

RECLAMATION

Managing Water in the West

Safety and Occupational Health Action Plan

Team 12 – Evaluate and recommend improvements for recording safety deficiencies and tracking progress in correcting them



Mission Statements

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information of those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Acknowledgements

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Abbreviations and Acronyms

BOR	Bureau of Reclamation
BPA	Bonneville Power Authority
CARMA	Capital Asset Resource Management Application
DOI	Department of the Interior
DSIS	Dam Safety Information System
IAS	Inspection Abatement System
IBWC	International Boundary and Water Commission
MP	Mid-Pacific
RAC	Risk Assessment Code
RICI	Reclamation Internal Control Information
RLT	Reclamation Leadership Team
SAP	Safety Action Plan
SMIS	Safety Management Information System
SOH	Safety and Occupational Health
TVA	Tennessee Valley Authority
USACE	United States Army Corps of Engineers
WAPA	Western Area Power Administration

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Executive Summary

1. Introduction/Background

A review of Reclamation's Safety and Occupational Health (SOH) Program by the Department of Interior's (DOI) Office of Occupational Safety and Health resulted in an evaluation that identified several opportunities for improvement in that program. Reclamation convened a team of managers and safety professionals to evaluate DOI's findings. That team identified 21 areas of improvement for Reclamation's SOH Program.

Regarding Reclamation's deficiency tracking process, the DOI Evaluation team found that:

“Reclamation safety and worksite personnel perform walkthrough inspections of facilities at least on an annual basis as required. These inspections are used to identify, document, and correct hazards and compliance issues in the workplace. However, corrective action does not appear to be a management priority in certain cases. The DOI Evaluation Team identified various hazards and conditions that indicate the worksite inspections and corrective action process of recording deficiencies and tracking their abatement needs to be improved across Reclamation. No true system is in place to ensure both accountability and effectiveness for tracking and resolving safety deficiencies. Corrective actions are not always used to achieve long-term improvements.”

The Safety Action Plan (SAP) tasked Team 12 with evaluating and recommending improvements for recording safety deficiencies and tracking progress in correcting them. This potentially entailed:

- Identifying best practices in Reclamation, the Department, and other agencies with similar exposure such as United States Army Corps of Engineers (USACE), Tennessee Valley Authority (TVA), or International Boundary Water Commission (IBWC);
- Assessing the possibility of prioritizing deficiencies according to the Department Risk Assessment Code (RAC) system and verifying abatement;
- Assessing opportunities to piggy-back on another Bureau's tracking system that uses the DOI RAC system which might also involve partnering with another Bureau with similar needs;
- Assessing options for emphasizing the importance of “good housekeeping” in preventing potential hazards.

2. Objectives/Deliverables

Safety inspections and subsequent deficiency and abatement reports are an integral part of the Safety and Occupational Health Program. The inspections allow for the identification and prioritization of specific deficiencies as well as trending and should ultimately lead to corrective actions. However, there are challenges to the way the deficiencies are reported and tracked. The team evaluated and recommended improvements for recording safety deficiencies and tracking progress in correcting them. The team identified the following objectives and deliverables:

- Review current Directives and Standards SAF 01-06 – Workplace Safety Inspection and Abatement;

- Review Safety Deficiencies Reports available in current DSIS system;
- Review recommendation and corrective actions input procedures;
- Identify current system limitations;
- Identify reports that may be required in tracking recommendations and corrective actions; and
- Identify other systems available to meet the needs of safety inspections and recommendations.

3. Evaluation Approach/Process

- The Team reviewed SAF 01-06, DSIS Deficiencies Reports, and corrective actions input procedures.
- The Team identified current system limitations, tracking reports, and corrective actions.
- The Team identified other systems available to meet the needs of safety inspections (see Section 4).
- The team developed a list of features/criteria for potential deficiency tracking systems. This list was then broken up into 3 levels:
 - a. Required features-“must have”
 - b. User enhancements- these features were deemed to add value to potential systems, but their absence was not considered to be critical.
 - c. Desired features- Essentially cosmetic features. “Bells and whistles.”
- Once this evaluation features/criteria list was developed, the team then created interview questions based off this list.
- The team set up interviews with system administrators and subject matter experts of the systems identified in Section 4. Whenever possible, a WebEx or LiveMeeting demonstration of the system was also set up, so the team could observe features and live manipulation of data of the system.
- At the conclusion of interviews, notes were distributed to the group, including interviewees, to ensure accuracy.
- The required criteria are summarized in Appendix C based on the answers and feedback from the interviews, system strengths and weaknesses
- Systems which failed to meet any one of the required criteria were eliminated from consideration.
- The team then evaluated the remaining systems, taking into consideration a variety of factors including:
 - a. Potential of the system to be easily adopted across all of Reclamation.
 - b. Advice from agencies, specifically the Bonneville Power Authority, that had recently gone through a similar process of choosing and implementing new deficiency tracking systems.

In addition to the technical criteria for system requirements, the Team identified equally important non-technical implementation considerations.

4. Systems Identified for Review

Once the team established system evaluation criteria and an interview process, the next task was to identify potential deficiency tracking systems for evaluation. The team considered tracking systems from the following three categories:

- Tracking systems already used within Reclamation
- Tracking systems used by other government agencies
- Commercial tracking systems

It soon became apparent that a plethora of systems from the first two categories were viable options, as they met the required features identified in our evaluation criteria. As a bonus, most of these systems were free, met Federal security requirements including FISMA and were already tailored to a DOI audience. Once the team came to this realization, evaluation efforts were focused on tracking systems already in use within government. The team conducted preliminary research into commercial tracking systems, but for these systems were dismissed due to consideration of ongoing maintenance costs, customization burden, and concerns with needing to re-compete for a new system every 5 years. The investigation of commercial systems could have consumed the team's efforts but all the systems would have faced the same limitations. An internally hosted and managed system was deemed preferable to meet Reclamation's needs over the long-term.

It should also be noted that the team attempted to research more tracking systems than the ones that appear in this report. In some cases, organizations failed to respond to our requests for information. In other cases, organizations responded to us only to tell us that they currently do not have a usable tracking system. Some of these interactions were still of value to the team, as we learned from the experiences and challenges other agencies experienced in their quest to find/develop deficiency tracking systems.

The following is a brief synopsis of the tracking systems the team evaluated, including the strengths and weaknesses of each system. As a supplement to these synopses please consult Appendix C, which illustrates how well each of these systems met the evaluation feature criteria.

Systems used within Reclamation

- **CARMA:** CARMA is Reclamation's version of the Maximo Asset Management System. CARMA has many desirable features including the ability to tie deficiencies to work orders, track completion of abatements through work orders, and send out reminders of when inspections are scheduled, as well as attaching appropriate photos. CARMA is a Reclamation-wide system originally designed for creating/tracking work orders. A limited number of offices currently use this system.

- **DSIS:** The Dam Safety Information System was created and developed for the Dam Safety Office to track specific Dam Safety related information. This Safety module was developed within the main DSIS system to track whether an inspection was conducted. Eventually more information was being required for reporting purposes by the Denver Safety Office and that additional information was not being input into the Safety Module. DSIS for the Safety Office was identified as an area of improvement for the agency. DSIS is a Reclamation-wide system available to all Reclamation employees to view specific data elements related to dams. Only specific users have access to input information
- **MP SharePoint:** The Mid-Pacific Region's Safety Office has developed a SharePoint-based system that they use to track all deficiencies, regardless of severity. Data from this SharePoint system is uploaded on a quarterly basis to DSIS' Safety Module via an Excel spreadsheet. This is a manual process whereby the DSIS Administrator must then upload appropriate fields to the DSIS system. The SharePoint site is a Regional-based system with the interface to DSIS and currently no access for other Reclamation Offices/users.
- **MS Access based system used at Hoover Dam:** Hoover Dam has developed an MS Access-based system to track deficiencies. This system exhibited several desirable features, including the ability to link photos to deficiencies. It is also a Regional-based system with no interface to other systems and no current access for other Reclamation Offices/users.
- **RICI:** A SharePoint application being developed to capture and document Reclamation's programmatic internal control information. RICI is replacing the current application, Governance, Risk and Compliance System (GRC) currently being used for both financial and programmatic internal control documentation and designed primarily as a tool to document the Circular A-123 financial audit process. The main purpose of the RICI system is to enable Policy and Administration to manage various compliance processes.

Systems used by other Government Agencies

- **Maximo:** The Maximo work order system is used by a variety of government agencies to track safety deficiencies as well as track orders. Similar to Reclamation and CARMA, the TVA uses a customized version of Maximo to track deficiencies. The Western Area Power Administration (WAPA) also uses Maximo, though unlike Reclamation or the TVA, WAPA uses the default version with no modifications to improve the deficiency tracking aspects of the system.
- **IAS:** The Inspection Abatement System is a module of the Department of the Interior's Safety Management Information System (SMIS). The IAS database was originally developed by the USACE and extensively modified by USGS for use as their main safety deficiency tracking system. The USGS system was presented to OSHA with DOI evaluating and adopting with the intent of implementing the system DOI-wide. IAS uses a series of checklists to guide the user through a safety inspection, identifying the type of

inspection whether internal or external, creating/hiding drop down boxes based on user responses, and creating a variety of reports. In addition, all DOI employees can report any unsafe condition they may observe at Reclamation facilities. This can be done anonymously or the employee can provide their name, telephone number, email address and location of unsafe condition. An email can then be forwarded to those safety personnel associated with that facility to further investigate the report.

Commercial Systems

- Safety Net: Safety Net is a commercial system developed by Predictive Solutions. While the system had some positive features, it did not meet some of the required feature criteria, and was therefore eliminated from consideration by the group.

During our initial research we found the scope of commercial systems is overly broad. We likely could have found a commercial system that met the minimum requirements and would have been beneficial for Reclamation but due to many factors including cost, adaptability, Federal IT requirements, and limitations of the acquisition process, the Team identified a preference for in-house systems. .

5. Recommendations

Technical System

The team recommends Reclamation utilize the Inspection Abatement System. While multiple systems evaluated met our required technical criteria, IAS stood out for the following reasons:

- IAS aligns well with Departmental goals of implementing enterprise solutions and potentially helps BOR meet future Departmental obligations. It is a solution that can be supported by multiple Bureaus, and allows Reclamation to piggyback off an existing DOI system, thereby reducing startup and maintenance costs.
- IAS involves and empowers employees at all levels of the organization. All employees have the ability to report deficiencies outside the realm of an official inspection.
- IAS lacks the limitations of current systems used by Reclamation, and also limits bias against these existing systems.

Implementation Considerations

The team identified several considerations that management must address for the recommendation to be implemented successfully. No matter how technically ideal a tracking system is, it has a high probability to fail if it lacks field buy-in and the support of upper level management. In order for Reclamation to transition to a new deficiency tracking system, management must play a positive, active, and visible role in the transition process. A successful transition process can take several years and require resources such as training, IT support, and facilitation. This can be achieved through change management.

The DOI Evaluation of Reclamation's Safety Program commended Reclamation for "establishing sound safety and occupational health resources throughout key levels of Reclamation and that systems are in place for safety and occupational health policy and standards, facility inspections, deficiency tracking and program evaluations." That said, the DOI evaluation went on to conclude: "despite these positive attributes, senior leadership and management have not established safety as an organizational value throughout all ranks of Reclamation."

Improving safety deficiency tracking at Reclamation is not purely a technical problem, and never was. As the DOI Evaluation noted, Reclamation had commendable policies and systems already in place, but still had challenges tracking deficiencies. Team 12 has identified systems that improve on Reclamation's existing deficiency tracking system, but any new system will only succeed with the support of Reclamation's leadership.

Change Management

Implementing a change in the safety deficiencies tracking and management system at Reclamation will require buy-in from the field, deliberate strategy, and management oversight to be successful. This first level analysis and recommendation of a software system without an accompanying change management road map or plan and a process for continued adjustments and changes to the system in the future would be short sighted.

- **Field Buy In:** In order to achieve buy-in from the field, initiation of any recommendation that differs from the current tracking system should be accompanied by beta testing and input from the end users upon its inception. This will allow future users of the system to test its features and provide feedback to developers on how the system can be customized and optimized.
- **Strategic Change:** Once that initial evaluation and beta roll-out are evaluated, this team also suggests using the Lewin change management model to assist employees and staff adjust to the change. The three basic components of this change model are defined below:
 - **Unfreezing:** gather information from all previously used systems, communicate schedules and expected timelines for change to occur;
 - **Change:** roll-out a final version of software including training of staff, users and any mid-level administrators or power users. It will be paramount to understand how requested changes are managed by the lead administrator;
 - **Refreezing:** remove old system(s) and begin exclusively using the new tracking system.
- **Management Oversight:** Change occurs on all projects as additional information is obtained and when conditions encountered differ from those assumed during scoping. A potential need in reports, input fields, etc. is likely to occur during the lifespan of the database. The team recommends a lead administrator be designated as the software administrator and program manager and liaison between safety officials. It would be the task of this lead administrator to both manipulate the database as well as ensure the quality of the information in the tracking system. They would be the single point responsible for managing the system at its highest level in Reclamation. A similar position currently exists

within the Denver Safety Office for administration of the DSIS Safety Module. Upon adoption of a new tracking program replacing the DSIS Safety Module, this administrator would assume responsibility for the new system.

Once Reclamation successfully transitions to a new deficiency tracking system, it is imperative that management continue to ensure that the system is embraced by the regions, and that existing Reclamation policy on safety inspections is followed.

Team 12 recognizes that the deficiency tracking portion of Reclamation's overall SOH Action Plan is only one small portion of the overarching Reclamation plan to improve its safety culture. It is Team 12's expectation that recommendations are not looked at in a vacuum but rather are considered in combination with other recommendations to improve Reclamation's overall Safety culture.

Appendices

Appendix A

Directives and Standards SAF 01-06

Workplace Safety Inspection and Abatement

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Subject:	Workplace Safety Inspection and Abatement
Purpose:	To specify the minimum Occupational Safety and Health Program requirements for conducting safety and health inspections of workplaces and timely abatement of identified hazards for all Bureau of Reclamation workplaces. The benefits of this Directive and Standard (D&S) are to standardize Reclamation's workplace safety inspection and abatement tracking processes and assure compliance with the Department of the Interior's requirements for workplace safety inspections.
Authority:	Occupational Safety and Health Act of 1970 (Pub. L. 91-596; 5 U.S.C. 7902; 29 U.S.C. 651 et. seq.) as amended; Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters, 29 CFR 1960; Executive Order 12196; OMB Circular A-123; Department of the Interior Safety and Health Manual, 485 DM Chapter 6; Reclamation Manual D&S, <i>Occupational Safety and Health - General</i> (SAF 01-01; and Reclamation Safety and Health Standards Section 2.1
Approving Official:	Director, Security, Safety, and Law Enforcement
Contact:	Safety and Occupational Health Office, 84-43000

1. **Introduction.** This D&S standardizes the procedures and responsibilities for Reclamation's workplace safety inspection and abatement program. Reclamation's management is responsible for establishing and maintaining a safe and healthful work environment for employees, volunteers, and visitors. To achieve this goal, Reclamation must assess its Occupational Safety and Health Program and ensure that adequate and reliable policies, procedures, and systems are implemented to track and promptly correct identified safety and occupational health deficiencies.
2. **Applicability.** This D&S applies to all Reclamation employees who conduct or participate in workplace safety inspections and those responsible for abatement.
3. **Definitions.** See Appendix D for a list of acronyms and definitions.
4. **Responsibilities.**
 - A. **Designated Agency Safety and Health Official (DASHO).** The DASHO is responsible for:

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- (1) providing the Secretary of the Department reasonable assurance that Reclamation is in compliance with applicable safety laws and regulations, that Reclamation workplace inspections are conducted annually in accordance with the provisions of this D&S, and that workplaces are operating effectively with no weaknesses in the design or operation of internal controls; and
- (2) providing personnel and financial resources, as needed, to address abatement of findings and facilitate successful completion of the inspection process inclusive of continuous compliance improvement from year-to-year.

B. Regional Directors. Regional directors are responsible for:

- (1) providing the Commissioner with reasonable assurance that Reclamation workplaces in their region are in compliance with applicable safety regulations, that workplace inspections are conducted annually in accordance with the provisions of this D&S, and that workplaces are operating effectively with no material weaknesses in the design or operation of internal controls; and
- (2) providing personnel and financial resources, as needed, to address abatement of findings and facilitate successful completion of the inspection process inclusive of continuous compliance improvement from year-to-year within their region.

C. Reclamation Safety and Occupational Health Manager. The Reclamation Safety and Occupational Health Manager is responsible for:

- (1) providing Reclamation safety and health inspection oversight to ensure that an effective process is in place for the identification, evaluation, and control of occupational safety and health hazards, where applicable;
- (2) monitoring inspections to ensure all workplaces are inspected at least once each fiscal year;
- (3) developing and maintaining the Facility Safety Inspection module of the Dam Safety Information System (DSIS) to meet finding/deficiency tracking and abatement requirements for annual action plans, program evaluations, and compliance inspections as required by SAF 01-01;
- (4) developing and incorporating standardized inspection checklist templates for regional and field use in meeting inspection requirements (see Appendix B);

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- (5) developing DSIS reports for Reclamation, regional, and local tracking of unabated inspection deficiencies and management review for appropriateness and timeliness of corrective actions; and
- (6) providing the Reclamation Leadership Team with an annual summary of Reclamation inspection findings and deficiencies via integration into Reclamation's Annual Assurance Statement, as appropriate.

D. Regional Safety Managers. Regional safety managers are responsible for:

- (1) providing region-wide safety and health program inspection oversight of all organizations within their respective geographical boundaries to ensure that an effective process is in place for the identification, evaluation, and control of occupational safety and health hazards;
- (2) monitoring inspections in DSIS to ensure that all workplaces within their geographic area of responsibility are inspected at least once annually, and ensuring appropriate and timely closure of deficiencies and/or updated status reports;
- (3) identifying high-risk workplaces based on high-risk activities, high-rate accident statistics, occupational hazards, past inspection history, personnel turnover, amount of time since last formal review, etc.;
- (4) coordinating with area offices and providing support for high-risk workplaces in their region;
- (5) providing guidance and assistance to area office safety staff, managers, and supervisors to comply with workplace safety inspection requirements;
- (6) reviewing DSIS abatement logs and associated reports, and communicating information to respective regional management, as needed, to ensure appropriateness and timeliness of corrective actions;
- (7) supporting Reclamation regional and local safety and health staff (e.g., regional safety officers and collateral duty safety representatives) through training that incorporates the inspection process and provides subject personnel with the ability to recognize safety and health hazards through the conduct of workplace inspections; and
- (8) advising regional directors on the regional safety assurance statement, as appropriate.

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- E. **Area Office Managers.** Area office managers are responsible for:
- (1) providing their regional director with reasonable assurance that Reclamation workplaces within their area are in compliance with applicable safety laws and regulations, that workplace inspections are conducted annually in accordance with the provisions of this D&S, and that workplaces are operating effectively with no material weaknesses in the design or operation of internal controls; and
 - (2) providing personnel and financial resources, as needed, to address abatement of findings and facilitate successful completion of the inspection process inclusive of continuous compliance improvement from year-to-year within their area.
- F. **Area Office Safety and Health Managers/Specialists.** Area office safety and health managers/specialists are responsible for:
- (1) establishing a workplace inspection program to effectively document and track safety and health deficiencies until corrective action is taken either to eliminate or reduce the hazard to an acceptable level;
 - (2) ensuring that high-hazard workplaces where there is an increased risk of accident or injury due to the nature of the operations are surveyed more frequently;
 - (3) conducting annual safety and health compliance inspections for workplaces, documenting deficiencies within DSIS, and coordinating with respective management to close all findings;
 - (4) coordinating and the conducting annual local field-level safety and health compliance self-inspections to include all subordinate field locations with supervisors, managers, and other collateral duty staff (e.g., local firearms and watercraft instructors and chemical hygiene officers);
 - (5) coordinating the documentation of local field-level workplace inspections findings and associated corrective actions in DSIS, as appropriate;
 - (6) ensuring that local abatement log corrective actions are documented and/or status reports updated within DSIS every 90 days until full abatement has been completed; and
 - (7) supporting local safety and health staff (e.g., collateral duty safety representatives and safety committees) through DSIS and Occupational Safety and Health Administration (OSHA) training that incorporates the

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inspection process and provides subject personnel with the ability to recognize safety and health hazards through the conduct of workplace inspections.

G. Collateral Duty Safety Representatives and Safety Committee Members.

Collateral duty safety representatives and safety committee members are responsible for:

- (1) assisting area office safety and health managers with workplace safety inspections as needed; and
- (2) attending training for hazard recognition and work place safety standards if assisting in or conducting safety inspections.

5. Requirements.

A. Inspections. Reclamation will conduct and document inspections of all occupied workplaces under its control for safety and health compliance as required by 29 CFR 1960 Subpart D and this D&S. More frequent inspections will be conducted when there is increased risk of accidents or incidents. Reclamation's Occupational Safety and Health Program includes the following types of inspection activities:

- (1) **Day-to-Day Inspections.** Supervisors must ensure that conditions in the workplace are monitored daily to prevent injuries, occupational illnesses, and property damage accidents.
- (2) **Annual Inspections.**
 - (a) All Reclamation workplaces must be inspected at least annually. Regions and area offices will document this activity as required in Paragraph 5.A.(3)(l) of this D&S.
 - (b) Annual inspections will be conducted by persons who are trained in hazard recognition and safety and health inspection procedures. Safety and health specialists, as defined in 29 CFR 1960.2(s), with experience and/or up-to-date training in occupational safety and health hazard recognition and evaluation, must meet the qualifications of safety and health inspectors. For those working environments where there are less complex hazards, employees who do not possess all of these safety and health specializations may be used. However, inspectors, such as collateral duty safety representatives, safety committees, or facility managers, will have sufficient documented training and/or experience in the safety and

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health hazards of the workplace involved to recognize and evaluate those particular hazards and to suggest effective abatement procedures.

- (3) **Inspectors.** Persons conducting safety and health inspections must:
- (a) Have the necessary equipment to conduct the inspection.
 - (b) Examine accident records and previous inspection reports as appropriate.
 - (c) Hold an opening conference with the workplace manager. In cases where a single workplace is expected to undergo multiple inspections over a period of time, this meeting need only take place once. An employee representative must be invited to participate in all stages of an inspection, including the opening and closing conferences.
 - (d) Consult with employees on matters of safety and health as appropriate.
 - (e) inform management and employees of imminent danger conditions.
 - (f) Comply with safety rules and practices.
 - (g) Take or obtain photographs, where appropriate.
 - (h) Avoid unreasonable disruption of the operation.
 - (i) For deficiencies which can be abated in 30 days or less, record the deficiency in their inspection log and ensure it is abated within that time frame.
 - (j) Hold a closing conference with management to disclose the findings of the inspection and recommend abatement measures. The management and employee representative(s) will be afforded an opportunity to bring other information to the attention of the inspector regarding unsafe or unhealthful conditions in the workplace. In cases where a single workplace is expected to undergo multiple inspections over a period of time, this closing conference need only take place once.
 - (k) Assign risk assessment codes (RAC) to each hazard to assist management with prioritization of resources to abate the most critical hazardous deficiencies. The RAC assigned to each hazard is an

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expression of risk, combining the severity and the probability of occurrence. The RAC criteria and definitions are detailed in Appendix A.

- (l) Document the inspection and recordable safety deficiencies in DSIS.

B. Findings.

- (1) If an imminent danger condition (RAC-1 or RAC-2) is identified at any time, the management official in charge will initiate corrective/protective action immediately and, if necessary, stop the operation and/or prevent access to the area, except for those needed to abate the condition.
- (2) If an imminent danger condition (RAC-1 or RAC-2) is identified during an inspection, a written "Notice of Unsafe or Unhealthful Condition" (Notice) will be transmitted by the inspector to the site supervisor and immediately posted conspicuously at or near each place a hazardous working condition exists, if practical, until the condition is abated or for 3 working days, whichever is longer. If not practical, the Notice will be posted where it is readily observable by all affected employees. A copy of the Notice, and instructions on filling it out, can be found in Appendix C.
- (3) Recordable safety deficiencies include:
 - (a) all RAC-1 and RAC-2 deficiencies regardless of timeframe necessary for abatement; and
 - (b) all deficiencies requiring 30 or more days to abate.
- (4) Deficiencies that will be corrected in less than 30 days will be entered in DSIS at the discretion of the inspector.
- (5) Deficiencies entered into DSIS will contain the following minimum information and be provided to management and employee representative(s) participating in the inspection:
 - (a) Identification of the location of the hazard that has or poses a safety deficiency. Where possible, include the Real Property Unique Identifier (i.e., RPUID).
 - (b) Description of the nature and extent of the hazard.
 - (c) Reference to applicable safety or health standards.

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- (d) Establishment of a reasonable time for abatement of the hazard (it is expected that most hazards can be abated within 90 days).
- (e) RAC. The RAC criteria and definitions are detailed in Appendix A.
- (6) For inspections without recordable deficiencies, a record of inspection will still be created within DSIS. This record will include at a minimum the name of the facility or workplace, the date of the inspection, and the name of the inspector.
- (7) In addition to entering recordable deficiencies in DSIS, safety inspections must also be documented at the area office level. A trackable document of record, listing all safety deficiencies found during an inspection, will be maintained and available for review. Documentation will include information identified in 5.B.(5) of this D&S.

C. Abatement of Inspection Findings.

- (1) Inspectors will document the status of abatements within DSIS every 90 days until all inspection findings are abated.
- (2) Management will be responsible for quarterly review of all their open inspection findings within their DSIS abatement log.
- (3) If abatement of a hazardous condition is not within the authority and resources of the organization, local management will:
 - (a) inform and protect potentially affected employees;
 - (b) inform and request assistance from the next higher management level in the organization and their respective safety staff; and
 - (c) coordinate, when necessary, with the Federal lessor agency if applicable (e.g., General Services Administration), to secure abatement as specified in 29 CFR Part 1960, Subpart E, and 41 CFR Parts 101-21.

D. Inspector Right of Entry.

- (1) OSHA, Department, and Reclamation safety and health professionals will have right of entry without delay, at reasonable times, to any facility, construction site, or other workplace to perform an inspection. They will also have the right to inspect any item or place within the workplace and

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to question, privately, any employee, manager, supervisor, visitor, contractor, or concessioner associated with the workplace (see 29 CFR 1960.31).

- (2) If an inspector from OSHA arrives to conduct an inspection of a Reclamation workplace, the manager of the workplace will be notified immediately and will ensure that a knowledgeable person accompanies the OSHA inspector. The manager or their representative will notify the respective regional safety manager. Workplace-related OSHA inspection findings, recommendations, and abatement actions will be documented within DSIS.

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Risk Assessment System (RAS) Risk Assessment Codes (RACs) Matrix				
<p>RAC levels are identified by a numerical scale 1-5, with RAC-1 being the most critical requiring immediate response and RAC-5 being the least critical. RACs are annotated by the RAC Number, followed by the Frequency and Severity. Examples of RAC annotations are 1(A)(I) for a RAC 1 that has Catastrophic consequences and an Immediate Danger Frequency A 4(IV)(B) would be a low level risk, with minor severity and with a likely probability.</p> <p>RAC-1 (Critical) represents an immediate danger to life, health or infrastructure and requires emergency correction or hazard controlled to a lower level of risk.</p> <p>RAC-2 (Serious) represents a high level of threat to life, health or infrastructure and requires hazard correction or hazard controlled to a lower level of risk as soon as possible.</p> <p>RAC-3 (Moderate) represents a medium level risk to life, health or infrastructure, with correction planned and completed, or hazard controlled to a lower level of risk.</p> <p>RAC-4 (Minor) represents a low level risk, with correction planned and completed, or hazard controlled to a lower level of risk.</p> <p>RAC-5 (Negligible) represents the lowest level risk and is considered minor. The correction of these risks can be planned in the out-years.</p>				
Probability Code Severity Code	Frequent (A) Immediate danger to health and safety of public, staff, or property and resources; occurs frequently or continuously.	Likely (B) Probably will occur in time if not corrected, or probably will occur one or more times during the life of the system.	Occasional (C) Possible to occur in time if not corrected.	Rarely (D) Unlikely to occur; may assume exposure will not occur.
Catastrophic (I) Immediate and imminent danger of death or permanent disability, chronic or irreversible illness, major property or resource damage.	RAC 1	RAC 1	RAC 2	RAC 3
Critical (II) Permanent partial disability, temporary total disability greater than 3 months, significant property or resource damage.	RAC 1	RAC 2	RAC 3	RAC 4
Significant (III) Hospitalized minor injury, reversible illness, period of disability 3 months or less, loss or restricted workday accident, compensable injury illness, minor property or resource damage.	RAC 2	RAC 3	RAC 4	RAC 5
Minor (IV) First aid or minor medical treatment. Presents minimal threat to human safety and health, property or resources, but is still in violation of a standard.	RAC 3	RAC 4	RAC 5	RAC 5

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Sample Inspection Checklist

1. Administrative Area Inspection Criteria.

A. Housekeeping.

- (1) Materials are not stored on top of the flipper door units. Materials are neatly organized and stored on shelves underneath work areas and away from electrical outlets, power strips, portable heaters, or other devices that are energized. Materials and equipment are not stored in exit stairwells.
- (2) Power and computer cords are secured and do not present a tripping hazard.
- (3) Debris and excess materials are not stored in the work place cubicle or outside in the exit passage way.
- (4) Excess computer and system furniture are not stored in the cubicle.
- (5) Plants are stored on a plant shelf or stable open book shelf. Plants are not stored on top of flipper door units, meridian files, any outside wall ventilation surface, or within 3 feet of electrical equipment or components.
- (6) Plants are in containers that are not susceptible to growing mold, do not promote insect life; and will not leak/drip on furniture, filing cabinets, vents, or shelving.
- (7) Portable fans are stored on a fan stand when elevated (not on flipper door units or other unstable locations).
- (8) Books and other materials are stable and organized when stored on book shelves or horizontal working surfaces.

B. Emergency Egress.

- (1) Exit passage ways from employee cubicles are not restricted or blocked with debris and other materials. Cubicle entrances are maintained at 33 inches and aisle ways will be 44 inches.
- (2) Emergency exit signs are illuminated.

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- (3) Emergency exit signs can be seen from two directions, directs occupants to an emergency exit location.
- (4) Employees are trained on the Occupant Emergency Plan (OEP).
- (5) Exit maps and plans are posted in a highly visible area, and are large enough to be easily read.
- (6) Occupied work areas are equipped with audio and video alarms.
- (7) Emergency lighting is present in each occupied work area, along the common paths of travel, and at the discharge to the exit.

C. **Fire Safety.**

- (1) Small appliances (e.g., coffee pots, individual cup warmers, etc.) are plugged directly into outlets. All coffee pots, microwave ovens, and cup warmers are located in the break areas. There will be no cup warmers at desks.
- (2) Small appliances are placed atop a non-combustible surface when in use.
- (3) Asbestos-containing materials are clearly labeled and not used as a non-combustible surface.
- (4) Extension cords are not employed for everyday use. Computers are either plugged directly into outlets, or to power strips equipped with a circuit breaker.
- (5) Portable heaters have automatic shut-off (with tip-over protection). Old heaters must be replaced with new approved ones.
- (6) There is a minimum distance of 18 inches from charged sprinkler line heads to combustible surfaces.
- (7) Power strips, extension cords, and other portable electrical devices are in good repair and not damaged.
- (8) Combustible materials are not stacked/piled on top of electrical cords or heat producing equipment such as computers, printers, water heaters, furnaces, and lights.

