency improvements:

- The FM&T Metals AM team in conjunction with the H-Gear team designed and manufactured a replacement socket for the B61 at the NSC for approximately \$500 per part. To have the sockets

machined out of billet was quoted by an external vendor at \$1500 each. Two sockets were printed in a quick turnaround replacement for a socket kit with a cost savings of \$2K.

- In FY16 through use of the Common Tester Architecture (CTA) more than 40,000 engineering hours have been saved resulting in a combined cost avoidance of \$5.5M on the W88 Alt 370 and B61-12 tester programs.
- A team consisting of FM&T and Sandia's Thermal Spray Research Lab (TSRL) evaluated the possibility of using existing powdered Aluminum flame spray coating capability in the NSE on the W88 Forward Mount. The team determined that the TSRL could perform this work and will be utilizing existing capability in the complex. This will save roughly \$1.5M over the life of the program.
- An alternate process was established for the production of Polyurethane R components at the NSC's PPF. The alternate process provides improved batch uniformity, while minimizing clean-up time and the use of flammable solvents.
- Test Engineering is currently developing a large quantity of testers that are scheduled for qualification over the next 2 years. A deployment tracking database has been developed for use as a tester project management aid to communicate status and highlight the impact of issues. The establishment of this tool was supported by earlier work accomplished on Component Manufacturing Development (CMD) and Production Support (PS) projects.
- Flex cables consist of thin kapton, isolating polymer, copper circuit, and adhesive. Manufacturing flex cables requires the composite to go through various steps that can cause delamination. Locating and determining root causes of cable delamination can be a challenge attributed to the small thickness. In their PDRD, engineers were able to characterize the layer of the delamination in a flex cable using ultrasonic inspection. PDRD funding has and is allowing engineers to explore the technology, capabilities, and limitations in thin film layered composite inspection.
- FM&T Joint Radar Team (JRM) conducted a study, and proved that a lid stiffener added in a previous development design to prevent deflection in addition to other design changes to prevent deflection was unnecessary. The lid stiffener has been removed from next development build as a result of this study. Since the JRM is shared between multiple programs, any cost savings is magnified because of the quantity during production. Therefore, removing a part and a couple of hourly labor hours results in a massive amount of cost avoidance \$1.2M over the life of the program.
- FM&T delivered two 3X Acorn cutaway models fabricated using plastic Additive Manufacturing (AM) for use by the B61 program as visual aids and in training. The cost of a traditional metal cutaway is approximately \$200K whereas the plastic version can be produced for \$10K and be available in only a few weeks. This resulted in a cost avoidance of \$380K. Two each Mass Mock 3X Acorn, 2P, and 2V Valve full-up assemblies were produced for SNL using Additive Manufacturing resulting in estimated cost savings of \$20K per full-up mass mock (\$120K total). This method also reduced lead time for the reservoir mocks by approximately 50%.
- An existing Thermotron chamber used for Highly Accelerated Stress Screen (HASS) testing has been upgraded to meet tighter vibrational tolerances required by the new programs. By upgrading and using the existing chamber, an expensive and new additional chamber did not need to be procured and have valuable space allocated for it in the production areas. The decision to upgrade vs procure new is also an outcome of the effective Capital Equipment procurement process.



The Direct Ink Write (DIW) silicone additive manufacturing process, which has near term applications on the W88 ALT 370 that are supported using direct tail number funding and longer term aspect (W80-4 and IW1) that are supported using CMD funding. In fact, the W88 ALT 370 AF&F Product Realization Team (PRT) recently down selected DIW silicone as the baseline pad technology going forward, over the more traditional Cellular Silicone pad manufacturing process.

### **Objective 4.3**

Pass Through projects are longer range, strategic projects that have been identified by COE and other leadership as having high potential for weapons use and/or WR insertion. There are two types of Pass Through projects, Consortium and Gated. Consortium projects have numerous external (university, industry, and labs) partners all working collectively on different aspects of the same project or goal. Consortium projects take advantage of external expertise and labor, while accelerating the pace of research development. Gated projects have fewer, internal and/or primarily lab partners working on the same or similar aspects of the same project or goal.

A very strong and integrated portfolio of PDRD and CMD projects has been put together for FY16. Several of the "Consortium" projects have already made significant progress and are worth highlighting.

The RADAR 2021 Consortium was created to address the fact that the need for increased Radio Frequency (RF) radar functionality for future tail number programs is driving the need for advanced radar technology development and miniaturization, because there will be little or no increase in radar weapon volume. New RF radar and packaging technologies, new Synthetic Aperture Radar (SAR) technology, and new Additive Manufacturing (AM) methods are being developed in order to be able to keep up with RF Integrated Circuit (RFIC) technology advances. This project consists of seven university collaborators.

