

MARCH 15, 2016

SYSTEM TO IDENTIFY, ANALYZE AND CONTROL THE HAZARDS OF LABORATORY RESEARCH AT ARGONNE NATIONAL LABORATORY



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ARGONNE NATIONAL LABORATORY

A VITAL PART OF THE DEPARTMENT OF ENERGY NATIONAL LABORATORY SYSTEM



WHO WE ARE



OPERATING
BUDGET
IN 2015

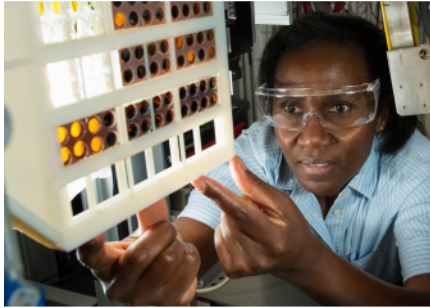
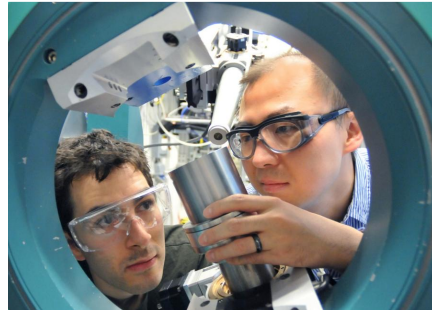
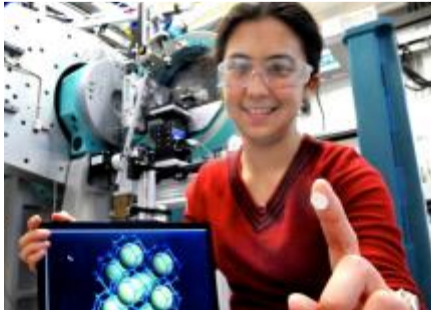


EMPLOYEES
IN 2015

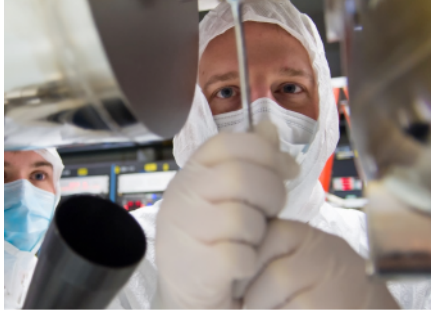


SCIENTISTS
AND
ENGINEERS

WHAT WE DO...



Our tools are science and engineering
Our job is research and discovery
Our goal is a better world