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- (9) Portable electrical appliances are approved (UL and FM listed).
- (10) Fire extinguishers are properly mounted and placarded, and those expected to operate extinguisher are trained annually.
- (11) Fire extinguishers are inspected monthly and the inspection is annotated on an inspection tag or inspection log (note: fire extinguishers must be serviced annually by a fire extinguisher service company).
- (12) Personnel serving as floor monitors are up-to-date on OEP training, use of evacuation chairs, and fire evacuation routes.

D. Automatic External Defibrillators (AED)/First Aid Kits. AEDs and first aid kits are placarded and properly stocked with supplies.

E. General Safety.

- (1) Office furnishings are in good repair and do not pose a tripping hazard (e.g., carpet in good repair).
- (2) Cords and other materials stretched across the floor are properly covered to prevent damage or tripping hazards.
- (3) Employees are aware of the Collateral Duty Safety Representative (i.e., CDSR) for their group or floor.
- (4) Emergency telephone number stickers are attached to employee telephones, or are posted in a visible location within the employee's workspace.
- (5) Employees renting cars for government travel or using government vehicles are current on defensive driving training.

2. Laboratory Area Inspection Criteria.

A. Chemicals.

- (1) Chemicals used and stored in the lab are stored according to hazard class and type. All acids are stored together, all bases stored together, all oxidizers stored together, etc.

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- (2) Chemicals are correctly labeled, identifying contents.
- (3) Materials Safety Data Sheets (i.e., MSDS) are available, readily accessible to employees, and in close proximity to the chemicals.
- (4) Flammable chemicals are stored in a fire-resistant storage cabinet. Combustible chemicals are stored appropriately, usually in a flammable materials storage cabinet or in a separate combustible materials storage cabinet.
- (5) Tops of storage cabinets (e.g., flammable materials, combustible materials, chemical, etc.) are kept clear of any debris or excess material.
- (6) Storage cabinets are marked with the correct National Fire Protection Association diamond placard.
- (7) Only daily use quantities of a chemical are outside of a storage cabinet or hood.
- (8) Written Chemical Hygiene Plan which includes chemical Job Hazard Analysis (procedures) is briefed and followed. For example, mixing or transferring low vapor pressure chemicals is done inside a lab hood to prevent vapor/gas from escaping into the general lab area.
- (9) A Chemical Hygiene Officer is designated in writing and responsible for overall laboratory safety program.
- (10) All laboratory personnel are trained to the Chemical Hygiene Plan.
- (11) Primary and, where applicable, secondary containment is structurally sound (no leaks to the outside environment) and applicable to the chemical stored (plastic containers for acids).
- (12) Laboratory hood sash heights are in the correct position, an annual inspection is performed, and inspection sticker with face velocity noted is on the hood.
- (13) Appropriate spill kits are available in the workplace, and employees have been properly trained on their use.
- (14) Excess chemical product is removed and properly disposed.

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- (15) Do not store combustible materials or cleaning chemicals in furnace or water heater rooms.

B. Cylinders.

- (1) Cylinder content must be clearly identified and labeled.
- (2) Cylinder must be secured at all times, stored upright, and protected from damage.
- (3) Cylinder is equipped with the correct regulator, and no grease, oil, or solvent was used to connect the regulator to the cylinder.
- (4) If cylinder is not in use and regulator is not attached, protection cap is in place and hand tight.
- (5) Oxygen cylinders are separated from flammable gas cylinders by at least 20 feet or a 30 minute firewall. The exception is acetylene or other flammable welding carts which contain both a flammable cylinder and an oxygen cylinder.
- (6) Acetylene cylinders must be turned off after each use, and the regulator operating pressure must not exceed 15 psi.
- (7) Warning, Caution, Danger, and No Smoking signs applicable to the compressed gas cylinder are posted.
- (8) Ensure acetylene torches are fitted with backflow preventers or check valves.

C. Emergency Eye Wash Stations and Showers.

- (1) Emergency eye wash and showers are immediately available and maintained where corrosive materials are stored and used.
- (2) Emergency eye wash and showers are operated and inspected monthly and annotated on an inspection tag. Water temperature is tempered.
- (3) Emergency eye wash and shower locations are not obstructed or blocked.
- (4) Emergency eye wash and shower stations are properly identified and placarded. Bottles of eyewash do not meet the 15 minute Occupational Safety and Health Administration flushing requirement.

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D. Personal Protective Equipment (PPE).

- (1) Safety glasses and other PPE must be made available to lab personnel, together with appropriate training on the use of PPE.
- (2) PPE is provided to visitors and other guests.
- (3) PPE must be inspected and defective/outdated PPE will be removed and discarded, as needed (e.g., gloves, safety goggles, etc.).

E. Electrical Safety.

- (1) All electrical wire and wiring connections are in conduit or insulated and inaccessible through hard wall construction techniques.
- (2) All electrical panels are labeled and marked with “Danger” signs. Covers are in place.
- (3) All circuit breakers are labeled inside the panel.
- (4) Electrical panels are unobstructed with a minimum of 30 inches wide and 36 inches deep working space in front of the panel.
- (5) No debris or excess material sits on top of electrical panels or conduit.
- (6) Electrical connections around water supplies that can lead to a ground path are wired as a ground fault circuit interrupt (GFCI) circuit. The general rule of thumb is any electrical work within 6 feet of a water source must be GFCI.
- (7) A Lockout Tagout written program must be in place, briefed, followed, and PPE worn when accessing or modifying electrical panels/circuits.

F. Workshops.

- (1) All machine and pulley guards are in place and operational.
- (2) Dead-man switches on equipment are operational.

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- (3) Electrical cords to powered hand tools are in good condition without fraying/exposed insulation/wiring, and have three prong or polarized plugs. Tools without a ground prong must be double-insulated.
- (4) Area must be evaluated for noise exposure and, where applicable, posted for high noise exposure and hearing protection must be available and worn.
- (5) Workspace organized and only the tools in use are in the work area.
- (6) Floors are not cluttered, clean of wood/metal shavings, oil/solvents/varnish spills cleaned up to prevent slip/trip/fall hazards.
- (7) Overhead fluorescent lights are protected with covers.
- (8) Platform storage areas have toe kicks, 42-inch tall railings with mid-rail, and are posted with load rating. Load ratings (performed by the manufacturer or a professional engineer) are not exceeded by stored materials.
- (9) Shelving storage racks are posted with load ratings and secured to prevent tipping. Load ratings are not exceeded by stored materials.
- (10) Materials stored on platform storage areas or metal shelving must be stacked/secured to prevent falling hazard to personnel walking below.
- (11) Powered freestanding equipment must be secured to prevent tipping (e.g., drill press bolted to the floor).

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**RECLAMATION REPORT OF UNSAFE OR
UNHEALTHFUL CONDITION**

HAZARD DESCRIPTION

DATE: _____ LOCATION: _____ ROOM NUMBER: _____

HAZARD DESCRIPTION:

RISK EVAL. (MARK ONE): RAC 1 2

ABATEMENT ACTIONS AND PROJECTED COMPLETION DATE:

INSPECTOR: _____ PHONE: _____ ORG: _____

SUPERVISOR IN CHARGE OF WORKPLACE: _____ PHONE: _____ ORG: _____

** Note: Any questions, please contact your Collateral Duty Safety Representative.*

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Instructions for Filling out Report of Unsafe Conditions

Date: Enter the date the hazardous condition was found.

Location: Enter the building and area where the hazardous condition exists.

Room number: Enter the room number or nearest identifiable room number.

Hazard Description: Enter the act, condition, and/or practice observed. Give as much detail as possible. Name people to contact for further information who may have observed the hazard, or who committed the unsafe act.

Risk Evaluation: Assign a Risk Assessment Code (RAC). A RAC-1 (Critical) represents an immediate danger to life, health, or infrastructure and requires emergency correction or hazard controlled to a lower level of risk. A RAC-2 (Serious) represents a high level of threat to life, health, or infrastructure and requires hazard correction or hazard controlled to a lower level of risk as soon as possible.

Abatement Actions and Proposed Completion Date: The supervisor will enter the planned actions to abate the hazardous condition, as well as a proposed completion date.

Inspector: Enter the name of the inspector.

Supervisor in Charge of Workplace: Enter the name of the supervisor in charge of the workplace where the hazardous condition exists.

Phone: Enter a telephone number where you can be contacted for further information, to discuss the report, or to provide status reports on abatement actions.

Organization Code: Enter your Mail Stop and office code in order to receive written replies.

Once the inspector has completed this form, s/he will make a copy and forward a copy to the area supervisor for action, review, and posting.

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Acronyms and Definitions

AED	Automatic External Defibrillators
CDSR	Collateral Duty Safety Representative
CFR	Code of Federal Regulations
D&S	Directives and Standards
DASHO	Designated Agency Safety and Health Official. The DASHO is the agency's highest ranking safety official, and is designated by the Commissioner at the Deputy Commissioner level.
DSIS	Dam Safety Information System
MSDS	Materials Safety Data Sheets
OEP	Occupant Emergency Plan
OSHA	Occupational Safety and Health Administration
RAC	Risk Assessment Code
RAC-1 (Critical)	Represents an immediate danger to life, health, or infrastructure and requires emergency correction or hazard controlled to a lower level of risk.
RAC-2 (Serious)	Represents a high level of threat to life, health, or infrastructure and requires hazard correction or hazard controlled to a lower level of risk as soon as possible.
RAC-3 (Moderate)	Represents a medium level risk to life, health, or infrastructure, with correction planned and completed, or hazard controlled to a lower level of risk.

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RAC-4 (Minor)	Represents a low level risk, with correction planned and completed, or hazard controlled to a lower level of risk.
RAC-5 (Negligible)	Represents the lowest level risk and is considered minor. The correction of these risks can be planned in the out-years.
UL	Underwriter's Laboratories
Workplace	Physical location where Reclamation employees can or do routinely work. Does not include transferred works.

Appendix B

System Comparison

Evaluation and Comparison - Critical Features Among Systems Identified

Survey Questions (required criteria)	Does it have customizable fields	Does it record whether annual inspection(s) have occurred at inspectable units, in a dedicated mandatory field	Does it record deficiency details & information (which is mandatory) and not deletable by general user. The ability to edit records is important only to user inputting the information.	Does it have an updatable status field (required) showing status of abatement: - In progress (e.g., percentage completed) - Incomplete - Deleted	Does it have required abatement fields to track: - Schedule - Cost - Abatement plan, with comments section. (May be also a plan for adjusting RACs over lifecycle of abatement.) - Completion date/actions	Does it generate fixed reports showing: - Total number of deficiencies - Number of unabated deficiencies - Breakouts of: • RAC-1 & RAC-2 (and automatic email notification to RD) • OSHA Notices of Violation • Abatements requiring more than 30 days to abate - Facilities that were not inspected	Can it generate reports by adjustable time frame	Does it have the ability to search across multiple facilities (Region, AO, Field, etc.)	Can the user generate customizable reports? (e.g. show all facilities that have more than 3 deficiencies that are over 30 days overdue)	Does it have the ability to export data in multiple formats. Can it import data as well. In what format and what level of users.	Can this database expand	Will data be retained indefinitely	Can data be extracted from the database in a usable format	Does it have the ability to do controlled read/write access. Can this be set up based on user roles?	Does it meet Federal IT security requirements (FISMA)	Can it prepopulate fields tied to other fields (such as tying a facility to RPUID, State, GPS, Region, etc.)
Mid-Pacific Regional Office, SharePoint	Green	Green	Green	Green	Yellow	Green	Green	Yellow	Green	Yellow	Green	Green	Yellow	Green	Green	Yellow
Lower Colorado - Hoover Office, Access	Green	Yellow	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Yellow
DSIS (current DSIS, not individual Safety module)	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green	Green	Green	Green	Green	Green	Yellow
DSIS (current Safety module only)	Red	Green	Red	Green	Green	Red	Green	Red	Red	Green	Green	Green	Green	Green	Green	Red
USGS (DOI SMIS/IAS)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Yellow
TVA (Maximo with customized Safety module)	Green	Yellow	Yellow	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green
CARMA (Maximo - work order tracking with some customized Safety tracking)	Green	Green	Yellow	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Reclamation Internal Control Information (RICI)	Green	Yellow	Green	Red	Yellow	Yellow	Green	Green	Yellow	Yellow	Green	Green	Green	Green	Green	Red
Predictive Solutions (Safety Net) - third party software	Red	Red	Yellow	Yellow	Yellow	Green	Green	Green	Yellow	Green	Yellow	Green	Green	Yellow	Yellow	Red

Green - system currently has feature

Yellow - system has the potential for the feature

Red - system currently does not have the feature nor does it have the potential

Appendix C

Interview Questions/Answers

BPA System

3/27/15

Brad Bea from BPA

- Brad Bea, babea@bpa.gov
- Chief Safety Officer for BPA
- Located in Vancouver, WA
- BPA was recently audited by DOE and has similar needs to Reclamation in terms of deficiency tracking

Overview

- 2 years ago, BPA was using pen and paper to track deficiencies, and lacked a centralized tracking system. They invested in an online service called “Guardian,” but after 2 years they canceled the contract, and now they are back to pen and paper tracking. Because of this, our interview focused less on their current practices, and more on their experiences looking for a system, what they would have done differently in hindsight, and what advice they generally have for us as we look for a tracking system. Brad generally thinks we’re on the right track. His biggest advice is not to underestimate the time and effort involved with Change Management and training, to ensure that our new tracking system is accepted and embraced by our end users.

Best Practices Questions:

1. *Current state of tracking:* BPA still uses “stone age” tech. Done locally. Local staff documents deficiencies on paper, types them up, emails managers notifying them they have 30 days to abate deficiencies. Problems with follow up component. “Tracking is where it falls apart.” Sometimes they find the same deficiencies in subsequent years. 2 years ago they invested in a software product called “Guardian.” It passed their FISMA requirements. Online system, where you sent Guardian the data and they’d help make tables, etc. BPA got tablets, since Guardian worked with mobile apps. It had some challenges, such as reduced functionality depending on cell reception. Goal was to be more efficient, and incorporate photos into reports. Lack of an IT person in the Safety office, combined with workload, eventually led to cancellation of the service. They tried it for 2 years, but now they’re back at the drawing board (pen and paper). They highly recommend having a dedicated IT staff member to customize/run the program. Looking at other products like “medgate” for IH issues.
2. *Risk Assessment:* BPA uses ISO 31000 risk model. Do a heat map using likelihood and consequence. Priority set by likelihood/severity, but also compliance. Their enterprise risk management group already uses this standard, so they adopted it for consistency.
3. *Deficiency information sharing:* a lot of email documentation, but they lack a centralized computerized system. Challenges presenting information in an easy form. At best they manually fill in an excel spreadsheet chart. Executive safety committee has several high level

members, they make high level decisions, used to keep safety issues visible to leadership in the organization. The way info on deficiencies is shared is primarily through direct contact between Brad and either leadership, or local managers.

4. *Incentives/consequences for compliance/non-compliance:*
 - a. *Incentives:* Employee recognition program is primarily at the employee level. Brad is currently trying to revamp the recognition system, so it awards safe behavior as opposed to low reported rates. This is complicated by the fact that their recognition program was negotiated with the union. No group awards at the moment.
 - b. *Consequences:* None really. Hampered by fact that OSHA can't fine BPA. Takes the teeth out of not fixing deficiencies.
5. *Success of their tracking?-* Any success is due to perseverance of his safety staff. They don't really have tools to help them.
6. *How do you ensure the quality of deficiency data?-* All staff are Certified Utility Safety Professionals, and also receive OSHA training for things like General Industry, HAZMAT, Construction, etc. Most staff hired out of the crafts, then trained up on Safety through this curriculum. Then the results are audited by Brad and his deputy. Integrating Z-10 into its Safety program. Looking to get an external group to audit them periodically.
7. *Strengths/weaknesses of existing tracking system:*
 - a. Strength: done by hand, so it can lead to closer relation between inspector and facility
 - b. Weakness: hard to get useful data collated in an easy and quick manner. Brad would rather have his staff in the plants being useful, not aggregating data.
8. *Best practices:*
 - a. Safety Committee structure makes it easy for Brad to inform management which areas (e.g. common deficiencies, high risk issues) need attention. This committee has some of the highest level people in BPA (COO, CAO), not just safety personnel.

Action Item: Ken will email Brad to get the charter.

9. *How did you go about choosing the Guardian software?*
 - a. We wanted something with mobile capability.
 - b. Customizable fields (by a central administrator) was a must.
 - c. Ability to attach photos was a must, especially since it helps make proving abatements easier.
10. *Problems with Guardian? Things we should look out for when selecting a system? Some funding issues, but **mostly Change Management:***
 - a. User acceptance. Get end-user buy-in.
 - b. Lack of IT support to continue customizing it, training people on it.
 - c. Drop down forms worked well for their plants, but not for their central HQ in Portland. They did not have the ability to modify the Guardian system to make it user friendly for various locations. Brad cautions us how large we make our drop down menus. Don't make them overwhelming and cumbersome.
 - d. Looking into using the DOE system "Medgate" for their IH needs. Also considering ULSafety system.

11. *Would you use Guardian again, if implementation were different?* Yes, if we spent more time on Change Management, and had the funding to customize it better over the course of the first year, responding to feedback. Also would have had a dedicated IT staff member to help keep it on track. Guardian housed their information in an external system, which saved them data storage space. When contract was canceled, they were able to pull their data out in an excel file.
12. *Any advice on implementation?* Communicate early and often with end users, sell them on the need for it, explaining value of consistency, how it helps in audits, etc. Change management piece is critical, as is the training piece. All of this is likely at least 2 years, maybe 3.

CARMA System

3/24/15

Steve Crawford from PN Region

- Steve Crawford, scrawford@usbr.gov
- Black Canyon Dam Maintenance Specialist
- Located in Black Canyon Dam, Emmitt Idaho
- CARMA admin for Black Canyon Dam

Overview

- Reclamation's maintenance tracking program that has been used for many years. Some sites use this tool to track local deficiencies from beginning to completion of abatement. It is used to generate corrective maintenance work orders and track progress of those work orders. It is used to generate a multitude of customizable reports.

A. Best Practices Questions:

1. How are your safety deficiencies recorded, inspections tracked, and abatement documented? [Currently, CARMA is used primarily for maintenance tracking of power plant field facilities. Some facilities use CARMA for safety deficiency tracking. This is done by generating a safety work order that can then be tracked for completion progress. Documentation can be entered into detail fields for future reference throughout the corrective process.](#)
2. Where is the CARMA located? [The CARMA servers are located in Denver. All Reclamation offices have access to it through a link that can be placed on a desk top.](#)
3. How do you assess the severity of risk? [CARMA uses a calculated priority system. A piece of equipment or system is given a rating of one through 4. One is the lowest and four is the highest priority. The deficiency or repair is also given a rating priority of one through four. The two are then combined to generate the calculated priority. A building that is not critical to power production could be a one, and the repair or deficiency could be considered minimal to the welfare of the building and gauged a two. The two numbers would be combined for a calculated priority of three. Anything that is six or above is a critical repair and must be done in a timely manner.](#)
4. How is safety deficiency information shared within the agency from (high to low)? [Deficiencies at a local level would be tracked by Supervisors for Work Leaders to ensure that high level deficiencies are completed on schedule and that low deficiencies are not lost in the system. For example, a monthly facility inspection would find deficiencies. These are then put in as corrective work orders in CARMA. The following month at the next facility inspection, past deficiencies would be checked for progress or completion and reported on at a safety or staff meeting.](#)
5. What are the incentives/consequences for compliance/non-compliance? [A incomplete calculated priority corrective maintenance work order would show up on the facilities](#)

effectiveness reports that goes to BPA and would go against the facilities overall rating. What about for low level deficiencies sticking around for a long time? There are no incentives or consequences for compliance of low level deficiencies other than the lower work order completion rate numbers that would show. All facilities strive for 100 percent completion rates in the estimated completion dates.

6. What makes your tracking system successful? As a work order system, it has a start date as well as a completion date and is tracked for success of the facility. Once it is entered into the system, whether it is a preventive maintenance work order or a safety deficiency corrective maintenance work order, it is tracked until it is completed and closed. Reports can be generated to show a variety of search queries. This is helpful for tracking completion rates, incomplete work orders or historical requests.
7. How do you ensure the quality of your safety data? Trained staff and uniformed data entry. Do you have a single person who is your CARMA guru? Somebody who can adjust items or delete them? Each facility has a specialist who generates work orders and is trained in the day to day use of the system. There are administrators in Denver who have the ability to deal with higher level manipulation of the system as well as a help desk for the field staff to utilize when needed.
8. Strength and weaknesses of existing system? Ease of use, reporting, export feature to excel and other formats. Weakness: Most office facilities do not use CARMA for anything as well as some field facilities. What about expandability? CARMA is expanding to version 7.5 in the next few months and is capable of adding new facilities as needed.
9. What do you believe are the best practices in your agency? Facility proficiency is based on completed work orders, thus encouraging timely completion.

B. Critical Features Questions

Input Focus

1. Does your system have customizable (by the sys admin) fields (i.e. what fields are mandatory, adding new fields, etc.) Yes, the system administrator in Denver can customize, add or remove most if not all field. Mandatory fields are marked with a red asterisk and must be completed before the generation of the work order can be completed.
2. Does it record whether annual inspection(s) have occurred at inspectable units, in a dedicated mandatory field? Yes, the work order number can be looked up specifically or a report can be run to show when it is due or when it was completed. The field information is generated, based on change of status, i.e. when it was created waiting approval, in progress, when it was put on hold waiting materials, when it was completed or when it was closed.
3. Does it record deficiency details & information, which is mandatory and not deletable? Yes, the description field is mandatory but has limited character space. There is a note field that allows for more detail, but is only as good as the details entered and is not mandatory. Do the users have the ability to edit records? Yes, based on access level. Does it have an indicator of required field for input to generate a record? Yes, a red asterisk.
 - Does it have an updatable status field that is required to be inputted showing status of abatement? Specifically can it discern between; In progress (i.e. Percentage completed), Incomplete, Completed and Deleted? Yes, it has many status settings but no percentage of

completion. The system admin in Denver should be able to add more status settings as requested.

4. Required abatement fields to track; Schedule, Cost, an Abatement plan, (with comments section) and completion date/actions? Labor costs are collected directly form ETAS when the workmen put in their time each pay period. Materials can be estimated and credit card information can be entered for tracking. Work or abatement plans can be created in the planning module and attached to like work orders or directly added at the time of creation on a line by line basis. There is a notes area that can be filled in throughout the life of the work order but is only as good as the notes on the work order that is turned in or the communication between the workman and the program user.
5. How does the system handle data integrity (e.g. typos don't create drop downs, field verification, data QAQC). The notes section has the ability to show typos, but the description field is free form. There are drop downs with the ability to choose from these or type in the needed options. Misspelled entries will not auto correct, but may in the future version.

Reporting type questions

6. Does it generate fixed report showing: Total number of deficiencies, Number of unabated deficiencies, the number of facilities that were not inspected , or a breakouts of deficiencies by severity (i.e. RAC-1 & RAC-2, OSHA Notices of Violation or abatements requiring more than 30 days to abate) Yes, it has a large number of search queries as well as premade reports. Other requested reports can be made in Denver.
7. Can it generate reports by adjustable time frame? Yes
8. Does it have the ability to search across multiple facilities (region wide, AO wide, etc?) Yes, based on the users access level.
9. Can the user generate customizable reports? Does it have wild card search features? Is it searchable/sortable on multiple fields (2 or more fields) Yes
10. Does it have the ability to export data from reports in multiple formats? Can you import data? In what format and who has the rights? Yes, in multiple formats. HTML, excel, word, PDF.

System-wide "other "questions

11. Can this database expand? Can it store and link to photos, or does it have photo storage capabilities? Can build/add onto it for other future uses. Module for use for HAZMAT/Life Safety/other inspections? Yes, it is expandable. Yes, files and photos can be linked. Yes, it is growing with Reclamation currently. Currently, a safety module is being tested that would focus on JHA creation and PPE usage related to specific hazards.
12. Will data be retained indefinitely? Can it? Yes
13. Can I extract all data from the database, in a usable format? Yes Would you say the system is Intuitive/user friendly? Yes Is the system responsiveness normally a problem for your end user? no problems on responsiveness

14. Can it do controlled read/write access. [Yes, there are a number of access levels that can be assigned.](#) Can you set this up based on user roles? [Yes \(read only, contribute, full control\)](#) Can it Schedule reminders for upcoming/recurring inspections for safety inspectors? [Yes, inspections can be scheduled weeks or years in advance.](#) Follow up emails when abatements are past due date, or every 90 days (push reminders). Can it generate an automatic email notification (to RD) for higher level Deficiencies (i.e. RAC1 or RAC2)? [Emails can be sent, but not sure to what extent.](#) Can it have different levels of access (and customization) for different users (like tabs)...Possibly tied to training. (i.e. Only people on trained inspector list can enter items into system?) [The Admin grants site permissions so they set the criteria of who uses the system](#)
15. Does it meet Federal IT security requirements (FISMA)? [Yes](#) Can it be tied to an Active Directory? [All members of Reclamation are entered into CARMA when hired and job specific access is granted by request through Denver. A log in and password is needed to log in different from USAccess credentials or BOR log in.](#)
16. Can it prepopulate fields tied to other fields (i.e. such as tying a facility to RPUID, State, GPS, Region, etc.?) [Yes](#) Does it have the Ability to duplicate and modify existing entry, so you don't have to re-populate every field for similar entries? [Work orders can be duplicated as well as job plans, or equipment.](#)
17. Interface with other systems (e.g. CARMA, FBMS, SMIS, eERDMS), to automatically share/interface data, reducing redundancy/costs/errors... [Yes, it currently works with ETAS, as well as FBMS.](#) Is it mobile app compatible? [Yes, but currently only a beta test.](#) Ability to link to external websites/drawings/etc. [Not sure](#) Ability to import historical data from DSIS (hazard log) [Should be able to, based on similar data tables.](#)

Denver Office DSIS System

April 16, 2015

Wade Feltman, DSIS Administrator

- Wade Feltman, wfeltman@usbr.gov
- SSLE, Program & Emergency Management Office
- Denver Office
- DSIS Administrator

Overview

The Dam Safety Information System (DSIS) was originally developed for the Dam Safety Office to track Dam Safety Related Information. The program is composed of three elements:

1. DSIS Web Application – allows users throughout Reclamation to see and update (if they have privileges) specific data elements related to dams.
2. DSIS Report Application – allows users throughout Reclamation to run/view/print “canned” formatted reports of the data in the web application.
3. Dam Safety Document Management System – allows users throughout Reclamation to view/download/print scanned and/or electronic versions of Dam Safety Documents.

The DSIS Web Application has been expanded to track specific recommendations related to several Reclamation programs (Dam Safety, Power, Emergency Management, and Safety). The program administrators can develop special reports at user’s requests.

A. Best Practices Questions:

1. How are your safety deficiencies recorded, inspections tracked, and abatement documented?
 - That is a question for the safety office and the regions
 - DSIS has a safety recommendations table that allows users (with privileges) to input the recommendations from safety inspections.
 - The table was developed at the request of the Safety Office.
 - I believe the Safety Office developed an SOP on how to use the table.
 - Module within DSIS
2. Where is DSIS located (network, intranet)?
 - The DSIS database/servers are located in Denver, CO and the applications are available to anyone on Reclamation intranet.
3. How do you assess the severity of risk?
 - The inspectors assess the severity of risk during the inspections and categorize the deficiencies RAC Level
 - The RAC Level is a field in the table
4. How is safety deficiency information shared within the agency from (high to low)?

- That is a question for the Safety Office
 - Anyone in Reclamation can run reports out of the DSIS Reporting Application
5. What are the incentives/consequences for compliance/non-compliance?
- From the application perspective, there are no incentive/consequences.
 - I would assume the personnel from the Safety Office reviews incomplete deficiencies and asks for updates or gets people involved as needed
 - The system does not automatically email/notify anybody.
 - Could develop another application that does. Not in the current DSIS system.
 - What about for low level deficiencies sticking around for a long time?
 - The system treats all deficiencies the same
 - Reports can be set up to only track specific RAC Levels if required
6. What makes your tracking system successful
- The system is only successful if people use it
 - The system is available to anyone in Reclamation
 - The system has been fairly reliable – I won't say that it never goes down but not very often – due to steady state been around for a while.
7. How do you ensure the quality of your safety data?
- The person entering the data has to ensure the quality of the data.
 - The system only requires a Facility Name, Fiscal Year, and Deficiency Number to be entered – it will automatically record who enters the Deficiency and the date that it was entered/updated.
 - Is there a single person who is your DSIS guru? Somebody who can adjust items or delete them?
 - Myself (Wade Feltman) and Andrea Popelka
 - Anybody with privileges can update or delete items from the safety table.
 - Can set it up to restrict certain fields in certain tables.
8. Strength and weaknesses of existing system (DSIS)
- Strengths
 - Available throughout Reclamation
 - Web Application
 - It was available
 - Some people had used the O&M and SOD Recommendation modules
 - It was a quick and dirty way to start tracking deficiencies – it was a start
 - We can change it
 - Weaknesses
 - It's a database
 - You have to edit one record at a time
 - It was developed for the DSO with Safety being an add on
 - What about expandability?
 - It all depends on what someone wants
 - It is a function of time and money
 - Wade would program any changes into the future.
9. What do you believe are the best practices in your agency?
- Best practice is to have someone review and track deficiencies
 - Have an oversight office

B. Critical Features Questions

Input Focus

1. Does your system have customizable (by the sys admin) fields (i.e. what fields are mandatory, adding new fields, etc)
 - Yes – new fields are fairly easy to add, mandatory fields are harder, may require some program modifications
 - Can make all fields mandatory. How good is the data when you make it mandatory? 4,591 recommendations in the Safety Deficiency tables. Would need to ensure that information is in the database if the field is going to be mandatory. Would need to add a value for existing records for a new field. Need to consider what fields will be mandatory.
2. Does it record whether annual inspection(s) have occurred at inspectable units, in a dedicated mandatory field
 - There is an Inspection Date field, it is not mandatory
 - A separate inspection table would need to be created. Could create mandatory fields that require this information.
3. Does it record deficiency details & information, which is mandatory and not deletable? User can delete the record. Everything is deletable. Log is created with deletion. Any user can delete any record if they have privileges.
 - Does the users have the ability to edit records?
 - Yes, if they have the proper privileges
 - Does it have an indicator of required field for input to generate a record?
 - Yes and No, if you know where to look yes (although “mandatory field” is missing from the Deficiency Number)
 - Question mark identifies mandatory field. Could add a star
4. Does it have an updatable status field that is required to be inputted showing status of abatement? Specifically can it discern between; In progress (i.e. Percentage completed), Incomplete, Completed and Deleted.
 - Currently only Complete, Incomplete, and Deleted – In Progress, 25% Complete, 50% Complete, and 75% Complete or any other description is easy to add to the status
 - The hard part is getting people to update it
5. Required abatement fields to track; Schedule, Cost, an Abatement plan, (with comments section) and completion date/actions
 - Currently there are fields for Corrective Actions (text field), Estimated Completion Date, Completion Date, Cost Estimate (number field), and Actual Cost (number field). The fields are not required.
 - Other fields could be added as required
 - To me, the education on how to use it would be critical.
 - If there are several deficiencies that would fall under one “Abatement Plan” (they will all be completed by the same people at the same time for the same cost) – I’d put them all in as one deficiency so they only need to be updated one time

- If everything is broken out, it is a pain to track – how do you track the cost to do “X” compared to “Y” when they were done at the same time by the same people... Could put all the lower level recommendations as one deficiency rather than 50 different deficiencies. Makes it easier for the user. If distinct and different with different milestones would need to be tracked differently.
6. How does the system handle data integrity (e.g. typos don't create drop downs, field verification, data QAQC).
 - Drop downs were used where they were asked for.
 - Numbers have to be numbers (costs can't be ranges)
 - Dates have to be date (mm/dd/yyyy)
 - If you don't put in the proper type, the system will through up a cryptic error message

Reporting type questions

7. Does it generate fixed report showing: Total number of deficiencies, Number of unabated deficiencies, the number of facilities that were not inspected , or a breakouts of deficiencies by severity (i.e. RAC-1 & RAC-2, OSHA Notices of Violation or abatements requiring more than 30 days to abate)
 - The report was developed as directed by the SOH Office
 - Additional reports can be developed as required/requested
8. Can it generate reports by adjustable time frame?
 - As long as dates are in the system, reports can be developed that can queried for various time frames. Can currently query on the estimated completion date.
 - Report could be developed.
 - Could create query able field
9. Does it have the ability to search across multiple facilities (region wide, AO wide, etc?)
 - It is not a problem to run reports across multiple facilities
 - AO wide or region wide can be a problem if the AO or Region was not identified (or correctly identified) when the facility was created in the database
 - Can also be a problem when a user searches for a facility and uses an incorrect AO (according to the database)
10. Can the user generate customizable reports? Does it have wild card search features? Is it searchable/sortable on multiple fields (2 or more fields)
 - Depends on your definition of customizable
 - Customizable in that the user inputs the filter/query criteria
 - Users can ask for a data export to excel from the program administrators
 - Again, other reports can be developed (obviously using data that is in the system)
 - Certain query able fields are set up. Report will be build based on those fields.
 - Administrator can export data to an excel spreadsheet. – Regularly export O&M Recommendations for PN and SOD for the Dam Safety Office.

