U.S. DEPARTMENT OF ENERGY

Office of Science

Fermi Site Office
FY-2015 –Annual Assessment Report (AAR) and FY 2016 Annual Performance Plan (APP)

Revision 0

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And the Fermi Site Office

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I. Manager's Perspective: Summary of Performance Against our Goals

The Fermi Site Office (FSO) was successful in enabling the Fermi National Laboratory mission and ensuring safe and efficient operations in 2015. The team used innovative solutions to support the mission of the Department of Energy, Office of Science (SC), and the Lab. FSO performance objectives reflected those of the Deputy Director for Field Operations, while considering those best suited to create an optimal relationship with the Laboratory, and were the result of a collaborative staff effort. Our goal was to improve upon our forward-thinking standard of SC field operations excellence and to continue to demonstrate behaviors and pursue the principles of a learning organization. ***All the FSO objectives were met or exceeded achieving the goals listed below for the year:***

FSO Goal: FSO will refine oversight activities to reflect Contractor Assurance Systems (CAS) as the cornerstone of field operations and ensure oversight and performance support risk mitigation in the broadest of context

FSO Goal: FSO will develop our people and will expand their connection to future opportunities within SC, as well as, those that align with their needs

FSO Goal: FSO will refine and improve our existing processes, procedures, and equipment capability and shift internal work to balance staff workload.

The Site Office provided contract management, guidance and oversight to facilitate the successful delivery of science projects with more challenging scope than any other site office or program portfolio, with performance on time and under budget. Specifically, the Site Office was integral to the following results:

- strong operational performance (safety and quality)
- world record neutrino beam intensity of 500KW on target
- ten-fold improvement in q factor for superconducting cavities to support LCLS-II
- MicroBooNe completed- $610 K returned to program
- G minus 2 project baseline approved and executing
- SLI Utilities project baseline approved and executing
- CMS Upgrades project baseline approved and executing
- Mu2e project baseline approved and executing
- LBNF-DUNE ready for CD-1 and 3a
- Approval of mission need for Integrated Engineering and Research facility
- 16 separate 413.3 reviews and related critical decisions completed on schedule
- NoVA experiment Secretarial award winner and selection of Federal Project Director as project director of the year

The site office staff and leadership worked with headquarters to deliver government requirement clarifications enabling streamlining of mission related property movements, eliminating thousands of hours of unnecessary government approvals and avoiding millions of dollars of costs.

Additionally, the Site Office facilitated and supported development of the framework to support the first ever significant US based International scientific collaboration mega-experiment with projected total project costs over $1.5 B.

FSO drove contract improvements and results including:

- resolution of Energy Savings Company $550K cost avoidance.
- agreement with the local utility (ComEd) to provide notifications of system configuration changes that could impact mission execution, creating significant cost and mission interruption avoidances.
- innovative use of Energy savings programs resulting in $1.8 million of savings that became available for science mission activities - recognized by a DOE Inspector General report.
- support to HQ improvements in DOE 251.1C the Order on Orders and SEAB and LOB working group activities

The Fermi Site Office continued to expand capabilities of individuals and the team. New qualifications were achieved by members of each of the three teams and new additions to the staff added significant project management expertise. We also were able to use matrix support from the Integrated Support Center on a variety of critical activities. The Team was exposed to personal growth tools including self-reflection techniques and each individual was given an opportunity to develop plans for job fulfillment. Finally the team was able to have a significant broader impact in the Office of Science by completing multiple SC activities including a full time detail assignment to a critical SC project for most of the year.

II. FY 2015 Fermi Site Office Performance Assessment Summary

a) Context

Summarizing the Site Office performance requires that we begin with the end in mind and everyone in the Fermi Site Office understands that we are here to support and drive science discovery and support the Lab mission:

Fermilab Mission:

Fermilab is America's particle physics and accelerator laboratory.

The Lab's vision is to solve the mysteries of matter, energy, space and time for the benefit of all.
The Lab strives to:

- *lead the world in neutrino science with particle accelerators*
- *lead the nation in the development of particle colliders and their use for scientific discovery*
- *advance particle physics through measurements of the cosmos*

The Labs mission is to drive discovery by:

- *building and operating world-leading accelerator and detector facilities*
- *performing pioneering research with national and global partners*
- *developing new technologies for science that support U.S. industrial competitiveness*

The Site Office is part of a unique relationship between the Fermi Research Alliance and the Department of Energy, defined in a contract and carried out at Fermilab, a government owned and contractor operated facility in Batavia, Illinois. Each entity in this relationship has unique roles responsibilities, both needed for success in delivery of the science mission.

The Fermi Site Office roles include:

- Serving as the local SC and High Energy Physics program representative and Site owner/landlord.
- Administering and evaluating contract performance and deliverables through the Performance Evaluation and Measurement Plan (PEMP).
- Delivering government furnished services and approval necessary for mission success
- Maintaining partnerships with the contractor on Lab stewardship activities including evaluation of facilities, equipment, and scientific expertise for alignment with future Lab missions.
- Providing Federal Project Director Service to all large projects.

FSO takes these roles very seriously and executes their day to day activities consistent with a vision and some very specific operating principles:

FSO Vision: We create pathways to mission and FSO success

FSO Principles:

- FSO will create a work environment within our office and Fermi Lab that is safe for the workers and public, protective of the environment, and respectful of the taxpayers.
- FSO will partner with the Laboratory to achieve mission accomplishment by advocating for the Lab without abdicating our inherent federal responsibilities.
- FSO will Foster a positive relationship with the Laboratory management team, finding ways to help the Lab deliver on the science mission, using sound risk based judgment and best management practices
- FSO will Work together to create a learning organization and a culture that supports everyone in FSO in their quest to be a valuable contributor
- FSO will continue to move forward to enable mission execution by growing as a team and taking actions to improve. The focus continued to be transition towards building an information technology-based system for contractor and self-assessment, ensuring development of FSO employees and continuing to support responses to a variety of management challenges, all consistent with the FSO vision of creating pathways to success. We continually check our work to ensure it is consistent with the behavior of learning organizations and our FSO principles. The sections below summarize our self-assessment of performance over the course of the past year.

b) Stewardship

In the area of stewardship, FSO continued the active role of working with Fermilab and the High Energy Physics Program Office to monitor the alignment between the scientific trajectory of the program and Fermi's development of facilities, equipment, and intellectual resources to deliver on the future mission. This year was no different than in the past where FSO worked closely with and supported the lab to ensure continued success; to include such projects as the Long Baseline Neutrino Facility (LBNF) and Deep Underground Neutrino Experiment (DUNE) and multiple infrastructure General Plant Projects needed to integrate these large experimental projects and associated infrastructure.