The Polymer AM (Additive Manufacturing) Consortium was created to address shortcomings in current polymer AM materials, which limit their applicability in weapon tooling and fixture applications, as well as the near lack of engineered polymers and plastics for WR (War Reserve) weapon applications. For example, interfacial adhesion of the extruded thermoplastic fibers in Fused Filament Fabrication (FFF) and sintered polymeric powder in Selective Laser Sintered (SLS) AM techniques could benefit significantly from one of several technologies being developed through the consortium. This project currently consists of five university collaborators, but will grow in FY17.

FM&T and Savannah River Site (SRS) are collaborating on the development of a new resistance welding electrode manufacturing process via PDRD funding. This new method has the potential to eliminate the joint porosity currently seen in the current process, reduce tooling costs and reduce order lead time.

FM&T served as the Lead US Technical Chair for the 48th International Symposium on Microelectronics. FM&T influenced the structure of the technical sessions and recruited presentations and posters in areas of interest to FM&T, NSE, and larger national technical and microelectronics manufacturing community. The 2016 symposium General Chair has invited FM&T to serve as the overall Lead Technical Chair for the symposium and expo next year.

The COE Tech Strategy drove a transformation in IP through defined expectations which increased invention disclosures by 50% and maintained that increase for three years. The COEs and Legal

department formed a process improvement team utilizing the Honeywell User Experience (HUE) tools that fundamentally changed the intake process which has resulted in an all-time high of 92 invention disclosures in FY16, more than doubling the FY15 tally of 44. There were 33 Patent Applications filed compared to 7 in FY15 and 3 Patents awarded by the U.S. PTO office in FY16.

#### **Objective 4.4**

The NSC provides a multi-faceted approach to maintaining an environment that enhances the technical workforce. Critical technical skills needed to enable the national security mission are identified and assessed by COE leaders and technical managers. Gaps in critical skills are mitigated by a variety of research and training opportunities. Research opportunities within FM&T are made available through annual PDRD and Technical Fellowship programs and as needs arise during the year through the IDEA (quick response) and Emerging Technology programs. Tools like the Technical Resource Review (TRR) have been developed and are continually being enhanced to evaluate critical skills of the workforce. Additionally, tools like the Honeywell Innovation Laboratory (HIL) have been established to provide an environment where ideas may be cultivated into realities.

GTS piloted a four week LANL residency, with the goal to learn and gain awareness of DA requirements and products and the customer was extremely satisfied with the experience. The positive feedback will allow NSC to continue the experience with future engineers. The insight and relationships that were built are extremely valuable to NSC, as well as the lessons learned and valuable information captured for future residencies.

#### **Technical Fellowships**

This program provides opportunities for associates to further their education by obtaining advanced degrees that will benefit advancing competencies and capabilities tied to the FM&T Technology Roadmaps. Technical Fellows continued studies at the following institutions in the following areas:

#### **Upcoming: FY 2017**

- University of Colorado Boulder- RF and Microwave Traceable Measurements
- Missouri Science and Technology- Electromagnetic Compatibility
- Colorado School of Mines – Ceramic Additive Manufacturing

#### **Current:**

- Georgia Technical Institute - Energy Harvested Powered Sensor Systems
- Iowa State University - Digital Radiography
- Missouri University of Science and Technology - Integrating Manufacturing Capability into Systems Engineering
- University of Kansas – Digital RF Memory (DRFM) & RF Technology
- University of Connecticut – Electron Beam Sintering of Metals
- University of Missouri at Kansas City – Statistical Analysis with Small Samples
- Alfred University – Synthesis & Characterization of Ceramic Granules for LAC
- University of New Mexico – Physical Unclonable Function (PUF) Microchip

The new XRP (Experienced Engineer Rotation Program) was initiated by selection of two engineers to participate in the inaugural rotation of the program. XRP is a rotation program that is an opportunity for

engineers and scientists to develop their knowledge base, expand their network, and broaden their perspective by rotating through two departments over two years.

- The Honeywell Aerospace Engineering & Technology Leadership Team congratulated 29 FM&T Engineers with the “Outstanding Engineer Award”. The Outstanding Engineer Award is a peer-nominated, peer-reviewed individual award.

#### **Objective 4.5**

The NSC is increasingly seeking out and creating new mechanisms to actively and more easily engage a wide variety of external partnerships in support of its core mission. Partnerships take advantage of external expertise that when the partners/collaborators are academic, access to and a pipeline for new hires is opened, and external labor is leveraged to help ensure program and project milestones are achieved. The NSC’s “Consortium” process allows for and encourages project/program PIs (Primary Investigators) to collaborate with a number of technically appropriate universities/university professors, and industry and lab partners, who are all aware of each other’s role in the collaboration and are all working together toward a common research goal.