- Wildcard fields depend on the type of field
 - Could create custom report to have the sortable fields.
11. Does it have the ability to export data from reports in multiple formats? Can you import data? In what format and who has the rights?
- Program administrators can export data to most Microsoft Formats (Excel/Access/Word) format.
 - Program administrators can import data if it is in or transferred to a CSV/Excel/Access format – a lot of data validation has to occur as users do spell the facility names in multiple ways and don't always track the same data or use mm/yyyy for a date or etc...
 - Users can save PDF files or copy data in other ways off of the report or out of the web application depending on what they want to do.
 - At one point the Reporting Application had the ability to save files to an Excel format but that option is currently not included as there was concern that people would export to Excel and update the spreadsheet and not update the database.
 - Excel exports used to be limited in size of particular fields (memo fields) – I'm not sure if that is true now or not.
 -

System-wide "other" questions

12. Can this database expand? Can it store and link to photos, or does it have photo storage capabilities? Can build/add onto it for other future uses. Module for use for HAZMAT/Life Safety/other inspections?
- The application can be expanded to some extent – it would really be a question of should it and how much will it cost and will people use it.
 - I would not encourage expanding the database to be a document management system – I don't believe that anybody would be satisfied with it. eERDMS is Reclamation's document management system – use it.
 - Photo's are documents and should not be stored in the database.
 - A link could be added to where the report is stored – question of what happens when it changes.
 - Could put URL into the system. Will the link be clickable?
13. Will data be retained indefinitely? Can it
- Data can be retained as long as Reclamation wants to continue to support the system.
14. Can I extract all data from the database, in a usable format?
- See answer above
 - Yes – you are only going to get whatever information is in the database. Memo fields are limited to 250 characters when exporting to Excel.
 - Would you say the system is Intuitive/user friendly?
 - To me, it is very intuitive – if you don't know anything about databases, then probably not so much – you have to find/select the record you want to edit and

update it. Some people will not be satisfied unless it is a spreadsheet – it's not it is a database. People will want to put in a mm/yyyy because they don't know what day something will be done – the database will not like it as it is not the correct format. You can't use a range of costs for a cost – a cost is only one number.

- Is the system responsiveness normally a problem for your end user?
 - I have not heard issues that the system is not responsive – there are times the report server will stop processing reports and I do not find out about it for several hours or until the next day.

15. Can it do controlled read/write access.

- No/Yes – everybody in Reclamation has read access, only people with privileges have write access
- Can you set this up based on user roles?
 - This is set up based on user roles – probably a different role than you are referring too. All users have to fill out a New User Request form – accounts cannot be shared. Your account is based on your active directory username.
- Can it Schedule reminders for upcoming/recurring inspections for safety inspectors?
 - An application can be created that could do such but the requirements would have to be better defined. That is not an option in the application as it is currently implemented
 - Something it could perform.
- Follow up emails when abatements are past due date, or every 90 days (push reminders). Can it generate an automatic email notification (to RD) for higher level Deficiencies (i.e. RAC1 or RAC2)?
 - See above
- Can it have different levels of access (and customization) for different users (like tabs)...Possibly tied to training. (i.e. Only people on trained inspector list can enter items into system?)
 - If the requirements can be defined then yes an application could be developed but that is not an option as it is currently implemented

16. Does it meet Federal IT security requirements (FISMA)? Yes Can it be tied to an Active Directory?

- Yes, the DSIS application goes through a full Certification & Accreditation. Yes, the application uses the current logged on user (Active Directory user). The system does not look at specific fields in AD to see what Region/AO and give them appropriate privileges – for one, the information is not consistently entered in AD.

17. Can it prepopulate fields tied to other fields (i.e. such as tying a facility to RPUID, State, GPS, Region, etc

- Facilities are associated with Agency, Region, Area Office, State – You only select the facility when inputting data – the other stuff is tied to it. The O&M facilities have the Real Property Unique Identifier tied to it but I know of very few if any facilities that have in filled in.

- Does it have the Ability to duplicate and modify existing entry, so you don't have to re-populate every field for similar entries?
 - Not as it is currently written – it could be added.
- 18. Interface with other systems (e.g. CARMA, FBMS, SMIS, eERDMS), to automatically share/interface data, reducing redundancy/costs/errors...
 - It does not have the ability as currently written
 - The problem comes in that each of the systems have unique id methods and become very burdensome to link correctly
 - Like anything, it can be done – it only takes time and money and personnel (well defined requirements help)
 - Ability to link to external websites/drawings/etc.
 - You can put URLs in the description/text fields but I do not think that they will be clickable links – if someone highlights the field and right clicks on it, google does a pretty good job at recognizing links.
 - They may be clickable in the reports – you'd have to try it.
 - The real question is who is going to update them when they change?
 - Ability to import historical data from DSIS (hazard log)
 - Historical data can be imported – it will just require a lot of QA/QC.
 - Is the facility spelled properly
 - Are dates – dates, costs – numbers, etc...
 - A lot of time stuff gets imported and is of very little use because so many of the fields are missing.

Final comments:

The database structure can be changed with no problems but you first need to think about it for a minute.

- For example, make the estimated cost field required
 - When the report is written, they have no idea what it is going to cost so they either put in \$1 for a place holder or they can't put the recommendation in. Exact same thing about the estimated completion date.
- You really need to think about is this an improvement or is it just something else that someone's going to try and get out of doing and doesn't see a need for.
- To make the system more user friendly to safety staff need suggestions:
 - Better define requirements of the system
 - Develop own facility lists
 - People tend to like a spreadsheet better
 - Need organizational support for the change

**Safety and Occupational Health Action Plan
Team 12 –Deficiency Tracking
Best Practices and Critical Features - Access
Interview Minutes**

Thursday, March 19, 2015,
8:00-10:00 a.m. PST

Hoover Dam 7th Floor, NV Conference Room
Conference # 1-866-729-5416, Participant Code 4281432

I. Introductions:

Reclamation – Lower Colorado Dam’s Office Safety Office				
Name	Title	Roles	No.	E-mail
Kevin McDowell	Hoover Dam Safety Manager	Interviewee	702-494-2359	kmcdowell@usbr.gov

Bureau of Reclamation SOH Team 12					
Name	Title	Region	Roles	No.	E-mail
Doug Deflitch	Field Office Manager	Mid Pacific	Interviewer	541-389-6541 x 226	ddeflitch@usbr.gov
Cristina Hayden	Management & Program Analyst	Lower Colorado	Interviewer	702-494-2781	chayden@usbr.gov
Tyler Byrne	Gen.Maintenance Work Leader	Pacific Northwest	Participant	208-483-4015 x38	tbyrne@usbr.gov
Michael Bradford	Safety & OCC. Health Spec.	Great Plains	Participant	208-378-5331	mbradford@usbr.gov
Ken Somolinos	Safety & Occ. Health Mgr.	Denver	Participant	303-445-3722	ksomolinos@usbr.gov

II. Interview:

Questions and answers in respect to your systems abilities:

A. Best Practice Questions

1. How are your safety deficiencies recorded, inspections tracked, and abatement documented? DSIS, Carma, and Access.
2. How do you assess the severity of risk? DOI RAC Matrix.
3. How is safety deficiency information shared within the agency from (high to low)? Briefed to management team, supervisors have access to data.
4. What are the incentives/consequences for compliance/non-compliance? Recognition: one-on-one’s, call out at all hands meetings, employee performance reviews.
5. What makes your tracking system successful? Ability for supervisors to see hazards, open and closed. Make annotations of status and actions
6. How do you ensure the quality of your safety data?
7. Strength and weaknesses of existing system? Strength – quick data access. Visual aids (photos) to support. Weakness – Doesn’t automatically integrate with other data bases. Not utilized uniformly by all regions to all sharing of issues in conjunction with solutions.
8. What do you believe are the best practices in your agency? Supervisors have immediate access to hazards to take mitigation actions, ability to customize/modify reports to meet user needs.

B. Critical Features Questions

Input Focus

1. Does your system have customizable (by the sys admin) fields (i.e. what fields are mandatory, adding new fields, etc.) Yes, mandatory fields are indicated by yellow.
2. Does it record whether annual inspection(s) have occurred at inspectable units, in a dedicated mandatory field? No.
3. Does it record deficiency details & information, which is mandatory and not deletable? Yes, it records deficiency details, can be modified to make the record non-deletable. Now only the admin has ability to delete deficiency. Do the users have the ability to edit records? Yes, modifiable by either field locks controlled by SA or system managed through programming. Does it have an indicator of required field for input to generate a record? Yes, highlighted in yellow.
 - Does it have an updatable status field that is required to be inputted showing status of abatement? Yes, status field with date/time stamp is available. Non modifiable. Specifically can it discern between; in progress (i.e. Percentage completed), Incomplete, Completed and Deleted? Yes, -Active/Resolved. It can easily be modified to incorporate any desired indicator
4. Required abatement fields to track; Schedule, Cost, an Abatement plan, (with comments section) and completion date/actions? Yes and it can easily be modified to incorporate any desired fields.
5. How does the system handle data integrity (e.g. typos don't create drop downs, field verification, data QAQC)? Some but not in its entirety. Currently drop downs and type in text. This can be easily achieved through programming.

Reporting type questions

6. Does it generate fixed report showing: Total number of deficiencies, Number of unabated deficiencies, the number of facilities that were not inspected, or breakouts of deficiencies by severity (i.e. RAC-1 & RAC-2, OSHA Notices of Violation or abatements requiring more than 30 days to abate?) Some data fields, but not all fields noted in your question are in a current report. However, all the data can be in a report and in reality it would just be another report just needs to be drafted/developed. Reports can be developed to show the desired form of information from any field, including numbers, percentages, etc.
7. Can it generate reports by adjustable time frame? Yes, date entry can be entered programmatically or manually.
8. Does it have the ability to search across multiple facilities (region wide, AO wide, etc?) Yes, except currently we don't have region wide. Yes, all data can be manipulated by desired lenses through queries (system or locally developed.)
9. Can the user generate customizable reports? Yes, QUERRY MENU based off of user's request. Does it have wild card search features? Yes. Is it searchable/sortable on multiple fields (2 or more fields?) Yes, can be sorted on multiple fields.
10. Does it have the ability to export data from reports in multiple formats? Yes, data can be extracted to e-mail, excel, html, pdf, txt, Word RTF. Can you import data? Yes but there are restrictions based on the same types data transfer to and from. Data can be easily imported from excel or access. In what format and who has the rights? Format such as Access/Excel/D etc. and 2 user types: Supervisors and Safety Officer. However, it can easily be modifiable in design to include open rights or restricted to specific security groups.

System-wide “other “questions

11. Can this database expand? Yes, it can be easily expanded based upon organizational needs. Can it store and link to photos, or does it have photo storage capabilities? Yes, Linked to Photos, XHTML, Excel, etc. and search results to save in achieve etc. Photos can be easily incorporated in local modules through hyperlinks to photos. Can build/add onto it for other future uses. Yes. Module for use for HAZMAT/Life Safety/other inspections? Not currently but has potential if I desire it.
12. Will data be retained indefinitely? Yes, however it is recommended that data be archived at set intervals through the use of queries, due to processing limitations and speed. Can it? Yes.
13. Can I extract all data from the database, in a usable format? Yes, access or excel. Would you say the system is Intuitive/user friendly? Yes. Is the system responsiveness normally a problem for your end user? Very responsive.
14. Can it do controlled read/write access. Yes, currently 2 user’s roles through forms. Can you set this up based on user roles? Yes through programming (i.e. we can do it through PIV cards.) Can it Schedule reminders for upcoming/recurring inspections for safety inspectors? Yes. Follow up emails when abatements are past due date, or every 90 days (push reminders). Yes, however, as a Microsoft product access relies on outlook. It can be addressed through visual basic programming. Yes, it was done with Outlook. I haven’t done with G-Mail but it can be done. Can it generate an automatic email notification (to RD) for higher level Deficiencies (i.e. RAC1 or RAC2)? Yes, however, as a Microsoft product access relies on outlook. Can be addressed through visual basic programming as noted before. Can it have different levels of access (and customization) for different users (like tabs?) Yes. Possibly tied to training. (i.e. Only people on trained inspector list can enter items into system?) It can be set up through levels of access.
15. Does it meet Federal IT security requirements (FISMA)? Not sure. Can it be tied to an Active Directory? Not sure.
16. Can it prepopulate fields tied to other fields (i.e. such as tying a facility to RPUID, State, GPS, Region, etc.?) Yes, as a relational database, this data can be easily tied to other fields. Does it have the Ability to duplicate and modify existing entry, so you don’t have to re-populate every field for similar entries? Yes, it can be accomplished programmatically.
17. Interface with other systems (e.g. CARMA, FBMS, SMIS, eERDMS), to automatically share/interface data, reducing redundancy/costs/errors...is it mobile app compatible? Yes, it can share, but not automatically as it isn’t instantaneously. It can be set up on a clock...but it doesn’t do it automatically in real time. Ability to link to external websites/drawings/etc? Yes, it can be linked to any common external data and that is what we currently do for the photos. Ability to import historical data from DSIS (hazard log)? If it is in D base...then we could but we would need to know and I believe it can... if the DSIS data can be exported to MS Excel, and in the right configuration, the data can be easily imported.

III. Questions/Miscellaneous

Attached: sample Access report.

IV. Interview Concluded (approximately 9:50)

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Electrical

Lead Craft: Electrical Group

Location: At end of AZ powerplant outside wall.

Hazard: Electrical outlet is missing the protective cover that's required for wet / outdoor locations.

RAC: RAC 4 (Minor)

Recommendation: Replace outlet with a weatherproof outlet with a protective cover that will close when not in use.



Work Order #:

Category: Electrical

Lead Craft: Maintenance Office

Location: Laying on to of the Fire Brigade's spare SCBA cylinder storage rack.

Hazard: PPE (face shields) were not maintained in a sanitary condition and ready for use and was improperly stored.

RAC: RAC 4 (Minor)

Recommendation: Ensure employees maintain all PPE in a dry, clean, and serviceable condition.

Work Order #:

Category: PPE

Working/Walking Surfaces

Lead Craft: General Maintenance Group

Location: Approximate locations are: N1, N2, N4, N6, N8, and the cradle pit area.

Hazard: Tripping and fall hazards on the NV Ramp. There are many small to very large pot holes, open cracks, raised slab corners and conduit stubouts. (Note: The attached picture is just a sample. There are approximately eight to ten tripping hazards on this deck. Approximate locations are listed below).

RAC: RAC 4 (Minor)

Recommendation: Repair all pot holes, raised slabs, open cracks and remove stubouts.



Work Order #:

Category: Working/Walking Surfaces

Lead Craft: General Maintenance Group

Location: Transformer deck approximate locations are: N1, N2, N4, N6 and N8.

Hazard: Several tripping hazards on the transformer deck. Pipe / conduit stubs are sticking out above the level walking surface. Additionally, there are other tripping hazards on the deck from metal plates and large open cracks. (Note: The attached picture is just a sample. There are approximately eight to ten tripping hazards on this deck. Approximate locations are listed below).

RAC: RAC 3 (Moderate)

Recommendation: Cutoff and recap stubs and make flush with the walking surface. If pipe/conduit no longer required then remove and seal holes and make flush with walking surface. Remove metal plates and repair open cracks.



Work Order #:

Category: Working/Walking Surfaces

Working/Walking Surfaces

Lead Craft: General Maintenance Group

Location: Track switch / turnout at end of AZ ramp and AZ tunnel plug entrance.

Hazard: Track rail switch or turnout has become warped and has popped up causing a tripping hazard to employees. This may also be a hazard for vehicle and equipment operation.

RAC: RAC 3 (Moderate)

Recommendation: Repair switch and turnout. Inspect all other switches and turnouts for same possible condition.



Work Order #:

Category: Working/Walking Surfaces

Lead Craft: General Maintenance Group

Location: At the end of AZ Ramp at the tracks and left of tracks.

Hazard: Tripping hazards: Concrete breaking up (pot hole on the tracks) at end of ramp and there is a dip where a metal plate was removed just off of the transformer deck on ramp.

RAC: RAC 4 (Minor)

Recommendation: Fill in pot hole.



Work Order #:

Category: Working/Walking Surfaces

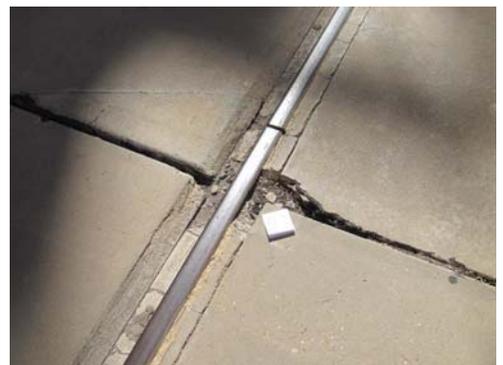
Lead Craft: General Maintenance Group

Location: AZ Ramp at A3, A4, and A7

Hazard: Concrete breaking up (pot hole) causing tripping hazard.

RAC: RAC 4 (Minor)

Recommendation: Fill in all holes.



Work Order #:

Category: Working/Walking Surfaces

MP Sharepoint System

4/9/15

Sharon Blunden from MP Region

- Sharon Blunden, sblunden@usbr.gov
- MP Region Industrial Hygienist
- Located in Sacramento, CA
- SharePoint admin for the MP SharePoint

Overview

- MP Region has developed a SharePoint based deficiency tracking system, which they have had success using for the past 3 years. They developed this system in response to usability issues with DSIS. They currently track all deficiencies in this SharePoint, and use it internally to generate reports and track deficiencies.

A. Best Practices Questions:

Current state of tracking: MP uses a SharePoint system, which periodically uploads to DSIS.

1. How are your safety deficiencies recorded, inspections tracked, and abatement documented? *All inspections are put into SharePoint, regardless of severity. Tracks open/closed items, how long they've been open, etc. We track abatement, put in updates on items to show progress of completion, etc.*
2. Where is the SharePoint located? *SharePoint site is throughout the Region. All offices have access to it.*
3. How do you assess the severity of risk? *We use the RAC matrix. We actually keep a copy of this matrix, and other reference materials, on the site itself. We also meet twice a year with the safety managers to ensure that users know how to use the matrix, and are still on the same page.*
4. How is safety deficiency information shared within the agency from (high to low)? *AO meetings, RMT meetings. At AO level, safety staff briefs managers on local issues. At RMT meetings (quarterly) Sharon's office makes charts and graphs. SharePoint exports data in Excel, so easy to make charts*
5. What are the incentives/consequences for compliance/non-compliance? *Not really a problem for us with non-compliance. People basically don't want to get the attention of the RD. What about for low level deficiencies sticking around for a long time? Those items show up as red in our system, and we monitor them. We aim to complete 95% of deficiencies less than \$3K in less than 30 days, since these are reported to the RMT as well.*
6. What makes your tracking system successful? *Ease of use, report capabilities. We developed this because of DSIS, and the challenges we had with it. Since users have used SharePoint in other departments, it had an easier learning curve than other systems. You can generate reports in a couple minutes...even less if it's a set report.*

7. How do you ensure the quality of your safety data? [Periodic training of safety staff. SM enter deficiency & OSHA reg.](#) Do you have a single person who is your SharePoint guru? Somebody who can adjust items or delete them? [Yes, I am that person. If people need something deleted, they have to call me to do it.](#)
8. Strength and weaknesses of existing system (SharePoint)? [Ease of use, reporting, export feature to excel. Weakness: it has a calendar feature, but I don't think it does automatic notifications. Haven't really had any major problems with it. What about expandability? SharePoint can probably do more than we currently use it for, but that'd be a question for a technical expert \(Tyler Edwards\). importing capabilities](#)
9. What do you believe are the best practices in your agency? [SharePoint is working excellent for us. Management is actively interested in knowing where we're at, and we have the support to make the system successful. Regional office works with the Area Offices. We also do a quality check, by randomly checking the closed items at the AO level, to make sure they're really checked. Verification.](#)

B. Critical Features Questions

Input Focus

1. Does your system have customizable (by the sys admin) fields (i.e. what fields are mandatory, adding new fields, etc.) [Yes. We built ours off of the ones in DSIS. Mandatory fields marked with a red asterisk. We \(admins, not users\) can add fields, though it'd only be mandatory for items that are added from that day on.](#)
2. Does it record whether annual inspection(s) have occurred at inspectable units, in a dedicated mandatory field? [Yes, we can make a report showing that an inspection occurred. We number our facilities, so it's also easy to see who hasn't done an inspection. It's basically a checkbox. We can run a report on multiple fields.](#)
3. Does it record deficiency details & information, which is mandatory and not deletable? [Yes, there are mandatory fields, and they are only deletable by an admin.](#) Does the user have the ability to edit records? [Yes, but entries are deletable by admin only](#) Does it have an indicator of required field for input to generate a record? [Yes, a red asterisk.](#)
 - Does it have an updatable status field that is required to be inputted showing status of abatement? Specifically can it discern between; In progress (i.e. Percentage completed), Incomplete, Completed and Deleted? [Yes. It doesn't show percentage unless a user puts it in, but it shows as incomplete in red until a correction has occurred. The user inputs the completion date, and that generates the record showing how long it took to fix.](#)
4. Required abatement fields to track; Schedule, Cost, an Abatement plan, (with comments section) and completion date/actions? [Currently, we have a field for corrective actions, where you put all the info in there. It's like a free form Word field. There is a separate field for cost, but it is in value ranges. Otherwise everything goes in that field. A more detailed plan can be attached to the record if more space is needed.](#)
5. How does the system handle data integrity (e.g. typos don't create drop downs, field verification, data QAQC) [There is a spell check feature in the text fields, but for user errors like](#)

mistakes on dates, there's no automatic catch for it. But the admin can work with the user to change the date. drop down fields so no redundant data. We have 3,339 records in the system.

Reporting type questions

6. Does it generate fixed report showing: Total number of deficiencies, Number of unabated deficiencies, the number of facilities that were not inspected , or a breakouts of deficiencies by severity (i.e. RAC-1 & RAC-2, OSHA Notices of Violation or abatements requiring more than 30 days to abate) **Yes.** For the RMT, we just give them the percentage of open and closed items. So some of these aren't fixed reports, but we can generate them pretty easily. We have lots of pre-existing reports, but we also have lots of flexibility in terms of what reports we generate.
7. Can it generate reports by adjustable time frame? **Yes, based on inspection date.**
8. Does it have the ability to search across multiple facilities (region wide, AO wide, etc.?) **Yes**
9. Can the user generate customizable reports? Does it have wild card search features? Is it searchable/sortable on multiple fields (2 or more fields) **Yes to customizable reports.** As for wildcards, I'd have to ask Tyler. I know you can do "less/greater than" searching for values, but not sure about wild cards. You can also sort by columns, so if you're looking for a particular thing you can sort by like a deficiency column, and then search on a specific term. Searchable on multiple fields.
10. Does it have the ability to export data from reports in multiple formats? Can you import data? In what format and who has the rights? **Users can export to excel. It does all columns from the report, but you can choose what info goes into the report anyway. Can open to Access, Vizio...but we don't use stuff other than Excel. Current systems not set up to import, but it might be able to if we paid for that feature. You couldn't get a spreadsheet to just import and fill in fields.**

System-wide "other "questions

11. Can this database expand? Can it store and link to photos, or does it have photo storage capabilities? Can build/add onto it for other future uses. Module for use for HAZMAT/Life Safety/other inspections? **Yes.** It already has a Hazmat section, which works like the Safety Deficiency part. We also have a Life Safety Code one too. So it definitely can expand. You can attach photos to it, though people currently don't, due to the number of items. Often, people will put their photos in their excel sheet after they've run a report. Are photos hosted on the site? **Not through the site, no.** You can upload from your computer, like you would with an email. It links to them.
12. Will data be retained indefinitely? Can it? **Yes, it's on our server supported by IT in Sacto.**
13. Can I extract all data from the database, in a usable format? **Yes, you could do it in Excel.** Would you say the system is Intuitive/user friendly? **yes friendly.** Intuitive enough that all our safety people can use it. You give them general training, and people don't really have problems with it.

Is the system responsiveness normally a problem for your end user? [no problems on responsiveness](#)

14. Can it do controlled read/write access. [Yes. You can get 3 user types: "read only," contributor, or full control \(admin\)](#) Can you set this up based on user roles? [Yes \(read only, contribute, full control\)](#) Can it Schedule reminders for upcoming/recurring inspections for safety inspectors? [Maybe? It has an alert capability, but you have to be in the system. It won't send you an email. Tyler would know more about this.](#) Follow up emails when abatements are past due date, or every 90 days (push reminders). Can it generate an automatic email notification (to RD) for higher level Deficiencies (i.e. RAC1 or RAC2)? [Probably not, but might be a feature you can do. You'd have to figure out who the reminders go to..](#) Can it have different levels of access (and customization) for different users (like tabs)...Possibly tied to training. (i.e. Only people on trained inspector list can enter items into system?) [The Admin grants site permissions so they set the criteria of who uses the system](#)
15. Does it meet Federal IT security requirements (FISMA)? [Yes](#) Can it be tied to an Active Directory? [There's no sign-in to SharePoint, no logon. As long as you are on YOUR computer, you have access \(if you have been granted access\).](#)
16. Can it prepopulate fields tied to other fields (i.e. such as tying a facility to RPUID, State, GPS, Region, etc.?) [Not at this time, we only set up SharePoint to comply with the mandatory fields for DSIS.](#) Does it have the Ability to duplicate and modify existing entry, so you don't have to re-populate every field for similar entries? [Acts like excel, so not in the way you are asking the question. If you're doing multiple entries, you can go into data sheet view to copy and paste, and some fields remember what you put in there before \(e.g. you type "C" and it predicts "CCAO" like in Excel\).](#)
17. Interface with other systems (e.g. CARMA, FBMS, SMIS, eERDMS), to automatically share/interface data, reducing redundancy/costs/errors... [It currently can export to DSIS, but that's a manual process. Currently don't have much need for this interactivity. You could create a field to add work order numbers](#) Is it mobile app compatible? [Doubtful. You could conceivably go onto VPN on your mobile app, but SharePoint isn't designed to be public oriented.](#) Ability to link to external websites/drawings/etc. [Not to a website, but can link to items on a server or your desktop.](#) Ability to import historical data from DSIS (hazard log) [We can export to DSIS not import. That'd be a question for Wade. For MP, all our stuff in DSIS is from our SharePoint, so we wouldn't need it, but I don't know about other regions.](#)

Final comments: [Personally, I just hope whatever system Team 12 picks is compatible with our SharePoint, because we have a ton of information in there currently. I also recommend that whatever system you decide to go with, meets the storage requirements from the IT people, since we ran into that roadblock with our JHA software very late in the process.](#)

Reclamation Internal Control Information System (RICI)

Jonathan Damiano, Program Analyst, Policy and Administration

Overview

The Reclamation Internal Control Information (RICI) is a SharePoint based application to capture, document, and report on Reclamation's programmatic internal control information. The system is replacing the current internal control application, GRC (Governance, Risk and Compliance), which was used for both financial and programmatic internal control documentation. The RICI system is finishing testing and will go live (production) for the start of the new fiscal year (FY 2016). The RICI system was developed in parallel with Programmatic Internal Control Reclamation Manual – Directive and Standard ADM 07-01.

A. Best Practices Questions:

1. How are the safety deficiencies currently recorded, inspections tracked, and abatement documented?
 - a. Currently all of SSLE's programs only upload an annual summary report for the internal control program. The individual safety deficiencies, corrective action plans, and reviews are not uploaded in the RICI/GRC repository.
 - b. The RICI system has the ability to enter findings, corrective action plans, and individual reviews.
2. Where is RICI located (network, intranet)?
 - a. RICI is located on a SharePoint 2013 server.
3. How does it assess the severity of risk?
 - a. The RICI system currently does not assess the severity of risk. This will be a system add-on that will be effective for FY2017. Currently programmatic risk assessments within the internal control program are done annually (January) through the use of the Integrated Risk Rating Tool (IRRT). The tool is an MS-Excel based template that the program manager uses to identify and assess the severity of risk in terms of impact and associated likelihood. The tools output frames a program's inherent and residual risk in terms of 11 areas, including a program specific risk area.
4. How is safety deficiency information shared within an agency from (high to low)?
 - a. Currently the safety program provides an "annual summary report" to the internal control program. The annual summary report becomes a line-item on Reclamation's annual assurance statement, which is signed by the commissioner and reported to DOI. The current internal control draft D&S proposes quarterly reporting of deficiency information to SSLE and the regional directors.
5. What are the incentives/consequences for compliance/non-compliance?
 - a. Reporting to Directors and RD's of non-compliances
 - i. What about for low level deficiencies sticking around for a long time?
 1. The draft programmatic internal control directive and standard proposes reporting on deficiencies. Currently, the reporting is not required and not done through the internal control program. Internal processes at the region or area office would need to be created for this. Reporting to the RD and SSLE directors would be the only incentive for compliance.
6. What makes this system successful

- a. BOR programs using the system to enter, track, and closeout internal control reviews and their findings. Granularity of data (entering of individual findings and safety reviews) would make the system and reporting functions more successful.
- 7. How do you ensure the quality of the safety data?
 - a. Is there a single person who is the RIC administrator? Someone who can adjust items or delete them?
 - i. The administrator is a group of people (3-4) who manage the system. The administrator can edit and delete existing entries. Users cannot edit/delete entries after they are input in the system.
- 8. Strength and weaknesses of system
 - a. Strengths: Simple user interface, automatic system emails and reminders, system focuses on closing out reviews and documenting reviews properly.
 - b. Weaknesses: Not used by all programs, safety does not currently upload findings to the RIC system, summary reports only.
 - i. What about expandability?
 - 1. RIC has an excellent potential for expandability (and adaptability). The SharePoint based architecture allows for add-ins to be easily implemented. Funds have been allocated in the out-years through the BDD process to allow the system to adapt to future needs.

B. Critical Features Questions

Input Focus

1. Does your system have customizable (by the system admin) fields (i.e. **what fields** are mandatory, adding new fields, etc.)?
 - o The system has fields that are customizable through an administrators request to the RESC/developer. Adding fields is not a significant amount of effort. Adding logic to fields may require more time on the side of the developer.