The Site Office drove improvements through direct discussions and by influencing lab responses in a variety of areas to improve lab performance. Correcting deficiencies to address a proton beam pulse timing issue, shoring up procurement system weaknesses, and enabling the first waste site cessation of monitoring in the State of Illinois were just a few examples of the Site Offices added value.

The successful year was a result of strong partnerships with Fermilab. Our commitment included optimizing interface opportunities through weekly operations meetings, open dialog discussions with Fermilab's Director and Chief Operating Officer, monthly lunch with senior staff, functional area manager consultations, and, at a minimum, weekly project/site visits and observations.

Under the successful Stewardship purview, 2015 concluded with the reconstitution of the FRA Board of Directors to create complete a new focus on empowering and supporting the Lab management team. The Board of Directors has changed its ethos; taking a more forward leaning approach to management.

The Lab will soon celebrate 50 years of service to the world high energy physics community, and is in the beginning stages of preparing for the next 50 years. The backbone to the beginning of the future was reinforced by activities outlined in the Campus Master Plan in 2015. The Lab was successful in performing tests and making adjustments to electrical systems to prepare for switching to the Kautz Road substation, allowing shutdown of the Master Substation. This was a significant effort to keep the activities powered during the start of the utilities projects. The Utilities Upgrade Project Science Laboratories Infrastructure(SLI) Project, a vital part of the Campus Master Plan, progressed forward in CD-3 during this reporting year and will be in full swing to replace aging electrical substation and industrial cooling water piping systems across the site in 2016. This and many other projects will provide a sound foundation for the experiments of the Fermilab's second 50 years.

c) Environment Safety and Health

The Site Office made every effort to keep environment, safety, and health issues on the forefront and continued to maintain strong performance in this area as a core value to our success. Over the course of 2015, more than 300 lab site visits and observations were conducted. Working closely with lab personnel, our visits included both operational and construction jobs; and helped sustain the strong working relationship between the lab and Site Office.

In addition to our stewardship commitment to the lab, we also used the walk-throughs to maintain our open line of communication not only with senior lab personnel but also project leaders, supervisors, and

team leads on pressing matters and issues. FSO will continue the weekly inspections and laisse with the lab on on-going subcontractor and construction activities in 2016. Programs continue to be carried out in a safe and effective manner; a by-product of FSO's strong relationship with Fermilab.

FSO also supported and/or conducted both internal and external assessments in the performance of duties throughout 2015. Successful reviews from outside Fermilab included successful Illinois Environmental Protection Agency (IEPA)/National Historical Preservation Act (NHPA) visits by Kane/DuPage county representatives. Additionally a joint FSO/Fermilab operations test was successfully completed confirming both our Continuity of Operations procedures and systems. A State IEPA review of a request to cease groundwater monitoring activities for Meson Hill received approval and final actions; resulting in projected savings of $6K analytical and $10K labor in future years. In FY2015, Fermilab saved $30,000 by discontinuing a Deer Management Program. During the year, Fermilab implemented a new process in which the Ecological Land Management Committee will be incorporated into the Environmental Review Form (ERF) process. Our visits and assessments throughout the year allowed us to remain both vigilant and cognizant of operations.

A best practice carried over from last year was our monthly Fermilab management systems reviews. Discussions in our staff meetings promoted interactions based on experience, reviews of the systems, and actions that can both further improve the lab and their management systems. FSO continued to improve our ability and time spent on reviewing the Laboratory's Management Systems (MSs) and the performance metrics associated with each. FSO regularly monitored these systems to help focus oversight efforts in specific areas, especially those where performance data is light and/or where the Laboratory has self-identified problem areas. In addition, FSO team members presented the results of the Management Systems and associated performance Dashboard to the FSO team during staff meetings. The systems are still being implemented with varying degrees of maturity; therefore the MS information on the Management Dashboard (FermiDash) is still being assessed and continuous improvements are being steadily accomplished. FSO will continue to provide their perspective and input into the MSs and assist the Laboratory in assuring useful performance information is current on their Dashboard.

FSO was involved in numerous environment, safety, and health activities during FY 2015. Approximately 10 Program assessments were performed and completed during FY 2015 with the majority of the reviews resulting in opportunities for improvement. FSO planned assessments in three areas: Subcontractor Safety, Welding, and Pressure Safety; due to their potential for higher hazard work. In addition, some incidents occurred within these program areas making them great areas to focus oversight efforts. The reviews of these Programs identified several opportunities to further strengthen healthy programs. The resulting findings acknowledged weaknesses in implementing Fermilab internal requirements or procedures. FSO and Fermilab have created a collaborative positive working relationship in coordinating program assessments to assure the most needed elements are being reviewed. FSO and Fermilab teamed on the entire program assessments performed and FSO was the lead on several of the assessments.

FSO conducted in excess of 100 walkthroughs of Fermilab facilities. These regular weekly inspections observed on-going subcontractor and construction activities. FSO utilized risk management principles in prioritizing and focusing on higher hazard/value areas which primarily consisted of industrial and experimental operations; we found areas such as office spaces did not elevate concern and was prudent not to view.