FM&T hosted the 43rd PolyMAC meeting the week of June 12th. This three day conference with 150 attendees focused on polymeric materials, adhesives, and composites. Eight sites within the NSE and AWE were represented, as well as nine university and industry collaborators. More than 60 presentations were delivered and over 20 posters were presented.

The Radar 2021 Consortium is developing new technologies for the design, fabrication, and test of next generation radars such as the Synthetic Aperture Radar (SAR). Objectives include: develop laminate substrate technology, research LTCC advances, miniaturize radar components, develop thin film passives, thermal management, and expanded frequency range.

Master Collaboration Agreements (MCAs), through which the legal details of partnerships are prenegotiated and which have now been signed with Missouri S&T, Kansas State University, and Kansas University, allow collaborations with those universities to be put in place quickly once the scope of work and funding has been negotiated.

A joint FM&T and SNL White Paper was published to address the current state of capacity and capability at the NSC for vibration testing. A recommendation was made to procure two 5000 Hz shakers to address the capability & capacity concerns to enable testing to 5000 Hz on some components. Significant efforts by a cross functional FM&T and SNL team to collect requirements, determine capacity, and understand technical options was required to publish the White Paper and recommend a path forward.

The Glass and Ceramic Focus Area within the Materials COE has been increasingly involved in a Focused Exchange and collaboration with AWE through JOWOG28.

A FM&T Nuclear Enterprise Assurance (NEA) team attended, by invitation, a workshop sponsored by the Air Force of approximately 30 key decision makers and leaders (OSD, DARPA, IARPA, DMEA, AF, Mitre, Aerospace Corp, and SMC) to discuss security relevant supply chain issues. The FM&T team was commended by The Air Force National Academy of Science committee chair Dr. Latiff for doing an exemplary job of representing the KCNSC capabilities and expertise. Dr. Latiff specifically stated at the



end of the workshop that "whomever thought to bring in NNSA KCP was a brilliant decision". The FM&T NEA team was the only representatives at the workshop from the DOE.

**Goal 5: Operations and Infrastructure, 35% of fee allocated.**

Effectively and efficiently manage the safe and secure operations of the site while maintaining an NNSA enterprise-wide focus; demonstrate accountability for mission performance and management controls; assure mission commitments are met with high-quality products and services; and maintain excellence as a 21st century government-owned, contractor-operated facility.

Under this goal, Honeywell FM&T earned a rating of excellent and 94% of the award fee allocated to this goal.

**Objective 5.1**

FM&T Environmental Safety and Health (ES&H) continued to be well administered with only three Occupational Safety and Health Administration (OSHA) injuries in FY2016. FM&T achieved a maximum score of 2.0 on the ES&H Performance Index. The total recordable case (TRC) rate through August of CY16 was 0.13 against a goal of 0.47 and is 97% better than industry. The corresponding Days Away from Work Case (DAFWC) rate was 0.00 against a goal of 0.08. KCNSC's New Mexico Operations achieved 40 months (1.14 million hours) without a DAFWC and recently received its third consecutive Perfect Record Award from the National Safety Council. These results attest to the success of FM&T safety culture, particularly considering the influx of over 400 new employees this year.

In FY2016, KCNSC received the following honors:

- National Safety Council's 2016 Occupational Excellence Achievement Award and Million Hours Worked award for two million hours worked without a DAFWC from January 1, 2016 through June 15, 2016
- The Missouri Water Environment Association Gold Award for Industrial Wastewater Pretreatment Facility (IWPF) Operations at KCNSC and the Silver Award for IWPF Operations at BFC
- The NNSA's NA 50 'Excellence Award' for exceptional accomplishment in completing the Bannister polychlorinated biphenyl (PCB) removal project (~900K lbs. of equipment and debris and ~9K gal. of oil and water) in less than 1 year and \$1.8M under budget.

FM&T took the lead in the identification of facility, equipment, and process safety requirements associated with additive manufacturing (AM) technologies. Jensen Hughes Fire Protection Engineering Corporation provided technical support to determine the facility and applicable fire code requirements for establishing a safe and compliant Additive Manufacturing (AM) center at the KCNSC. FM&T presented the KCNSC AM approach to Lawrence Livermore National Lab (LLNL) AM group and at the annual AM Interagency Manufacturing Operations Group (IMOG) conference. Underwriter's Laboratory (UL) was contracted to assess Nationally Recognized Testing Laboratory (NRTL) certification and safety requirements of AM printers and ancillary processing equipment.