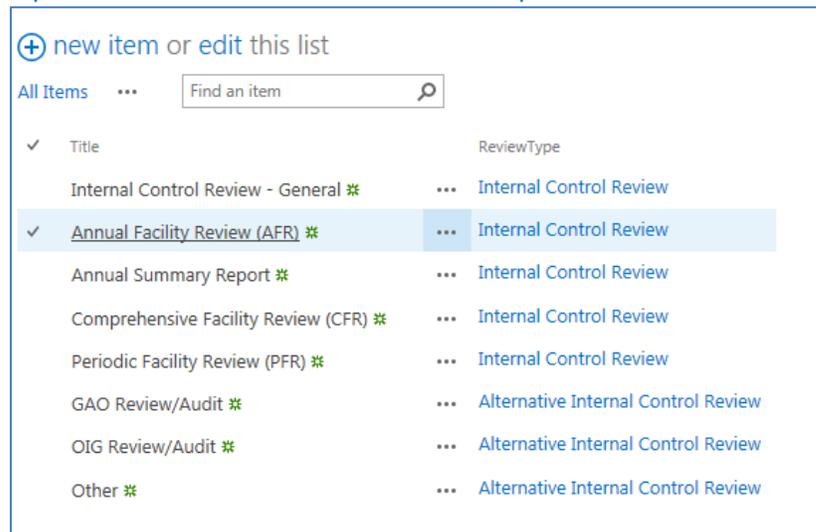


Figure: User drop-downs and inputs are customizable by the admin.

2. Does it record whether annual inspection(s) have occurred at inspectable units, in a dedicated mandatory field?

- The system will produce a report of the planned reviews for a given year along with reviews that were actually accomplished during the year. The system will be able to produce a report indicating which reviews were planned but not executed.
- 3. Does it record deficiency details & information (which is mandatory) and not deletable by general user.
 - Yes, each finding that is entered in the system can have data to describe each finding (level, POC, etc...).
 - The records of reviews and findings are not able to be deleted by users, only the admin can do this.
 - Do the users have the ability to edit records?
 - The user can only edit records in “draft” mode or prior to submission. After the review or review information has been submitted, it becomes frozen.

The screenshot shows a web application interface with a navigation bar containing 'Information', 'Reporting', 'Findings', and 'Finalize'. Below the navigation bar is a section titled 'Assignment Information'. This section contains five rows of input fields, each with a blue header and a corresponding dropdown menu to its right. The fields and their values are: 'Fiscal Year' (2015), 'Region/Doctorate Performing Review' (Safety Security, and Law Enforcemer), 'Assessable Unit' (Safety), 'Region/Doctorate Receiving Review' (Great Plains Region), and 'Area Office/Division' (Dakotas Area Office). Each dropdown menu has a red asterisk to its left, indicating that these fields are required.

Figure: User inputs become frozen after submission

- Does it have an indicator of required field for input to generate a record?
 - Yes, required fields are denoted with a red asterisks

The screenshot shows a web application interface with a form containing four rows of input fields. Each row has a blue header and a corresponding input field to its right. The fields and their values are: 'Issued By' (SSLE), 'Issued Date' (06/26/2015), 'Issued To' (Damiano, Jonathan Chase x), and 'Executive Summary' (Example Summary). Each input field has a red asterisk to its left, indicating that these fields are required.

Figure: Required fields are denoted by asterisks

- 4. Does it have an updatable status field that is required to be inputted showing status of abatement? Specifically can it discern between; In progress (i.e. Percentage completed), Incomplete, Completed and Deleted.
 - Somewhat, after submitting the corrective action plan and implementation date, the baseline or original implementation date is frozen and cannot be updated. The current implementation date may be updated by the user as the corrective action is implemented.
 - The status of the corrective action is open and closed, there is no % complete.
- 5. Does it have required abatement fields to track; Schedule, Cost, an Abatement plan, (with comments section) and completion date/actions?
 - Somewhat: Corrective Action Plans (CAPs) are required to be uploaded in the system. Corrective action information includes planned and current completion dates.
- 6. How does the system handle data integrity (e.g. typos don't create drop downs, field verification, data QAQC

- Some data input fields are validated through drop-downs. Other methods of validation are done through the calendar, required fields, and spell checking. The system will not allow the user to go the next “tab” without fully completing each required field properly.

Fiscal Year	* 2015
Region/Doctorate Performing Review	* Safety Security, and Law Enforcemer
Assessable Unit	* Safety
Region/Doctorate Receiving Review	* Great Plains Region
Area Office/Division	Dakotas Area Office

Figure: Drop Downs are used for data validation

Executive Summary	*	This field is required.
Were there findings?	* Yes	
Final Report Name	* Example Report Name	
Were there Best Practices found?	* Yes	
Attachments		

Figure: Error message prompt displays to user missing data fields

Reporting type questions

- Does it generate fixed report showing: total number of deficiencies, number of unabated deficiencies, the number of facilities that were not inspected , or a breakouts of deficiencies by severity (i.e. RAC-1 & RAC-2, OSHA Notices of Violation or abatements requiring more than 30 days to abate)
 - The system can display the deficiencies (by region, directorate, BOR, etc...)
 - This should be able to be filtered/displayed by category (level)
 - The system should also be able to report on the findings that were passed due (beyond original implementation date)
- Can it generate reports by adjustable time frame?
 - Yes
- Does it have the ability to search across multiple facilities (region wide, AO wide, etc.?)
 - Yes, review information is collected by directorate, region, program, and area office/division.
- Can the user generate customizable reports? Does it have wild card search features? Is it searchable/sortable on multiple fields (2 or more fields).
 - Yes, this portion of the system is currently under development. The system will utilize MS Power-Pivot and MS Performance-Pivot packages for reporting.
 - Wild cards can be used if the data is exported to MS-Access.
 - Data may be exported to MS-Excel to be searchable and sortable on multiple fields.
- Does it have the ability to export data from reports in multiple formats? Can you import data? In what format and who has the rights?
 - The system has the ability to export to Microsoft based applications (Excel, Access, etc...).
 - Data import capabilities have not been explored for made a requirement of the system. This could be a future requirement if needed.

System-wide “other “questions

12. Can this database expand? Can it store and link to photos, or does it have photo storage capabilities? Can build/add onto it for other future uses. Module for use for HAZMAT/Life Safety/other inspections?
 - The system can store any review documentation that is uploaded by the user (.doc, .pdf, pictures, etc...)
 - The SharePoint based architecture allows for future add-ins.
13. Will data be retained indefinitely? Can it?
 - The data will be retained indefinitely
14. Can I extract all data from the database, in a usable format?
 - Would you say the system is Intuitive/user friendly?
 - Yes, most inputs are self-explanatory
 - Is the system responsiveness normally a problem for your end user?
 - The system will not be formally “launched” until October, so currently this is unknown. Responsiveness is not expected to be an issue.
15. Can it do controlled read/write access.
 - Yes, there are levels of permission: Administrator and user. Admins can read/write anything. Users can submit internal control reviews and edit their reviews until submission.
 - Can you set this up based on user roles?
 - Yes
 - Can it Schedule reminders for upcoming/recurring inspections for safety inspectors?
 - The system has auto generated system emails that remind the user to upload corrective action plans and perform approvals. Currently the system does not send reminders for upcoming inspections.
 - Follow up emails when abatements are past due date, or every 90 days (push reminders). Can it generate an automatic email notification (to RD) for higher level Deficiencies (i.e. RAC1 or RAC2)?
 - The system sends reminder emails when a corrective action plan has not been uploaded within a defined time period. The RD must provide their concurrence with each review uploaded in the system (annual assurance statement) indicating the review had material findings or non-material findings.

Signatures

Return/Approve

Accept Unqualified
Based on the results of the evaluation, our office can provide reasonable assurance that the internal controls over the area reviewed are operating effectively and no material weaknesses were found in the design or operation of the internal controls

Accept Qualified (Material Weaknesses/Significant Deficiencies Were Identified)
Based on the results of the evaluation, our office identified material weakness[es] in internal controls reviewed. Other than these exceptions (noted in findings), the internal controls were operating effectively and no other material weaknesses were found in the design or operation of the internal controls.

Reject
Reject the report (and associated findings) for further discussion and review.
Return/Approve step is required.

Rejection Comments

Comment	Date	User

Deficiency	Finding Details	Recommendation Details	Comments
Control Deficiency	Example finding detail	Details example	Example Comment

Figure: RD approval screen

- Can it have different levels of access (and customization) for different users (like tabs)...Possibly tied to training. (i.e. Only people on trained inspector list can enter items into system?)
 - Only internal control coordinators and directors (and the admin) can access the system.
16. Does it meet Federal IT security requirements (FISMA)?
- Yes, per Pete Tolen (IRO security), the system meets FISMA requirements and can hold FOUO information.
 - Can it be tied to an Active Directory?
 - The system is tied to active directory. Several of the inputs into the system use active directory.

ICC Point of Contact

Completed By

Completed Date

* stegeman

Stegeman, Mary A (MStegeman@usbr.gov bor\mstegeman)
Program Analyst

Showing 1 of 2 results. Please refine further

Figure: Data validation using active directory

17. Can it prepopulate fields tied to other fields (i.e. such as tying a facility to RPUID, State, GPS, Region, etc.?)
- Currently the system does not do this like it is described in the question.
 - Does it have the ability to duplicate and modify existing entry, so you don't have to re-populate every field for similar entries?
 - Yes, drop-down entries are a feature of the system.
 - When a region is chosen, the area offices appear as choices.

18. Does it/can it Interface with other systems (e.g. CARMA, Access, FBMS, eERDMS), to automatically share/interface data, reducing redundancy/costs/errors?
- Not currently, this is a possible consideration for the future.
 - Ability to link to external websites/drawings/etc.
 - Not currently, this is a possible consideration for the future.
 - Ability to import historical data from another system (hazard log)?
 - Not currently, this is a possible consideration for the future.

Final comments:

The value of internal control reviews/inspections through risk mitigation comes from the ability to track non-compliances to closure through a proper corrective action plan (with a root-cause/corrective action/preventative action). Currently, uploading 1 summary report that is reported 1x/year, cannot provide the data granularity and tracking ability to effectively use a system of internal controls and inspections.

Predictive Solutions (Safety Net)

3/31/15

John Roads and Scott Falkowitz from Predictive Solutions

- John Roads (account representative for Western US)- 720-243-8528 Denver
- Scott Falkowitz (process Improvement leader) 570-472-2700 NW Pennsylvania
- Product is Safety Net.
- Subsidiary of Industrial Scientific. HQ in Pittsburgh, PA.

Overview

- Safety Net is an existing, Commercial Off the Shelf product with good searching and reporting capability, though limited customizability. Also has a predictive module, which in theory is very intriguing.

Critical Features Questions:

1. *Overview of your system?* Safety Net lets you easily collect data from your facilities. Converts it into usable data. System also predicts your vulnerabilities.
2. *Does system have customizable fields?* System has a number of fields that are configurable, not necessarily customizable. So you can rename some fields, but you can't remove/add fields. But in theory they could be programmed in, but only by Predictive Solutions, not by Reclamation.
3. *How does purchase work? Is there an ongoing maintenance fee and support?* You can subscribe to our service on an annual basis. The subscription fee is dictated by how many licenses, as well as what type of license (admins vs. users). Also a first year set up fee, for initial configuration. Admins can only really do minor changes (e.g. add users). But generally, the ongoing cost is just the licenses. PredSols can provide ongoing support.
4. *Ownership of the information?* Data is yours. We simply house it, and provide it back to you in various formats.
5. *System has configurable fields, and during initial set up we can ask for customization. We consider this a product enhancement...this wouldn't be a routine thing. So things like making a field mandatory, etc. would have to happen during initial setup, or annual renewals?* Correct. Right now the only mandatory field is "severity" field. Some other fields we can make mandatory easily, but others aren't.
6. *Does Safety Net record whether or not an inspection has occurred at a given location?* Yes, in the project summary report you would be able to see if they were inspected or not. *Sounds like it would have the same challenge we currently have with DSIS, where the system tells you there's been information inputted, but can't tell you that a specific type of information was inputted (i.e. the annual inspection). Or if you could do it, it'd take multiple steps.*

7. *Does it record details of inspection, mandatory and not deletable.* Yes, it records it, but it is deletable/alterable by the user. *Can the administrator alter the record? Can other observers alter the record?* Yes and yes. You can limit users to what areas they can edit. You can also limit users to adding things to system, but not deleting them. This is set by user status. *Can we make the details fields mandatory?* Not right now. At the moment, it's just a best practice, but the fields aren't mandatory.
8. *Does it have a field showing if a deficiency is in progress or completed?* It doesn't show a percentage, but it shows completion/incomplete, but not deletion. You can show an open issues report filtered by "corrected."
9. *Schedule/cost/abatement plan fields are things we need. Does that exist currently?* Schedule and cost would have to be custom fields. Probably a week to get that in there. We have a "due date" field, and 2 comment fields which we could reappropriate to make an abatement plan field. Using an iPhone you can do voice to text to fill in fields as well.
10. *How does system handle data integrity?* Similar to Word, it identifies words that are misspelled, but doesn't fix them automatically. *Can I type into a drop down box field?* Yes, and it wouldn't autocorrect it.
11. *Basic reports? Flexibility?* Summary report breaks down by category and subcategory. Detail report shows all the comments, custom field info, everything. Contractor summary report, shows who was doing the work. They have a plethora of fixed reports.
12. *Is there a report that shows total # of deficiencies, searchable on severity, locations inspected, locations not inspected, etc.?* Yes, you can pull that information.
13. *Can it generate reports on adjustable time frames?* Yes.
14. *Can it search across multiple facilities?* Yes.
15. *Can user generate customizable reports?* Not the base user (Observer), but an admin or a "full user" can. *Can you use wildcards?* If you leave a field blank, it pulls everything. *But not a true wildcard where you can put in a partial phrase?* There is a comments wildcard field....that's the closest to that.
16. *Is it searchable on multiple fields?* Yes.
17. *Can it export into multiple formats?* Yes. Excel, pdf, Word, CSV.
18. *How about importing data? Do we have to use the import checklist.* Yes, through web services, if it's a compatible source, like CSV flat file through web services. Short answer yes. We use JSON and SOAP. Might need some programming on our end.
19. *Q11. Can this database expand? Link to photos? Storage capabilities?* Yes. You can upload files and photos. Some limit to how many photos you can put into an observation, but you can put a photo for observed and corrected for each item. But currently we don't have the capability to expand the system like making new modules, though you could add other types of checklists.
20. *Data retention.* Data is stored on their servers in Pittsburgh, and is retained indefinitely.
21. *Can I extract everything at once if I so choose?* You can run reports, and exporting to excel you can do up to 5000 records. If you needed everything, we could do it on the back end, but it'd take a couple days and need some scheduling.
22. *Is system user friendly/intuitive?* Of course we're going to say "yes."

23. *Responsiveness?* It runs reports very quickly. You don't need to wait for an email or anything, it just gives you the report. If you skip steps in the implementation process though, then you can run into problems since you haven't done the training and know where to find things.
24. *Can it do controlled read/write access?* We'd have to customize an existing user type. *So it could be set up that way?* Pretty sure yes, but I'd have to check. Verified, yes.
25. *Email push capability? Schedule reminders?* You can set goals in the goal module, but it doesn't send out reminders. It can show if you met the goal or not. It does have email push reports. You can set status reports to be sent out automatically as scheduled reports. Email pushes can go to people who aren't in the system.
26. *Can automated emails be generated based on severity?* Yes. There are ways to do this.
27. *Diff levels of access/customization for diff users.* We can configure user types. Can't tie it to training, or some checked box. It's a good idea, but we can't do that at this point.
28. *Does the system meet FISMA reqts?* Unsure. We meet SSAE16 requirements, from our hosted solution provider.
29. *Can your system be hosted from anywhere?* Just in Pittsburgh. You couldn't load SafetyNet on a private server and run it. Just in Pittsburgh.
30. *Active login?* We don't support single sign on or ID plugin, so this wouldn't work with Active Directory login
31. *Can it prepopulate fields based on what you type in?* No. We're looking into map integration, but not yet.
32. *Can it copy similar posts, so you don't have to keep re-entering data?* No.
33. *Walk me through how web services works.* For example, you could have your payroll system talk to Safety Net to populate certain fields.
34. *Mobile app compatible?* Yes, Android and IOS, and we're working on Windows mobile. *Does it need a data signal?* You can input data even without a signal, and once you get back to a signal it'll upload it.
35. *Ability to link to external websites/drawings?* No.
36. *Ability to input historic data?* Yes, see question 18.
37. *Are there aspects of your system we didn't cover?* The incident module, and the red flag side of it (the predictive model). The predictive model is driven by historical database of other users, your data, and set of algorithms that compare large data sets to smaller ones, and draw conclusions. It won't tell you hyper-specific predictions (Ken will fall of a ladder tomorrow) but it can identify trends that a location is vulnerable to. *Do industries have to be similar to have predictive value?* Default is it looks at all data from all sectors.

Best Practices

- Be honest with users. Let them know why we're doing it, let them know leadership is engaged, that it's not just coming from the Safety Community.
- Don't use systems as a hammer. Look for positives, not just deficiencies. Use it to help people get credit for what they're doing right. Don't want the tool perceived as a punitive tool.

- Have an effective data use plan. Know the value of what your collecting, have a schedule for when it goes out, etc.
- Have an iterative process, a la Z-10. Make sure you're planning, checking, doing, acting. Helps with accountability.

**Safety and Occupational Health Action Plan
Team 12 –Deficiency Tracking
Best Practices – Tennessee Valley Authority
Interview Minutes**

Tuesday, April 14, 2015,
Time 7:00-8:00 am PST

Conference Call: 423-751-7777
Participant Code. 423-751-2974#

I. Introductions:

Tennessee Valley Authority Safety Office				
Name	Title	Roles	No.	E-mail
Doug Boone	Senior Safety Manager	Interviewee	423-751-2973	dumboone@tva.gov
Gathel Lynn Hazell	Safety Specialist	Participant	423-751-2973	glhazell@tva.gov

Bureau of Reclamation SOH Team 12					
Name	Title	Region	Roles	No.	E-mail
Doug Deflitch	Field Office Manager	Mid Pacific	Interviewer	541-389-6541 x 226	ddeflitch@usbr.gov
Cristina Hayden	Management & Program Analyst	Lower Colorado	Interviewer	702-494-2781	chayden@usbr.gov
Mary Stegeman	Program Analyst	Denver	Participant	303-445-2062	mstegeman@usbr.gov
Tyler Byrne	Gen.Maintenance Work Leader	Pacific Northwest	Participant	208-483-4015 x38	tbyrne@usbr.gov
Mark Albl	Physical Security Specialist	Pacific Northwest	Participant	208-378-5331	balbl@usbr.gov
Miguel Rocha	Program Management	Denver	Participant	303-445-2841	mrocha@usbr.gov

II. Interview:

The **United States Bureau of Reclamation** (USBR), is a federal agency under the U.S. Department of the Interior, which oversees water resource management, specifically as it applies to the oversight and operation of the diversion, delivery, and storage projects that it has built throughout the western United States for irrigation, water supply, and attendant hydroelectric power generation. Currently USBR is the largest wholesaler of water in the country, bringing water to more than 31 million people, and providing one in five Western farmers with irrigation water for 10 million acres of farmland, which produce 60% of the nation's vegetables and 25% of its fruits and nuts. USBR is also the second largest producer of hydroelectric power in the western United States.

The reason we are conducting this interview is there was a DOI Safety Occupational Health (SOH) evaluation of Reclamation in July 2013. The results were rolled up into an overall SOH Evaluation report and Reclamation created a SOH Action Plan as well as Rapid Improvement Work Teams.

The goal was to change the safety culture and assemble teams with 21 actions to provide a multifaceted approach to raising awareness and reducing risk. The actions will also provide the basis for accountability for following established standards while also encouraging better recognition of hazards and exposure conditions.

We are team 12 assigned to evaluate and recommend improvements for recording safety deficiencies

The **Tennessee Valley Authority (TVA)** is a federally owned corporation in the United States created by congressional charter in May 1933 to provide navigation, flood control, electricity generation, fertilizer manufacturing, and economic development in the Tennessee Valley.

TVA's power mix as of 2012 is 11 coal-powered plants, 29 hydroelectric dams, three nuclear power plants (with six operating reactors), nine simple cycle natural gas combustion turbine plants, and five combined cycle gas plants. TVA is the largest public power utility in the United States and one of the largest producers of electricity in the country. In 2012 coal generation was about 32% of total, nuclear 34%, hydro 9%, and (owned) gas 11%.

Doug's background in Nuclear Engineering. Started with the Nuclear Navy and I've been with TVA for about 15 years. Working as the Safety Manager.

Regulatory compliance inspections. There is a variety of operations and locations.

Questions and answers in respect to your systems abilities:

A. Best Practice Questions

1. How are your safety deficiencies recorded, inspections tracked, and abatement documented?
Maximo. A good point of contact at TVA is John Rodney Hunt, Program Manager EAM Jrhunt1@tva.gov at 423 751-2669. It is used as a corrective action system for a variety of requirements and other programs in addition to Safety. We enter deficiency into Maximo and then notification is sent to appropriate individuals.
2. How do you assess the severity of risk?
Category levels are assigned: A-Alpha, B-Bravo, C-Charlie, D-Delta. Alpha is the highest level of concern and Delta is used to capture minor and we use data for trending. Doug Deflitch compares TVA Category Levels to our RAC levels.
3. How is safety deficiency information shared within the agency from (high to low)?
 - A. Through various forms of communications such as: 1) Corrective Action Program Procedure, 2) PUR, 3) boards, 4) OE Alert which is 1 page analysis of i) what happened ii) investigation occurring and iii) quick take always in the interim/bulletin e-mail's,
 - B. Action Program Procedure – 1. Tier of board of reviews (high to low is dependent on the situation and variables).
 - C. Information Shared is dependent on the issue as well as CFR 1960 requirements. Share with applicable Management and Safety point of contact.
4. What are the incentives/consequences for compliance/non-compliance?
Lots of various incentives used. We used to do money but we steer away from that now as OSHA discouraged for safety performance. Low level of incentives and different locations can do different awards. Some examples of level awards: coffee cup, t-shirts, gift cards. The commemorative coins recognitions were well received. We are trying to get people to report incidences so we are not tying to non-compliance.

5. What makes your tracking system successful? Maximo is a bit overwhelming to some and not everyone is happy with it. The ability to customize reports and connectivity with other tracking systems (i.e. Mead Gate system which talks with Maximo and the PLUS-HR System.) Ability to get information quickly.
6. How do you ensure the quality of your safety data?
People who enter the data in can update the data but the data history is tracked and the software controls the tracking. Individuals can't come in and accidentally delete data. OIG inspects to insure quality of data especially with injuries.
7. Strength and weaknesses of existing system?
Strengths: Connectivity, customized to agency needs, ability to get information out quickly.
Weakness: Not related to Software – but user ease of system, encouraging people to report deficiency, history. System wasn't easy to use about 10 years ago it was slow. It's not an intuitive system and we are still going through growing pains.
8. What do you believe are the best practices in your agency?
System Data Management: Pretty easy accessing and oversight.
Program: Corrective Action Program, procedures, cultural, overarching highest level down through organization thus support safety (i.e. CEO starts off meetings by talking about safety.)
Communication Plan: Themes and messages relayed to include "promise we make to each other."

III. Questions/Miscellaneous

We are concerned about connectivity. Do you use a centralized server? Not sure, I can find out.

References

<http://www.usbr.gov/ssle/safety/directives.html>

<http://intra.usbr.gov/ssle/safetyimprovement.html>

IV. Interview Concluded (8:00 am PST)

If possible follow Up: TVA to BOR 1) Corrective Action Plan, 2) Report samples, 3) Screen shots of Maximo BOR to TVA general BOR Safety Information and results of SOH Action Plan if possible.

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TVA Operations

Safety & Performance Improvement Operating Experience Alert

03/27/2015

The purpose of Operating Experience is to help us learn from events, and prevent similar events. Following are brief descriptions of recent events. Managers and supervisors should promptly use this information to engage in discussions with their employees and implement actions to prevent a similar occurrence within their work group.

Fall Injury

While performing work inside Unit 2 drywell blower bank, a TVA employee fell in an open plenum, resulting in a laceration over the right eye, injury to the ribs and left wrist. The employee and co-workers' were unaware of the plenum / configuration of the blower bank. Low lighting in the space made the configuration hard to see.

Discussion Points

- During the Pre-Job Briefings and Two-Minute Rule identify specific trip and fall hazards, and take specific actions to mitigate identified hazards.
- Maintain eyes on path and be particularly cautious when working in poorly lit conditions. Utilize temporary lighting when possible.



TVA Operations

Safety & Performance Improvement Operating Experience Alert

03/30/2015

The purpose of Operating Experience is to help us learn from events, and prevent similar events. Following are brief descriptions of recent events. Managers and supervisors should promptly use this information to engage in discussions with their employees and implement actions to prevent a similar occurrence within their work group.

Clearance Violation

An employee removed a component which had a Danger Tag attached to it.

Discussion Points

- The TVA clearance procedure established standardized requirements for group tag out to safely control hazardous energy.
- The clearance procedure is used to isolate machines and equipment from its energy source and render it inoperative prior to performing work to prevent any unexpected energizing, start up, or release of stored energy that could occur and cause injury to personnel or property damage.
- Equipment with Danger Tags in place must never be energized or operated.



Figure F-1 Danger Tag Form TVA 17681 (10-2002)



TVA Operations

Safety & Performance Improvement Operating Experience Alert

04/14/2015

The purpose of Operating Experience is to help us learn from events, and prevent similar events. Following are brief descriptions of recent events. Managers and supervisors should promptly use this information to engage in discussions with their employees and implement actions to prevent a similar occurrence within their work group.

First Aid

While moving between a conveyor table frame and belt, a worker's coveralls became snagged on an area of the frame pulling the worker into the conveyor table. This resulted in a first aid injury.

Discussion Points

- During the Two-Minute Rule, identify and mitigate hazards that could lead to accidents. Maintain hazard awareness when moving around the jobsite especially near rotating equipment.
- Be especially alert around rotating equipment where loose clothing like untucked shirts and unzipped jackets can get drawn into belts, gears, chains, pulleys and other moving parts of machines.



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**Anhydrous Ammonia System
Process Hazard Analysis (PHA) Revalidation
Risk Management Plan/Process Safety Management
(PSM/RMP) Assessment
Paradise Fossil Plant**

March 2 - 4, 2015

Team Lead: Michelle Johnson
Team Assessors: Matt Plum
Andy Polahar
Don Kachelman
Michelle West

Report Prepared by: Michelle Johnson
Date: 3/1/15



Supporting Information

Anhydrous Ammonia System Process Hazard Analysis - Revalidation Paradise Fossil Plant (PAF)

Objectives, Scope, and Methodology

TVA Safety Procedure (TSP) 18.219, Process Safety Management and Risk Management Program; 29 CFR 1910.119, "Process Safety Management of Highly Hazardous Chemicals;" and 40 CFR 68.67(f), "Chemical Accident Prevention Provisions," requires that at least every five (5) years after the completion of the initial process hazard analysis, the process hazard analysis (PHA) shall be updated and revalidated to assure that the process hazard analysis is consistent with the current process. These procedures and regulations also require that a process safety management/risk management plan (PSM/RMP) compliance assessment be performed at least every three years. To meet these requirements, an anhydrous ammonia system PHA Revalidation and PSM/RMP compliance assessment was conducted at Paradise Fossil Plant (PAF) between March 2 and 4th, 2015.

The revalidation/assessment was conducted in accordance with TVA-SPP-18.014, Conduct Safety Program Assessments. The following methodology was used:

- Reviewing applicable PHA documentation and records.
- Interviewing managers and employees with anhydrous ammonia system responsibilities.
- Observing ongoing operations and condition of the anhydrous ammonia system.

Executive Summary

The Process Hazard Analysis (PHA) was completed using the Hazard and Operability (HAZOP) method for the anhydrous ammonia system at Paradise Generating Station. The HAZOP work sheet can be found in Appendix I. The PSM/RMP assessment was performed using a standardized template and can be found in Appendix II. A consolidated Action Matrix listing all of the action items from both the PHA revalidation and PSM/RMP assessment can be found in Appendix III.

The team identified 6 items that require corrective action. Findings were primarily administrative issues and minor in nature and are reflected in a summary in Appendix III. Paradise Generating Station is tasked with identifying the following:

1. Priority for completion
2. Responsible person
3. PER #
4. Current Status

This information will be required with the first status report, which is to be submitted within 30 days of receipt of this report.



Results

Appendix I of the report provides the PHA revalidation worksheet using the HAZOP method. This was used to perform the revalidation of the PAF anhydrous ammonia system PHA. This worksheet includes the process variables, deviations, causes, consequences, safeguards and recommended actions to improve and/or correct any noted findings.

Appendix II reflects the template used to compile the required 3 year PSM/RMP assessment.

Appendix III provides an organized/compiled action item matrix to enhance communication and understanding of the noted findings.