Program assessments in the areas of Subcontractor Safety, Pressure Safety, Welding Safety, Radiological Program elements, Material Handling, Work Planning/Industrial Ergonomics, Scaffolding Safety, and the Environmental Program Policies and Procedures were completed in 2015; resulting in valuable suggested program improvements. The reviews found all to be effectively implemented with few findings and several acknowledged program improvements. Fermilab agreed to a PEMP Notable Outcome relating to the effectiveness of corrective actions taken to address Subcontractor Safety Program Review findings; FSO helped develop and continues to be involved in the tracking of those actions. No major Program gaps were found; only noteworthy practices and program strengths were noted.

FSO, collaboratively working with Fermilab, identified ES&H requirements that will be followed in the LBNF/DUNE South Dakota project construction. In June 2015, FSO and Fermilab ES&H personnel visited the far site in South Dakota to become familiar with the site; meeting on-site ES&H professionals and observe the activities of the Environment Health and Safety Oversight Committee (EHSOC). Moreover, during this visit FSO and Fermilab took the opportunity to become familiar with the Sanford Underground Research Facility's (SURF) ES&H Program elements. FSO continues to work with Fermilab to identify the most effective means to focus oversight efforts of work South Dakota. Near site activities (Fermilab) will be coordinated in the same manner as current on-site work.

FSO participated in 16 internal Fermilab ES&H subcommittees. Each ES&H team member is assigned to attend and participate in these committees and help determine policy, resolve issues in their respective areas, and in some areas, act as the authority having jurisdiction for Fermi lab. FSO participation on these committees allowed our office to monitor and input into the development of new policies and requirements, as well as work with the Laboratory in resolving issues. This was especially true in 2015 with respect to program changes in the areas of Subcontractor Safety, Pressure Safety, and Environmental Program Policies and Procedures. In our efforts to meet our Tripartite commitments we conducted assessments in many areas, to include, but not limited to:

- Pressure vessel safety- preliminary finding lack of accurate accounting of relief valves/testing procedures need improvement,
- Hazard Analysis during work planning- weakness when work evolves/package changes,
- Welding Assessment underway; and

- DOE FSO Continuity of Operations test completed successfully during power outage in Wilson Hall; performed in part to test COOP procedures and systems.

FSO staff were instrumental in assuring several environmental activities were accomplished resulting in compliance with Environmental regulations and substantial cost savings. These accomplishments included:

- The Laboratory and DOE completed the Draft Environmental Assessment (EA) for the LBNF/DUNE project in May 2015. DOE coordinated and participated in public meetings regarding the Draft EA were held in Lead and Rapid City, South Dakota and in Batavia, Illinois in June 2015. The Final EA resulted in DOE issuing a Finding of No Significant Impact (FONSI) for the project in September 2015. FSO assisted the Laboratory to conduct public outreach to the 19 tribes located in the states surrounding the Sanford Lab. The public and tribes have been supportive of the LBNF/DUNE project to date as a result of FSO/Fermilab's proactive approach to NEPA and National Historical Preservation Act activities.

- FSO participated in an IEPA Resource Conservation and Recovery Act (RCRA) inspection in June 2015 which resulted in no violations or issues with the laboratory's hazardous waste management program.

- In October 2014, the FSO/Fermilab submitted to IEPA an affidavit for certification of the 15-year post-closure period for groundwater monitoring and maintenance at Meson Hill as required by the corrective action conditions of its RCRA permit. Fermilab's submittal was the first such request to IEPA and helped IEPA establish policy and procedures for future submittals by other permitted sites. In April 2015, IEPA determined that Fermilab could cease groundwater monitoring activities at Meson Hill and requested that the groundwater monitoring wells be abandoned. Fermilab abandoned the wells in August 2015 and a request was submitted to IEPA to conduct an inspection of Meson Hill to verify completion of the post-closure care period. Cessation of the post-closure care period for Meson Hill is a major environmental milestone and cost savings for the laboratory and demonstrated that the laboratory is proactive in its involvement with IEPA.

- FSO/Fermilab submitted wetlands permit applications to the U.S. Army Corps of Engineers (USACE) and the Kane/DuPage Soil and Water Conservation District (KDSWCD) for the Long Baseline Neutrino Facility (LBNF), Short Baseline Neutrino Facility (SBNF), Nepese Marsh, and the Utility Upgrade Project (UUP). FSO also worked with USACE to obtain a Letter of No Objection for the wetlands located along the 5 miles of ditches associated with the UUP. After an on-site inspection in June 2015, KDSWCD issued a close-out report for the wetlands work completed at Nepese Marsh, which will improve drainage and help to prevent flooding in the Village. Wetland permits for LBNF and SBNF are still pending. FSO/Fermilab staff has created

an invaluable working relationship with both USACE and KDSWCD staff; solidifying the effectiveness of our Environmental Programs.

- FSO/Fermilab conducted two Environmental Program Tripartite assessments in FY2015. The FESHM 8000 Series Environmental Chapters (20 of them) were reviewed and resulted in no findings and several opportunities of improvement. The results of this tripartite were very timely and will result in major revisions to the Environmental 8000 Series Chapters. The results of this resulted in two subsequent tripartites to be conducted in FY2016.

- FSO continues to participate on the Tritium Working Group for many reasons; to refine the understanding of the sources of tritium, to enhance the ongoing evaluation of release pathways and receptors, to support development of options to manage tritium according to ALARA principles, develop and implement mitigation options, and to communicate the progress of mitigation actions to affected stakeholders.

- FSO participated in two separate exercises relating to Fermilab's Emergency Management Program. FSO/ Fermilab conducted a two-part Fermilab "Bad Day" Scenario Planning TTX involving a mock fatality of a construction worker. This exercise looked at the Emergency Response capabilities of the Laboratory as well as the Subcontractor Safety Program. FSO was an active participant in this peer review that had very positive results and resulted in a few minor opportunities for Program improvement.