The Det Norske Veritas, a third-party-auditor, conducted an annual integrated audit of the FM&T Quality and ES&H Management System which resulted in no non-conformances (unprecedented), three observations, one opportunity for improvement, and seven noteworthy efforts. The NNSA/KCFO completed audits of the Lockout/Tagout, Explosive Safety, Beryllium, and Respiratory Protection programs with no findings. FM&T completed closure actions on all 87 Honeywell Corporate Audit findings from 2015.

FM&T ES&H completed 19 Culture Focus Group meetings with employees validating a strong safety culture. At the “Be a Better You” Festival, the motivational speaker, Dr. Charlie Cartwright, presented two sessions on “What is at the Heart of Safety?” More than 90% of employees participated in the festival. The wellness program provided 800 flu shots and an expansion of the fitness center encouraged even greater employee participation.

FM&T implemented Intellex software for accident/injury reporting and investigation and “near miss” reporting.

ES&H supported several customer-based benchmarking opportunities in FY2016.

### **Objective 5.2**

FM&T has coordinated the execution of the White Space Expansion, and added the Parking Lot installation and Restroom/Break Room Installation along with KCFO partners and GSA. The projects are within cost and schedule.

### **Objective 5.3**

Security has led multiple cross-functional initiatives to facilitate the productivity of uncleared employees and expedited the interim clearance process and expedite the clearance process while ensuring risk to classified assets is minimized. The initiatives include revamping the security protection strategy for the factory and identifying and processing appropriate candidates for interim Q clearances.

Formal agreements were made with a local Police department that provides the Protective Force with a suitable range to use for weapon qualifications and training at no cost to the government

FM&T is refining their already first-rate security culture. Visual indicators of security performance have been added to every departmental performance board in the facility (which are used to report performance and identify issues) and analysis of incidents and alarm rates are being used to identify and address problematic behavior and configuration shortfalls. Employees are engaged in the security culture. Over three-fourths of the security incidents were self-reported and ten employees were rewarded for improvements to or personal enforcement of security requirements. FM&T has enacted positive measures and KCFO expects continued future improvements.

FM&T leveraged their corporate annual risk assessment tool and a new risk assessment matrix was developed and used to enhance emergency planning. The KCNSC Emergency Planning Hazards Assessment was revised to include the use of this new risk matrix, with no increase to site hazards identified.

FM&T collaborated with their corporate business continuity management (BCM) Steering Committee and drafted a BCM plan to better prepare for events that could result in extensive and long-term loss of facilities, workforce, suppliers, or systems. The KCNSC Emergency Plan and Spill Control Plan were updated based on recommendations from the Honeywell Corporate Audit and includes a crosswalk for 40 CFR 265. The revised plans were provided to Kansas City Fire, Grandview Fire, St. Joseph and Research Medical Centers, and integrated with the landlord plans.

Completed the security requirements re-baselining effort and transition from the Site Security Standard to Modulo on time. Systemic issues were identified across three separate security programs which revealed multiple instances of expert-based execution of tasks with a lack of procedural implementation to ensure consistency and formality of operations, in addition to a lack of proper record documentation.



**Objective 5.4**

FM&T continued to effectively manage the maintenance, infrastructure and building operation systems at the NSC in coordination with GSA and CPZ. FM&T's development of the plant model and configuration management system continued on schedule. FM&T continued to evaluate opportunities for greater energy efficiency projects at the NSC in addition to being a LEED Gold facility.

FM&T completed three auctions to excess unneeded capital equipment at the Bannister Federal Complex. The auctions were very successful selling more equipment than anticipated and lowering the cost of the equipment removal project. An effective strategy to remove all remaining excess equipment was developed and negotiated into the Bannister Disposition contract.

FM&T continued to effectively support disposition activities of the Bannister Federal Complex. FM&T supported the KCFO's contractor in support and development of the government cost estimate for disposition of Bannister as well as CenterPoint's due diligence activities. The ground water treatment project was completed at Bannister and the system placed into service. Removal of contaminated and high risk equipment was completed in August of 2016. FM&T achieved a rating of "Outstanding" during a validation performed by the NNSA Personal Property Branch based on Honeywell's approved FY2016 Protocol document. FM&T also completed a preliminary design report for the disposition of the BFC off site sanitary sewer line after transition. FM&T continued to efficiently manage the Bannister operations focusing on minimizing operational and incidental repair costs until the transfer agreement is executed. This included conducting repairs on the flood protection system gates to prepare the system for transfer to KCMO. However, Honeywell was late in identifying the scope and schedule for Site Surveillance before Transfer. FM&T has done an excellent job in establishing new baselines that are needed for Recapitalization projects at the new Botts Road facility while at the same time supporting the Bannister Complex.