Appendix I

**Anhydrous Ammonia System
Process Hazard Analysis (PHA) - Revalidation
Three Year PSM Assessment
Paradise Fossil Plant**

PHA Worksheet

March 2-4, 2015

**Process Hazard Analysis Revalidation Worksheet
TSP 219 Process Safety Management
Paradise Fossil Plant**

Item Number	Process Variable	Deviation	Causes	Consequences	Safeguards	Actions
NODE 1 (RAILCARS/TRUCKS)						
1	Flow	High Flow	Over-pressurization in rail or tanker	No consequence of interest	Relief valves/PM's	
2	Flow	Backflow	Low railcar/ truck tank level	Vacuum applied to system	None	
3	Composition	Wrong material	Supplier error	Release of ammonia	Certificate of quality, tank car documentation	
4	Pressure	High	See Node 1, Item 1			
5	Structure	Damaged railcar	In-transit damage	Release of ammonia	Inspection criteria *Note - PAF is not accepting railcar delivery at time of revalidation	
6	Structure	Damaged railcar	Cat-walk impact to tanker/Unsafe activity	Impact to personnel safety	PMs *Note - PAF is not accepting railcar delivery at time of revalidation	
7	Structure	Damaged unloading valves	Vandalism	Release of ammonia	Inspection criteria	
8	Structure	Missing dome/return seals	Supplier error	Potential local release of ammonia	Inspections, follow up communications with supplier	
9	Reaction	Incompatible material	Supplier error	Release of ammonia	Inspection criteria	
10	Sequence	Out of sequence (pulling vapor to early)	Operator error	Pull liquid into vapor line, trapping liquid between valves in a vapor line	Flow indicator	
NODE 2 (UNLOADING PIPE TO COMPRESSOR - TRUCK/RAIL – VAPOR & LIQUID)						
1	Flow	Damaged/broken rail unloading hose	Line integrity failure/external damage	Small ammonia release	Ammonia sensors/Operator/E-Stop *Note - PAF is not accepting railcar delivery at time of revalidation	
2	Flow	Damaged/broken truck unloading hose	Line integrity failure/external damage	Small ammonia release	Ammonia sensors/Operator/Truck Driver/E-Stop/Cable system to remove air lines/Snappy Joe valves, inspection requirements	
3	Composition	Incompatible component install	Human Error	Release of ammonia	Procedures and MOC	

Item Number	Process Variable	Deviation	Causes	Consequences	Safeguards	Actions
4	Corrosion	External corrosion	Paint failure/lack of maintenance	Release of ammonia	Mechanical integrity inspections	
5	Other	Unloading hose pulled from rail or truck connection	Human error	Release of ammonia	Unloading procedures/Snappy-Joe valves/E-Stop/Cable system to remove air lines	
NODE 3 (UNLOADING COMPRESSOR - PIPE TO TANK)						
1	Flow	Reverse flow	Human error	Release of ammonia	Procedures/Trap with high level sensor	
2	Composition	See Node 2, Item 3				
3	Corrosion	See Node 2, Item 4				
4	Reaction	See Node 2, Item 3				
5	Lubrication	Lack of lubrication (compressor)	Leaks, lack of maintenance	Compressor seize/Over heat	PM, Inspections	Validate overdue PMs are part of ops rounds
6	Sequence	Improper sequencing	Failure to follow operating procedure	See Node 3, Item 1	Procedures	
7	Phase	Condensation build-up in piping	Condensation due to lower ambient temps	Liquid back to the compressor	Heat trace	
NODE 4 (TANKS AND PIPE TO PUMPS)						
1	Flow	Line rupture	Over-pressurization	Release of ammonia	Excess flow check valves	
2	Composition	See Node 2, Item 3				
3	Pressure	High	Over filling	Release of ammonia liquid/vapor	Level indicator and Interlocks	
4	Pressure	High	Solar heating	Vapor lock, pressure imbalance	Operating procedure, operator waits until system returns to normal operating levels	
5	Pressure	High	Fire	Release of ammonia	Fire suppression/Fogging system/Vegetation mgmt	
6	Level	See node 4, Item 3				
7	Structure	Structural integrity compromised	Failure to properly implement Mechanical Integrity process	Release of ammonia	Mechanical Integrity process/Program Assessments/Tank Integrity testing	

Item Number	Process Variable	Deviation	Causes	Consequences	Safeguards	Actions
8	Corrosion	See Node 4, Item 7				
9	Reaction	See Node 2, Item 3				
10	Lubrication	Valve operation difficulty	Lack of lubrication	Release of ammonia/Failure to isolate system	Valve PMs/HU Tools	
NODE 5 (AMMONIA PUMPS AND PIPE TO VAPORIZER)						
1	Flow	Low	Low flow	No consequences		
2	Flow	High	Pump over-speed	No consequences		
3	Composition	See Node 2, Item 3				
4	Pressure	High	Pump dead-heading	Local ammonia release	Safety relief valve, high pressure sensor shuts pump down	
5	Pressure	Low	Pump not operating properly/Excess flow valve goes closed/Improper operation of manual valves/Power failure or PC failure	Local ammonia release	Flow indicator	
6	Structure	Pipe rupture	Vehicle impact/Sabotage/Improper storage of material near line (Photo in Appendix)	Release of ammonia	Valve FCV-1183/Fencing/Railing/Concrete barriers	
7	Corrosion	Node 2, Item 4				
8	Corrosion	See Node 4, Item 7				
NODE 6 (VAPORIZER TO AMMONIA INJECTION GRID)						
1	Flow	High	Excess pressure from pump	Release of ammonia	Upstream flow control valve (liquid side), temperature and pressure indicators, pressure control valve	
2	Composition	See Node 2, Item 3				
3	Pressure	High	Excess pressure from pump/Liquid in the vaporizer and then it was isolated and heated with glycol	Release of ammonia	Upstream flow control valve (liquid side), temp and pressure indicators, pressure control valve/250 lb set point on inlet valves & pressure relief valves.	

Item Number	Process Variable	Deviation	Causes	Consequences	Safeguards	Actions
4	Temperature			No consequences		
5	Structure	Structural integrity compromised	Equipment impact (forklift, crane, etc)	Release of ammonia vapor	Flow control valve	
6	Corrosion	See Node 2, Item 4				
7	Corrosion	See Node 4, Item 7				
8	Other	Ammonia vapor release during shutdown activities	Negative draft around powerhouse	Personnel safety impact	Procedures revised to assure positive capture of ammonia vapor.	
NODE 7 (GLYCOL)						
1	Other	Feedwater leaks at heat exchanger	Gasket failure	Lack of flow/Decrease heat exchange/Operates on bypass	None	
NODE 8 (INSTRUMENT AIR)						
1	Flow	High	Regulator failure/Compressor over-speed	Tank over-fill, excess flow of ammonia that overtakes glycol, release of ammonia	Pressure indicators, flow control valve, flow indicator	
2	Composition	Contamination by water or oil	Lack of filter PMs, dehumidifier not working properly, high moisture content in air	Valves fail to operate properly which could allow misdirection of ammonia, release of ammonia	PMs, Skids on powerhouse air supply (more reliable) Blow-downs located at skids.	
3	Pressure	See Node 8, Item 1				
NODE 9 (H₂O)						
1	Flow	Low/No flow	Line break, freezing, interruption in service	Limits ability of fogging system, safety showers, eyewashes, personnel safety impact	Pre-operational checks, heat trace, excavation permits, PMs, Portable safety shower & eyewash	
2	Pressure	See Node 9, Item 1				
3	Temperature	High	Heat trace failure, ambient temperature	Personnel safety impact	Pre-operational checks, Portable safety shower & eyewash	
4	Temperature	See Node 9, Item 1				
5	Structure	See Node 9, Item 1				
6	Corrosion	See Node 9, Item 1				
7	Safety	See Node 9, Item 1				

Item Number	Process Variable	Deviation	Causes	Consequences	Safeguards	Actions
8	Other	Lack of water				
NODE 10 (FACILITY SITING)						
1	Loss of Utility	See Node 9, Item 1				
2	Access	To Insp/Maint points	Poor access to valve seals at top of tanks	Inadequate maintenance, valve failure	Mechanical Integrity	
4	Adjacent Operation	Power Stores Receiving Warehouse and LiveWell in close proximity to ammonia storage tanks	Release towards employees	Exposure, impact to personnel safety	Evacuation Plan, emergency escape respirators, assembly points	
6	Inventory	Excessive amount of railcars on site	Scheduling/Purchasing issues	Increase potential exposure amounts	Purchasing process *Note - *Note - PAF is not accepting railcar delivery at time of revalidation. Only a concern if railcar delivery resumes.	
7	Proximity to access road	Increase population due to outage work	Planned outages	Increase potential exposure population – Impact to personnel safety	None	
8	Personal protective Equipment	Increase population due to outage work	Planned outages	Increase potential exposure population – Impact to personnel safety	None	

Appendix II

**Anhydrous Ammonia System
Process Hazard Analysis (PHA) Revalidation
Risk Management Plan/Process Safety Management
(PSM/RMP) Assessment
Paradise Fossil Plant**

Action Matrix

March 2-4, 2015

**PSM/RMP Assessment Compliance Checklist
Paradise Fossil Plant**

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
EMPLOYEE PARTICIPATION PLAN (SECTION 1)							
1.01	Has a plan been developed and instituted regarding the involvement of employee participation in all elements of RMP/PSM? Ref: 29 CFR 1910.119(c)(1) and (2) 40 CFR 68.83(a) and (b)	Employees involved in the preparation of plan (e.g., process hazard analysis)	Employee compliance plan is outdated. Recommend one compliance plan for all PSM/RMP activities.	6/30/15			
1.02	Are employees and their representatives provided access to process hazard analyses and to all other information required to be developed under the RMP/PSM requirements? Ref: 29 CFR 1910.119(c)(3) 40 CFR 68.83(c)	Employers should provide employees and their representatives with access to process hazard analyses and to all other information required to be developed under RMP/PSM	In compliance				
PROCESS SAFETY INFORMATION (SECTION 2)							
2.01	Has there been any changes that would change the Process Safety Information?		No - Move to Section 3.0.				
2.02	Has the necessary written process safety information pertaining to the hazards of the chemicals in process been compiled? Ref: 29 CFR 1910.119(d) 40 CFR 68.65(a)	The facility must complete a compilation of written process safety information before conducting any process hazard analysis. The information concerning process chemicals, process technology, and process equipment is essential to an effective process safety management program and to a process hazard analysis.					
2.03	Does the PSI contain information pertaining to the technology of the chemical process? Ref: 29 CFR 1910.119(d)(1) 40 CFR 68.65(b)	The hazard information shall include the following: 1) Toxicity Information 2) Permissible Exposure Limits 3) Physical Data 4) Reactivity Data 5) Corrosivity Data 6) Thermal and chemical stability data 7) Hazardous effects of inadvertent mixing of different					
2.04	Does the PSI contain information pertaining to the technology of the	Information pertaining to the technology of the chemical					

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	chemical process? Ref: 29 CFR 1910.119(d)(2)(i) 40 CFR 68.85(c)	processes includes: 1) Block flow diagram or simplified process flow diagram 2) Process chemistry 3) Maximum intended inventory 4) Safe upper and lower limits for temperatures, pressure, flows, composition, etc. 5) Consequences evaluation of deviations from limits					
2.05	Does the PSI contain information pertaining to the equipment in the chemical processes? Ref: 29 CFR 1910.119(d)(3)(i) 40 CFR 68.65(d)(l)	Information shall be collected pertaining to the equipment in the chemical processes to include: 1) Materials of construction 2) Piping and Instrumentation diagrams 3) Electrical classification 4) Relief system design and design basis 5) Ventilation system design 6) Design codes and standards employed 7) Material and energy balances 8) Safety systems					
2.06	Has the employer documented that the equipment complies with recognized and generally accepted good engineering practices? Ref: 29 CFR 1910.119(d)(3)(ii) 40 CFR 68.65(d)(2)						
2.07	For existing equipment designed and constructed in accordance with codes, standards, or practices that are no longer in general use, has employer determined and documented that the equipment is designed, maintained, inspected, tested, and operating in a safe manner? Ref: 29 CFR 1910.119(d)(3)(iii) 40 CFR 68.65(d)(3)						

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
PROCESS HAZARD ANALYSIS (SECTION 3)							
3.01	Has the initial Hazard Analysis been prepared and documented?		X Yes, Review Section 3.10				
3.02	Does the hazard evaluation use one or more of the following PHA methodologies: <ul style="list-style-type: none"> • What if? • Checklist? • What if/Checklist? • Hazard & Operability Study (HAZOP)? • Failure Mode and Effects Analysis (FMEA)? • Fault Tree Analysis? Ref: 29 CFR 1910.119(e)(2) 40 CFR 68.67 (b)	The PHA should use one of the OSHA and EPA accepted hazard analysis methodologies, recognized by the American Institute of Chemical Engineers (AIChE), Center for Chemical Process Safety (CCPS).	HAZOP used - PHA revalidated during this assessment.				
3.03	Does the PHA address the hazards of the process? Ref: 29 CFR 1910.119(e)(3)(i) 40 CFR 68.67 (c)(1)	The PHA should identify all process hazards. Process hazards include scenarios that result in an unacceptable or undesired consequence including employee injury through a release or exposure to highly hazardous chemicals. The PHA should include, at a minimum, hazard scenarios which can potentially cause a major uncontrolled emissions, fire, or explosion of the covered highly hazardous chemical.	Yes				
3.04	Does the PHA address previous incidents with likely potential for catastrophic consequences? Ref: 29 CFR 1910.119(e)(3)(ii) 40 CFR 68.67 (c)(2)	The PHA should take into account the operating history of the unit, specifically, the accident history of the process	Yes				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
3.05	Does the PHA address engineering and administrative controls applicable to the hazards and their interrelationships? Ref: 29 CFR 1910.119(e)(3)(iii) 40 CFR 68.67 (c)(3)	The PHA should identify the management, operational, and engineering procedures and policies specific to hazards they are intended to manage. The interaction of these controls should be documented in the PHA.	Yes				
3.06	Does the PHA address consequences of failure of engineering and administrative controls? Ref: 29 CFR 1910.119(e)(3)(iv) 40 CFR 68.67 (c)(4)	The PHA should describe the effects of the failure of existing controls as contributing factors to the hazard scenarios.	Yes				
3.07	Does the PHA address facility siting? Ref: 29 CFR 1910.119(e)(3)(v) 40 CFR 68.67 (c)(5)	The PHA should account for facility siting issues such as spacing between equipment, between equipment and employees, between equipment and potential ignition sources, and the potential for an incident to propagate from one process area to another.	Yes				
3.08	Does the PHA address human factor? Ref: 29 CFR 1910.119(e)(3)(vi) 40 CFR 68.67 (c)(6)	The PHA should address human factors by considering human error as a cause in a hazard scenario, and in identifying potential recommendations to prevent, mitigate, or detect a potential hazard.	Yes				
3.09	Does the PHA address a qualitative evaluation of a range of possible safety and health effects of failure of controls on employees in the workplace? Ref: 29 CFR 1910.119(e)(3)(vii) 40 CFR 68.67 (c)(7)	The PHA should include documentation of the range of consequences of potential hazards. The consequences should consider the failure of installed engineering and administrative controls and their effect on safety and	Yes				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
		<p>health. The range should include minor effects to the worst credible case.</p> <p>Minor effects may include near misses, minor first aid cases, or exposure to fugitive emissions. Worst credible cases may include serious employee injury, fatalities, or potential off-side effects.</p>					
3.10	<p>Has a system been established to properly address the team's findings and recommendations? (Review a representative sample of the documentation.) Has the system been able to:</p> <ul style="list-style-type: none"> • Assure that the recommendations are resolved and documented in a timely manner? • Document actions to be taken? • Complete actions as soon as possible? • Develop a written schedule of when actions are to be completed? • Communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions? <p>Ref: 29 CFR 1910.119(e)(5) 40 CFR 68.67 (e)</p>	<p>A management system should exist to review and resolve the recommendations generated during a PHA study. The management system should be written, include an implementation schedule, ensure timely resolutions to action items as necessary, and ensure that those employees affected by the changes resulting from the implementation of the recommendations are aware of the change and its implications.</p>	<p>PAF was engaged in annual audits from 2010-2013 and has made continuous improvements in compliance with PSM regulations and TVA safety procedures related to process safety management.</p>				
3.11	<p>Are the PHAs updated at least every five years by a qualified team to assure that the process hazard analysis is consistent with</p>	<p>Initial PHAs should be reviewed and revalidated every five years by a qualified team to ensure that they are</p>	<p>In compliance - last PHA revalidation April 2011. PHA being revalidated in addition to this assessment.</p>				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	the current process? Ref: 29 CFR 1910.119(e)(6) 40 CFR 68.67 (f)	consistent with the design and operating procedures for the current process					
3.12	Are all initial PHAs updates or revalidations, and documented resolutions or recommendations kept for the life of the process? Ref: 29 CFR 1910.119(e)(7) 40 CFR 68.67 (g)	All necessary PHA documentation, including study reports, study worksheets, and information on the resolution of the study recommendations, should be retained for the life of the process.	Yes - on file in green books and on file with corporate safety.				
3.13	Does the PHA address previous incidents with likely potential for catastrophic consequences? Ref: 29 CFR 1910.119(e)(3)(ii) 40 CFR 68.67 (c)(2)	The PHA should take into account the operating history of the unit, specifically, the accident history of the process	In compliance.				
OPERATING PROCEDURES (SECTION 4)							
4.01	Do written operating procedures exist for each covered process? Do the procedures provide clear instructions for conducting activities safely? Ref: 29 CFR 1910.119(f)(1) 40 CFR 68.69(a)	Written operating procedures, documenting the practices used to safely operate a covered process, should be developed and made available.	Operating procedures exist. Discrepancy found between the inventory list of operating procedures listed and what was available in the book. There were also procedures in the book that were not listed in inventory. Recommend reconciling inventory and maintaining online. SSP 18.0.004 is not current.	6/30/2015			
4.02	Do the operating instructions address, as a minimum, steps for each operating phase, including: <ul style="list-style-type: none">• Initial startup?• Normal operations?• Temporary operations?• Emergency shutdowns?• Emergency operations?• Normal shutdown?	Written operating procedures for a covered process should include the full range of expected operating conditions. The procedures should be written to describe the information necessary to prevent or control accidents during each operating phase.	In compliance				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	<ul style="list-style-type: none"> Startups following a turnaround or emergency shutdown? Ref: 29 CFR 1910.119(f)(1)(i)(A)-(G) 40 CFR 68.69(a)(1)(i)-(vii)						
4.03	Do the operating procedures include operating limits that outline consequences of process deviation and steps required to correct or avoid deviations? Ref: 29 CFR 1910.119(f)(1)(ii)(A)-(B) 40 CFR 68.69(a)(2)(i)-(ii)	The written procedure should include a description of the safety and health considerations of the highly hazardous chemicals.	In compliance				
4.04	Have safety and health considerations been included in the operating procedures? Do they include at a minimum: <ul style="list-style-type: none"> Properties of, and hazards presented by, the chemicals used in the process? Precautions necessary to prevent exposure, including engineering controls, administrative controls, and personal protective equipment? Control measures to be taken if physical contact or airborne exposure occurs? Quality control for raw materials and control of hazardous chemical inventory levels? Any special or unique hazards? Ref: 29 CFR 1910.119(f)(1)(iii)(A)-(E) 40 CFR 68.69(a)(3)(i)-(v)	The operating procedures should include a description of the safety and health considerations of the highly hazardous chemicals.	In compliance				
4.05	Are safety systems and their functions included in the operating	Operating procedures should include a description of the	In compliance				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	procedures? Ref: 29 CFR 1910.119(f)(1)(iv) 40 CFR 68.69(a)(4)	applicable safety systems and their functions for the covered process.					
4.06	Are the operating instructions consistent with the process safety information?	The operating procedures should be based on the information and hazards of the materials, as identified in the process safety information, and should accurately reflect content.	In compliance				
4.07	Are operating procedures readily accessible to employees who work in or maintain a process? Ref: 29 CFR 1910.199(f)(2) 40 CFR 68.69(b)	Written operating procedures should be based on the information and hazards of the materials, as identified in the process safety information, and should accurately reflect content. .	In compliance				
4.08	Are operating procedures reviewed as often as necessary to assure that they reflect current operating practice? Are they certified annually by the employer that they are current and accurate? Do they reflect current operating practices that have resulted from changes in: • Process chemicals? • Technology? • Equipment? • Facilities? Ref: 29 CFR 1910.119(f)(3) 40 CFR 68.69(c)	Operating procedures should be reviewed as often as necessary, but <u>at least annually</u> , in order to maintain the accuracy and completeness of the procedures.	In compliance				
4.09	Have safe work practices been developed and implemented for	Safe work practices must be developed that standardize	Addition of contractor requirement to comply with TVA				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	<p>employees and contractors to control hazards during operations such as:</p> <ul style="list-style-type: none"> • Lockout/Tagout? • Confined Space Entry? • Opening process equipment or piping? • Access control? <p>Ref: 29 CFR 1910.119(f)(3) 40 CFR 68.69(c)</p>	<p>how employees and contractors alike will address issues including control of hazards during operations such as lockout/tagout; confined space entry; opening process equipment or piping; and control over entrance into a facility by maintenance, contractor, laboratory, or other support personnel. The mechanism for how the safe work practices become mandatory requirements for contractors should be provided.</p>	<p>procedure needs to be added to operator procedure.</p>				
4.10	<p>Have all potential non-routine work tasks and their associated hazards that may be performed in the process area been identified?</p>	<p>Non-routine tasks performed in the process area and their associated hazards must be identified and the hazards and control measures must be communicated to personnel performing the tasks or working in the process area.</p>	<p>In Compliance. All work in ammonia farm is considered Cardinal Five activity under Fossil Operating Requirements.</p>				
4.11	<p>Has a work authorization notice or permit system been established for non routine tasks?</p>	<p>A work authorization or permit system must have a procedure that describes the steps to be followed in order to obtain the necessary clearance to begin the task</p>	<p>In Compliance. All work in ammonia farm is considered Cardinal Five activity under Fossil Operating Requirements.</p>				
4.12	<p>Does the work authorization or permit system contain steps to follow upon completion of the task?</p>	<p>The work authorization of permit system must contain clearly defined steps to provide closure for those that need to know the job is completed and equipment can be returned to normal</p>	<p>In compliance</p>				
EMPLOYEE TRAINING (SECTION 5)							
	<p>Have all personnel associated</p>	<p>All personnel associated with the</p>	<p>Several instances of expired</p>				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
5.01	with the chemical processes received the required initial training? Ref: 29 CFR 1910.119(g)(1)(i) 40 CFR 68.71(a)(1)	chemical processes shall receive initial training in the following areas: • Overview of the process • Operating procedures • Specific safety and health hazards • Emergency operations including shutdown • Safe work practices	training for mechanical integrity were identified. However, some of those personnel were deployed or on medical leave. Others included supervision. Recommend removing the mechanical integrity training for those not involved in ammonia work on a regular basis.				
5.02	Have all personnel associated with the chemical process received refresher training at least every three years? Ref: 29 CFR 1910.119(g)(2) 40 CFR 68.71(b)	Refresher training is required at least every three years for all personnel associated with the chemical processes.	Several instances of expired training for mechanical integrity were identified. However, some of those personnel were deployed or on medical leave. Others included supervision. Recommend removing the mechanical integrity training for those not involved in ammonia work on a regular basis.				
5.03	If the facility has an on-site emergency response team, has its members received the appropriate training? Ref: 29 CFR 1910.120(q)	If a facility provides emergency response to releases from the chemical process, the members of the response team must receive training in accordance with 29 CFR 1910.120(q).	In compliance				
5.04	Are training records maintained and acceptable to verify completion of training? Ref: 29 CFR 1910.119(g)(3) 40 CFR 68.71(c)	Training records must be maintained on-site and must contain the following information: • Employee identity • Date of training • Means to verify acceptable understanding by employee	Yes - LMS				
5.05	Ref: TVA-SPP-18.008, Paragraph 3.2.10	Trainers document training provided to TVA employees using form TVA 13041A. These forms are retained in the Automated Training	Superseded by LMS				

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		Information System (ATIS).					
SUPPORT CONTRACTOR PROGRAM (SECTION 6)							
6.01	Does the facility's procurement process include a requirement to obtain and evaluate information regarding a contractor's safety performance and programs prior to selection when the scope of the contract involves work on or near a covered chemical process? Ref: 29 CFR 1910.119(h)(2)(i)	The employer, when selecting a contractor, shall obtain and evaluate information regarding the contact employer's safety performance and programs.	Yes				
6.02	If the plant uses a contractor involved with work on, or near the chemical process, has a written program been developed to include all the required information? Ref: 29 CFR 1910.119(h)(2)(ii)-(vi) 40 CFR 68.87(b)(2)-(5)	The following requirements are part of the PSM program and shall be included in the Contractor Program: <ul style="list-style-type: none"> • Informing the contractor employees hazards associated with the process • Explain to the contractor employees the emergency action plan • Develop and implementation of safe work practices • A periodic evaluation of the contractor's performance • Maintenance of a contractor injury and illness log 	Procedure deficiency - see 4.09				
6.03	If the plant uses a contractor involved with work on, or near a covered chemical process, is the contractor's compliance with applicable PSM requirements verified periodically by the plant? Ref: 29 CFR 1910.119(h)(3)(i)-(v) 40 CFR 68.87(c)(1)-(5)	The contractor must ensure that each employee: <ul style="list-style-type: none"> • Is trained in the work practices necessary to safely perform his/her job. • Is instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and the process, and the applicable provisions of the emergency action plan. 	In compliance				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
		<ul style="list-style-type: none"> • Has received and understood the training required by this paragraph and that training is documented and verified. • Follows the safety rules of the facility including applicable safe work practices. • Advises the employer of any unique hazards presented by the contract employer's work, or of any hazards found by the contract employer's work. <p>Does the plant verify these requirements are being met?</p>					
PRE-STARTUP SAFETY REVIEW (SECTION 7)							
7.01	Have there been any additional startups beyond initial startup requiring PSSR?	Additional startups would be required for major modifications, change in chemical process, etc.	No additional start ups. Move to 8.0				
7.02	<p>Prior to the introduction of highly hazardous chemicals to a process, does the plant utilize a pre-startup safety review when needed?</p> <p>Ref: 29 CFR 1910.119(i)(1) 40 CFR 68.77(a)</p>	For new facilities and in the event a plant modifies or revamps a covered chemical process or system in any way, a pre-startup safety review must be conducted.					
7.03	<p>Does the PSSR address all required facets of the covered chemical process?</p> <p>Ref: 29 CFR 1910.119(i)(2)(i)-(ii) 40 CFR 68.77(b)(1)-(2)</p>	<p>Topical areas that should be considered during a PSSR include, but are not limited to:</p> <ul style="list-style-type: none"> • Construction and equipment is in accordance with design specifications. • Safety, operating, maintenance, and emergency procedures are in place and are adequate. 					
7.04	Are employees trained in the operation of the modified	Training of each employee involved in the operating					

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	process? Ref: 29 CFR 1910.119(i)(2)(iv) 40 CFR 68.77(b)(4)	process must be completed prior to startup.					
7.05	Has the modification gone through a process safety analysis and has the original PHA for the chemical process been updated appropriately? Ref: 29 CFR 1910.119(i)(2)(iii) 40 CFR 68.77(b)(3)	For new facilities, a PHA has been performed and recommendations have been resolved or implemented before startup; and modified facilities meet the requirements contained in management of change.					
MECHANICAL INTEGRITY PROGRAM (SECTION 8)							
8.01	Does the written mechanical integrity program include? <ul style="list-style-type: none"> • Pressure vessels and storage tanks • Piping systems and components such as valves • Relief and vent systems and devices • Emergency shutdown systems • Controls (including monitoring devices and sensors, alarms and interlocks) • Pumps Ref: 29 CFR 1910.119(j)(1) 40 CFR 68.73(a)	A written mechanical integrity program should exist and include specification, installation, preventive maintenance, and spare parts support of all process equipment for a covered process.	In compliance				
8.02	Are there written procedures to maintain the ongoing integrity of process equipment? Does the documentation indicate the procedures have been implemented? Ref: 29 CFR 1910.119(j)(2) 40 CFR 68.73(b)	Preventive maintenance is planned and performed in accordance with a written schedule, and the schedule identifies the maintenance procedures to be performed (e.g., review preventative work orders).	In compliance				
8.03	Has training been provided to each employee involved in maintaining the ongoing integrity of process equipment in the following:	Training should be provided to maintenance personnel to ensure they are aware of the process and its associated hazards.	Some deficiencies - see training section 5.0				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	<ul style="list-style-type: none"> An overview of the process and its hazards? Procedures applicable to the employee's job tasks to assure that the employee can perform the job tasks in a safe manner? <p>Ref: 29 CFR 1910.119(4)(i) 40 CFR 68.73(c)</p>						
8.04	<p>Are inspections and tests performed on each item of process equipment included in the program?</p> <p>Ref: 29 CFR 1910.119(j)(4)(i) 40 CFR 68.73(d)(1)</p>	<p>Process equipment included in the program should receive the appropriate inspections and tests. The decision to subject equipment to periodic tests and inspections should be based upon equipment in similar applications.</p>	Past due PM's				
8.05	<p>Do inspection and testing procedures follow good engineering practices, and are they performed at the appropriate frequency recommended by the manufacturer?</p> <p>Ref: 29 CFR 1910.119(j)(4)(ii)-(iii) 40 CFR 68.73(d)(2)-(3)</p>	<p>Testing procedures follow generally accepted good engineering practices or industry codes and standards.</p> <p>Applicable codes and standards, such as the National Board Inspection Code, American Society for Testing and Material (ASTM), API, NFPA, American National Standards Institute (ANSI) and American Society of Mechanical Engineers (ASME) should be consulted to help establish an effective testing and inspection frequency, as well as appropriate methodologies.</p>	In compliance				
8.06	<p>Is there documentation of each inspection and test that has been performed including all of the following:</p>	<p>Documentation exists to verify that the appropriate tests/inspections have been carried out at the specific frequency and that the results</p>	Work orders missing notes				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	<ul style="list-style-type: none"> • Date of the inspection or test? • Name of person performing the procedure? • Serial number of other identifier of equipment on which procedure was performed? • Description of inspection or test performed? • Results of inspection or test? Ref: 29 CFR 1910.119(4)(iv) 40 CFR 68.73(d)(4)	fall within acceptable limits.					
8.07	Are deficiencies in equipment that are outside limits corrected before further use or in a safe and timely manner? Ref: 29 CFR 1910.119(j)(5) 40 CFR 68.73(e)	When discovered, deficiencies outside acceptable limits should be corrected immediately.	In compliance				
8.08	When new equipment is introduced to the covered process, is it verified that the equipment, as it is fabricated, is suitable for the process application? Ref: 29 CFR 1910.119(j)(6)(i) 40 CFR 68.73(f)(1)	All new equipment and materials introduced into the process must have undergone a PHA and the suitability of the equipment and materials assessed.	In compliance				
8.09	Are appropriate checks and inspections performed to assure that equipment is installed properly and consistent with design specifications and the manufacturer's instructions? Ref: 29 CFR 1910.119(j)(6)(ii) 40 CFR 68.73(f)(2)	A Pre-Startup Safety Review should be conducted before beginning operation to assess if equipment installation and consistency with design specifications and manufacturer's instructions.	In compliance				
8.10	Does the employer assure that maintenance materials, spare parts, for equipment are suitable for the process application for which they are used (including contractor supplied	Maintenance materials, spare parts, and equipment should be suitable for the process application for which they are	In compliance				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	equipment)? Ref: 29 CFR 1910.119(j)(6)(iii) 40 CFR 68.73(f)(3)	used.					
HOT WORK PERMIT SYSTEM (SECTION 9)							
9.01	Does the employer have an adequate permit system for performing hot work activities on or near the chemical process? Ref: 29 CFR 1910.119(k)(1)-(2) 40 CFR 68.85(a)-(b)	A work authorization or permit system should be established for welding, cutting, brazing, or grinding activities which occur in the area of the chemical process. The permit system must include fire protection/prevention requirements, clearly defined steps for obtaining authorization and steps for obtaining authorization and steps for notifying personnel in the process area of the initiation and concession of hot work. The permit must document: • Fire prevention and protection requirements in 29 CFR 1910.252(a) have been implemented prior to beginning the hot work operations; • The date(s) authorized for hot work; and • Identify the object on which hot work is to be performed. • The permit shall be kept on file until completion of the hot work operations.	In compliance				
MANAGEMENT OF CHANGE (SECTION 10)							
10.01	Are there written procedures for managing changes to process chemicals, technology, equipment, and procedures and	Policies and procedures should exist for personnel to follow when a change (except for a "replacement of kind") is	In compliance				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	<p>changes to facilities that affect a covered process?</p> <p>Ref: 29 CFR 1910.119(1)(1) 40 CFR 68.75(a)</p>	<p>being considered. The purpose of the management of change system is to provide a control mechanism so that changes are made with due considerations to safety.</p> <p>Changes in process technology can result from changes in production rates. Raw materials, equipment unavailability, new equipment, new product development, change in catalyst or changes in operating conditions to improve yield or quality. <i>Continued from previous page.</i></p> <p>Equipment changes include, for example, changes in materials of construction, equipment specifications, piping arrangements, computer control system revisions and changes in alarms and interlocks.</p> <p>Procedural changes include, for example, changes to emergency response, maintenance, contractor, training and operating procedures.</p>					
10.02	Do the procedures assure that the technical basis for the proposed change is addressed prior to any change?	The purpose, scope, and objective for process changes should be documented. The technical nature of changes is fully explained such that	In compliance				