- FSO also participated in a Fermilab hosted meeting/table-top exercise with the townships of Warrenville and West Chicago to coordinate efforts during a Tornado Tabletop Exercise (TTX); a first held jointly with local authorities. This was magnified as municipalities and emergency responders have seldom accepted Fermilab invitations to participate in site activities. The gaps from the latter TTXs were documented in after action reports. FSO will also participate in the follow on of the TTX with an actual exercise of a mock EF-3 Tornado that causes mass destruction of Fermilab and two neighboring municipalities.

- Another example of the Emergency Management Program going to the next level, a "Bad Day" exercise was initiated and involved a potential fatality of a construction subcontractor employee. The exercise reviewed the Laboratory's ability to effectively respond to an event of this extreme nature, but also to tested external parties' ability to support with county law enforcement and coroner personnel. This exercise/review was performed by Fermilab and FSO personnel; results found the program to be robust, effective, and identified opportunities for program improvements. A conclusion from the "Bad Day" exercises confirmed the value of similar high risk/high consequence activities and areas.

- FSO continues to attend the QA subcommittee meetings and monitor the status of QA Program improvements. FSO has spent significant time in assuring Fermi lab's Issues Management

system is implemented and utilized as promised as a result of a previous FSO assessment of this Program. Moreover, FSO attends the Assurance Council meetings where the status of Fermilab Management Systems and performance Dashboard systems are discussed. As a result of these meetings, management confirmed their continued emphasis on the importance of self-assessment and the value of applying best practices from other systems. FSO has provided significant input to the Laboratory in supporting their move forward in creating a more robust Contractor Assurance System and providing Fermilab Management useful information in monitoring Laboratory performance.

Throughout 2015 and the various audits, auditors often noted the high level of ES&H program improvements for Fermilab.

d) Project Management

FSO completed project related activities, both in the area of Federal Project Director and also mission oversight, to successfully provide deliverables and support Critical Decisions for multiple major system acquisition ventures. Overall, the project portfolio under the Site Office purview was the most complex and comprehensive of any in the Department (consisting of 10 major projects, all of which continue to be on or ahead of schedule and under budget); all major milestones were met or exceeded. The Site Office provided project planning and preparations to support seven DOE Critical Decision (CD) Reviews in FY 2015, followed by DOE ESAAB meetings to secure Critical Decision approvals. CDs were approved to establish project baselines and initiate long lead procurements and start construction for the Muon-to-Electron Conversion Experiment, Muon g-2 experiment, and the SLI Utilities Upgrade Project. The MicroBoone Project was successfully completed under budget and ahead of schedule. A CD-1 Refresh review was completed for the Long Baseline Neutrino Facility/Deep Underground Neutrino Experiment, culminating several months of planning within DOE and among international partners to establish what would be the largest international science project of its kind hosted in the United States. FSO supported Fermilab's initiatives to further enhance and maintain project management excellence, participating in Earned Value Management Surveillance and assessment activity as well as Risk Management Workshops and system development

Moreover, we also reviewed DOE HQs review of PIP-700KW project and HEP's institutional Lab Programs review; providing recommendations for both. An overarching significant note, FSO was involved in an unprecedented 16 project reviews over the course of 2015.

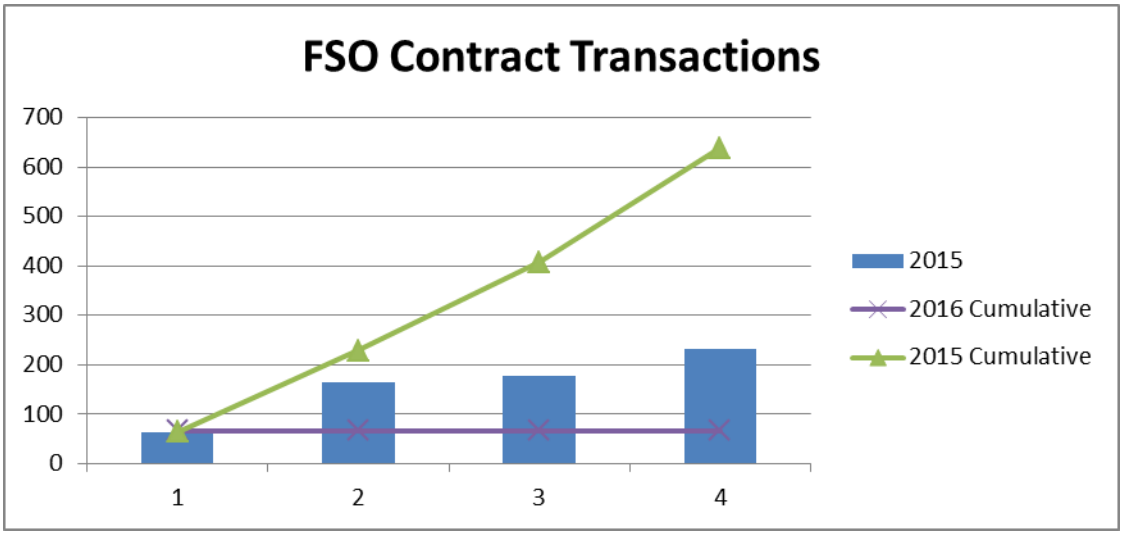
e. Business and Contract Support

With the Office of Science Management Systems requirements as a preview, FSO conducted many 2015 contractual actions throughout the year. During FY2015, FSO awarded a total of 20 modifications to the FRA M&O contract. Fourteen actions were completed for the obligation of funding (operating, capital equipment, general plant project, construction, and reimbursable work) which totaled $374 million. Six

actions were completed for administrative updates and modifications to the Contract, including incorporation of the revised Small Business Reporting requirement (MOSRC) and updated Conference Management requirements.

