



NETL's Approach to Laboratory Safety



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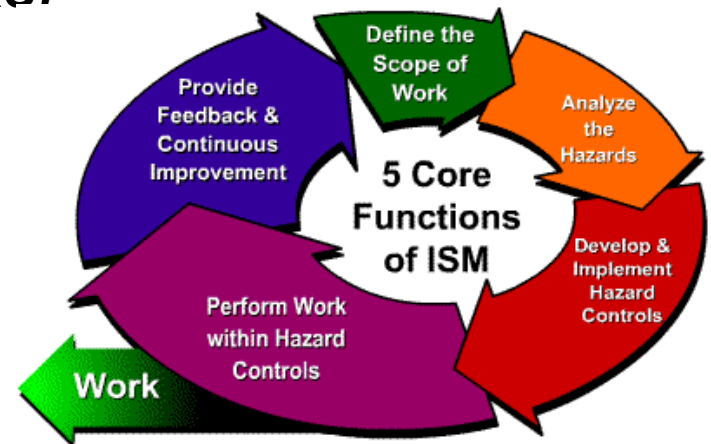
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The NETL Environment

- **Government Owned & Operated DOE National Lab**
- **Multi-purpose Facilities**
 - Offices, research spaces
- **Multi-employer workplace**
 - Federal, contractor, ORISE, university students, visitors, foreign nationals
- **Performing research while controlling risk**
 - Achieving results while maintaining an incident/injury free workplace

NETL's Approach to Safety

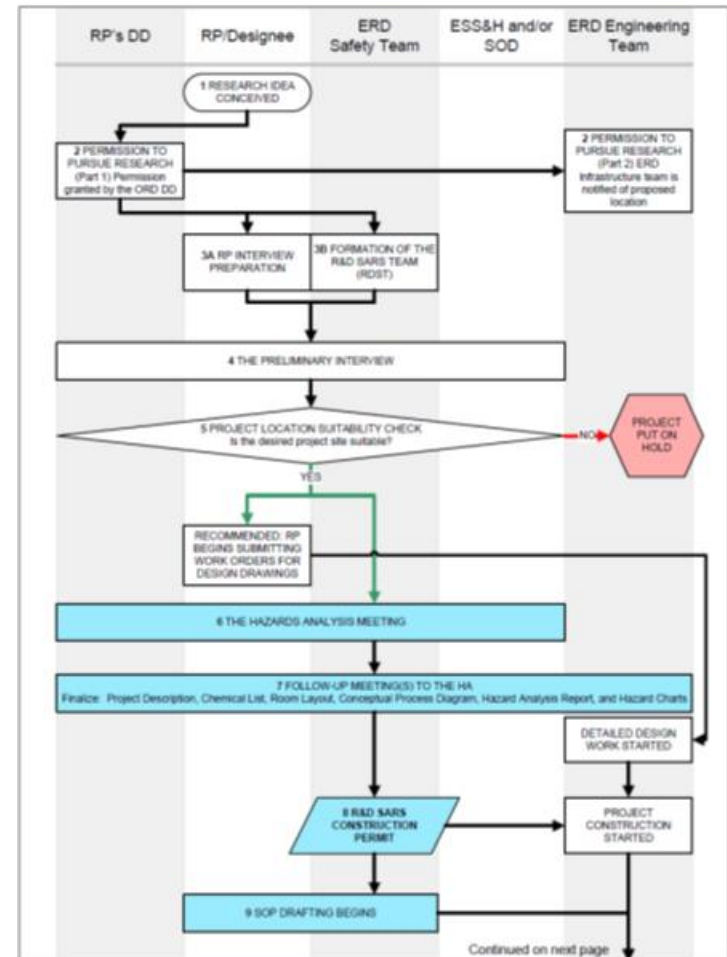
- **NETL's safety program is certified to the ISO 14001 and OHSAS 18001 standards**
- **Integrated Safety Management –**
 - Approach to planning and managing work
 - integrates safety throughout the work flow process
 - recognizes line management as accountable for safety
- **Safety Analysis and Review System (SARS)**
 - A hazard analysis and mitigation system
- **Training**
 - Employees receive comprehensive safety training before working in the labs
 - Completion centrally tracked through in-house system (STeMS)



Approach to Safety in the Labs

NETL fosters a culture of safety primarily through a two-pronged approach:

