EnergX, LLC
Transuranic Waste Processing Center
Department of Energy Voluntary Protection Program
Onsite Review
May 11-15, 2009

Background:

EnergX, LLC (EnergX), is the prime contractor for operation of the Transuranic Waste Processing Center (TWPC) adjacent to the Oak Ridge National Laboratory. In October 2007, EnergX applied to participate in the Department of Energy (DOE) Voluntary Protection Program (VPP). The Office of Worker Safety and Health Assistance (HS-12) conducted an initial review in March 2008 and recommended EnergX/TWPC be awarded Merit status and a report was issued identifying the improvements necessary to achieve Star status. The annual followup onsite review was conducted May 11-15, 2009, in Oak Ridge, Tennessee.

During the initial review, EnergX only processed contact-handled (CH) transuranic (TRU) waste and has since begun to process and ship remote-handled (RH) waste. On February 28, 2009, EnergX shipped its first RH TRU waste shipment to the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico. The WIPP facility is designed to safely isolate defense-related TRU waste from the public and the environment. Waste temporarily stored at sites around the country is shipped to WIPP and permanently disposed in rooms mined out of an ancient salt formation 2,150 feet below the surface.

During the initial 2008 review, the VPP team found that EnergX had substantially, but not fully, met the qualifications of a DOE-VPP Star site. EnergX had implemented several initiatives that either had or were expected to contribute to improved safety. These included, but were not limited to: (1) performing a collective significance analysis of precursor events and incidents that are normally not considered to be significant; (2) conducting a Safety Conscious Work Environment survey and analyzing the results to identify improvements; and (3) conducting a company-wide safety standdown where groups of employees examined recent events with a facilitator using Human Performance Improvement principles. Additionally, the VPP team also identified a number of improvements that EnergX needed to make in order to fully qualify as a DOE-VPP Star site, as well as some additional Opportunities for Improvement (OFI) in each of the five tenets of VPP. Most of those improvements related to implementing systematic processes to replace the more informal processes that had been stressed by organizational growth and schedule pressures.

The improvements the VPP team identified in the initial assessment that were essential to EnergX fully qualifying as a DOE-VPP Star site are as follows:

1. EnergX needed to include the Project Management organization and middle managers in one or more of the safety committees to ensure production and safety goals were appropriately balanced.

2. EnergX needed to implement a systematic work control process that ensures clear expectations for work planning and control were set and consistently implemented.

3. EnergX needed to finalize and implement the draft employee concerns program and ensure an element for written concerns is added to the process.

4. EnergX needed to perform an annual self-assessment using the tenets of VPP and integrate the results of that assessment into a Safety Improvement Plan.

5. EnergX needed to get more workers involved in regular inspections of work areas and raise its standard of acceptable conditions to ensure degraded conditions are aggressively identified and corrected.

6. EnergX needed to review and revise the corrective actions to address the previous findings identified by the Office of Independent Oversight. It needs to ensure that the Automated Hazard Analysis (AHA) process is sufficiently detailed, adequately captures the analysis, and identified controls are moved into work instructions and work orders.

7. EnergX needed to review the existing Timely Orders to Operators against the company policy and ensure the orders are appropriately removed, incorporated into existing procedures or policies, and remaining orders have clearly established expiration dates.

Based on that review, the team recommended that DOE award EnergX/TWPC Merit status in DOE-VPP.

Pursuant to the initial onsite assessment, a four-member team, led by HS-12 and included a Washington River Protection Solutions employee, conducted a followup assessment from May 11-15, 2009. The purpose of this assessment was to evaluate EnergX's actions to address the needed improvements and determine if EnergX/TWPC met the standard for DOE-VPP Star status. While the seven areas of needed improvement identified during the initial review specifically pertained to four of the five VPP tenets, all five tenets were reviewed by the team to assure that EnergX has maintained its safety programs in accordance with VPP requirements for Star status. During the review, the team interviewed over 50 percent of the workforce that included supervisors, managers, workers and recent hires. The team also attended daily plan-of-the-day (POD)/safety meetings**.** Work activities observed during this review included typical office/administrative work activities and glovebox work in the Process Building that included CH waste sorting, segregating, and size reduction activities. Additional work activities observed included unloading of waste boxes and movement of material and supplies from storage/laydown area. Subcontracted vendor support,

including tank pumping, construction work, and drum shipments and movements, was also observed. Hot Cell work (RH waste) was not in process during the week of this assessment.

Results

Since the previous evaluation, EnergX has maintained its Total Recordable and Days Away, Restricted or Transferred case rates well below the average for its comparison industry. In 2008, EnergX performed over 339,000 work-hours at TWPC with no recordable cases, and no lost workdays. At the time of this assessment, EnergX had continued its trend of no lost workdays, but had one recordable case. Additionally, funding made available through the American Recovery and Reinvestment Act (ARRA) of 2009 has allowed the company to see rapid growth in its workforce that has created a number of challenges that directly impact the already existing strong safety culture at the site.