Below is a chart with a sampling of FSO Contract Transactions for 2015:

FSO Contract Related Transactions	2015-1	2015-2	2015-3	2015-4
Collective Bargaining Agreements	2	0	0	0
Computers for Learning	1	6	4	1
Cooperative Research and Development Agreements	1	1	1	0
Davis Bacon Act	21	91	122	174
Key Personnel	0	0	1	1
Language Modifications	1	1	1	2
Vehicle Purchases	0	3	3	0
Vehicle Releases	5	1	0	0
Property Loans approved	6	15	7	10
Property Loans @ISC	0	0	0	3
Service Contract Act	12	24	22	25
Sole Source Justifications	10	17	9	12
Strategic Partnership Programs	0	5	4	2
Subcontract-Awards only	5	1	4	2
	64	**165**	**178**	**232**
	64	229	407	639



The transactions described above are all driven by contract requirements and the Site Office took action to reduce turn-around time to ensure the mission was enabled. Additionally, the Site Office continues to look for opportunities to reduce the number of required transactions whenever possible. The Fermi Site Office is working with Laboratory Senior Management to look for effective ways to utilize the comprehensive contract deliverables list to enable FSO and Laboratory staff to track these actions, in addition to other one-time actions, via SharePoint. Also during FY 2015, the Fermilab Purchasing System was re-certified for a period of one year, to allow time for the PERT review to be conducted in April 2016.

The Laboratory Directed Research and Development (LDRD) Program has continued to grow momentum, with a total budget for FY 2015 of $3.5 million. As of the end of FY 2015, FSO had concurred on the Laboratory's 13 ongoing LDRD Projects.

FSO has worked with the SLI Project Team for updating the Master Substation and provided a cross-functional approach to understanding the needs and interfaces with the required utility providers.

f. FSO Management Self-Assessment

At the onset, we chose to challenge ourselves and asked how we can continue to improve. As a result, we explored many avenues to include reviewing and updating all our Standard Operating Procedures and Manuals utilizing a newly developed SharePoint tracking tool. We exceeded our goal by completing over 22 SOP reviews by the middle of 2015. This resulted in our ability to support Fermilab with our most current information and ability to sustain excellent performance.

We also successfully updated and verified Fermilab's Facility Information Management System (FIMS); this feat is magnified considering it involved 12 diverse areas, over 300 buildings and facilities, stretched over 6,800 acres of land.

Additionally, we executed a successful Continuity of Operations exercise with the local community simulating a major power outage at Wilson Hall. As a result of our procedures and systems in place, we were successful in the drill and also walked away with some very valuable lessons learned and process improvements.

We completed a self-assessment of our Office On-Boarding process in an effort to improve the integration of new staff into the FSO Team and to learn from their experiences. The Site Office also aligned work activities to take advantage of the additional resources and continues to modify work assignments to take advantage of staff experiences and desire to learn.

Moreover, the utilization of a summer intern allowed us to confirm our budget status, capture FSO self-assessments, evaluate our internal customer service, complete our SOP review, and upload the current

Operating Procedures to our SharePoint site. Likewise, during 2015 we completed our staff planning by bringing on two new hires. As a result we were able to review our onboarding process and gain valuable insight on how we can improve the process for the next gain.

g. FY 2015 Laboratory Performance Summary and ISM status

The Department of Energy (DOE) is both the owner and regulator of the DOE sites. Therefore, DOE is ultimately responsible for ensuring that all DOE activities, regardless of whether they are performed by DOE federal employees or by DOE contractors, are performed safely (i.e. protective of the worker, the public, and the environment) and efficiently while achieving mission objectives (i.e. work results of a quality level commensurate with their importance to the mission).

The Office of Science Oversight model dictates that FSO perform oversight to confirm the outputs of the contractor's Quality Assurance programs and Contractor Assurance System (CAS). Oversight includes formal processes such as assessments, audits, reviews, inspections, tests, surveillances, and investigations, as well as less formal processes such as facility tours, walk-throughs, work observations, document and record reviews, attendance of contractor meetings, and other routine interactions with contractor management and staff. The oversight expectations, and mix of formal and informal oversight activities performed, are established through risk-informed determinations.

We (FSO) integrate our activities with the CAS, and our activities include:

- review of contractor management system documents and records;
- review and analyses of the outputs of the CAS, including peer reviews and internal contractor assessments of operations, facilities, projects, programs, and systems;
- performance of operational awareness activities such as assessments, surveillance, inspections, work observations, surveys, walkthroughs, and attendance of contractor meetings.
- review of CAS management system information and trends and direct activity observation (boots on the ground) etc.

When we do oversight activities the contractor is afforded the opportunity to explain to the FSO personnel how their systems work in the functions being examined. FSO communicates oversight results to the Laboratory who in turn determines what actions to take in response to the oversight results, then tracks those actions through completion and verification of effectiveness. FSO uses risk-based considerations to select corrective actions for follow-up validation.

As a team, the collective belief is our success derives from the achievements of Fermilab. Our pledge to the lab is driven by the assurance of the contractor. Through an effective and efficient Contractor Assurance System, we were able to realize the goal of a prosperous end-state. The process would be remiss and success unachievable without the proper staff mindset and belief. Exercises such as off-site conferences, committee meetings, and shared leadership had numerous ideas, recommendations, and

guaranteed a successful 2015. The summary of FSO oversight activities is included in section c and the summary of CAS reviews is described below.

Over the course of 2015, we conducted numerous CAS management system reviews including:

- ES&H Management System.
  - Reviewed current status of management system, related processes and procedures, as well as, key performance metrics. The team discussed the maturity level of the system and opportunities for improvement. The system is generally understood and utilized by Lab employees and perceived by most as an asset to mission delivery. The discussion reflected management commitment to self-assessment and improvement and willingness to apply best practices to other systems.

- Quality Assurance
  - All indicators, for ESH&Q Section QA-related web pages, DocDB documents, etc., demonstrated favorable progress throughout the years. Program implementation and assessments resulted in ESH&Q Section plans to revise manual chapters and update iTrack.