FM&T was recognized for outstanding management of the Roof Asset Management Program - the Honeywell RAMP team is incredibly proactive, responsive, and effective. The new contractor completed approximately 21M sq. ft. of site assessments on time in December 2015. Design work was completed on schedule necessary to support pre-bid work in November 2015 for the 2016 construction season. RAMP reacted to critical needs at both LLNL and Y-12 by roofing three critical buildings on the D&D list at Y-12 and three at LLNL. RAMP designed, bid and executed \$7.5M in roofing at 9206, Alpha 5 and Beta 4 in less than 12 months. This was a major accomplishment and represented a significant risk reduction for Y-12. RAMP successfully executed the largest amount of construction in the history of the program, approximately \$30M dollars in FY16. RAMP continued to bring on new partners across the Department of Energy by demonstrating excellence in in Roof Asset Management. RAMP will execute approximately \$800K at the Waste Isolation Pilot Plant.

**Objective 5.5**

Overall, FM&T has delivered efficient and effective business operations and responsible financial reporting and management during the first two trimesters. They have demonstrated sound leadership, and transparency through weekly meetings with the President, monthly meeting with Directors, frequent GEMBA walks and Honeywell Operating System (HOS) discussions in all of the functional business areas.

Notable accomplishments from the reporting period include:

- Receipt of HOS Silver status.
- Exceeded expectations on data calls for Critical Funding Needs during the continuing resolution request.

- Submitted a Functional Transformation Plan and Operating system that will drive improved value across the business.
- Captured approximately \$68 million in Six Sigma cost avoidances and is on track to exceed FY goals.
- Engaged in detailed designs and enterprise-wide improvements for the next release of Earned Value Management Systems.
- Implemented Lean concepts to reduce waste in the production process.
- Early submission of final Actual Costs and Rates Report reflecting improved cost and rate accuracy, and a successful Cost Accounting Standard 402 internal audit.
- Property inventories for firearms, precious metals, equipment, and sensitive items obtained a rating of "Outstanding."

FM&T continues to meet expectations. FM&T met contract deliverables regarding communication and documentation related to the ratification of the Security, Police and Fire Professionals of America (SPFPA) contract. Reported FM&T Human Resources (HR) performance measurements are within acceptable ranges.

Purchasing is operating efficiently and effectively. FM&T's score on its Purchasing Objectives Matrix was at 853.8 through December, which is on track to achieve its 955.0 Year-end goal. Five of the six socioeconomic goals are currently being exceeded as shown in the following chart.

	Small Business	SDB	WOSB	HubZone	VOSB	SDVOSB	PO Commit
Goal %	50	5	5	3	4.5	3	\$375 M
YTD%	54.45	7.2	6.26	2.09	6	3.88	\$395.9 M

M&O Subcontract Reporting Capability (MOSRC) milestones were met.

The organization volunteered to be NNSA's pilot site for the developing and implementing the M&O Subcontract Reporting Capability (MOSRC). Since March 2016 NSC's transaction data error rate is 0 percent – the best of any pilot site. The organization continues to promote socio-economic programs by awarding ordering agreements for complex wide use through the Supply Chain Management Center.

Finance delivered efficient, effective, and responsible financial management throughout the fiscal year. Internal audits completed their schedule and provided reports that were thorough and concise.

**Objective 5.6**

The FM&T Legal Department continued its leadership within the Campus by developing the Integrity and Compliance Council focused on FM&T's corporate and governmental compliance and awareness. They greatly enhanced the Intellectual Property process and facilitated issuance of 30 invention disclosures, three filed patent applications, and three copyrights pending while aggressively seeking out efficiencies to reduce outside counsel expenses. Their efforts were highlighted by award of the Honeywell corporate Law Contracts and Export Compliance Award for most improved Honeywell User Experience in the changes made to the Intellectual Property process.

**Objective 5.7**

The NA-IM Inspection of the KCNSC cyber security program in March 2016 highlighted several key areas where FM&T was “exceeding”, such as: mature implementation of Risk Management Framework (RMF) allowing leadership to make informed risk based decisions, completing implementation of OMB Memorandum M-04-04 and implementation of Level 4 assurance utilizing DOE PIV cards for network authentication, and the KCNSC Continuous Monitoring (CM) model integrates data visibility at both the system and the programmatic levels. This includes dash boarding information from regular systems scanning, system logs collection and automated compliance checks as components of the KCNSC continuous monitoring capability.