EnergX managers have remained committed to providing the leadership, direction, training, and resources for employees to perform their duties in a safe manner. Senior managers at EnergX have taken a number of actions to make the needed improvements to achieve Star status. Safety and health are integrated into managers' performance standards, managers and supervisors demonstrated improved knowledge of DOE-VPP, and most importantly, have significantly increased their presence and visibility throughout the TWPC complex. To ensure production and safety goals are appropriately balanced, middle managers are now actively involved in the site's safety committees. Through the course of the assessment, the review team repeatedly heard both managers and workers indicate how their primary goal was to be an overall better organization "today than yesterday, and better tomorrow than we are today." In response to the previous assessment, the team confirmed that TWPC managers have continued to make their presence known throughout the complex.

All employees noted that managers are onsite frequently. Employees feel that managers genuinely care for their safety, and they are comfortable raising issues and concerns to managers. Moreover, employees stated that managers remain responsive to their needs and concerns and continue to encourage open communication and feedback on all safety and health concerns. The communication observed at all levels, both during work activities and meetings, was free-flowing and very effective. The result has been an obvious strengthening in the managers' relationship with the workforce and a stronger belief by the employees of managers' commitment to safety and to achieving DOE-VPP Star status.

Managers and employees share the responsibility for carrying out their duties safely and are enthusiastic about it. Managers have instilled as a core value that the safety of their employees takes priority over production. During several interviews the team observed a high level of trust within the organization and workers at all levels of the organization treat each other with respect. Managers frequently mentioned that the experienced workforce is an asset to the organization, and they respect and solicit worker input for

work planning and process improvements. Furthermore, TWPC managers strive to maintain good communications with their workers; recognizing that face-to-face communication with high visibility of managers and supervisors in the field is essential and critical to the success of the project. Several managers noted that as the company grows over the next several months and new employees begin to work in their respective jobs, it is even more critical to maintain a free flow of communications throughout the project at all levels. Several interviewed personnel stated that they are completely aware of the challenges that new workers onsite with little or no previous experience working at a facility like TWPC can create. In all cases, they were committed to formally and informally mentor the new workers on the role they will play in maintaining TWPC as DOE's safest and most efficient nuclear waste processing facility. Along with the strong safety culture that exists at the worksite was a universal desire by all employees to make safety an integral part of their personal lives.

EnergX has taken a number of positive steps to ensure that TWPC maintains its strong safety culture as it goes through its current growth period. EnergX should be commended for coordinating the development of the new training center, strategically bringing in workers in waves and by general duties/work activities instead of all at once, and developing a plan to pair older, more experienced workers with new hires. Understanding the diverse background of its new hires, as well as its experienced workers, EnergX has taken steps to pair workers based on skill and personality; doing so helps develop strong bonds among team members where it becomes second nature for each to look out for the other.

EnergX continues to maintain sufficient resources, including safety professionals for the current level of activities. This was clearly demonstrated with the development of the new offsite training facility in a relatively short period of time. Training needs have been carefully thought out and addressed in a manner that will provide the project with highly trained and competent workers before they officially begin work at the site. Additionally, EnergX's incentives program continues to remain in place and is used proactively and rapidly to reward safety improvements. EnergX continues to award observed great safety behaviors through its Peer Safety Observers program.

Employee involvement in the safety and health program continues to be an integral part of the total success of TWPC. Interviewed employees were candid and showed a willingness to talk with team members. All employees were knowledgeable of their rights and responsibilities regarding safety and health. EnergX also continues to make improvements to processes, procedures, and activities to enhance employee involvement and ownership of safety among the workforce. Workers have and continue to vocalize that TWPC "is the safest place they have ever worked."

EnergX has taken steps to improve worker involvement in regular inspections of work areas by sending workers to the Occupational Safety and Health Administration's 10-hour General Industry Safety and Health course. This has provided an expansion of the workers' awareness of workplace hazards. Workers have also been involved in providing input for the customized inspection checklist used for work area hazard

identification. Many TWPC employees are actively involved in hazard recognition, job hazard analyses, and resolution of conflicting controls. TWPC managers use or participate in several daily meetings and pre-job briefings to ensure the workers are knowledgeable of facility status and any changes in facility condition. This was evident at the pre-job meetings and POD meetings observed by the review team.

Other improvements that have enhanced employee involvement over the past year include implementation of the Employee Concerns Program; the development of the Views, Values, Visions, Options, Opinions, Ideas, Innovations, Improvements, Concepts, Concerns, Communication, Excellence, Expostulations, Expressions (VOICE) Boxes – a written form for employees to voice safety concerns anonymously, and continued participation in health fairs and wellness days. Workers were also instrumental in the installation of the "Power Bloc," a Lock Out/Tag Out (LO/TO) improvement; the installation of solar speed radar signs; painted pedestrian walkways, and the redesign of the portable decontamination tent. Additionally, several procedures and other equipment and plant modifications have been driven by worker input.