- CAS Systems
  - Throughout the year the Fermilab Assurance Counsel met to monitor and discuss Management Systems status, maturity criteria, iTrack efforts, and development of enterprise risk. Focusing on system descriptions, policies/procedures, KPIs, and Dash boarding, further development of system success was identified. Once these improvement items were identified, they were shared with and discussed with other DOE labs.

- Finance
  - Finance developed a Dashboard to show items such as current progress on various reports and projects; along with promoting lab-wide information on overhead rates and cost status.

In addition to CAS system reviews FSO followed the Lab's internal audit activities, peer reviews and external certification reviews. Internal Audit continues to function well and provide value-added reviews and recommendations to both the Laboratory and the Department. Audit reports are thorough and demonstrate a strong understanding of the prime contract, as well as taking into account Office of Inspector General (OIG) and other outside reports, as appropriate. Reports are provided on time and audit findings are tracked through to prompt resolution.

Fermilab's native habitat area was certified as Conservation@work site by the Conservation Foundation. One of the largest natural areas in the region, Fermilab boast it's environmental record of safely capturing and utilizing clean rainwater; through techniques that limit any unnatural chemical exposure.

The latest ISO 14001/OHSAS 18001 third party audit recommended continued registration in the areas of Occupational Safety and Environmental Management. These audits which have been occurring for the past several years, highlighted continuing improvement in all of the ES&H areas assessed. The independent auditors commented on the timely progress of the ES&H Programs over the past four years, and specifically recognized the pro-activeness of the Laboratory in implementing Program improvements. Improvements such as subcontractor safety performance feedback, FESHM construction revisions, construction inspector oversight, subcontractor ES&H plan review, a construction SWOT analysis, and the centralization of Fermilab's ESH&Q program; all part of the process improvement instrumental in an effective and efficient organization.

The Fermilab ISMS continues to show improvements especially in the areas of management commitment and support of worker safety, improved Program documentation, Human Performance Improvement, and hazard awareness. FSO observed these improvements through its participation in internal Laboratory meetings, Program assessments, facility walkthroughs, and various other Fermilab interactions.

Based on the results of the FSO oversight activities described above and in section II c, review of the Lab's CAS Management Systems, and FSO's integration on the Laboratory's internal ES&H committees, FSO concluded that the Laboratory's Integrated Safety Management System (ISMS) is being effectively implemented. There is ample evidence of improvements in work planning and hazard analysis processes, increased awareness through training and Directorate support of Human Performance Improvement (HPI), increased communication of ES&H information to staff and DOE-FSO, and improvement in ES&H training completion; consider the centralization of the ESH&Q organization and the management support of this transition. In addition, the Laboratory Director asked to Chair the Fermilab Environment Safety and Health Committee and has been actively involved in assuring major issues receive the necessary financial resources to correct them. The Director also created a new position of Chief Safety Officer that reports directly to him and is the leader of the newly centralized ESH&Q function. This reorganization will have numerous advantages such as allowing ESH&Q direct access to the Director and allowing more authority to this organization, developing staff with broader experience and knowledge of Lab operations, and developing staff for future leadership positions that will be left open due to an aging workforce. Moreover this centralization will promote more efficiency throughout the ES&H organization.

Attachment 1:

2015 Performance Goals, Objectives, and Measures for Fermi Site Office (Results)

FSO 2015 Goals:

1. FSO will refine oversight activities to reflect Contractor Assurance Systems (CAS) as the cornerstone of field operations and ensure oversight and performance support risk mitigation in the broadest of context
2. FSO will develop our people and will expand their connection to future opportunities within SC, as well as, those that align with their needs
3. FSO will refine and improve our existing processes, procedures, and equipment capability and shift internal work to balance staff workload.

FSO 2015 Objectives and Outcome Accomplishments

1. Adjust to Lab Structure and Focus based on P-5 Report

- Review Management system, facility, and project assignments and align with appropriate prioritization scheme to reflect P-5 emphasis.
  - Outcome: Through dynamic Stewardship efforts of the FSO, we worked with the lab during a successful Strategic 10 Year Plan Workshop outlining both short and long-term objectives and activities.
  - Outcome: Successfully reviewed Fermilab management systems and provided discussion opportunities for all personnel during staff meeting out briefs
  - Outcome: Successfully defined and assigned Safeguards and Security "program" Lead to integrate program requirements and budget formulation
  - Outcome: Established routine multi-team meetings to support broader understanding and integration of Site Office activities
  - Outcome: Utilized staff across organization to review LDRD proposals, improving understanding of research thrusts and future initiatives for staff
  - Outcome: Adjusted facility representative coverage to reflect Lab realignment and addition of Neutrino division
  - Outcome: Completed recruitment and hiring of new Federal Project Director (FPD) and Business Management Specialist (BMS) and re-aligned project assignments to reflect expertise
  - Outcome: Hosted HEP Program Manager and mentored as FPD, while taking advantage of Program Manager's perspective