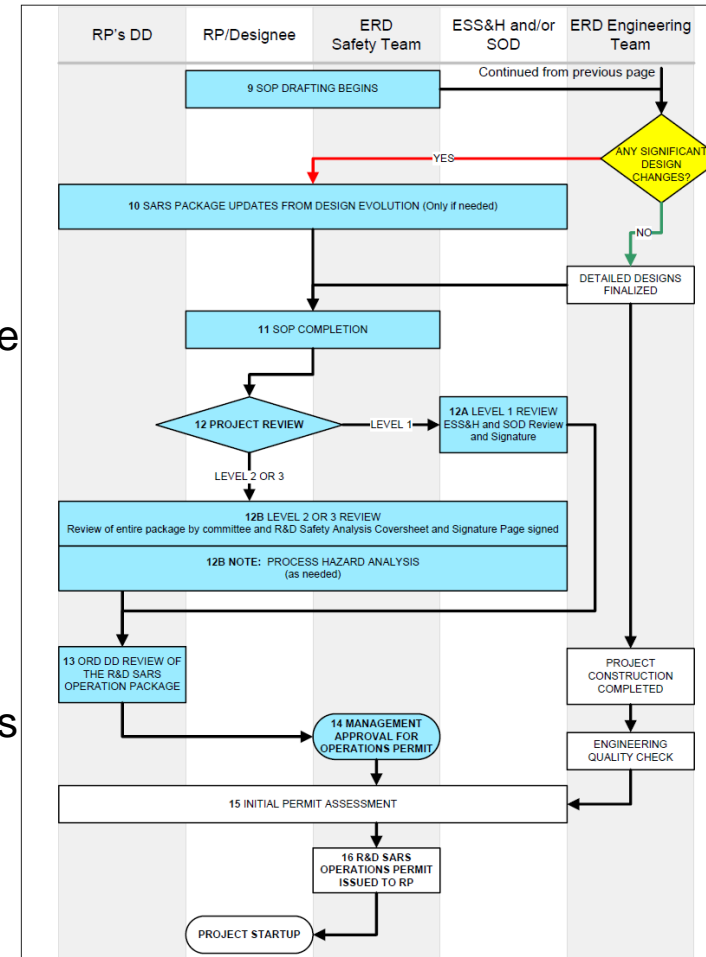
1. Professional engineering services for research system design, maintenance, and management of change
2. Safety Analysis and Review System (SARS) for R&D operations.



R&D SARS

Hazard Analysis and Mitigation system

- No work is performed without a safety review.
- Every project reviewed and explicitly permitted.
- Graded approach to safety and hazard control.
- Risks are identified and mitigated to a level acceptable to management.
- Activity Hazard Analysis (AHA) program fills gaps for small tasks not covered under R&D SARS.
- Field Work has its own AHA to identify and control hazards for activities away from the lab.
- Research is dynamic, and NETL's program recognizes and addresses change through memos to file or R&D SARS modification.
- Permits issued under R&D SARS are re-assessed annually to verify that hazard mitigations are still effective.



Success is Measured

- **Success is measured through the number safety incidents and our response to them.**
- **We track:**
 - OSHA Recordable Incident Rate
 - Currently <0.58 injuries per 100 employees
 - Our goal is zero
 - OSHA DART Rate (Lost Time)
 - Currently 0.0
 - Hours worked without a lost-time injury
 - Currently over 1.8 million hours

Incidents are Investigated

- Incidents, injuries and near misses are vigorously investigated.
 - Root Cause Analysis is performed where appropriate to identify the causes so they can be corrected.
 - Lessons Learned publications are developed shared with the workforce and worked into hazard analyses and training to promote a safe environment and allow us to learn from our mistakes.

Safety for Life

AECOM

SAFETY ALERT

Learning From Incidents

Injury Type: Fatality – Crushing Fall What Happened?

December 2015

Key Features and Best practices

AECOM are the project manager for on a large construction project managing the activities of the General contractor on the client's behalf. AECOM's scope includes design management, commercial management, procurement control, contract administration, technical supervision, program management, and document control. Contractual safety responsibilities include, review, comment, approval of project specific safety plans, monitoring and providing assistance during site implementation. This is a common contract type for AECOM.

At the construction compound area, two third party employees were installing a fire wall between the construction containers. The wall was being constructed by placing 50x200x40cm, 1400 kg concrete blocks on top of each other using a truck mounted crane. When the and last wall block was positioned, both employees climbed on to the top of the wall (approximately 3m) to remove the lifting gear. As they did, the blocks collapsed and the victim was crushed between fallen blocks. He passed away immediately.

Investigation findings showed that:

- Both employees were not inducted and didn't have site access badges, but were allowed to enter and work on site.
- The subcontractor started working without having required permits and arrangements.
- This works was conducted without method statements or pre-task briefing.
- There was poor communication between the GC, its subcontractors and the security.
- There was a lack of contractor supervision before commencing and during activities. The ground was uneven and icy.

- The site induction process needs to be a part of the security procedure. Employees including visitors should receive site entrance pass following the induction training. A no badge/ no entry procedure must be implemented
- All works and workers should be properly supervised at all times.
- Work shall not be permitted without having approved method statements and risk assessments. Work related risks and precautions shall be communicated with all employees through tool-box talks and training sessions before commencing works
- Only authorized and trained employees should be involved in work activities
- Winter safety precautions should be considered during all activities (Snow clearing, levelling, slippery surfaces etc...)
- Proper communication channels need to be set up between all parties to ensure all project participants are aware of the project site rules and work related precautions



Safe Behaviors = Safe Performance

Contact your SH&E Manager with questions or comments on this Lessons Learned Summary.

Support and Buy-in are a Necessity

- Leadership at all levels must support and drive the program.
- Researchers must buy-in and actively participate.
- Credibility is earned through reasonable, timely, realistic approaches to risk assessment and mitigation.

Summary

- NETL's safety program is driven through the DOE Integrated Safety Management System.
- Hazard analysis and mitigation is accomplished through R&D SARS and is required for all projects.
- Employee involvement is essential for success.
- The goal is safe employees and safe research

Contact Information

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