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	Ref: 29 CFR 1910.119(1)(2)(i) 40 CFR 68.75(b)(1)	responsible parties can understand their full implications.					
10.03	Do the procedures assure that the impact of the change on safety and health is addressed prior to any change? Ref: 29 CFR 1910.119(1)(2)(ii) 40 CFR 68.75(b)(2)	Procedures should exist to require an assessment of the effects changes may have on safety and health.	In compliance				
10.04	Do the procedures assure that modifications to operating procedures are addressed prior to any changes? Ref: 29 CFR 1910.119(1)(2)(ii) 40 CFR 68.75(b)(2)	Procedures should exist to require a review and update of operating procedures prior to implementing change.	In compliance				
10.05	Do the procedures assure that the necessary time period for the change is addressed prior to any change? Ref: 29 CFR 1910.119(1)(2)(iv) 40 CFR 68.75(b)(4)	The time period allowed for implementation of the change should be carefully considered to avoid abuse of "temporary" changes. Procedures exist to determine whether a change is considered temporary or permanent. The allowable time period for the change should be documented. Changes that exceed the time period require reanalysis and approval.	In compliance				
10.06	Do the procedures assure that the authorization requirements for the proposed change are addressed prior to any change? Ref: 29 CFR 1910.119(1)(2)(v) 40 CFR 68.75(b)(5)	Written procedures should exist requiring authorized review and approval before any changes are made. The authorization procedures and responsible individuals should be clearly identified.	In compliance				
10.07	Are employees involved in operating a process, and maintenance and contract employees whose job tasks will be affected by change informed of, and trained in, the change	Employees affected by the change, or whose actions could create a potential hazard as a result of the change, should be adequately trained in the new	In compliance				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	prior to startup of process or affected part of process? Ref: 29 CFR 1910.119(1)(3) 40 CFR 68.75(c)	procedures prior to startup.					
10.08	Is the process safety information updated, if changed? Ref: 29 CFR 1910.119(1)(4) 40 CFR 68.75(d)	If a change results in revisions to the process safety information, such information should be updated.	No changes				
10.09	Are the operating procedures or practices updated, if changed? Ref: 29 CFR 1910.119(m)(2) 40 CFR 68.75(e)	If a change results in revisions to the operating procedures, such procedures should be updated.	Changed and current as related to MOC				
INCIDENT INVESTIGATION (SECTION 11)							
11.01	Does the facility have an established incident investigation program and an investigative team and have all incidents which resulted in, or could reasonably have resulted in a catastrophic release of high hazard chemical(s) been investigated? Ref: 29 CFR 1910.119(m)(1) 40 CFR 68.81(a)	An established program should exist for the investigation of events that result in or could possibly have resulted in a catastrophic release of high hazard chemicals.	In compliance				
11.02	Are incident investigations initiated as promptly as possible, but not later than 48 hours following the incident? Ref: 29 CFR 1910.119(m)(2) 40 CFR 68.81(b)	Employees are required to initiate an incident investigation not later than 48 hours following the incident.	In compliance				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
11.03	<p>Does the incident investigation program require that at least one member of each investigative team is knowledgeable in the process involved, including a contract employee if the incident involved work of the contractor?</p> <p>Does documentation of previously conducted investigations covered by the PSM standard verify that at least one member of each investigative team was knowledgeable in the process involved?</p> <p>Ref: 29 CFR 1910.119(m)(3) 40 CFR 68.81(c)</p>	<p>The employer's incident investigation team should consist of at least one person knowledgeable in the process involved, including a contract employee if the incident involved work of the contractor, and other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident.</p>	In compliance				
11.04	<p>Does the incident investigation team prepare reports with all applicable information included?</p> <p>Ref: 29 CFR 1910.119(m)(4)(i)-(v) 40 CFR 68.42(b) 40 CFR 68.81(d)(1)-(5)</p>	<p>An accident/incident investigation report must include the following information:</p> <ul style="list-style-type: none"> • Date, time, and approximate duration of the release or incident; • Date investigation began; • Chemical(s) released; • Estimated quantity released in pounds and, for mixtures containing regulated toxic substances, percentage concentration by weight of the release regulated toxic substance in the liquid mixture; • Five- or six-digit NAICS code that most closely corresponds to the process; • Description of the incident, to include the type of release 	In compliance				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
		event and its source; • Weather conditions, if known; • On-site impacts; • Known offsite impacts; • Initiating event and contributing factors if known; • Whether offsite responders were notified if known; and • Recommendations to include operational or process changes that resulted from investigation of the release.					
11.05	Have incident investigation team members received adequate training?	Members of investigation teams need to be trained in the techniques of investigation including how to conduct interviews of witnesses, needed documentation, and report writing. Employees in the area where the incident occurred should be consulted, interviewed, or made part of the team.	In compliance				
11.06	Does the incident investigation program provide for the implementation of recommendations? Ref: 29 CFR 1910.119(m)(5) 40 CFR 68.81(e)	Incident investigation should identify underlying causes of incidents and implement steps to prevent similar events from occurring.	In compliance				
11.07	Are incident investigation reports reviewed with all affected personnel whose job tasks are relevant to the incident findings including contract employees where applicable?	The report should be reviewed with all affected personnel in order to leverage lessons learned resulting from the investigated incident.	In compliance				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	Ref: 29 CFR 1910.119(m)(6) 40 CFR 68.81(f)						
11.08	Are incident investigation reports retained for at least five years? Ref: 29 CFR 1910.119(m)(7) 40 CFR 68.81(g)	The employer must retain incident investigation reports for five years	In compliance				
EMERGENCY PREPAREDNESS (SECTION 12)							
12.01	Has an emergency action plan been established to address an uncontrolled or unplanned release and meets the requirements of 29 CFR 1910.38(a) to protect employees and 40 CFR 68.95 to protect the public and environment. Ref: 29 CFR 1910.119(n) 40 CFR 68.95(a)(1) 40 CFR 68.180	The plan should address what actions employees are to take when there is an uncontrolled or unplanned release of a highly hazardous chemical. It should include: • Emergency escape procedures and emergency escape route assignments. • Procedures to be followed by employees who remain to operate critical plant operations before they evacuate; • Procedures to account for all employees after emergency evacuation has been completed. • Rescue and medical duties for those employees who are to perform them. • The preferred means of	In compliance				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
		<p>reporting fires and other emergencies.</p> <ul style="list-style-type: none"> • Names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan. • Procedures for informing the public and local emergency response agencies about accidental releases; • Documentation of proper first-aid and emergency medical treatment necessary to treat accidental human exposures; • Procedures and measures for emergency response after an accidental release of a regulated substance. • The date of the most recent review or update of the emergency response plan; • The date of the most recent emergency response training for employees; • The date of the most recent emergency response training for employees. • The name and telephone number of the local agency with which emergency response activities and the emergency response plan is coordinated. • A list of other Federal or state emergency plan requirements to which the covered process is subject. 					

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
12.02	Does the emergency program include procedures for the use of emergency response equipment and for its inspection, testing, and maintenance? Ref: 40 CFR 68.95(a)(2)	Emergency response equipment should be periodically inspected, tested and maintained in ready condition	In compliance				
12.03	Does the emergency program include procedures to review and update, as appropriate, the emergency response plan to reflect changes in the covered process and ensure that employees are informed of changes? Ref: 29 CFR 1910.38(a)(5)(i)-(ii) 40 CFR 68.95(a)(4)	The emergency response program should be reviewed periodically and updated as appropriate and employees should be trained in the program when it is initiated and when it is updated. New employees must be appropriately trained in the emergency response program.	In compliance				
12.04	Have designated escape routes and "Safe Zones" assembly areas been established? Ref: 29 CFR 1910.119(m)(2) 40 CFR 68.81(b)	Designated escape routes must be established which would facilitate the prompt evacuation of employees due to an uncontrolled or unplanned release. Safe zones must be located in an easily accessed area upwind from the chemical process	In compliance				
12.05	Is the emergency action plan activated by a recognizable alarm system? Ref: 29 CFR 1910.38(a)(3)	The emergency action plan shall be initiated by an easily recognizable alarm (or PA) system to alert employees when to evacuate the facility	In compliance				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
12.06	Will designated employees be utilized to respond to uncontrolled or unplanned releases? Are these employees properly trained and equipped to do so. Ref: 40 CFR 68.95(a)(3)	If plant personnel respond to uncontrolled or unplanned releases or provide aid to those in the immediate area, these actions are covered under OSHA 29 CFR 1910.120(q). This standard requires specific training in hazard recognition, PPE and spill/release response.	In compliance				
12.07	Has the owner or operator coordinated emergency response procedures with local emergency planning and response organizations? Ref: 40 CFR 68.10(b)(3) 40 CFR 68.95(c)	Response support should be coordinated between on-site and local emergency responders. Pre-planning and joint exercises of the site emergency response plan are evidence of appropriate coordination	In compliance				
COMPLIANCE ASSESSMENTS (SECTION 13)							
13.01	Has the PSM program and the RMP prevention program undergone a compliance assessment at least every three years to verify that the procedures and practices developed under the standard are adequate and are being followed? Ref: 29 CFR 1910.119(o)(1) 40 CFR 68.79(a)	If the PSM program at the facility has been in place more than three years, a copy of the report of findings from at least one compliance assessment should be available for review.	In compliance				
13.02	Has the compliance assessment conducted by at least one person knowledgeable in the process? Ref: 29 CFR 1910.119(o)(2) 40 CFR 68.79(b)	The PSM compliance assessment should be conducted by at least one person knowledgeable in the covered process. Familiarity with the covered process enables deviations in process conditions to be more readily detected and allows for the consequences of deviations to be more accurately	In compliance				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
		assessed.					
13.03	Has a report of the findings of the assessment been developed and retained for previous assessments? Ref: 29 CFR 1910.119(o)(3)and(5) 40 CFR 68.79(c) and (e)	The report of findings for the two most recent assessments should be available. If the program has been in place more than six years, the two most recent compliance assessment reports of findings should be available	In compliance				
13.04	Does the employer promptly determine and document an appropriate corrective action(s) to each of the findings of the compliance assessment, and document that deficiencies have been corrected before recording closure of the finding? Ref: 29 CFR 1910.119(o)(4) 40 CFR 68.79(d)	An action plan to correct all noted deficiencies or Deficiency Action Plan (DAP) must be developed promptly after assessment completion. Before closing any noted deficiencies, execution of corrective actions must be verified and the desired outcome must be confirmed.	In compliance				
MISCELLANEOUS (SECTION 14)							
14.01	Are any areas of the system susceptible to intentional breaches?	Review areas for damaged/ downed fences, etc.	In compliance				
14.02	Are cameras operational and monitored by personnel?	Verify signal is transmitting and personnel are monitoring.	In compliance				
14.03	WOs, and/or PERs: <ul style="list-style-type: none"> Closed without deficiencies corrected, Closed with no documentation of why corrective actions not 	Verify through random sampling of WO, and/or PERs (e.g., audits, PHAs, corrective maintenance, etc.)	No documentation in several work orders				

Item No.	Compliance Requirement	Explanation	Findings	Target Completion Date	PER / AIT#	Action Taken	Date Completed
	implemented, or <ul style="list-style-type: none"> <li data-bbox="228 256 537 345">• Corrections not performed in a timely manner. 						

Appendix III

Summary of PHA and PSM/RMP Findings, Observations and Best Practices

March 2-4, 2015

Finding	Recommendations
Green book contains procedures that are out of date (employee participation, contractor support, hot work and emergency response)	Update procedures to current version or reference on line link. Write one procedure pf PSM/RMP compliance and reference on line links
Outdated SDS sheets in green book	Update sheets or reference on line SDS system
SSP 18.0.004 not current, requires initials and sign off and is not being used	Delete and reference corporate and Fossil procedures
Expired mechanical integrity training for several individuals	Remove requirement for individuals not directly involved in work
49 PMs found as past due	Evaluate PMs that are past due to determine if these may be part of operator rounds. Close those with notes indicating part of operator rounds. Ensure any remaining are brought current.
Numerous missing or degraded tags from weather (1-2) vaporizer, tank farm	Walk down system to ensure all tags are present and legible. Develop PM or operator round to keep current.

Observation	Recommendation
Operations procedure book contains procedures not on inventory list and missing some procedures on the inventory list	Switch to electronic reference with one inventory sheet containing applicable ammonia procedures.
ERP underwent major rewrite in 2013, old procedure not referenced in revision log	Add reference “this version supersedes EP-14-001”
Notes are not always added to the work order to indicate what work was done or why any work was postponed or not completed	Consider spot check or some other system to ensure personnel are accountable for adequate notes in work orders.
PAF-SOI-10.200.001 requires retraining on ERP anytime the procedure changes	Require re-training as changes warrant to avoid retraining for minor revision changes.
Signage and labels becoming worn; will need replacement soon.	Issue work order for signage/label replacement project.
All vaporizer skids have had drain valves removed and replaced with plugs but plugs do not show up on drawing for double block and bleed.	Update drawing to illustrate location of plugs.
Difficulty getting drawings updated in a timely manner	Address with Generation Engineering

Best Practices
Notification Matrix was kept current
Extensive community wide drill recently performed using NH3 release as an exercise

PHA Update

This Process Hazard Analysis is considered revalidated and PSM/RMP assessment is considered current.
The next revalidation and PSM/RMP assessment is due on or before June 15, 2018.

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COO Standard Programs and Processes

Corrective Action Program

COO-SPP-03.1.1
Rev. 0002
Page 1 of 32

Validation Date 10-14-2011
Review Frequency 3 years
Validated By L. E. Thibault

Effective Date 10-26-2011

Responsible Peer Team/Working Group: COO CAP Peer Team

Approved by:

William R. McCollum, Chief Operating Officer

10-14-2011

Date

Revision Log

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
0	11/1/2010	All	<p>Initial issue. Replaces Appendix A, Attachment A1, and COO-SPP-3.0, Regulatory.</p> <p>Replaces Regulatory Compliance Procedure 1, Regulatory - Corrective Action.</p> <p>This revision complies with all of the requirements of TVA Administration of Standard Programs and Processes (SPPs).</p>
1	08/31/11	7 13 14 15 15-18 17 22-23 23-25 5 Various 23-26 17 & 28 27	<p>General rewrite of Section 3.0 to conform to the format required of SPPs.</p> <p>Added role of Regulatory Reviewer - Environmental</p> <p>Added a step to MRC responsibilities to ensure consistency of classification for environmental PERs.</p> <p>Added step for reviewing CAPs for environmental PERs</p> <p>Added Corrective Action Review Board to the senior MRC guidance.</p> <p>Added definitions as requested in PER 325281.</p> <p>Clarified environmental definitions</p> <p>Added PER screening guidelines for safety Regulatory Compliance Inspection and safety Assessment findings. Spelled out CAP when it refers to a Corrective Action Plan.</p> <p>Added PER screening guidelines for Findings generated from an Environmental Compliance Assessment.</p> <p>Added statements regarding the administration of adverse conditions identified within construction projects.</p> <p>Corrected grammar and formatting errors.</p> <p>Changed classification for recordable and first aid injuries. Also clarified nuclear vs. non-nuclear response to unit trip or loss of transmission.</p> <p>Clarified Effectiveness Review Expectations.</p> <p>Added the three parts of a problem statement.</p>
2	10/24/11	15 & 16 22	<p>Added guidance regarding anonymous PERs.</p> <p>Added guidance on how to handle PERs when an ongoing OIG investigation is involved.</p>

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1.0 PURPOSE

This procedure establishes the requirements and expectations for a Corrective Action Program (CAP) to promote standardization of processes and tools across Strategic Business Units (SBU) within the Chief Operating Officer (COO) organization.

A corrective action program is essential to an organization striving for continuous improvement, and a sound CAP focuses priorities on the prevention, detection, and correction (PDC) of problems. Prevention and detection are proactive organizational actions, whereas correction is an organizational reaction to a problem. Appendix D, PREVENT! Detect! correct. model, depicts the PDC concept.

The CAP contains the necessary guidance for the COO SBUs to effectively and efficiently find, analyze, and fix problems.

This procedure establishes the expectations for finding, analyzing, and fixing conditions that are adverse to quality, potentially adverse to quality, affect personnel safety, affect asset reliability, adverse trends, or other conditions that do not meet expectations.

Appendix E, COO Performance Improvement Model, depicts how CAP is an integral part of improving performance within the COO organization.

For conditions determined to be significantly adverse to quality, this procedure establishes measures to provide reasonable assurance that:

- The cause of the condition is determined.
- Corrective action precludes repetition.
- Corrective action is taken in a timely and accurate manner

This procedure establishes the ownership and closure requirements for Problem Evaluation Reports (PERs) as well as the prioritization of corrective action assignments.

2.0 SCOPE

This procedure is applicable to all COO SBUs and is expected to be implemented in its entirety. SBUs may add additional requirements to a SBU-specific procedure, but an SBU may not delete or diminish the content or intent of this procedure.

Issues found in the following areas require documentation, investigation, and correction in accordance with the CAP programmatic requirements. However, items that are entered into the Corrective Action Program are not limited to those within these areas.

- Safety
- Environmental
- Operational
- Regulatory

2.0 SCOPE (continued)

- Self-assessment areas for improvement

For construction projects, corrective actions to address failures, malfunctions, deficiencies, and defective equipment may occur within the established work practices. Therefore, conditions within control of an approved construction work process, where the work has not been declared complete, are not conditions adverse to quality requiring further evaluation through the CAP process. This does not include issues that have potential environmental impact. All such issues are expected to be promptly documented through the CAP process.

Review Cadence: This procedure will be reviewed triennially with the review documented in the Revision Log.

3.0 PROCESS

The Corrective Action Program is a process to find, analyze, and fix issues to ensure problems are acted on and corrected appropriately. The process includes monitoring and assessment criteria to ensure program health.

The electronic CAP system process flow charts are available on the Enterprise Asset Management (EAM) web portal.

NOTE

The various responsibilities described throughout this SPP (e.g., SR Screening, MRC, approving Corrective Action Plans, etc.) can be administered, designated, and controlled using the Maximo security features.

3.1 Roles and Responsibilities

3.1.1 Executive Owner

The Chief Operating Officer is the executive owner of this SPP.

3.1.2 SPP/Functional Lead

The General Manager, Nuclear Fleet Performance, is the interim functional lead for this SPP. When filled, the Performance Improvement Manager, Operating Support & Fleet Governance, fulfills the role of functional lead.

3.1.3 SBU Senior Officer

The Senior Officer of each strategic business unit is responsible for the overall health of the corrective action program within their SBU.

- Foster a work environment that encourages use of the CAP.
- Ensure appropriate resources are allotted and designated for overall program requirements.

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3.1.3 SBU Senior Officer (continued)

- C. Reinforce the importance of the CAP in preventing, detecting, and correcting problems to improve performance and prevent occurrence or recurrence of significant events.
- D. Monitor program metrics to identify adverse trends within the program.
- E. Ensure the SBU corrective action program is the only program to be used for identification and reporting of conditions that are adverse to quality, potentially adverse to quality, affect personnel safety, affect plant reliability, adverse trends, or other conditions that do not meet expectations.
- F. Ensure the SBU has individuals qualified to lead cause evaluations.
- G. Reward prevention and detection of problems.
- H. Ensure the officer's SBU collaborates with and supports investigation and correction of issues that involve other SBUs.

3.1.4 Manager in Charge of the Workplace

The manager in charge of the workplace, typically the workplace/facility/asset manager or equivalent, is responsible for overall implementation of the corrective action program.

- A. Determine if the Incident Prompt Investigation Process should be invoked in accordance with the associated COO SPP.
- B. Ensure only qualified personnel serve on the Management Review Committee (MRC) and Corrective Action Review Board (CARB), and at least one qualified person to conduct a Root Cause Analysis (RCA) and an Apparent Cause Evaluation (ACE).
- C. Serve as, or approving the appointment of, the chair for the MRC and/or CARB.
- D. Monitor the proper implementation of the CAP.
- E. Promote prevention and detection of conditions adverse to safety, reliability, and those conditions that do not meet management expectations.

3.1.5 Managers and Supervisors

- A. Reinforce program requirements.
- B. Maintain awareness of identified problems in their area of responsibility.
- C. Ensure, through monitoring activities, timely and proper implementation of corrective action and closeout of corrective action documentation owned by their department.
- D. Review responses to CAP assignments, as required, for completeness and accuracy, and concur that any proposed corrective actions or follow-on assignments are appropriate and reasonable.

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3.1.5 Managers and Supervisors (continued)

- E. Approve extension requests and ensure the extensions are within the established requirements. Obtain higher-level approvals for extensions in accordance with the requirements of this procedure.
- F. Monitor the adequacy of cause evaluations completed within their department.
- G. Review cause analyses for which they are the Responsible Manager.
- H. Provide support personnel for cause analysis as needed, including Lead Evaluators for RCA.
- I. Participate actively in PER screening, as appropriate.
- J. Support and take part in the disposition of PER issues, as appropriate.
- K. Ensure appropriate personnel are trained and qualified to fully implement this SPP.
- L. Maintain awareness of program metrics for their area of responsibility.
- M. Support employee recognition that rewards prevention and detection of problems.

3.1.6 MRC or equivalent

The management review committee provides oversight of the implementation of the corrective action program within their business unit. The MRC ensures the business unit CAP complies with the expectations stated in the CAP procedures. A senior MRC or CARB can be used to fulfill some of the functions of an MRC.

3.1.7 Program Administrator

The program administrator manages the SBU or BU CAP as stated in the CAP procedures.

3.1.8 Department Corrective Action Program Coordinators

If a business unit does not use department coordinators, then the following are additional responsibilities of the Program Administrator.

- A. Monitor and report to management the timely completion of CAP items assigned within their work group.
- B. Assign CAP items to employees within their department and ensure appropriate due dates and/or priorities are assigned.
- C. Ensure the programmatic requirements of the CAP are met and the response effectively addresses the issue.
- D. Ensure concurrence has been received for assignments assigned to their own and to other departments.

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3.1.8 Department Corrective Action Program Coordinators (continued)

- E. Ensure prompt processing of time-sensitive Service Requests (SRs) such as those regarding reporting of regulatory, potential environmental issues, licensing, and safety issues.
- F. Create and assign follow-on assignments for CAP items completed within their department.

3.1.9 Regulatory Reviewer - Environmental

- A. The Regulatory Reviewer-Environmental role is responsible for determining whether a PER is a Reportable Environmental Event, an Environmental Event, or an Environmental Incident.
- B. The reviewer recommends the severity level for those PERs flagged as “Potential Environmental Issue Yes.”
- C. The reviewer ensures reviews are documented in the comments field of the Review tab and complies with the TVA SPP Environmental Event Notification.
- D. Assignment to the security group Regulatory Review-Environmental is controlled by the Vice-President, Environmental Permitting and Compliance (VP-EP&C).

3.1.10 SR Screener

- A. Reviews an SR for clarity, completeness, and correctness.
- B. Ensures adequate information is available for subsequent reviews.
- C. Determine if the issue warrants a PER, Work Order, both, or if the item does not warrant any action.
- D. Dispositions an SR promptly.

NOTE

Anyone can initiate a service request. Significance or jurisdiction questions or “who owns the PER” should not hinder initiation of a service request. The CAP process is designed to determine significance, “who owns the PER” and how to administer PERs with the same or similar problem statements.

3.1.11 SR Initiator

Submits an SR for an issue or concern that meets initiation criteria.

Provides sufficient information to ensure the issue or concern can be understood by subsequent reviewers,

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3.1.12 Personnel Performing an ACE or RCA

- A. Maintain ACE or RCA qualifications by performing or participating in one ACE or RCA that receives approval from the designated MRC at least once every 18 months. Performing or participating in an RCA counts for both ACE and RCA qualifications.
- B. Document the participation in these investigations by completing TVA form 13041A attendance record using the Automated Training Information System (ATIS) activity number as designated in the CAP Training Position Description (TPD) on the Training and Development website.
 - 1. This roster is signed either by the lead investigator or by the manager responsible for the investigation, and includes the names of all team participants.
 - 2. Send the completed form to the ATIS administrator or to the Employee Service Center for data entry into ATIS.

3.2 Instructions

The instructions within this section are divided into two subsections.

The first section, 3.2.1 Program Administration, provides guidance as to requirements for managing the program from an administrative aspect. It details functions and duties that are required to maintain a healthy program, including resources, training, recognition, trending, and assessment.

The second section, 3.2.2 Process Requirements, provides guidance as to requirements for the PER processing, including the required reviews, analysis and corrective action plan development and implementation.

3.2.1 Program Administration

- A. Ensure the SBU Senior Officer has allocated the appropriate resources to support the overall CAP programmatic requirements.
- B. Implement initial and continuing training in accordance with training requirements assigned through the Automated Training Information System (ATIS) for individuals performing the following duties:
 - 1. Personnel responsible for screening and approving SRs and new PERs.
 - 2. Personnel serving on the MRC (or equivalent).
 - 3. Personnel participating on or leading an ACE or RCA.
 - 4. Personnel responsible for developing or approving corrective action plans.
 - 5. Personnel functioning as PER coordinators.
 - 6. Personnel performing administrative duties for the SBU/BU corrective action program.

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3.2.1 Program Administration (continued)

- C. Develop a recognition program, such as a Good Catch Program, to encourage prevention and detection of issues. All facets of the corrective action program should be reinforced: Finding problems, analysis of the problems, and fixing the problem.
 - 1. Reference the Employee Recognition SPP for guidance on implementing the Recognition Program.
 - 2. Examples of performances that may warrant recognition are:
 - a. Commendable awareness leading to identification of an underlying issue.
 - b. Early identification of significant issues.
 - c. Ardent commitment to the corrective action program.
 - d. Identification of a viable solution to the PER problem.
 - e. Accurate analysis that clearly identifies the apparent or root cause.
- D. Generate special reports of PERs and PER data, as requested.
- E. Monitor adherence to the overall program requirements.
 - 1. Identify upcoming/overdue items, common cause factors, and processing issues within the program by tracking and trending PER items.
 - 2. Ensure appropriate trend codes are entered into the electronic CAP system to aid in trending issues. The SBU must establish the method to be used for selecting and entering the trend codes. For consistency, it is best to use a core group to perform this function as much as possible.
 - 3. Use trending to monitor problems, such as:
 - a. Similar equipment failures.
 - b. Similar industrial safety problems.
 - c. Human performance errors.
 - 4. Analyze trends for common causes and vulnerabilities before significant problems result.
 - 5. Review and/or coordinate the review of corrective action responses selected for management review.
 - 6. Attend PER reviews, as required.
 - 7. Coordinate management review agendas.
 - 8. Escalate to management's attention significant deviations from management expectations in the implementation of the CAP.

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3.2.1 Program Administration (continued)

9. In accordance with SBU-specific needs, establish CAP performance indicator to monitor program health in the following:
 - a. Initiation
 - b. Quality
 - c. Timeliness
 - d. Effectiveness
 - e. Threshold values for acceptable performance range.
 - f. Methodology for recovery plans to address any metric that falls outside the established threshold values.

10. Conduct self-assessments that evaluate the following areas at least every three years. Present the assessment results to the MRC and document areas for improvement in the CAP.
 - a. Review committee effectiveness
 - b. Effectiveness of corrective actions taken
 - c. Cause analysis quality
 - d. Processing timeliness
 - e. Employee opinion of the program

3.2.2 Process Requirements

NOTES	
1)	Immediately following an incident, the Manager in Charge of the Workplace determines if the Incident Prompt Investigation SPP should be implemented.
2)	TVA SPPs Implement Labor Contract Safety Requirements and Report and Investigate Injuries and Illnesses describe PER initiation threshold expectations for industrial safety-related events.
3)	TVA SPP Environmental Event Notification defines PER initiation threshold expectations for identifying incidents as Potential Environmental Issues including discussion surrounding Environmental Events, Environmental Incidents, and Reportable Environmental Events (REEs).

A. SR Initiation

1. Submit an SR for an issue or concern that meets the following and provide sufficient information to ensure the issue or concern can be understood by subsequent reviewers:

3.2.2 Process Requirements (continued)

- a. Adverse to quality
 - b. Potentially adverse to quality
 - c. Affects personnel safety
 - d. Affects asset reliability
 - e. Represents a potential adverse trend
 - f. Where expectations are not met
 - g. Whenever there is doubt as to whether the issue warrants a PER.
2. Document the issue or concern as soon as practical. The SR should be submitted no later than the end of the work shift.
 3. Identify individuals by position and department only (do not include names).
 4. Notify the appropriate management immediately when the deviating condition has the potential to impact asset operations, personnel safety, or environmental conditions/compliance.
 5. Identify (in the SR) any missed expectation, the consequence of the deviating condition, and any associated risk.
 6. If the electronic system is unavailable, complete a paper SR. The paper SR form can be obtained from the EAM web portal.
 7. Preserve event conditions that may later aid in determining why the event occurred, as applicable.

B. SR Screening

NOTE
Appendix A provides additional guidelines for SR screening.

1. Review the SR for clarity, completeness, correctness, and ensure adequate information is available for subsequent reviews.
2. Determine if the issue warrants a PER, Work Order, both, or if the item does not warrant any action.
3. Disposition the SR promptly to allow for the PER screening process to occur within seven calendar days of SR initiation.
4. If it is determined a PER is warranted,
 - a. Review the problem statement,

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3.2.2 Process Requirements (continued)

- b. Identify any immediate actions or notifications required such as operability reviews or nuclear, industrial, radiological, environmental, or safety issues.
- c. IMMEDIATELY notify the site Responsible Environmental Person if marking the event as a Potential Environmental Issue.
- d. Do not alter the existing PER Summary or PER Details contents except for the following nonintent changes:
 - (1) Remove employee names or Social Security Numbers.
 - (2) Remove personal medical information.
 - (3) Remove Safeguards Information (SGI).
 - (4) Remove offensive or harassing language.
 - (5) Add comments as needed to clarify the Details section.
- e. Annotate any added comments with the date and the initials of the individual adding the comment.

C. MRC (or equivalent)

NOTE

A management committee reviews all new PERs to ensure issues are addressed in accordance with the requirements of this procedure. The manager in charge of the workplace determines the method the SBU will use for this review process.

- 1. Establish a standard recurring meeting with a minimum frequency of once a week. The review meeting may be cancelled if no PERs require management review and the chair agrees to cancel the meeting.

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3.2.2 Process Requirements (continued)

NOTE

If at any point during the course of the corrective action plan development the condition is found to be more significant than initially reported, the PER is returned to the MRC to reevaluate the significance level.

NOTE

If a SBU uses a Corrective Action Review Board (CARBs) as their senior MRC, the CARB is typically comprised of selected senior managers who provide upper-tier oversight of their respective CAP. They ensure their site corrective action program is a robust tool to find, analyze, and fix problems. CARB review of CAP products is focused on identifying program, process, or execution weaknesses that contribute to poor quality. Identified weaknesses are corrected by use of the CAP.

2. If multiple levels of management review are instituted, the senior MRC or Corrective Action Review Board reviews:
 - a. RCA problem statements and select ACE problem statements
 - b. In progress RCA updates
 - c. Interim/compensatory corrective actions from RCAs
 - d. Completed RCAs and select ACEs
 - e. RCA extension requests
 - f. RCA effectiveness reviews
 - g. Corrective Action Performance Indicators
 - h. Corrective Action Trend Reports
 - i. Corrective Action Program assessments and reviews from internal sources (e.g., self-assessments) and external organizations
3. Ensure the problem description is clear and concise, and that adequate information is provided to address the issue.
4. Validate immediate actions taken and consider any additional immediate/interim actions needed.
5. Ensure the proper PER classification (A, B, C, D, or E) has been assigned. Appendix B provides additional guidance.