FM&T automated the performance monitoring and reporting of the Site Threat Monitoring, Cyber PEG and AOP goals within SPLUNK through the creation of dashboards which allow management and operational personnel to validate, observe, and report metrics real-time.

FM&T took an active leadership role in FY16 within the KCNSE by organizing and hosting several enterprise-wide collaborative efforts to include: Cyber Data Fusion, Multi-Factor Authentication Implementation, Anti-Phishing Workshop, and Archer eGRC Implementation. This resulted in sharing of best practices amongst M&O peers, advanced implementation of key initiatives and/or helped to increase security for NNSA sites.

FM&T also delivered several new capabilities which increased security and automation while decreasing risk to the site classified and unclassified network infrastructure, for example: Guest Provisioning - automating guest network access based on physical presence at KCNSC, Physical / Logical Mismatch - developed automated alerts that will notify cyber security if a computer account is in use when the user is not at the facility. Phish / Spam Buttons – Developed Microsoft Outlook plug-ins that automates reporting and blocking of suspicious emails. Once the user identifies a suspicious email they simply click the Phish or Spam icons which instantly removes the email from the inbox, automates blocking, reporting and notification to cybersecurity of all malicious links.

OneNNSA Network – KC NSC was the first site to migrate an operational Wide Area Network (WAN) circuit to the OneNNSA NNSA network. On July 21, 2016, the Virtual Private Network (VPN) from KC NSC to SNL was put in operational status, reducing cost and complexity of the infrastructure. This allowed NNSA site-to-site connections to be more capable, secure and cost effective.

OneID – KCNSC was the first external site outside of host Lawrence Livermore Nation Laboratory (LLNL), to interface their provisioning system with OneID. This moved the enterprise closer to completing the DOE and NNSA goal of Federated Identity Management System, allowing all NNSA users to have a common access to all authorized NNSA sites and systems.

Multi-Factor Authentication (MFA)\HSPD-12 - Completed deployment 6 months in advance of required DOE CIO and Federal CIO deadline. Deployed HSPD-12 Logical Access, which delivered more secure access to NNSA and DOE networks.

Domain Name Service Security (DNSSEC) - Executed OMB and DOE mandated requirement for performance, which provided an increase in network security to the KCNSC.



**Key Outcome 5.1**

The FM&T team supporting the KCFO effort to dispose of the excess real property at the BFC performed above expectations for this trimester. This effort has resulted in completing deliverables that are critical to the disposition of the BFC, the disposal of personal property, and the removal of contaminated equipment.

FM&T support to the KCFO during due diligence site work being conducted by a third party has been outstanding. A considerable number of schedule and logistical challenges have been coordinated expertly without reportable ES&H or operational impacts. This included fieldwork associated with the characterization, cleanup, and verification sampling related to legacy radioactive contamination at the BFC in support of obtaining release of the site per DOE Order 458.1.

Removal of contaminated equipment required by regulation was completed as scheduled. The scope of this project has expanded beyond the disposal only of beryllium-contaminated items to include items that have been contaminated by production processes (such as beryllium or lead), or that included materials in their construction that are now considered hazardous (such as asbestos) and could not be transferred, sold, or abandoned in place.

Some of the remaining non-contaminated personal property has been removed from the site through the use of a no-cost auction service, employment of the abandonment provisions of the law to define the end state, and the reinvestment of a portion of the nearly \$2 million in proceeds from the sales into oversight and other support.

**Key Outcome 5.2**

Honeywell has met expectations in improving contractor oversight processes to ensure comprehensive and accurate reporting, timely identification and correction of issues, including metrics that provide accurate, meaningful, and timely information concerning the health of the security program. FM&T met the FY16 objective for implementing Modulo (an application for managing security operation requirements and assessing performance). Additionally, FM&T continues to improve oversight and mitigate risk through a variety of endeavors including; Performance Assurance Team assessments of the Building Operations Center and Personnel Security, support of NNSA's CIO's implementation of Archer, and a comprehensive review and update of the site security performance metrics.

**Key Outcome 5.3**

FM&T developed and implemented a process to control critical white space within the factory managed by the Facilities organization. Additional rigor was incorporated into the facilities project management system to manage white space. Finally, emphasis on creating white space through excess equipment removal and factory efficiencies continued to be a focus area for operations.