EnergX has released revision 5 of the Activity Hazards procedure, CM-P-IS-007, that describes the hazards and controls for the activities they perform. Workers are expected to review the AHA annually. In addition, EnergX has implemented CM-P-MT-013/Rev., "Maintenance Work Control," and CM-A-AD-030/Rev., "Work Control Program," effective January 14, 2009, in response to the Office of Environment, Safety and Health Evaluation (HS-64) in the Office of Health, Safety and Security's concerns identified in June 2006. The team did not find any issues with the implementation of these documents.

However, the team identified a continuing weakness in the AHA process relating to analysis of the hazard and validation of control selection. A meeting was held with TWPC safety professionals and management to discuss the intent of the tenet and expectation for hazards analysis. While EnergX has incorporated into its work planning process a new procedure to address the HS-64 finding, the hazards analysis process still needs improvement and time to mature. As a result of the meeting, EnergX has committed to incorporating those AHA elements discussed into its Hazard Analysis process. Specifically, EnergX committed to ensuring the AHA process comprehensively identifies hazards involved and captures the analysis associated with those hazards in the procedures and work control programs.

Opportunity for Improvement: EnergX should continue its progress and more effectively incorporate hazards analysis into its AHA process, including a breakdown of job task steps and documentation of the rationale for controls selection.

EnergX did address and initiate several actions in response to the other opportunities for improvement regarding the LO/TO program. As a result, EnergX revised the LO/TO procedure and moved the controls for the Administrative LO/TO controls to another procedure. Based on the team's review of those revisions, EnergX should consider

additional changes to further improve the LO/TO program. Specifically, TWPC operations currently have approximately 60 LO/TOs that are utilized for configuration control. Most of these LO/TOs have been in place for greater than 3 years. Due to weaknesses in the current LO/TO process, these LO/TOs are not verified by inspection on a periodic basis due to the number of outstanding LO/TOs in the LO/TO logbooks. Instead, TWPC operations personnel only sample the current LO/TO locks, but do not document those verifications per DOE Order 5480.19. EnergX should transfer the configuration control LO/TOs to the Administrative LO/TOs as part of its operational walkdowns. As a result, they would reduce the number of active LO/TOs so that verifications can be performed in total, on a periodic basis, with an emphasis on the active LO/TOs in place.

Opportunity for Improvement: Operations Configuration Control LO/TOs should be transferred to and identified in the administrative LO/TO process. Those configuration control LO/TOs should then be included in daily/weekly walkdowns for positive verification of system status.

Opportunity for Improvement: EnergX should implement a lock color code (red for administrative and blue for active LO/TOs) or unique tagging system for administrative LO/TOs so that they can be readily identified in daily/weekly walkdowns.

Opportunity for Improvement: EnergX should ensure positive verification of active LO/TOs are reviewed and documented on an established periodic basis per DOE O 5480.19.

The team identified the use of several unapproved postings during the current review. These postings did not utilize the markings or color coding specified in the TWPC procedure. EnergX should ensure this practice is not continued to ensure appropriate identification of hazards.

Opportunity for Improvement: EnergX should ensure that appropriate postings and labels are utilized per the TWPC procedure.

The safety and health training process used by EnergX continues to be structured and implemented according to the Integrated Safety Management core functions and guiding principles. These processes adequately train workers, supervisors, and managers in recognizing hazards and performing their work safely. Over the next several months, the TWPC workforce will more than double its current size. Driven by ARRA, EnergX has developed a carefully thought-out plan to address the training needs of the new employees and how to indoctrinate them on the safety culture and work practices of TWPC in the least obstructive manner while continuing to meet project goals. A new offsite training facility had recently opened at the onset of this assessment. Although

some construction of the mockup props was still in the development stages, a class of primarily administrative personnel had begun its training at the facility. Team members toured the facility, observed class sessions, and interviewed recent hires; and based on that review, the team members believe the training process is comprehensive and will be effective in ensuring that workers are adequately trained and knowledgeable of the safety culture prior to starting work at the site. EnergX has also taken steps to ensure new employees would be paired with appropriate experienced personnel and mentored over a period of time until they could prove their proficiency in their new jobs.

Conclusions

EnergX has made significant program and facility improvements and adequately addressed those areas identified as needing improvement for Star status. The increased management presence and participation has contributed greatly to the already strong participation and involvement of the workforce and EnergX has taken a very strong proactive strategy to address its growth in the area of safety and health training, as well as preserving its strong safety culture. Managers and employees have achieved an exemplary degree of teamwork that has put safety ahead of production. A culture of safety excellence and continuous improvement has been institutionalized at TWPC. Consequently, the team is recommending that EnergX/TWPC be elevated to DOE-VPP Star status.