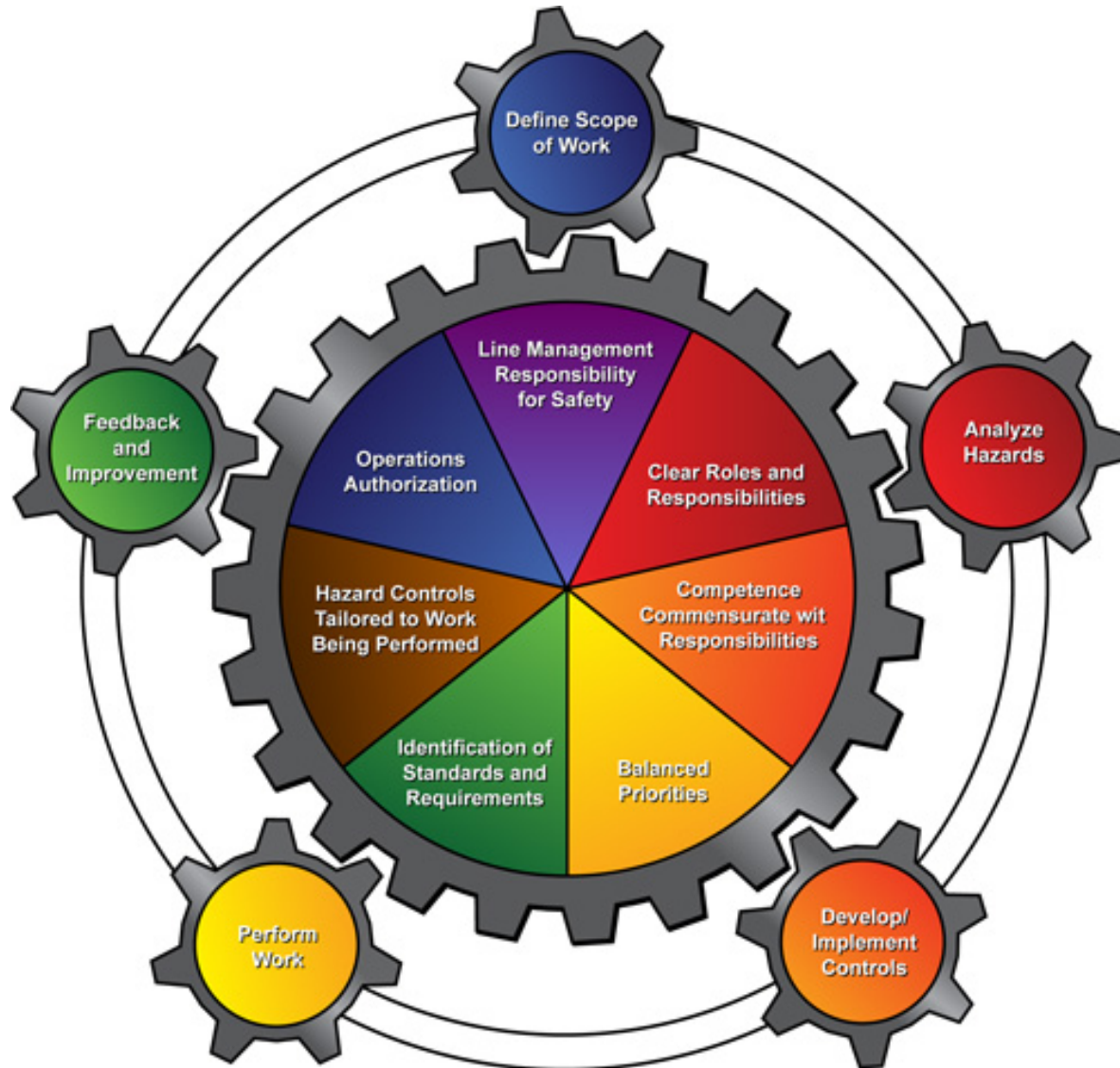


WHY WE PLAN WORK?



Working safely should be a natural part of working, not just something “the safety people do. ”Safety is EVERYONE's responsibility.” Integrated Safety Management is a process that enables Argonne to perform cutting edge research, while protecting our irreplaceable intellectual capital – our employees, as well as the public and the environment.

INTEGRATED SAFETY MANAGEMENT (ISM)



Argonne ISM Objectives

Do it safely, do it right.

No work is so important that it needs to be done without proper safety measures.

ISM is founded on seven guiding principles and five core functions

WORK PLANNING AND CONTROL

WORK PLANNING AND CONTROL



Work planning and control (WPC) is the use of a formal, systematic methods to optimize outcomes, to identify and mitigate mission, environmental, safety, security, and health (ESSH), and business risks, and to optimize the management of available resources, which include, but are not limited to money, equipment, time, and personnel. It is initiated at the earliest stages of work planning and remains in effect through all subsequent phases of work. WPC rigor and formality reflects a degree of care commensurate with the risks and complexity of the work.

Work planning and control is more than ESH.

It is about mitigating risk and optimizing outcomes.

It is more than paper plans.

Control refers to hazard controls and supervisors' control of workers

EVOLUTION OF WORK PLANNING AND CONTROL

FY2009

FY2010

FY2011

FY2012

FY2013

FY2014

FY2015

FY2016+

Future: system integration a cradle to grave approach to planning ◆

WAE electronic signature released: Feb 2015 ◆

WPC feedback & improvement released: November 2014 ◆

WPC SOP usability changes released: April 2013 ◆

WPC web-application Release 2.0: Aug 2012 ◆

◆ WPC policy and procedure (POL-16 and PROC-200): Sept 2011


◆ Lab Director's team recommends WPC improvements: April 2011

◆ WPC web-application Release 1.0: Sept 2010

◆ WPC experimental procedure (PROC-79): May 2009

◆ Non-experimental procedure (PROC-64): February 2009

WORK PLANNING AND CONTROL SYSTEM

Inside Argonne | WPC Hello, Susan Baumann 

Navigation Hide Search

- ▲ Create New
 - SOP-supporting Hazard Analyses
 - Task-based Hazard Analyses
- My Home Page
- My Approvals
- My Documents
- **My Division Documents**
- Pending My Review
- Open Document
- ▲ Reports
 - IH Monitoring
- Hazard Criteria Reference
- SMEs by Role
- Lessons Learned
- WPC Reference
- Work Authorization
- Need Help?
- Context Sensitive Help
- ▲ Feedback and Improvement
 - Pending My Feedback
 - My Documents Pending Feedback
 - Search Feedback

Division: - Add Search Term - This application is available Monday - Friday from 7AM - 7PM.