**Key Outcome 5.4**

FM&T is effectively supporting the G2 system for planning, budgeting and reporting for the Infrastructure and Safety program, and is committed to keeping G2 information up-to-date and accurate. Monthly reviews of schedule and cost performance were conducted with KCFO and Headquarters. FM&T is also reporting monthly costs and forecasting the yearly spend plan through G2. Monthly reviews of schedule and cost performance are conducted with KCFO and Headquarters. FM&T was recognized for successful

implementation of G2 and support of the Master Asset Plan and deep dives across the complex. FM&T is also progressively improving G2 data in their oversight of the RAMP and CHAMP programs.

FM&T expanded its AMP Services to include the Cooling and Heating Asset Management Program (CHAMP) for FY16. The NNSA requested that FM&T manage and operate pilots at several sites to demonstrate the ability to modernize cooling and heating infrastructure through a common contract across the NSE. FM&T shared lessons learned and contracting methods in the RAMP with LLNL to help establish a similar capability for long-term support of the CHAMP. FM&T's management of their Roof Asset Management Program subcontractor facilitated the successful completion of the roof repairs of the high risk excess facilities at Y-12, including two additional roofs.

### **Key Outcome 5.5**

The National Security Campus KCNSC met the emergency management requirements and demonstrated effective execution of the program by having 100% of emergency response organization (ERO) personnel fully staffed and trained; installing the new AdHOC employee notification system reducing the time required to contact personnel in the event of emergencies and successfully demonstrating adequacy of the employee evacuation procedures.

The KCNSC successfully conducted a Full Participation Exercise with coordination and support from the KCNSC staff, Kansas City Missouri Fire and Police, Grandview Missouri Fire and Police, and the HQ Operations Center. Oak Ridge Associated Universities assisted with planning and executing the emergency scenario, execution and After Action session. Multiple lessons learned were identified by the responders, participants, observers, and HQ staff.

Multiple successful tornado, fire or medical emergency drills were held at KCNSC and KCNSC New Mexico Operations.

**Goal 6: Leadership, 10% of fee allocated.**

Successfully demonstrate leadership in supporting the direction of the overall DOE/NNSA mission, improving safety culture, the responsiveness of Honeywell Federal Manufacturing and Technologies leadership team to issues and opportunities for continuous improvement internally and across the Enterprise, and parent company involvement/commitment to the overall success of the National Security Campus and the Enterprise.

Under this goal, Honeywell FM&T earned a rating of excellent and 95% of the award fee allocated to this goal. Overall, FM&T performed above expectations in effectively providing leadership to support the achievement of NNSA's vision and mission at the KC National Security Campus (KCNSC) and around the Nuclear Security Enterprise (NSE). FM&T continues to lead impactful site-wide initiatives that include the Supply Chain Management Center, Enterprise Risk Management, Manufacturing Production Steering Committee, Export Control Implementation, participation in the Defense Programs Business Process System (DPBPS) as well as traditional technical contributions & residencies to the NSE. In addition, the Honeywell Operating System represents successful infusion of commercial best practices into government contracting. Additional detail is provided below.

**Objective 6.1**

FM&T completed Integrated Risk Management continuous improvement projects. These ongoing functional reviews exposed additional new risks. FM&T took steps to increase visibility of and mitigate risks leading to cost avoidances throughout the business. FM&T planned and lead an Enterprise Risk Management (ERM) Forum in Washington, DC in February. FM&T continues to serve as a lead for DOE and NNSA ERM efforts.

Additionally, FM&T collaborated and partnered in the areas of Additive Manufacturing, Polymer research, Minority-Serving Institutions, Kansas City Engineering Zone, and the National Strategic Research Institute. These efforts continue to improve enterprise wide capabilities to ensure DOE/NNSA success.

Through the reporting period FM&T supported, with corporate endorsement, a wide variety of outreach projects that promote Science, Technology Engineering, and Mathematics (STEM), collaboration agreements with Universities (including Missouri Science and Technology as well as Kansas State University), Baldrige Community participation and multiple other community outreach activities. FM&T continued active participation in furthering STEM related activities aimed at youth in the Kansas City area. These activities included FIRST Robotics Launch, PREP-CK IGNITE and sponsorship of local Math Relays. These activities help to ensure that the KCNSC maintains a culture of performance excellence and an emphasis on furthering science, technology, engineering and mathematics. FM&T's endeavors to support STEM create a pipeline for talent and a recruiting mechanism used to further the mission of NNSA.

**Objective 6.2**

FM&T was successful in promoting a culture of transparency through engagement in self-critical internal audits, regulatory inspections, monitoring purchasing and small business metrics, customer product quality performance, and environmental performance indices; all areas are being achieved with a high satisfaction rate.



FM&T is consistently utilizing their Contractor Assurance System; promoting a transparent culture and leveraging parent company resources. FM&T participated in CAS/MAS benchmarking efforts with other NSE partners. FM&T continues to exceed performance targets in safety related OSHA recordables, quality escapes, on time ship performance, and inventory variance.