- Develope refined risk based oversight strategy that accounts for worker safety and health, investment, project and institutional risks.
    - Outcome: Revised FSO Oversight Program Plan to reflect and describe risk based approach to oversight planning and created Oversight Plan (Schedule) that identified focus. All activities completed or revised to reflect emerging priorities.
    - Outcome: Performance Plans included ES&H and "boots on the ground" expectations for FPDs and all FSO staff. This reinforced our oversight strategy of weekly inspections that put risk management on the forefront and enhanced FSO's relationship with Fermilab.
    - Outcome: Safe and effective programs where risk management was a high priority and efficiency along with return on tangible and intangibles were the end result.
    - Outcome: A review of the lab's ES&H systems during 2015 offered opportunities for process improvements encompassing all users and managers.
    - Outcome: FSO personnel Human Performance Improvement (HPI) training and FSO management participated in Lab senior management group HPI sessions to reinforce Lab wide use of this philosophy and related tools.
    - Outcome: Through a review of Fermilab's Information Management System, over 300 buildings and facilities were reviewed and completed.
    - Outcome: FSO personnel participated or observed all HPI investigations following upset events to continue emphasis on identifying and eliminating error precursors to incidents and accidents.
- Develop/revise project oversight framework
    - Outcome: As Projects began or moved forward, FSO's team of managers sought to pair up best qualified mangers to events along with supporting current team managers with additional human capital to promote stewardship, oversight, and successful efficiencies.
    - Outcome: Completed recruitment and hiring of new Federal Project Director (FPD) and Business Management Specialist and re-aligned project assignments to reflect expertise
    - Outcome: FSO management and staff attended Lab Project Oversight Group sessions to understand Lab leadership engagement in project issues and to broaden FSO staff understanding of strategic issues.

- Outcome: Findings from an Earned Value Management System review at the lab promoted the opportunity to review processes, identify improvements, and lay the ground work going forward to closely examine information and data. This lead to the ability to confirm and/or adjust business and contracting tools for efficiencies and effectiveness.

- Outcome: 2015 found the continued steps forward in the leadership of the Long-Base Neutrino Facility (LBNF) and Deep Underground Neutrino Experiment (DUNE). FSO project management was lead with one of our more senior manager and supplemented with a new hire whose emphasis over the life of the project will be LBNF-DUNE.

- Outcome: Stronger relationships built during 2015 with senior lab personnel, through stewardship or other avenues strengthened out commitment to supplement our framework of project oversight.

- Outcome: Through bi-weekly observations oversight of projects became more prevalent. Through these walkthroughs, management expectations were met and movement going forward forged.

2. Conduct Project Reviews to ensure project progress

- Formal Project Reviews and ESAABs During Reporting Period:

    - Outcome: Critical decision 4 review for MicroBooNe project completed (ESAAB December 22)

    - Outcome: Critical Decision2/3 for CMS upgrade project completed (approved November 12)

    - Outcome: Critical Descision2/3a review of SLI Utilities Upgrade Project completed (ESAAB early February)

    - Outcome: Critical Decision 2/3b review for Mu2e project completed (ESAAB February)

    - Outcome: SLI/Utilities Upgrade Project CD-2/3a ESAAB →CD-2/3a Approval, February 18, 2015

    - Outcome: Mu2e DOE Independent Project Follow-up Review for CD-2/3b, February 4, 2015

    - Outcome: Mu2e Project CD-2/3b ESAAB→CD-2/3b Approval, March 4, 2015

- Outcome: DOE HQ review of PIP-700KW project plans completed- no issues identified

- Outcome: HEP institutional review of Lab Programs – recommendations and report pending

3. Adjust to changes within FSO to optimize Fermi Site Office resource utilization and work to distribute workload to maximize staff utilization and opportunities for growth

- Complete knowledge transfer activities

  - Outcome: Through collaborative offsite activities and staff brainstorming and activity development sessions all staff were able to discuss FSO activities, projects, along with goals and objectives going forward.

  - Outcome: Collectively, through team review of projects information transference between FSO team members was expanded. With a broad knowledge of the team in discussions, participation in a group environment allowed the transfer of knowledge regarding all projects.

  - Outcome: The FSO onboarding process was revised to improve development and knowledge transfer for newly recruited FSO personnel. Additionally, a self-assessment of the process was completed to refine the process for the future.

- Complete inputs to SC workforce management plan

  - Outcome: Collaboration between FSO staff during staff meetings and discussions promoted the use and plan of the workforce management plan.

  - Outcome: Workforce planning activities identified several areas of need and FPD and BMS positions were filled. Additionally, further shorter term needs were identified and matrix support from the Office of Science Integrated Support Center was obtained.

- Develop detail opportunities in FSO and outside offices. Keeping people in the loop and being proactive; document proactive activities to share knowledge and activities related to succession planning.

  - Outcome: In 2015, FSO continued to support the overall mission of SC through constant reviewing of detail opportunities. In 2015, FSO provided a full time detailee to the New Brunswick Laboratory (NBL) and completed assessments and other support activities at NBL, Argonne National Lab and Oak Ridge National Lab.

- Complete product and services mapping for major activities: *this activity was replaced by ISC tasking system development and development of FSO Assessment Schedule to include ISC involvement opportunities*

4. **Simplify and Refine FSO Processes**

    - Create integration and process flows and revise all SOPs/program documents

        - Outcome: All FSO Standard Operating Procedures and Program and other Plans, including the Functions Responsibilities Authority Manual (FRAM) were revised. Several SOPs were cancelled to eliminate duplication with other instructions such as Office of Science Management System (SCMS) and all were streamlined for clarity.

    - Execute all FSO standard documentation through work flow/SharePoint processes

        - Outcome: FSO management systems now utilize automated SharePoint and workflow managed processes, eliminating the need for routing of paper documents. In, addition, required reading of critical documents is now completed using electronic systems.

5. **Implement learning organization principles to promote learning and growth within the Fermi Site Office**

    - Complete pilot study on alternate and expanded work schedules and determine next steps.

        - Outcome: Completed pilot study on alternate and expanded work schedules and determined expanded use of alternate schedules was viable and good for staff morale.

    - Create actions to leverage technology in place as a forum to exchange ideas focusing on aligning staff needs with tools and processes.

        - Outcome: Completed evaluation of technology needs and replaced conferencing capability in FSO conference room and updated list of needs to inform Office of Science IT orders.

    - Build team building skills to reinforce collaboration over competition

        - Outcome: Conducted multiple activities at staff meetings or other activities to reinforce the team concepts and the principles of a learning organization.

- Participate in project centered/ team building processes as an organization

    - Outcome: Created inter-team opportunities and held routing meetings with multiple team membership to exchange ideas and needs and get to a common understanding of Lab and FSO activities.