Work Control Documents

WCD No	Project Title	Preparer	Workflow Statu...	WCD Type	Modified		WAD
18198.1	Install Cf-252 Source in Calibration Facility	Baker, Samuel I.	Approved	Task-based Hazard Analyses	01/14/2013		18198.1.0
17917.1	Olympus RGD XRF Handheld Analysis	Schafer, Gene H., III	Approved	Task-based Hazard Analyses	06/11/2014		17917.1.0
18861.1	RSO-IG-009: Using Sealed Radioactive Sources to Field Calibrate and Perform Operational Checks of Fixed Radiation Monitors	Butala, Stephen	Approved	SOP-supporting Hazard Analyses	12/20/2012		18861.1.0
18861.0	RSO-IG-009: Using Sealed Radioactive Sources to Field Calibrate and Perform Operational Checks of Fixed Radiation Monitors	Butala, Stephen	Approved	SOP-supporting Hazard Analyses	12/17/2012		18861.0.0
18198.0	Install Cf-252 Source in Calibration Facility	Baker, Samuel I.	Approved	Task-based Hazard Analyses	12/12/2012		18198.0.0
18501.0	Hydrofluoric Acid Handling and Use in ESQ-EP Analytical Labs	Griffin, Gary E.	Approved	SOP-supporting Hazard Analyses	11/30/2012		18501.0.0
21859.0	Transfer and movement of large dewars using a tilting dewar cart.	Curran, Francis X., III	Approved	Task-based Hazard Analyses	07/09/2013		21859.0.0
9060.0	Routine Analytical Work--Sample Preparation and Analysis	Griffin, Gary E.	Approved	Defined Procedure	07/09/2012		90600.0
5325.0	Environmental Systems Operations	Moos, Lawrence P.	Approved	Skill of the Worker	01/16/2012		53250.0
5104.0	Environmental Sampler	Moos, Lawrence P.	Approved	Skill of the Worker	06/14/2011		51040.0
20672.0	Movement of Pb Bricks Used as Calibration Source Shields	Butala, Stephen	Approved	Task-based Hazard Analyses	04/24/2013		20672.0.0
20054.0	Olympus RGD XRF Use for Bulk/Wipe Analysis	Schafer, Gene H., III	Approved	Task-based Hazard Analyses	06/11/2014		20054.0.0

INITIAL SCREEN

side Argonne | WCD 37954 Hello, Susan Baumann

PC > New WCD ?

VCD New Task-based Hazard Analyses

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* WCD Number: 37954

* Title: Sample WCD

* Scope Summary

Arial Unicode MS **B** *I* U **A** **A** **A** **ab** Basic text editing functions

Lists

1. Example 1
2. Example 2 [hyperlinked](#)

* Start Date:

* End Date:

* Approving Division:

Approving Department:

Complexity Determination: Simple

Consequence Determination: Minimal

NEPA Number :

NEPA Exclusion :

* Person in charge: Keyword search

* WCD Preparer: Baumann, Susan (ESQ) B: 46571

* WCD Review Team Lead: Keyword search

Request ESH Coordinator Review:

Request QAR Review:

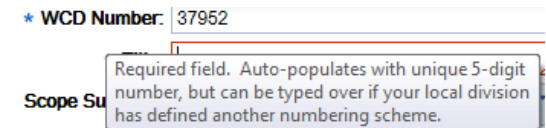
Request EM Review:

Save

Captures the basic information of the work package

System highlights:

- * Indicates required fields
- Start/end date validation
- Hover over test provides a brief definition of the requirement to complete the field



- System check for completed field (missing fields indicated in red)
- Basic editing functionality
- Drop down menu selections

WORK PACKAGE MAIN SCREEN

Informational sections

Additional Preparers

- ESH Coordinator(s) pre-populated
- All preparers have the ability to edit the document

Attachments

- Ability to add any type of attachment (e.g. word, pdf, photo, movie) and description

Authorizers

- The person(s) who are able to authorize the work in the WAE application

Cost Codes and Funding Agents

- Field to provide cost codes and funding agents for the project

Organization

- Field to identify other organizations that would be involved in the project

The screenshot displays the 'Work Package Main Screen' with several informational sections:

- Additional Preparers:** A table with columns 'Preparer', 'Comments', and 'Delete'. It lists 'Eagels, Steven (#58296)' with the comment 'Divisional ESH Coordinator automatically added by default'.
- Attachments:** A table with columns 'Attachment', 'File Name', 'Description', 'Size', 'Date', 'Attacher', 'Edit', and 'Delete'. It shows an attachment 'ppe-selection-guide.pdf' by 'Baumann, Susan'.
- Authorizers:** A table with columns 'Authorizer', 'Comments', and 'Delete'. It lists 'Baumann, Susan (#46571)'.
- Cost Codes:** A table with columns 'Cost Code', 'Description', 'Edit', and 'Delete'. It shows '955312W-331' for 'work planning and control cost code'.
- Funding Agents:** A table with columns 'Funding Agent', 'Description', 'Edit', and 'Delete'. It shows 'indirect funding' for 'Indirect funding'.
- Organizations:** A table with columns 'Division', 'Department', 'Comments', 'Edit', and 'Delete'. It shows 'FMS' for 'BIM'.

TASKS

- Ability to define a task per project
- Ability to have multiple tasks per work control document or a single task
- Hazard analysis is defined in the task

PC > WCD > Edit WCD Task 3

WCD Task *Edit Task 3 for Sample WCD*

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* Title: Task 3

* Scope: Arial Unicode MS **B** *I* U **A** **A** **A** **ab** **ab**

Scope for Task 3

* Start Date: 07/30/2015

* End Date: 07/31/2015

* Scope Limits: Arial Unicode MS **B** *I* U **A** **A** **A** **ab** **ab**

scope limits for task 3

Lessons Learned: Arial Unicode MS **B** *I* U **A** **A** **A** **ab** **ab**

lessons learned for task 3

External Training:

On the Job Training:

Response to unplanned events: Stop work immediately and contact the supervisor. In case of emergency

Worker Proficiency:

Work Instructions: Arial Unicode MS **B** *I* U **A** **A** **A** **ab** **ab**

work instructions for task 3

Attachments

[Add](#)

Attachment	File Name	Description	Size	Date	Attacher	Edit	Delete
There are no items to display							

Task Locations

[Add](#)

Buildin...	Room	Location	Comments	Task	Edit	Delete
306	OUTSI	outside, north east corner		All		

Permits and Other Required Documents

Name	Description	Link to Permit
Written Entry Procedure for Confined Space	Written Entry Procedure for Confined Space	

Hazard Analysis

[Edit](#) [Report](#)

Hazards	Controls	Training
Industrial hygiene hazards >> Physical agents >> Confined space hazard >> Non-permit required >> Two-person rule for entry	Two-person rule, Inform workers of the Argonne emergency numbers (911, or 630-252-1911 from a cell phone) , Written entry procedure, including steps to eliminate or control hazards, retrieval equipment (see LMS-PROC-235 Confined Space Entry), Entry into non-permit required confined space must be authorized via a division approved work procedure	No Course Needed

Required Training

[Add](#)

Course Number	Course Name	Comments	Task
There are no items to display			

Proposed Independent Workers

[Add](#)

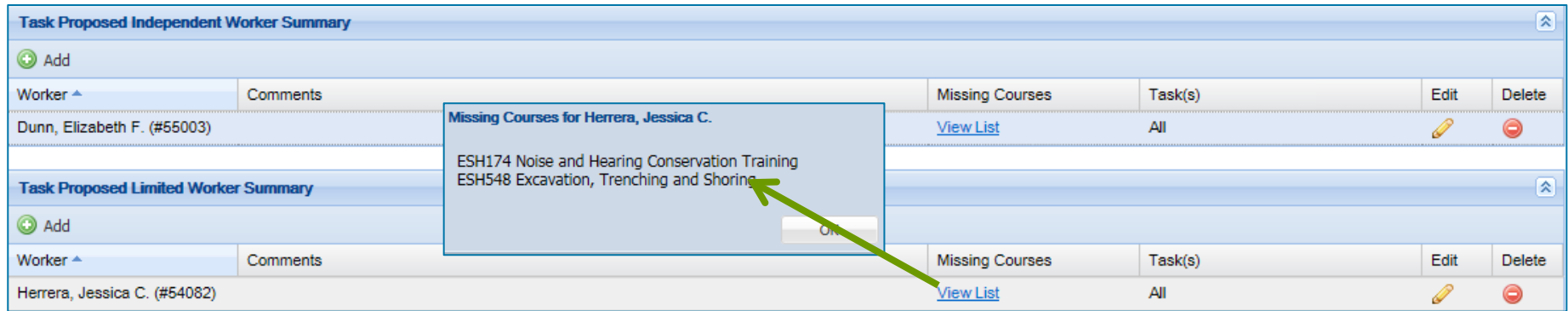
Worker	Comments	Missing Courses	Task	Edit	Delete
Dunn, Elizabeth F. (#55003)		ESH174 Noise and Hearing Conservation Training ESH548 Excavation, Trenching and Shoring	All		