Eight noteworthy practices and no findings were reported from a combined ISO 9001, ISO 14001, and OHSAS 18001 audit in February. FM&T earned a three year ISO certification as a result of the February audit.

In April 2016, FM&T conducted an Enterprise Alignment Audit. The Audit results demonstrated alignment of the Honeywell Management Assurance System with enterprise mission activities by validating links between FM&T leadership responsibilities and the goals of the Enterprise.

### **Objective 6.3**

FM&T continues to drive performance results through organizational accountability. The accelerated deployment of Honeywell HOS Gold was a notable performance accomplishment during the reporting period. The HOS Gold effort drives a results oriented culture of continuous improvement at KCNSC and globally. FM&T is on track to meet 30% improvement in operating efficiency as well a full roll-out of Functional Transformation to all Divisions. The success of FM&T technical leadership at multiple conferences and symposiums has influenced enterprise wide decision making. FM&T has also shared HOS practices with other NSE entities.

- FM&T's SCMC enabled strategic sourcing cost savings at NNSA and EM sites totaling over \$250 million. The original FY16 target was \$139 million. While this figure includes some site-specific strategic tool saving, savings attributed to SCMC-enabled tools exceeded \$136 million. Regional agreements for industrial supplies were awarded to nine small businesses (SB), totaling \$240M. A custom storage agreement was awarded to a SB, totaling \$30M. The SCMC's support of SBs is a key element of NNSA's overall strategy to encourage a viable supply base. The organization continues to promote socio-economic programs by awarding ordering agreements for complex wide use through the Supply Chain Management Center. The SCMC also awarded agreements for international travel services, a domestic travel system, and fuel.

Following are a few of the actions taken by FM&T to show its focus on SBs, particularly in New Mexico.

- Held teleconferences with NM Senator Martin Heinrich's staff, NNSA Headquarters, and LANL to discuss improvements with NM SBs
- Made improvements to the Small Business Information Exchange website for SB SCMC inquiries and forecasted requirements
- Conducted an informational meeting for SB in NM in February 2016. The event included special speakers from all of NM's Congressional delegation as well as the NNSA Administrator. The SCMC offered matchmaking opportunities conducted by SCMC Commodity Managers and a SCMC overview with multiple question and answer sessions with the SCMC Director. Feedback from attendees as well as the attending members of Congress was overwhelmingly positive.
- Participated in DOE's Small Business Conference in Atlanta, Georgia in May.

FM&T submitted a proposal to KCFO for creation of a Small Business Management Center (SBMC), which provides an enterprise solution to small businesses nationwide. The organization volunteered to be

NNSA's pilot site for the developing and implementing the M&O Subcontract Reporting Capability (MOSRC). Since March 2016 NSC's transaction data error rate is 0 percent – the best of any pilot site.

FM&T continues to support the Asset Management Plan Heating, Ventilating, and Air Conditioning (HVAC) Pilot Project in an effort to provide standardized HVAC commodity purchases NNSA-wide and save money. This involves a partnership with NNSA/ NA-52 and Lawrence Livermore National Laboratory (LLNL). In addition, the SCMC completed successful efforts with Office of Science eCatalog Project at Lawrence Berkley National Laboratory (LBNL), Idaho National Laboratory (INL), and Brookhaven National Laboratory (BNL), which went live in FY15. In FY16, Pacific Northwest National Laboratory (PNNL) and Fermi went live. Both new projects are on schedule. These efforts illustrate how the SCMC continues to expand the usage of high-value acquisition tools to additional procurement areas to achieve savings.

FM&T continues to share best practice across the Enterprise. Examples of this valuable exchange of best practices include collaborating to develop a foundational Tritium Operating Production System, Integrated Programmatic Scheduling System leadership, and EVM implementation business processes support. This information exchange has led to increased site collaboration and organizational efficiencies.

#### **Objective 6.4**

Through the reporting period FM&T submitted over 17,000 continuous improvements resulting in a cost avoidance of \$67.9 million. Additionally, FM&T has had 76 invention disclosures, 25 patent applications and 450 presentations published. FM&T continues to receive numerous prestigious awards that include the Significant Technical Achievement Rewards and Recognition (STARR), Defense Program Awards of Excellence, National Safety Council, Aviation Week, and Examiners for Missouri Quality Awards. These awards exemplify significant achievements in quality, productivity, cost savings, safety or creativity in support of the nuclear weapons program.

In recognition of its safety performance, FM&T received the 2016 National Safety Council Occupational Excellence Achievement Award.