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3.2.2 Process Requirements (continued)

6. For PERs marked as “Potential Environmental Issue = Y,” utilize the classification and severity level noted on the Regulatory Review - Environmental tab. If this tab has not been completed at the time of screening, request input on the appropriate classification from the designated Environmental Reviewer for the Business Unit initiating the PER.
7. Determine the appropriate cause analysis method for the PER and ensure adequate resources are committed to the investigation.
8. Assign the appropriate organization to own the PER and develop corrective actions.
9. Maintain awareness of previous issues to allow identification of potential trends.
10. Identify potential generic applicability to other sites, organizations, facilities, or assets.
11. If reviewing a Cause Analysis, determine if it meets expectations. Appendix C provides further guidance.
12. If reviewing a corrective action plan for a level A or B PER, ensure it is commensurate with the problem severity and frequency.
13. If reviewing a corrective action plan where the Environmental Regulatory Review indicated an REE or an Environmental Event, coordinate the development of the corrective action plan with Environment and Technology (E&T) - Environmental Permitting and Compliance (EP&C) staff.
14. Identify instances of exemplary prevention, detection, analysis, or correction behaviors for recognition and positive reinforcement (R+).
15. If PER was submitted anonymously, consider whether there are potential work environment issues that affect the significance level of the PER.

NOTES

- 1) Refer to the COO SPPs Cause Evaluation Methods Manual, Root Cause Analysis, and Apparent Cause Evaluation for additional guidance on these subjects.
- 2) If a Serious Accident Investigation was performed in accordance with the TVA Conduct Serious Accident Investigation SPP, that report may substituted for the causal analysis directly.
- 3) Additional Corrective Action Plan development guidelines are contained in Appendix C.

D. Corrective Action Plan Development

1. Complete the development of the corrective action plan within 30 calendar days of management approval of the PER classification; this includes obtaining acceptance of actions and management approval.

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3.2.2 Process Requirements (continued)

2. If additional time is needed, process an extension in the electronic CAP system, address the associated risks, document the justification, and obtain required approvals.
3. Use the appropriate Causal Analysis method and associated SPP if an analysis was specified by the MRC.
4. If an RCA is performed, an additional 10 working days are allowed for the additional analysis required.
5. If an ACE or RCA was performed, complete TVA form 13041A attendance record using the Automated Training Information System (ATIS) activity number as designated in the CAP Training Position Description (TPD) on the Training and Development website.
6. If PER was submitted anonymously, consider whether there are potential work environment issues that should have actions developed to address them.
7. Assign realistic and timely due dates for corrective actions.
8. If extensions of PER actions are required, process action extensions in the electronic CAP system.

4.0 RECORDS

4.1 QA Records

None

4.2 Non-QA Records

None

5.0 DEFINITIONS

NOTE

Some of the terms in this section are not used in this SPP. The terms are provided because they are used in the Maximo electronic CAP system.

Apparent Cause - A problem or condition cause determination based on the evaluator's judgment and experience, and where reasonable effort is made to determine WHY the problem occurred. This might include fact-finding, analysis, interviewing, benchmarking, and reviewing data or maintenance history, or other methods as appropriate.

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5.0 DEFINITIONS (continued)

Automated Training Information System (ATIS) - The electronic database used by TVA to record training records. ATIS is an integral part of the Human Resources Information System and interfaces with other programs including Medics, HIS-20, Net-Learning, Self-Service Solution, and General Physics.

Conditions Adverse to Quality (CAQ) - Deficiencies defined in 10CFR50 Appendix B Criterion XVI that include nonconforming material, parts, or components; failures; malfunctions; deviations; hardware problems involving noncompliance with licensing commitments, specifications, or drawing requirements; abnormal occurrences; and non-hardware problems such as failure to comply with the operating license, technical specifications, licensing commitments, procedures, instructions, or regulations. For construction projects, corrective actions for nonconformances, failures, malfunctions, deficiencies, and defective equipment may occur within the established work practices. Therefore, conditions within control of an approved construction work process, where the work has not been declared complete, are not conditions adverse to quality requiring further evaluation through the CAP process.

Construction Project - The scope of activities conducted outside of TVA processes by a contractor or non-TVA third party to install a physical asset or develop services at one of TVA's facilities, which includes conceptual design, design, procurement, build, testing, field modifications, and system turnover. Typically, adverse conditions and discrepancies are monitored and corrected within a contractor's processes and programs unless stipulated otherwise within agreements between TVA and a contractor.

Corrective Action (CA) - An action taken or planned that restores a Condition Adverse to Quality to an acceptable condition or capability.

Corrective Action to Prevent Recurrence (CAPR) - An action designed to prevent or significantly reduce the recurrence frequency of significant problems. CAPRs are required for identified root causes and require performance of effectiveness reviews.

Corrective Action Program (CAP) - The systematic process used to find, analyze, and fix performance gaps and near misses such that overall performance is improved. CAP is an essential part of continuous performance improvement.

Corrective Action Review Board (CARB) - A committee of selected senior managers who provide upper-tier oversight of their respective corrective action program.

Degraded Condition - A degraded condition is one in which the qualification of a system, structure, or component (SSC) or its functional capability is reduced. Examples of degraded conditions are failures, malfunctions, deficiencies, deviations, and defective material and equipment. Examples of conditions that can reduce the capability of a system are aging, erosion, corrosion, improper operation, and maintenance.

Effectiveness Review - An evaluation to determine if corrective actions were successful in preventing or significantly reducing the recurrence frequency of significant problems. Effectiveness reviews are required for CAPR actions. An effective CAPR will result in improvements to equipment, processes, or programs to control recurrence of the deficiencies that resulted in the initiating PER. If an action is classified as EFR in Maximo, the Effectiveness Review template is completed, which requires additional approvals.

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5.0 DEFINITIONS (continued)

Enhancements - Within the scope of this procedure an action that is not required to be performed to satisfactorily correct or prevent recurrence of conditions adversely affecting regulatory compliance, plant reliability or personnel/nuclear safety.

Environmental Event (EE) - An event (resulting from human activities or Acts of Nature) that has the potential to negatively affect human health or the environment and/or environmental compliance and requires a corrective action. Refer to TVA SPP Environmental Event Notification for further details.

Environmental Incident (EI) - An urgent EE that requires external reporting to comply with regulations or is beyond the control of on-site or area personnel and is tracked and reported using the Environmental Incident Information System. This definition does not include minor events that are under direct control of site personnel and do not require external reporting or threaten human health or the environment. Refer to TVA SPP Environmental Event Notification for further details.

Extent of Cause - An evaluation performed once the root cause is determined to identify other areas where the same cause is present and could lead to a significant event.

Extent of Condition - An evaluation to determine if an event or condition has other identical or similar applications or has other common characteristics (personnel, procedure, material, vendor, age, location, environment, etc.). These characteristics indicate that the condition may not be isolated or may have generic implication that need to be addressed.

Immediate Corrective Action - Steps taken to mitigate or reduce the consequences of an event or condition and place the unit and/or equipment in a safe condition. These actions may compensate for a problem rather than correct the problem.

Interim Corrective Action - Actions, which are necessary to control the situation until implementation of approved corrective actions, has been completed.

Long-Term Corrective Action - A corrective action that will require >180 days to complete because of extenuating circumstances, such as significant programmatic/process change, effects completion would have on operability of equipment, complex nature requiring coordination between multiple SBU/BU/department/sites.

Management Review Committee (MRC) - A managerial group entrusted with providing oversight of the implementation of the corrective action program within their business unit.

Near Miss - Any occurrence that could have resulted in undesirable consequences but did not; ranging from minor breaches in defenses to incidents in which all the available safeguards were defeated, but no actual losses were sustained.

Non-PER - A service request problem statement describing a condition that does not meet any Level A - D criteria. Thus, a PER is not warranted. This classification still requires MRC concurrence and the record is saved in Maximo. If the Archive feature is used, it will also be archived in EDMS. Examples where this classification may be used include (but are not limited to) situations where a duplicate PER is identified or the PER was initiated by mistake. Maximo requires a justification for this classification as to why the issue is not a PER condition. Non-PERs are classified as Level E in Maximo.

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5.0 DEFINITIONS (continued)

Potential Environmental Issue - Regulatory, Policy, or Environmental Management System nonconforming condition that may be classified as an Environmental Event, Notice of Violation, Environmental Incident and/or a Reportable Environmental Event, as defined in this procedure, and requires completion of the Regulatory Review template in the electronic CAP system. Additional information available in TVA Environmental Management Procedure - Performance Monitoring and Reporting.

Previous Similar Events Review - An evaluation of previous occurrences similar to the cause of the PER to identify if previous corrective actions were ineffective and to identify corrective actions that others have taken that should be considered. This can be performed by reviewing items such as plant documents, events that have occurred at other TVA facilities, non-power plant environments, regulatory bodies, vendors, EPRI, and EEI.

Problem Evaluation Report (PER) - The document used within the TVA corrective action program to document how a problem was found, how the problem was analyzed, and how the problem was fixed.

Reportable Environmental Event (REE) - An Environmental Event at a TVA facility or elsewhere caused by TVA or TVA contractors that violates regulatory requirements and triggers oral or written notification to, or enforcement action by, a regulatory agency. Additional information available in TVA SPP Environmental Event Notification.

Root Cause Analysis - An extensive analysis of factors that played into an event. The analysis goes beyond information readily available and examines processes and organizational structures to identify the fundamental underlying cause.

Safeguards Information (SGI) - Means information not classified as National Security Information or Restricted Data that specifically identifies a licensee's or applicant's detailed control and accounting procedures for the physical protection of special nuclear material in quantities determined by the Nuclear Regulatory Commission through order or regulation to be significant to the public health and safety or the common defense and security; detailed security measures (including security plans, procedures, and equipment) for the physical protection of source, byproduct, or special nuclear material in quantities determined by the Commission through order or regulation to be significant to the public health and safety or the common defense and security; security measures for the physical protection of and location of certain plant equipment vital to the safety of production or utilization facilities; and any other information within the scope of Section 147 of the Atomic Energy Act of 1954, as amended, the unauthorized disclosure of which, as determined by the Commission through order or regulation, could reasonably be expected to have a significant adverse effect on the health and safety of the public or the common defense and security by significantly increasing the likelihood of sabotage or theft or diversion of source, byproduct, or special nuclear material.

Serious Near Miss - An event that did not result in a significant event but that under slightly different conditions, likely to occur, had the potential to have been one.

Significant Event - An incident such as an unplanned turbine generator trip, any condition that has caused a unit capacity/reliability concern, or an actual or potential condition adverse to quality.

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6.0 REFERENCES

COO-SPP-3.1.3, Cause Evaluation Methods Manual

COO-SPP-3.1.4, Root Cause Analysis

COO-SPP-3.1.5, Apparent Cause Evaluation

COO-SPP-3.1.10, Incident Prompt Investigation

TVA-SPP-05.4, Environmental Management System – Performance Monitoring and Reporting

TVA-SPP-05.17, Environmental Event Notification

TVA-SPP-18.03, Implement Labor Contract Safety Requirements

TVA-SPP-18.010, Conduct Serious Accident Investigation

TVA-SPP-18.011, Conduct Workplace Regulatory Compliance Inspections

TVA-SPP-18.012, Report and Investigate Injuries and Illnesses

TVA-SPP-18.013, Conduct Safety Program Assessments

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**Appendix A
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Guidelines for Service Request Screening

WO only: Normally a Work Order (WO) is the method for resolving equipment deficiencies and is a better approach for troubleshooting equipment. A WO should be generated for situations where:

- There is low significance or impact (e.g., no impact to generation).
- There is normal degradation for which there is planned preventive or corrective maintenance.
- There is routine or minor breakage that needs repair (e.g., broke/fix).
- Trends in routine breakage and/or normal wear are within expected acceptable levels. If an adverse trend is identified, a PER may be initiated to investigate the cause and actions needed to prevent recurrence. (e.g., process improvements or training to improve human performance).

PER only: A PER is used to address emergent issues beyond equipment deficiencies. It can drive formal investigation into issues and provide a means to track actions developed to correct problems. A PER should be initiated for situations where:

- The events are due to non-hardware issues (e.g., human performance or process only problems, with no hardware broken or malfunctioning).
- Adverse trends in precursors for more significant or recurring problems are noted. In such cases, a higher level PER may be appropriate to determine cause(s) and corrective actions. (Trend evaluation applies to all levels of PERs, but it is particularly important for C and D level PERs where less time is spent looking at underlying causes, extent of condition, etc.).

WO and PER: A PER cannot perform work on equipment. Likewise, a WO is not the proper administrative approach for conducting an investigation and cannot solve a program/process or human performance problem. An event may require actual work to be performed on equipment and have implications of possible larger issues that warrant further investigation. PERs are generated in addition to the WO when Management desires additional actions be taken other than fixing the equipment. A PER and a WO should be initiated for situations where:

- There are significant failures involving hardware, or both hardware and human performance that require root cause determination, extent of condition (EOC) review, and recurrence control. In such cases, a PER would be required to address programmatic aspects of the causes, while a WO would be required to fix the specific hardware problem(s).

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- Examples of when it is appropriate to generate a PER in addition to the WO include but are not limited to the following:
 1. The need for extent of condition, cause, or failure analysis is identified.
 2. Programmatic or organizational issues require investigation and correction.
 3. Human error is involved or suspected.
 4. An unexpected or accelerated degradation, rapid aging, or infant mortality condition exists.
 5. Process issues such as procedures or PMs require further evaluation.
 6. Documentation for trending is desired or required.
 7. Interim actions need to be established.
 8. The situation is reportable to an outside agency.
 9. The consequences of the failure were greater than expected.

**Appendix B
(Page 1 of 5)**

Guidelines for Assigning PER Significance Levels

NOTE

This attachment provides guidelines for assigning PER condition levels to aid in achieving consistency and ensuring appropriate actions and levels of review are assigned. Specific criteria and additional examples may be provided in an SBU/BU specific procedure. The PER is classified at the discretion of the MRC. The requirements in this Appendix may not be lessened, and the significance level should not be modified to achieve certain investigatory elements. The MRC also has the discretion to require additional or more extensive analysis, but the PER significance level is to remain standard throughout the COO organization.

PERs that involve willful wrong doing/misconduct are referred to the OIG for investigation. In scenarios where OIG is investigating a condition, CAP investigatory actions taken may be limited at the discretion of the MRC. At a minimum, corrective actions associated with the adverse condition and the extent of condition evaluations address other work performed by the individuals to verify the quality of their work.

REQUIREMENTS	LEVEL A	LEVEL B	LEVEL C	LEVEL D
Cause Analysis	Root	Apparent	None	None
Corrective Action Plan	Yes	Yes	Yes - if not corrected immediately	No - if corrected immediately
Generic Applicability Consideration	Yes	Yes	Yes	No
Extent of Condition	Yes	Yes	No	No
MRC Corrective Action Plan Review	Yes	No	No	No
Senior Management Approval	Yes	No	No	No
Extent of Cause	Yes	No	No	No
Previous Similar Events	Yes	No	No	No
Recurrence Control and Effectiveness Review Assessment	Yes	No	No	No

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Guidelines for Assigning PER Significance Levels

LEVEL A - Significant Adverse Condition

- A. Conditions with potentially significant regulatory (e.g., NRC, OSHA, NERC, EPA, Federal, State) impact, such as:
 - 1. A major regulatory, safety, reliability, or related programmatic condition that has occurred with a frequency as to indicate past recurrence control has been lacking or ineffective.
 - 2. Confirmed adverse trends in the areas listed above (A.1) identified by trend analysis that represent a major programmatic breakdown.
 - 3. A programmatic or process breakdown that negates quality controls or places doubt on the integrity of the affected program.
 - 4. Repetitive or deliberate occurrences of procedural violations that have a direct and detrimental effect on regulatory, safety, reliability, performance, or quality.
 - 5. Falsification or unauthorized changes to the content of regulatory or quality assurance records (completed or in process).
 - 6. A Significant Adverse Environmental Incident (Level 1) as defined in TVA SPP Environmental Event Notification.
- B. A Nuclear Unit unplanned unit trip or loss of transmission (resulting in loss of power to a customer) with complications. Associated support systems not functioning as required would constitute complications.
- C. A significant industrial safety event, including a fatality or serious accident/injury.
- D. Extensive equipment damage that has a direct cost to TVA of more than \$500,000.
- E. A condition that represents the highest risk to safe, reliable operation or personnel safety.
- F. A Repeat Level 1 Finding from an Environmental Assessment conducted by the Environmental Operations Compliance staff where original corrective action plan has been completed.

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Guidelines for Assigning PER Significance Levels

LEVEL B - Issues of Substantial Severity Warranting Further Investigation.

- A. Human errors (inappropriate actions) that could have, under different circumstances, caused a significant plant event or serious personnel injury.
- B. Issues that do not qualify as Level A, but that do require formal written responses to a regulatory body, excluding minor and noncited violations or NRC Level IV findings.
- C. Recurring events, not classified as significant adverse conditions, with the potential to cause a plant/facility event or personnel injury. Adverse trends that indicate the potential for substantial safety, reliability, or regulatory risk.
- D. Discovery of a deficiency in an area such as design or analysis, operation, maintenance, testing, procedures, or training that is likely to cause a significant event.
- E. A Nuclear Unit unplanned unit trip or loss of transmission equipment (resulting in loss of power to a customer) without complications. All associated support systems functioned as required.
- F. A substantial extent of condition.
- G. A significant or repeat audit nonconformance/finding.
- H. An Adverse Environmental Event (Level 2) as defined in TVA SPP Environmental Event Notification.
- I. A condition involving safety, reliability, or risk that is judged significant because of its risk, causes, or consequences. This may include events that had a strong potential to be more severe if different circumstances, that could reasonably be expected, had been present.
- J. Actions taking longer than 90 days from the issuance of a safety Regulatory Compliance Inspection (RCI) report to correct a finding identified in the RCI report.
- K. A Level 1 Finding from an Environmental Assessment conducted by the Environmental Operations Compliance staff.
- L. A Repeat Level 2 Finding from an Environmental Assessment conducted by the Environmental Operations Compliance staff where original corrective action plan has been completed.

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Guidelines for Assigning PER Significance Levels

LEVEL C - Routine Problems or Adverse Conditions That Require Documentation of Corrective Actions.

- A. Conditions that represent minimal risk significance to safe, reliable operation or to personnel safety.
- B. Conditions that identify a problem that warrants tracking to closure.
- C. Conditions where structures, systems, and components are degraded to the point they cannot meet design intent on systems that are not classified as run-to-failure.
- D. Conditions that identify a problem that requires issuance of a special report, outside normal communications, to an agency external to TVA.
- E. Human performance or other problem trends with minor consequence and low potential to cause a plant event, but require improvement.
- F. An incident resulting in a recordable injury or a serious near miss. The MRC uses the actual or potential severity of the injury or near miss to assign the required level of causal analysis. Some recordable injuries or near misses will warrant a higher level of analysis such as an apparent cause evaluation (ACE).
- G. An Environmental Event (Level 3) as defined in TVA SPP Environmental Event Notification.
- H. An audit nonconformance/finding requiring additional evaluation and action.
- I. Self-assessment areas for improvement.
- J. Serious and greater finding identified in a safety Regulatory Compliance Inspection report.
- K. Finding identified in safety program assessment report.
- L. A Level 2 Finding from an Environmental Assessment conducted by the Environmental Operations Compliance staff.
- M. A Repeat Level 3 Finding from an Environmental Assessment conducted by the Environmental Operations Compliance staff.
- N. A non-nuclear unit unplanned unit trip or loss of transmission equipment. The MRC uses the severity of the incident to assign the required level of causal analysis.

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Guidelines for Assigning PER Significance Levels

LEVEL D - Routine Problems with Uncomplicated Resolutions and Low-Level Problems Identified For Trending Only

- A. Conditions that are not reportable and are not potentially generic.
- B. Human performance problems of less importance but require documenting and trending.
- C. An audit nonconformance/finding that was corrected with a "quick fix."
- D. Environmental Event (Level 4) as defined in TVA SPP Environmental Event Notification.
- E. Run-to-failure structure, system, or component degradation such that they no longer meet their design function to allow trending and evaluation of these failures.
- F. Non-serious finding identified in a safety Regulatory Compliance Inspection report.
- G. Level 3 Findings from an Environmental Assessment conducted by the Environmental Operations Compliance staff.

LEVEL E - Non-PER - A service request problem statement describing a condition that does not meet any Level A - D criteria. The service request describes a non-issue.

- A. This classification requires MRC concurrence and the record is saved in Maximo, as a Level E.
- B. If the Archive feature is used, the PER will be archived in EDMS.
- C. Examples where this classification may be used include (but are not limited to) situations where a duplicate PER is identified or the PER was initiated by mistake.
- D. Maximo requires a justification for Level E classification as to why the issue is not a PER condition.

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**Appendix C
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Corrective Action Plan Development Guidelines

A. The Problem Statement

Is the problem statement clear, concise, and accurate?

A complete problem statement contains three elements

- An object that describes the affected component, system, process, or issue.
- A defect that describes what is wrong with the object.
- A consequence that describes the undesirable condition caused by the defect.

After investigation, the problem statement may need to be revised. A revision is not generally the rule; however, in some cases it might be required.

B. The Extent of Condition

1. Is the extent of condition too narrowly focused?
2. Did the root cause raise additional questions?
3. Was an extent of cause included in the extent of condition?

C. The Cause

1. Is it clear that a structured method was used?
2. Does the cause explain why the event occurred?
3. Were other potential causes systematically eliminated?
4. Are Organizational and Programmatic issues identified?
5. Are the causes correctable?
6. Was a Safety Culture Evaluation checklist completed and conclusions supported?

D. Corrective Actions

1. Is there a corrective action to correct the condition?
2. Is there a corrective action to address the cause and extent of cause?
3. Are the actions timely?
4. Do existing interim actions need to be maintained?
5. Are additional interim actions needed until actions are implemented?

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6. If there is an action to evaluate, is it an enhancement and not needed to address the condition or the cause; or if not, does the action specify how the results of the evaluation is reviewed, approved, and implemented?
7. Does the corrective action plan adequately address safety culture aspects associated with root causes and significant contributors?
8. Are the actions SMART?
 - a. Specific - Action has a clearly defined course of action.
 - b. Measurable - It is easy to understand how the action is completed.
 - c. Achievable - Action is within the span of control of assigned organization.
 - d. Realistic - Actions consider resource needs and availability.
 - e. Time Based - The action has a definite completion time versus "ongoing."
9. Is this a recurring problem? Has there been a similar, previous event?
10. Why have previous corrective actions not been successful?
11. Should Industry Operating Experience (OE) or internal OE have prevented this event?

NOTE

Effectiveness reviews are required for CAPR(s). If a non-CAPR action is assigned an effectiveness review - EFR - in Maximo, completion of the effectiveness review template is required. This template requires additional approvals.

An absence of an activity is not a good effectiveness measure unless the results of a corrective action can clearly and directly demonstrate that an activity did not occur because of the action.

E. Effectiveness Review:

Is it clear how the effectiveness of the Corrective Action to Prevent Recurrence (CAPR) is measured? It is required that the success measures be specified for a CAPR - these measures are used in the effectiveness review process. If actions are SMART, the effectiveness of CAPRs will be measureable. Measures of effectiveness include:

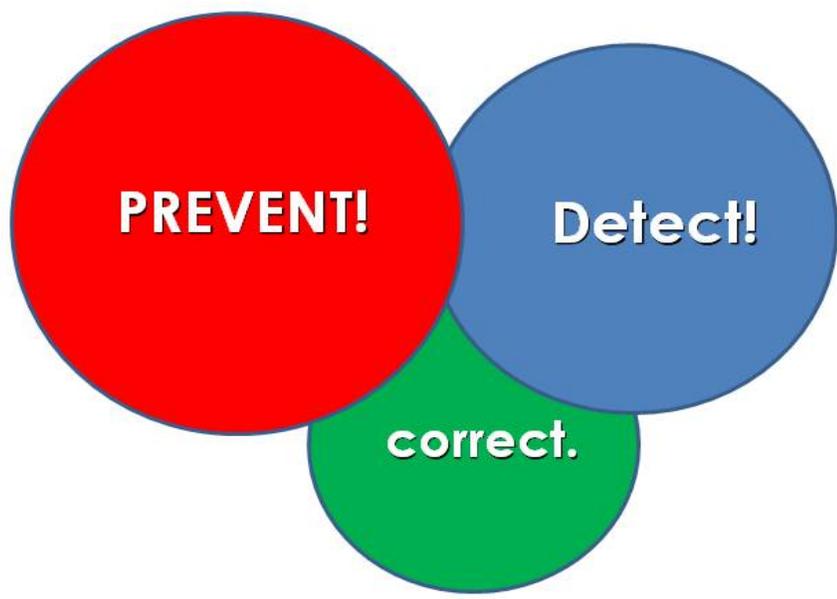
1. Improvements in quality.
2. Improvements in timeliness.
3. Improvements in safety.
4. Improvements in quantity.
5. Improvements in cost.

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**Appendix D
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PREVENT! Detect! correct. Model

COO Performance Improvement
How you get there, matters.

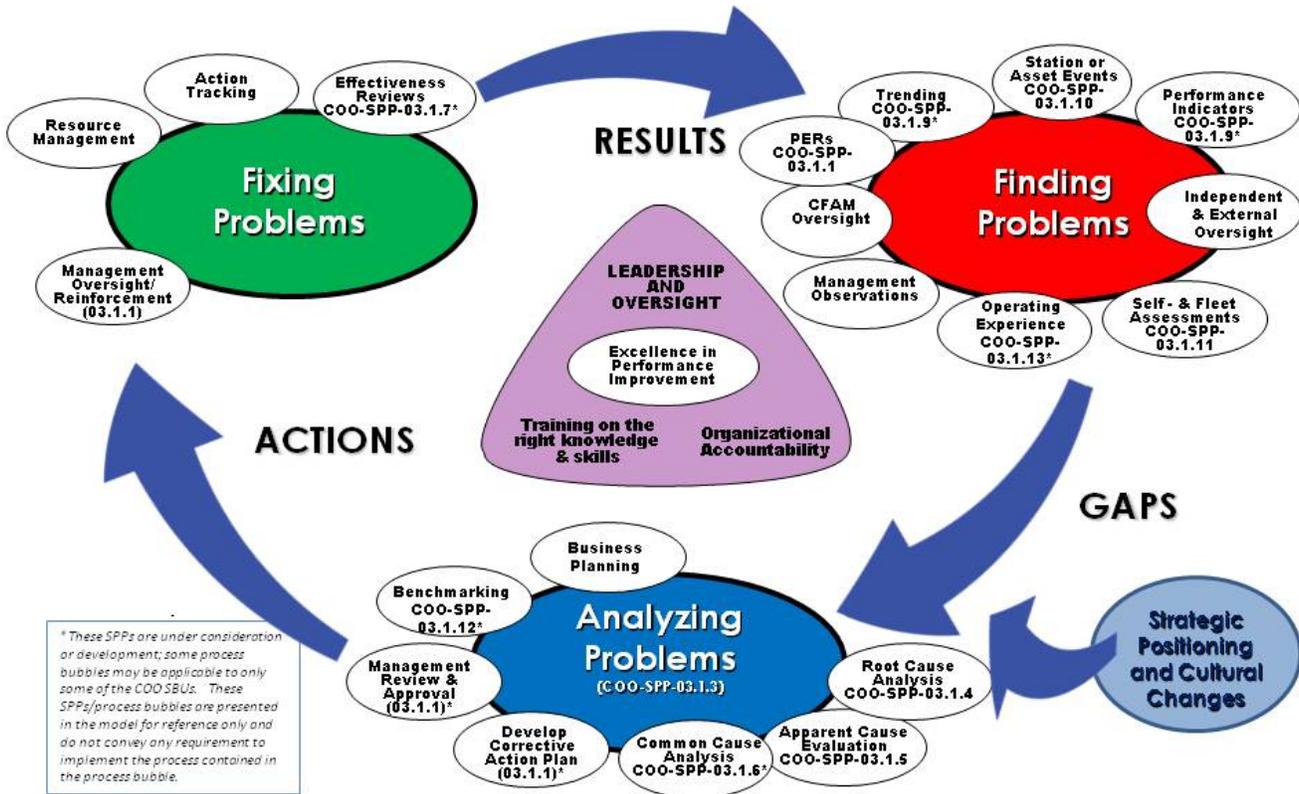


Appendix E
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COO Performance Improvement Model

COO Performance Improvement (COO-SPP-03.1*)

PREVENT! – Detect! – correct.



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**Source Notes
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Requirements Statement

Source Document

Implementing Statement

This document does not contain internal or external commitments or requirements.



Stegeman, Mary <mstegeman@usbr.gov>

Fwd: RE: Denver Safety members

1 message

Mario Castro <Mario.Castro@ibwc.gov>
 To: mstegeman@usbr.gov
 Cc: Mario Castro <Mario.Castro@ibwc.gov>

Tue, Feb 17, 2015 at 11:35 AM

Mary,

Attached is the info requested. I believe your team will benefit from the USPS's Safety ToolKit (STK) system. The USPS's Area Safety Manager in Denver is Laveda Padilla at 303-313-5625.

Regards,

Mario A. Castro
 USIBWC/SSEMD - Safety
 915-832-4788 office
 915-478-4835 cell/bb
 915-206-2382 fax

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—— Forwarded message ——

From: "Ardourel, Douglas N - San Antonio, TX" <douglas.n.ardourel@usps.gov>
 To: Mario Castro <Mario.Castro@ibwc.gov>, "Padilla, Laveda L - Denver, CO" <laveda.l.padilla@usps.gov>
 Cc:
 Date: Tue, 17 Feb 2015 17:05:06 +0000
 Subject: RE: Denver Safety members

Hi Mario,

The Area Safety manager for the Western Area is Laveda Padilla who is based out of Denver. Laveda has a vast amount of safety knowledgeable and very familiar with the inner workings of STK in I believe would be willing to communicate with them. I have included her on this message and her contact number is 303/313/5625.

Douglas N. Ardourel, OHST | District Safety Manager | United States Postal Service | Rio Grande District |

📍 1 Post Office Drive, San Antonio, TX 78284-9441 | 📞 210-368-1660 | 📠 210-368-1647 |
 ✉️ douglas.n.ardourel@usps.gov

'Jesu Juve' - 'Anima Sana In Corpore Sano' - 'Soli Deo Gloria'

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From: Mario Castro [mailto:Mario.Castro@ibwc.gov]
Sent: Tuesday, February 17, 2015 10:31 AM
To: Ardourel, Douglas N - San Antonio, TX
Subject: Denver Safety members

Good Morning Boss,

US Bureau of Reclamations (USBR) in Denver called me inquiring about a system to track their S&H inspections. According to them they have something that is not working and wanted to know from other Fed agencies what we use. I personally don't have anything as elaborate as the STK, because we are so small (7 facilities). I think I can track this with a self made system that kind-of mirrors the STK.

USBR is much bigger and I would like for them to contact the Denver Safety staff to learn more about the STK and perhaps something like that would work for them. Do you have a Denver staff member (area/district mgr) they may contact and explain what the USPS have?

Mario A. Castro
USIBWC/SSEMD - Safety
915-832-4788 office
915-478-4835 cell/bb
915-206-2382 fax

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Stegeman, Mary <mstegeman@usbr.gov>

Re: USGS-USBR collaboration

1 message

Bradford, Michael <mbradford@usbr.gov>

Thu, Mar 19, 2015 at 8:20 AM

To: "Simonds, Frederic" <wsimonds@usgs.gov>, Mary Stegeman <mstegeman@usbr.gov>, Ken Somolinos <ksomolinos@usbr.gov>, Douglas DeFlitch <ddeflitch@usbr.gov>, "Margaret (Peggy) Chandler" <mchandler@usbr.gov>, Bernhard Albl <balbl@usbr.gov>, Miguel Rocha <mrocha@usbr.gov>, Tyler Byrne <tbyrne@usbr.gov>, Cristina Hayden <chayden@usbr.gov>, Gary Barsness <gbarsness@usbr.gov>, Mahonri Williams <mlwilliams@usbr.gov>, Kevin Buckallew <kbuckallew@usbr.gov>, Lyle Myler <lmyler@usbr.gov>, Amanda Bahls <abahls@usbr.gov>, Ronald Spangler <rspangler@usbr.gov>, MONTE BOWMAN <mbowman@usbr.gov>, Theresa Gallagher <tgallagher@usbr.gov>, Trina Mailloux <tmailloux@usbr.gov>, Colin Maloney <cmaloney@usbr.gov>, David Hartman <DHartman@usbr.gov>, Steven Parker <SPARKER@usbr.gov>, Scott Schuman <seschuman@usbr.gov>, Bumell McClellen <BMCclellen@usbr.gov>, Nicholas Garmon <ngarmon@usbr.gov>

Cc: Keith Wanless <keith_wanless@ios.doi.gov>, Eric Blajszczak <ejblajsz@usgs.gov>, Kirk Miller <kmiller@usgs.gov>, Michael Bradford <mbradford@usbr.gov>, Carlie Ronca <cronca@usbr.gov>, Kenneth Karstoft <kkarstoft@usbr.gov>, Billy Bright <bbright@usbr.gov>

Good Morning Safety Team,

I have just had a couple of great conversations with our colleagues in the USGS concerning the safety of our stream gage operations.