Proposed Limited Workers

[Add](#)

Worker	Comments	Missing Courses	Task	Edit	Delete
Herrera, Jessica C. (#54082)		ESH174 Noise and Hearing Conservation Training ESH548 Excavation, Trenching and Shoring	All		

INDEPENDENT AND LIMITED WORKERS



Task Proposed Independent Worker Summary					
Worker	Comments	Missing Courses	Task(s)	Edit	Delete
Dunn, Elizabeth F. (#55003)		View List	All		

Task Proposed Limited Worker Summary					
Worker	Comments	Missing Courses	Task(s)	Edit	Delete
Herrera, Jessica C. (#54082)		View List	All		






















Missing Courses for Herrera, Jessica C.
ESH174 Noise and Hearing Conservation Training
ESH548 Excavation, Trenching and Shoring

- Add, remove, edit workers as independent or limited
 - An independent worker is a worker who has completed all of the required training such that the worker can conduct work within the scope of a work control document WITHOUT supervision
 - Limited worker is a worker who either (a) must work under the direct supervision of a person-in-charge or another independent worker, OR (b) must conduct work within specified conditions in a work control document
- Workers can be added to a specific task or “All” tasks
- Training is verified and missing courses identified

HAZARD CRITERIA- HAZARD TREE

IDENTIFY SPECIFIC HAZARD

Expand All | Expand Selected | Collapse

- +  General site hazards
- +  Physical safety hazards
-  Industrial hygiene hazards
 - +  Biohazards
 -  Physical agents
 - +  Confined space hazard 
 - +  Heat or cold stress
 - +  Hot or cold surfaces
 - +  Noise
 - +  Laser 
 - +  Radiofrequency/microwave hazard
 - +  Static magnetic field
 - +  Ultraviolet, visible, and near-infrared radiation
 -  Other physical agent hazard not identified above
- +  Toxic chemicals and dusts
- +  Environmental hazards
- +  Fire and life safety hazards
- +  Radiological hazards
- +  Operational considerations

TASK RELATIONSHIP & CONTROL SET

Hazard Analysis Criteria *Authorized personnel only for entry*

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Code: Authorized personnel only for entry

Description: These confined spaces present no hazard, but should be entered only by personnel who are trained and authorized. The two-man rule does not apply to these spaces. Prior to authorizing a non-permit entry, the entry supervisor must consider if the work to be performed may create conditions that would create a confined space. Before authorizing entry into a non-PRCS, the entry supervisor must verify that the space will not produce any of the hazards that would create a PRCS.

* **Task-Hazard Relationship:** task for confined space

Additional Control Requirements:

Control Set Name:

Request SME Review: None

Request ESH Coordinator Review: Authorized personnel only for entry

Update

Authorized personnel only for entry, Ready-access radio/phone, Inform workers of the Argonne emergency numbers (911, or 630-252-1911 from a cell phone), Entry into non-permit required confined space must be authorized via a division approved work procedure, Written entry procedure, including steps to eliminate or control hazards, retrieval equipment (see LMS-PROC-235 Confined Space Entry), Ready-access radio/phone

Flag colors

- **Green** control is setup properly
- **Yellow** control is setup properly but subject matter expert (SME) review
- **Red** control is not complete

HAZARD ANALYSIS

Hazard Analysis Criterion /Industrial hygiene hazards/Physical agents/Confined space hazard/Non-permit required/Authorized personnel only for entry/

Back WCD Task WCD Home

This hazard criterion has been set up correctly.

Details

Edit

Description: These confined spaces present no hazard, but should be entered only by personnel who have been trained and authorized to do so. The two-man rule does not apply to these spaces. Prior to authorizing a non-permit required space (non-PRCS) entry, the supervisor must consider if the work to be performed may create conditions that would make the space a permit-required confined space. Before authorizing entry into a non-PRCS, the entry supervisor must verify that the work to be performed in the confined space will not produce any of the hazards that would create a PRCS.