- Define and conduct activities to allow staff to reflect on individual needs for fulfillment

    - Provided multiple articles and held discussions on job fulfillment. Provided journals and journal topics during learning organization activities.

Attachment 2:
Fermi Site Office
FY-2015 Oversight Plan Elements
Final Results: October 2015
(Entire Document available in FSO Document System)

a. Planned formal assessments:
   i. Subcontractor safety — Completed
   ii. Pressure Safety (Teaming with Lab but we will lead) — Completed (report pending)
   iii. Welding Safety — Completed
   iv. Adequacy of Fermilab Environmental Procedures — Completed
   v. LDRD Actual Costs and FY 2016 Program Plan Review — In process (costs) complete (plan)
   vi. Radiological topic — Almost Completed (report pending)
   vii. CAS Disclosure statement — Change 11 completed

b. Planned Tripartite Assessments:
   i. Service Subcontractor Safety — Completed
   ii. Material Handling Safety — Completed
   iii. Work Planning Process — Completed
   iv. Industrial Ergonomics (replanned) — replaced by iii
   v. Scaffolding Safety — Completed
   vi. Environmental review form process — Completed

c. Reviews
   i. Critical Decision 2/3A review of the SLI Utilities Upgrade Project — Completed
   ii. Critical Decision 4 for the MicroBoone Project — Completed
   iii. Critical Decision 2/3 for the CMS upgrade project — Completed
   iv. Critical Decision 2/3b for the Mu 2e project — Completed
   v. Internal Audit Plan — Completed
   vi. Foreign visits and assignments process (will be replaced by Lab internal audit in 2016)
   vii. Small Business — update needed
   viii. Statement of Cost incurred and claimed (for FY 2014) — Completed
   ix. Non-Financial Internal Controls — Completed
   x. Financial Internal Controls — Completed
   xi. Procurement Recertification — Completed
   xii. PEMP/CPARs — 2016 for 2015
   xiii. Biennial Pricing (FY 2014) — Completed

2. Review of CAS management system information and trends and direct activity observation (recent discoveries)
   a. Transition of activities or areas from one group to another (either from a project to operations or from one operational group to another) [the beneficial occupancy process or building acceptance] (information collected during 205 activities -transitioned to PEMP Notable in 2016)
   b. Initial equipment start-up /return to service process or valve line-up process (same as above)
3. Internal Self-Assessment FSO (targets)
   a. Internal processes and process controls (SOPs and Manuals reviewed and updated)
   b. Self-assessment process (APP-ARR activities , FSO FEOSH completed, Onboarding)

Attachment 3:

2016 Performance Goals for Fermi Site Office

The Office of Science will provide a best-in-class platform for science at our laboratories – establishing a level of excellence in SC field operations that is on par with our excellence in science.

We create pathways to mission and FSO success

FSO Goal 1:	**FSO will continue to promote learning organization principles to infuse day to day activities with best practices and opportunities for growth.**
FSO Goal 2:	**FSO will execute the Secretary of Energy's Executive Advisory Board Plan for Evolutionary contract reform**
FSO Goal 3:	**FSO will ensure that capital asset projects are executed within cost and schedule parameters to ensure SC maintains 413.3 exemptions**
FSO Goal 4:	**FSO will evolve CAS principles to improve Lab performance**

Note: Specific Objectives and Activities to achieve the goals will be formulated in an FSO Staff strategy session in early 2016 and monitored throughout the year.

Attachment 4:
Fermi Site Office
FY-2016 Oversight Schedule Elements
(Current revision and entire document available in FSO Document System)

c. Planned formal assessments:

i.	Welder and Welding Procedure Qualifications *	TBD (2nd Qtr)
ii.	Pressure Safety Program Effectiveness Review *	4th Qtr
iii.	Operational Readiness Clearance Process Review	3rd Qtr
iv.	High Hazard Work Activity Observation * (May not be an assessment)	TBD

d. Planned Tripartite Assessments:

i.	AD Rigging Program or PCB Program	2nd Qtr
ii.	PPD Experiment Dismantling/Disassembly Program	1st Qtr
iii.	ESH&Q Welding Review (May combine with FSO Review)	4th Qtr
iv.	ESH&Q Either Ladder Safety or Confined Space	2nd or 3rd Qtr.
v.	FESS Beneficial Occupancy/Chlorination/De-chlorination	3rd/4th Qtr
vi.	TD Aerial Lift Program	4th Qtr

e. Reviews

i.	US-CMS Upgrade DOE Annual Review	1ST Qtr
ii.	FRA CAS peer review	1st Qtr
iii.	EVMS Surveillance	2nd Qtr
iv.	Nanoparticle use and labeling review	2nd Qtr.
v.	Critical Decision 3c for the Mu 2e project	3rd Qtr
vi.	Critical Decision 3a LBNF-DUNE	1st Qtr
vii.	Muon g-2 DOE Progress Review	4th Qtr
viii.	Internal Audit Plan *	3rd Qtr
ix.	Foreign visits and assignments process	2nd Qtr (partner-Lab)
x.	Reconnaissance review of typical security processes *	3rd Qtr
xi.	Relationship development and oversight design at SURF	various
xii.	Property Review *	4th Qtr
xiii.	Statement of Cost incurred and claimed (for FY 2015) *	1st Qtr
xiv.	Non-Financial Internal Controls *	3rd Qtr
xv.	Financial Internal Controls *	3rd Qtr
xvi.	Procurement Review (PERT) *	3rd Qtr
xvii.	PEMP/CPARs	4th Qtr
xviii.	Biennial Pricing (FY 2015) *	1st Qtr
xix.	CAS Disclosure statement *	as needed
xx.	HEP Independent Review of Operations costs	2nd Qtr

Note: * indicates Integrated Support Center lead or potential support needed (may also observe tri-partites on occasion for operational awareness)