Some notable items to be shared and discussed within our safety circles.

Close local coordination with the USGS will give us a heads up to training opportunities taking place that BOR employees can join in on thru DOI Learn. Find out/Sign up/Join in.

The USGS has developed an Inspection and Abatement System (IAS) that was presented to OSHA, and then DOI evaluated it and is in the process of implementing it DOI wide. Bill Simonds will check on the POC at the DOI level so we can talk with them about the IAS status for the BOR.

The USGS has also developed a large data base listing each stream gage site that includes the local site characterization and hazards. Bill Simonds is checking on how the BOR can partner with them for use of the site.

I am very excited about this opening to partner with the USGS and I would encourage the BOR safety team to reach out to them for more coordination in the future. They have been very helpful and will be sending me more examples of their policies and procedures in the near future. I will share these with you when I get them.

Thank you Bill, Keith, Eric and Kirk. I am looking forward to working with you.

RS

Mike Bradford
US Bureau of Reclamation
Wyoming Area Office
(307) 261 5646

On Wed, Mar 18, 2015 at 2:58 PM, Simonds, Frederic <wsimonds@usgs.gov> wrote:

Mike,

It was a great pleasure making your acquaintance today. I look forward to future collaborations between our respective agencies. Attached you will find a description of our Inspection and Abatement System (IAS) that will be (I am told anyway) adopted by Department of Interior Bureaus in the coming years. The attached description was something we recently provided to OSHA when we were specifically asked about how we document facility inspections and deal with findings of non-compliance.

The IAS database initially came from the Army Corps of Engineers but was extensively modified by USGS.

Management of the system was recently taken over by the DOI and the name of the DOI developer is Keith Wanless (keith_wanless@ios.doi.gov) 303-236-2364. He can certainly answer any questions you might have about the system.

I have also attached a screen shot of a typical Site Hazard Analysis (SHA) for one of our gaging station sites in Wyoming that is in our Site Information Management System (SIMS). Every gaging station in the USGS network has a file in SIMS and each site is required to have an SHA that is reviewed annually. Eric Blajszczak could give you a tour of SIMS and he could probably show you how we use IAS as well.

In the future I will try to include you in any training announcements that I send out including an invitation to our monthly Safety Webinar Series (which is also listed in DOI Learn under "USGS Safety Webinar Series"). The next Webinar will be on April 15, 2015 at 11:00am Pacific and the topic is Ergonomics, presented by the OSHA Training Institute. I hope you and your USBR colleagues can join in.

I look forward to working with you and USBR. I hope we can get together sometime perhaps at a conference or other training event.

Good to meet you!

Sincerely,

Bill

—

Bill Simonds
Northwest Regional Safety Manager
2130 SW 5th Ave
Portland, OR 94201
503-251-3262 Office
503-250-1893 Cell



Stegeman, Mary <mstegeman@usbr.gov>

Fwd: Safety deficiency tracking at WAPA

1 message

Somolinos, Ken <ksomolinos@usbr.gov>
To: Mary Stegeman <mstegeman@usbr.gov>

Mon, Apr 13, 2015 at 11:19 AM

Hi Mary,

FYI, here's a response in writing from WAPA, stating that they didn't do any customization of MAXIMO for Safety. If anything, Reclamation's MAXIMO (i.e. CARMA) has probably been more tailored to Safety, so we should spend our time focusing on CARMA.

Ken

Ken Somolinos
ksomolinos@usbr.gov
Office: 303-445-3722
Mobile: 720-289-6366

—— Forwarded message ——

From: **Custer, Tracie** <CUSTER@wapa.gov>
Date: Mon, Apr 13, 2015 at 11:09 AM
Subject: RE: Safety deficiency tracking at WAPA
To: "Jensen, Kevin" <KJensen@wapa.gov>, "Somolinos, Ken" <ksomolinos@usbr.gov>

Good morning, gents. When Western implemented Maximo, and for consecutive upgrades following, it was thoroughly customized to meet the various needs of the departments using this asset management tool: Maintenance, Property, Environment, Procurement. When Safety jumped on board, in the mid-2000s, we didn't require any customization. Most of the work is done "behind the curtain" by the developers.

From: Jensen, Kevin
Sent: Sunday, April 12, 2015 3:15 PM
To: Somolinos, Ken
Cc: Custer, Tracie
Subject: RE: Safety deficiency tracking at WAPA

Hi Ken – Tracie Custer from our Loveland Office is the Maximo guru. So I'm passing off your questions to Tracie.

Crazy busy...how's the week of May 25th look for a Reclamation-Western office lunch? bye

Kevin

Kevin Jensen CSP CHMM

Western Area Power Administration

Director - Safety

12155 West Alameda Parkway

Lakewood, CO 80228

720-962-7292 (office)

303-476-8494 (cell)

Our Zero Incident Culture asks...

Are you willing to give others permission to tell you that you are about to do something that might get you or another person hurt? And will you do the same for them?



From: Somolinos, Ken [<mailto:ksomolinos@usbr.gov>]

Sent: Thursday, April 09, 2015 3:56 PM

To: Jensen, Kevin

Subject: Safety deficiency tracking at WAPA

Hi Kevin,

Thanks for getting back to me so quickly! You must have called while I was on the line with somebody else, since the red light on the phone came on and I never heard a ring.

So WAPA uses MAXIMO for deficiency tracking...did you add any special modules to it, or is it the default program? We're looking for DSIS alternatives, and MAXIMO is one that we're considering. If your version of MAXIMO has been tailored/modified for your safety needs I might bother you for some more information. If its just the default version, we've got that pretty well studied.

I like your idea for meeting up for lunch while its nice out. Monte's got us on a pretty ambitious schedule for doing audits and evaluations of Regional programs in the next couple months, so if you want to throw out a couple weeks that work well for you I can compare that against everybody's calendars to figure out a time that works.

Thanks again for your help, and hope all is well on your end.

Ken

Ken Somolinos
ksomolinos@usbr.gov
Office: 303-445-3722
Mobile: 720-289-6366

Appendix D

IAS Implementation

IAS Implementation

Phase I – System Confirmation

- Establish a review team consisting of a diverse group of users having a vested interest in a new deficiency tracking system;
 - o Identify team lead to serve as liaison between team members, the Department and Reclamation's IT office
- Conduct in-depth review of the current requirements and process
- Review the USGS IAS System
- Identify initial customization of IAS for Reclamation
- Establish user levels within Reclamation (administrator, input/edit data, read-only access, etc.)
- Initial beta testing of IAS (further testing would occur throughout transition period)

Phase II – Transition

- Develop guidance on implementation and transition
 - o Prepare detailed Project Management Plan
- Update the current Directives and Standards
- Develop curriculum and training requirements
- Establish mechanism to receive feedback on the system and the training provided
- Develop plan to transition existing systems/data

Phase III – Roll-Out

- Continue beta testing within all Regions, Area and Field Offices
- Confirm system usage throughout all offices of Reclamation
- Disable current deficiency tracking systems

Phase IV – Periodic evaluation and adjustments

- Monitor implementation and perform monthly audits to ensure usage and reliability
- Make adjustments to training and/or systems features based upon feedback received

OSH SMIS IAS Program



Brief Summary for
Reclamation
May 2015

Summary of SMIS IAS for Reclamation (BOR)

- **First, part of implementing BOR is that we need a list of your facilities by regions and areas of responsibilities. The IAS programmer will send you a data request to configure the IAS for BOR.**
- **OSH SMIS does not charge for SMIS. Each Bureau antes up every fiscal year to the Department's Working Capitol Fund to fund the OSH SMIS program. SMIS's annual operating budget is 1.1 million.**
- **BOR IT will have a limited or no role at all in implementing BOR's IAS. All BOR safety managers, who all have access to SMIS, can log into to SMIS as they always do. BOR's safety officers will need to interface with the SMIS team to configure the IAS, not BOR IT.**
- **The IAS is a module in SMIS and BOR employees will have access to it when its is configured and then merged into the SMIS production server. BOR safety managers will authorize access to the BOR, assign areas of responsibilities and conduct audits and inspections. The IAS Home page will list all facilities that safety manager has access to (slide 2).**
- **The audit questions for BOR in the IAS will differ from USGS's since you will have different inspecting criteria for you facilities. Attached is a screen shot of the question list. Each audit at each facility can have their own unique inspection criteria. (slide 3)**
- **Each audit question and subsequent finding will have its own criteria. Each question and audit is numbered for archiving and cataloging. (slide 5 and 6) Ias will also allow for the uploading of pictures and relevant documents.**
- **Employees will be able to report an unsafe condition at their facility. (slide 7)**
- **Armando Galindo is the SMIS Program Manager and Team lead, Keith Wanless is the SMIS IAS developer. BOR will need to designate someone from BOR safety to work directly with Keith to configure the IAS for BOR. We prefer that only one person is designated, to avoid inquiries and questions to the developer from others.**
- **We are now working on a generic instruction manual for the IAS, that gives the basics of each feature. This guide is generic since the IAS will be tailored and configured for each Bureau's needs. Keith can either via webex or at your facility in the Denver Federal Center exhibit the IAS for your staff. We can also provide training in the field if warranted.**

SMIS IAS Home Page and Menu

DOI Inspection & Abatem x Armando

https://www.smis.doi.gov/ias/index.cfm

Apps Safety Management... Safety Management... Home - SAP NetWe... Log in to Concur C... USAJOBS - The Fed... Google Safety Management... Imported From IE Other bookmarks

UNITED STATES DEPARTMENT OF INTERIOR **SMIS** Home | FAQ | Support | Log Out

Main Menu

- Home
- Reports
- Help
- OSH Program Planning
- Schedule External Audits, View Scheduled Audits
- Report Unsafe Conditions
- Report an IAS System Problem
- Admin
- SMIS Safety Manager Home Page
- Test Facility Home Page

Inspection and Abatement System Main Page (1 authorized facilities)

Welcome, GALINDO JR., ARMANDO.
Your home facility, [Test Facility](#), has the following items requiring attention:
193 [Finding\(s\)](#) (including non-question based findings) require 90-day update.

Jump to State/Territory:

Test Facility
38 Retirement Lane CO
Test City, CO 88888

[Return to Top](#)

[[Safety Manager Home](#) | [SMIS Home](#) | [DOI Safety Net](#) | [SMIS FAQ](#) | [Department of Interior](#)]

This is a United States Government computer system maintained by the Department of Interior, to provide official unclassified U.S. Government information only. Use of this system by any unauthorized or authorized user constitutes consent to monitoring, retrieval, and disclosure by authorized personnel.

USERS HAVE NO REASONABLE EXPECTATION OF PRIVACY IN THE USE OF THIS SYSTEM.
Unauthorized use may subject violators to criminal, civil, and/or disciplinary action.

12:25 PM 5/5/2015

IAS Audit Questions Menu for an Inspection of a Facility

Select Safety Audit Questions for Test Facility

Audit Source: Self
 Date of Audit: 05/05/2015

[Select All Req. Categories](#) [Select All Opt. Categories](#)

Category	Req. Questions	Opt. Questions
Automated External Defibrillator	6	<input type="checkbox"/>
Aviation	24	<input type="checkbox"/>
Blasting / Explosive Safety	4	<input type="checkbox"/> 7 <input type="checkbox"/>
Compressed Gas Cylinders	3	<input type="checkbox"/>
Confined Spaces	2	<input type="checkbox"/>
Dive Operations and Activities	14	<input type="checkbox"/> 7 <input type="checkbox"/>
Electrical Safety	9	<input type="checkbox"/> 5 <input type="checkbox"/>
Electrofishing	3	<input type="checkbox"/> 5 <input type="checkbox"/>
Ergonomics	1	<input type="checkbox"/> 2 <input type="checkbox"/>
Excavations	3	<input type="checkbox"/> 2 <input type="checkbox"/>
Fire Protection and Emergency Egress	11	<input type="checkbox"/>
Firearms	8	<input type="checkbox"/> 14 <input type="checkbox"/>
Flammable and Combustible Materials	7	<input type="checkbox"/> 6 <input type="checkbox"/>
Hand and Power Tools	13	<input type="checkbox"/> 4 <input type="checkbox"/>
Housekeeping	2	<input type="checkbox"/>
Industrial Hygiene	24	<input type="checkbox"/> 23 <input type="checkbox"/>
Laboratories	5	<input type="checkbox"/> 11 <input type="checkbox"/>
Ladders	2	<input type="checkbox"/>
Large Vessel	11	<input type="checkbox"/>
Lockout / Tagout	4	<input type="checkbox"/> 1 <input type="checkbox"/>
Lyme Disease	1	<input type="checkbox"/>
Material Handling	5	<input type="checkbox"/> 1 <input type="checkbox"/>
Medical and First Aid Response	5	<input type="checkbox"/>
Medical Surveillance	2	<input type="checkbox"/> 1 <input type="checkbox"/>
Motor Vehicles & Specialized Vehicle Safety	7	<input type="checkbox"/> 3 <input type="checkbox"/>
Noise	4	<input type="checkbox"/> 1 <input type="checkbox"/>
Personal Protective Equipment	5	<input type="checkbox"/> 6 <input type="checkbox"/>
Program Assessment	17	<input type="checkbox"/> 4 <input type="checkbox"/>
Quarters	24	<input type="checkbox"/>
Radiation	14	<input type="checkbox"/> 56 <input type="checkbox"/>
Radiation Safety for NRC Licenses/Permits	37	<input type="checkbox"/>
Radon	5	<input type="checkbox"/>
Stairs and Stairwells	1	<input type="checkbox"/> 2 <input type="checkbox"/>
Traffic Control	3	<input type="checkbox"/> 3 <input type="checkbox"/>
Walk-In Freezers / Coolers	1	<input type="checkbox"/>
Walking Working Surfaces	4	<input type="checkbox"/> 6 <input type="checkbox"/>
Watercraft	35	<input type="checkbox"/> 6 <input type="checkbox"/>
Written Programs and Plans	16	<input type="checkbox"/>

[Create Audit](#)

List of Audit from one Facility with compliance % and status

The screenshot shows the SMIS (Safety Management Information System) interface for the 'Test Facility'. The page title is 'Audits of facility Test Facility'. A note explains that hovering over the Compliance Percent button reveals the number of questions, answered questions, and findings affecting compliance. There is a filter for fiscal years from 2010 to 2015, with 2015 selected. A 'Restrict By Fiscal Year' button is present. A 'New Audit' button is also visible. The main content is a table of audit records.

Audit ID	Audit Date	Fiscal Year	Auditor	Compliance	Audit Status	Action(s)
SAFEXT4930	04/30/2015	2015	Duffield, Cynthia	33%	In-Process	Edit Delete
SAFSEL4920	04/21/2015	2015	Wanless, Keith		New	Edit Delete
SAFSEL4915	04/17/2015	2015	Duffield, Cynthia		In-Process	Edit Delete
PEVEXT4911	04/03/2015	2015	Duffield, Cynthia		Closed	View Delete
PEVEXT4912	04/03/2015	2015	Duffield, Cynthia		Closed	View Delete
PEVEXT4897	03/18/2015	2015	Wanless, Keith		Closed	View Delete
SAFEXT4896	03/17/2015	2015	Wanless, Keith		Closed	View Delete
SAFEXT4885	02/12/2015	2015	Wanless, Keith	100%	Closed	View Delete
SAFEXT4883	02/10/2015	2015	Wanless, Keith		Closed	View Delete
SAFSEL4882	01/29/2015	2015	Wanless, Keith	66%	Completed	View Delete
SAFSEL4878	01/22/2015	2015	Duffield, Cynthia	62%	Closed	View Delete
SAFSEL4875	12/05/2014	2015	Wanless, Keith		Closed	View Delete
PEVSEL04874	11/24/2014	2015	Kiesler, James		Closed	View Delete
PEVEXT04871	11/24/2014	2015	Kiesler, James		Closed	View Delete
SAFSEL04862	10/14/2014	2015	Duffield, Cynthia		Closed	View Delete
SAFSEL04660	08/18/2014	2014	Kiesler, James	100%	Closed	View Delete
SAFEXT04594	07/01/2014	2014	Kiesler, James	78%	Closed	View Delete

IAS Audit Findings

DOI Inspection & Abate... Armando

https://www.smis.doi.gov/ias/findings.cfm?id=653

Apps Safety Management... Safety Management... Home - SAP NetWe... Log in to Concur... USAJOBS - The Fed... Google Safety Management... Imported From IE Other bookmarks

Facility Menu

- Main Menu
- Test Facility Home Page
- Audits
- Facility Report
- Findings
- Facility Management
- Unsafe Conditions Reported
- SMIS Safety Manager Home Page
- Admin Menu

Findings for Test Facility

Note: Out-of-compliance audit responses do not become findings until 30 days after the audit. To view out-of-compliance audit responses less than 30 days old, go to the Edit Audit page for the appropriate audit.

Optional: Filter list of findings by fiscal year -
 2012 2013 2014 2015

[Restrict By Fiscal Year](#)

[Open \(196\)](#) [Closed \(10\)](#)

196 Open Findings for this facility.

Finding ID 14758
Audit ID: PEVEXT04447 **Date:** 02/26/2014 **Question ID:** PEA001521
Question Text: Does the evaluation team provide feedback on performance?
Finding: The evaluation team does not provide feedback on performance.
Recommended Action or Action Taken: Testing changing status to "Updated."
Requirement: 1960.79 **Comments:**
Facility ID: 653 **Is Finding Facility Related?** No **Is Repeat?** No **Est. Cost:** \$0.00

Orig. Severity: **Orig. Probability:** **Orig. RAC Code:** None
Adj. Severity: **Adj. Probability:** **Adj. RAC Code:** None

Status: Updated **Suggested Action:** Not Entered
Date:

Last Updated: 04/22/2015 [Show History](#) [Update](#)

Finding ID 14749
Audit ID: PEVEXT04447 **Date:** 02/26/2014 **Question ID:** PEA001496
Question Text: Does the organization generally comply with OSHA/DOI standards? (How do deficiencies relate to the OSH program: lack of inspections, training, funds, etc.)
Finding: The organization does not generally comply with OSHA/DOI standards. (How do deficiencies relate to the OSH program: lack of inspections, training, funds, etc.)
Recommended Action or Action Taken:
Requirement: The OSH Act of 1970, 19(a) E.O. 1-201(d) **Comments:**
Facility ID: 653 **Is Finding Facility Related?** No **Is Repeat?** No **Est. Cost:** \$0.00

12:32 PM 5/5/2015

Editing and reviewing an Audit.

Red indicates non-compliance, green compliance.

Facility Menu

- Main Menu
- Test Facility Home Page
- Audits
- Facility Report
- Findings
- Facility Management
- Unsafe Conditions Reported
- SMIS Safety Manager Home Page
- Admin Menu

Edit Audit SAFEXT4930 (Page 1 of 1. Displaying questions 1 to 41 of 41)

Audit for facility Test Facility

[Add Category](#)
[Remove Category](#)
[Add Finding](#)
[View Non-Compliant](#)

Watercraft

SAF001083 - Are all operators of specialized watercraft(e.g., airboats, hovercraft, jet skis) appropriately trained and certified in the use of these specialized watercraft, according to USGS Policy?

Requirement: [SM 445-2-H Ch 31](#) Response: No Repeat?: No Comments: 111/1500

Precise Location(s) of violation: 0/255

Facility Related?: No Property Name: --Select One-- Severity (Required): Significant Probability (Required): Likely RAC Code: RAC3(B)(III)

Recommended Action or Action Taken: 119 / 1500

Employees who operate hovercraft are not trained and certified in the use of the hovercraft. No records could be found.

Status of Question: New

SAF001085 - If making tag-line measurements, are measures being taken to ensure public safety including one or more of the following: break-a-way sounding reel cable kit, heavy duty wire cutters, strips of brightly colored flagging, additional person stationed as an observer for oncoming boat traffic, hanging PVC pipe with brightly colored reflective and glow-in-the-dark tape, orange traffic cone(s) suspended from cable, battery powered strobe lights alternately spaced along cable?

Requirement: [SM 445-2-H Ch 31](#) Response: Yes Repeat?: No Comments: 51/1500

Precise Location(s) of violation: 0/255

Facility Related?: No Property Name: --Select One-- Severity: --Select One-- Probability: --Select One-- RAC Code: None

Recommended Action or Action Taken: 0 / 1500

IAS Unsafe Conditions Reporting Page

DOI Inspection & Abate... x Armando

https://www.smis.doi.gov/ias/report_unsafe_conditions.cfm

Apps Safety Management... Safety Management... Home - SAP NetWe... Log in to Concur C... USAJOBS - The Fed... Google Safety Management... Imported From IE Other bookmarks

UNITED STATES DEPARTMENT OF INTERIOR
SMIS

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Main Menu

- Home
- Reports
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- Schedule External Audits, View Scheduled Audits
- Report Unsafe Conditions
- Report an IAS System Problem
- Admin
- SMIS Safety Manager Home Page
- Test Facility Home Page

Report Unsafe Conditions

Note: This form will be adjusted to mimic the DOI Report of Unsafe Conditions form when that form is finalized.

Select a facility for your unsafe condition report:

Test Facility

Submit Unsafe Condition Report for **Test Facility**

Fields marked with * are required.

Room Number:

Hazard Description: *
0/1500 characters

Proposed Corrective Action:
0/1500 characters

Precise Location(s) of Unsafe Condition (if appropriate):
0/255 characters

Name: **Note:** To submit this Unsafe Condition report anonymously, simply remove your contact information to the left.

Phone Number:

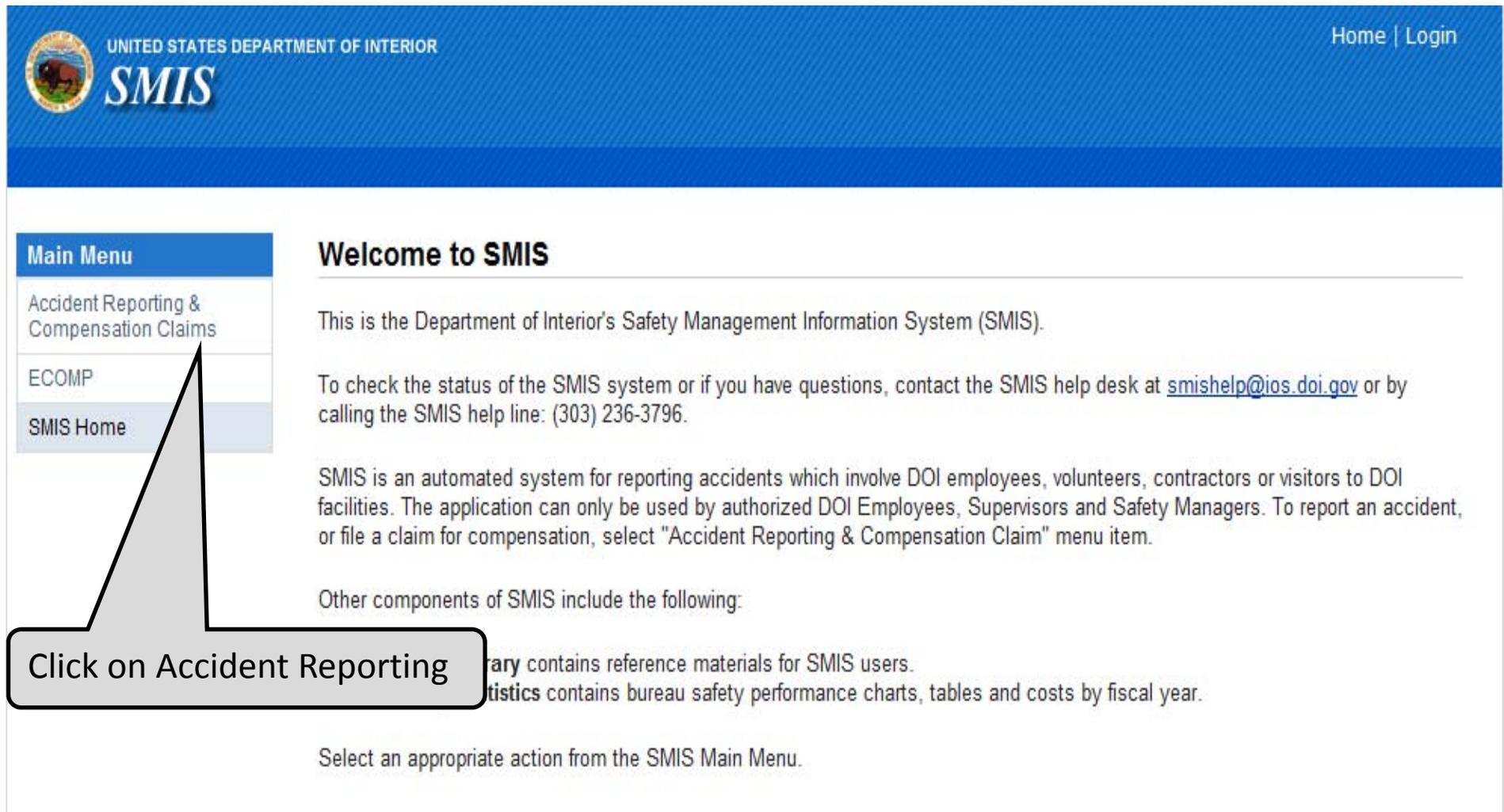
Email:

Comments:
0/250 characters

[[Safety Manager Home](#) | [SMIS Home](#) | [DOI Safety Net](#) | [SMIS FAQ](#) | [Department of Interior](#)]

11:59 AM
5/5/2015

Accessing the IAS SMIS HOME PAGE



The screenshot shows the SMIS Home Page. At the top left is the United States Department of Interior logo and the text "UNITED STATES DEPARTMENT OF INTERIOR" and "SMIS". At the top right are links for "Home" and "Login". On the left is a "Main Menu" with three items: "Accident Reporting & Compensation Claims", "ECOMP", and "SMIS Home". The "SMIS Home" item is highlighted. A callout box points to the "Accident Reporting & Compensation Claims" item with the text "Click on Accident Reporting". The main content area has a heading "Welcome to SMIS" and a paragraph: "This is the Department of Interior's Safety Management Information System (SMIS). To check the status of the SMIS system or if you have questions, contact the SMIS help desk at smishelp@ios.doi.gov or by calling the SMIS help line: (303) 236-3796. SMIS is an automated system for reporting accidents which involve DOI employees, volunteers, contractors or visitors to DOI facilities. The application can only be used by authorized DOI Employees, Supervisors and Safety Managers. To report an accident, or file a claim for compensation, select "Accident Reporting & Compensation Claim" menu item. Other components of SMIS include the following: Safety Reference Materials, Safety Statistics, and Safety Performance. Safety Reference Materials contains reference materials for SMIS users. Safety Statistics contains bureau safety performance charts, tables and costs by fiscal year. Select an appropriate action from the SMIS Main Menu.

Click on Accident Reporting

Once you are on the SMIS Home page proceed to log on as a safety manager, under the Accident Reporting box on the SMIS Main Menu.

Accessing the IAS

Accident Reporting Module - SMIS - Windows Internet Explorer

https://www.smis.doi.gov/index.cfm?module=guest.accidentReporting

United States Department of Interior
SMIS

Home | FAQ | Support | Login

Main Menu

- Accident Reporting & Compensation Claims
- ECOMP
- SMIS Home

SELECT A SMIS ACTIVITY

Employees:

- File a Workers' Compensation Claim (CA1/CA2)
If you incur a job-related injury or illness, use this option to submit your claim for compensation to OWCP electronically.

Designated Representative Of Employee Claimant:

- File a Workers' Compensation Claim (CA1/CA2)
If you are designated representative for an employee who has incurred a job-related injury or illness, use this option to submit their claim for compensation to OWCP electronically.

Supervisors:

- Perform All Supervisor Safety Activities
These activities include completion of the supervisor portion of an employee's CA1/CA2 (claim for compensation), filing SMIS Accident Reports for Minor Injuries that did not involve a claim for compensation, accident reports for property damage or near-misses, or editing and updating accident reports that you have previously entered.

Safety Manager/Safety Incident Report Reviewers:

- Perform All Safety Manager/Accident Reviewer Activities

Workers' Compensation Coordinators:

- Perform All Compensation Coordinator Activities

[Proceed to the Selected Activity »](#)

NOTICE OF CONDITIONS UNDER WHICH THIS INFORMATION IS COLLECTED AND USED

Pursuant to Section 3(e)(3) of the Privacy Act of 1974 (Public Law 93-579), the individual furnishing information on this form is hereby advised as follows:

Local intranet | Protected Mode: Off

1:02 PM
12/1/2014

IAS can only be accessed by safety managers, so log in as DOI safety manager.

Accessing the IAS

Safety Manager's
Main Menu
SMIS Dashboard
SMIS Data Reports
Create Or Edit Batches
Safety Managers
Edit Permanent Data
Add/Edit Establishments
Hours/Mileage Data
Convert Org Codes
Enter Accident Reports
Exposure Assessment Site
Inspection & Abatement System

Welcome Demo Q GALINDO JR.; Your login was successful!

The Safety Manager activities which you are authorized to perform are presented in the menu on the left.

You can access your Safety Manager's Dashboard [at this link](#) (please note that the Dashboard may take several moments to render).

SMIS Site Changes

Below is a list of changes recently made to the system.

Release 6.3.5.1 - 8/27/2014

* When adding additional injuries for an accident report, made "Date Hired" not required on the injury form if you're adding an injury for a non-DOI Employees with a status of "Public (Other, Non visitor)"

Release 6.3.5 - 7/11/2014

* Updated scripts around the site.

Release 6.3.3 - 5/23/2014

The Inspection & Abatement System will appear at the bottom of the safety manager's menu. Click on it to proceed to the IAS.

Accessing the IAS

IAS MAIN PAGE

Main Menu
Home
Reports
Help
OSH Program Planning
Schedule External Audits, View Scheduled Audits
Report Unsafe Conditions
Report a Problem
Schedule External Audits, View Scheduled Audits
Admin

Inspection and Abatement System Main Page (1 authorized facilities)

Note: This is a Preview copy of the IAS module, with the intent of providing training and practice for DOI Safety Managers. Data entered into this Preview module is not permanent. The system is still undergoing development and the underlying database will be overwritten on occasion.

Welcome, GALINDO JR., ARMANDO.
Your home facility, [HQ - Office of Management Services](#), has the following items requiring attention:
5 [Finding\(s\)](#) (including non-question based findings) require 90-day update.

Jump to State/Territory:



HQ - Office of Management Services
12201 Sunrise Valley Dr VA
Reston, VA 20192

[Return to Top](#)

The IAS is specific to your area of responsibility as designated by Bureau safety managers. Please contact your Bureau for configuring your area of responsibility.