Task-Hazard Relationship: task for confined space

Control Set: Authorized personnel only for entry

Engineering Control

Add

In Control...	Name	Value	Edit	Delete
There are no items to display				

Administrative Control

Add

In Co...	Name	Value	Edit	Delete
✓	Inform workers of the Argonne emergency numbers (911, or 630-252-1911 from a cell phone)			
✓	Authorized personnel only for entry			
✓	Entry into non-permit required confined space must be authorized via a division approved work procedure			
✓	Written entry procedure, including steps to eliminate or control hazards, retrieval equipment (see LMS-PROC-235 Confined Space Entry)			
✓	Ready-access radio/phone			

Personal Protective Equipment

Add

In Control...	Name	Value	Edit	Delete
There are no items to display				

Training

Add

Course Number ^	Course Name	Comments	Required	Edit	Delete
There are no items to display					

Permits and Other Required Documents

Name ^	Description
Written Entry Procedure for Confined Space	Written Entry Procedure for Confined Space

Control sections

- Engineering
- Administrative
- Personal Protective Equipment
- Training
- Permits and Other Required Documents

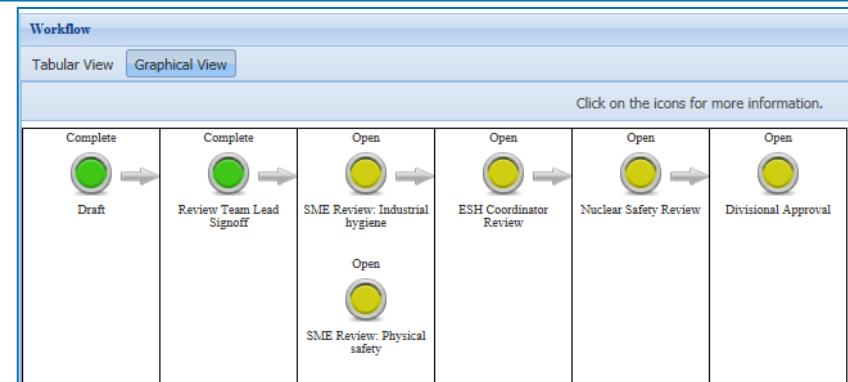
System highlights

- System pre-populates controls
- Additional controls can be added to any of the control sections
- Controls can be deleted. This will trigger a subject matter expert (SME) review
- The value field is used to add details e.g. type of gloves – Nitrile. This field can be set to optional or required.

WORKFLOW

Workflow							
Tabular View		Graphical View					
Name	Description	Status	Pref. Reviewer	Completed By	Completed At	Assign To Me	
Draft	no description	Complete	no preferred reviewer	Baumann, Susan (#46571)	07/31/2015 09:22AM		
Review Team Lead Signoff	no description	Complete	Baumann, Susan (#46571)	Baumann, Susan (#46571)	07/31/2015 09:23AM		
SME Review: Industrial hygiene	Task 1	Open	Click pencil to approve or reject...				
SME Review: Physical safety	Task 1	Open	Click pencil to approve or reject...				
ESH Coordinator Review	no description	Open	Click pencil to choose...				
Nuclear Safety Review	no description	Open	Pfeiffer, Phillip A. (#32646)				
Divisional Approval	no description	Open	Click pencil to choose...				

- Tabular view or graph view
- Ability to add custom reviews before, after, or with any of the review groupings
- SME notification is sent in parallel
- Preferred Reviewer can be selected
- If a preferred reviewer is not chosen then all of the reviewers will receive an email notification
- If changes are required, the preparer can return to draft. If the changes to do affect the SME approval, that SME does not have to reapprove



APPROVAL SCREEN

WCD Workflow SME Review: Industrial hygiene for Sample WCD

[Review Package](#) [Worker Package](#) [WEA](#) [Back](#) [Home](#)

Possible Reviewers

Name	Phone	Email
Davis, John T. (Expert)	(630) 252-2865	jdavis@anl.gov
Hinterman, Ralph (Expert)	(630) 252-2881	hint@anl.gov
Juscus, Anthony (Expert)	(630) 252-4149	ajuscus@anl.gov
Rosenow, Michael S. (Expert)	(630) 252-1213	rosenow@anl.gov
Schafer, Gene H., III (Expert)	(630) 252-5249	gschafer@anl.gov
Utesch, Robert C. (Expert)	(630) 252-5645	rutesch@anl.gov
Van Gorp, Gail (Expert)	(630) 252-3689	gvanqorp@anl.gov

Hazard Analysis

Name	Controls	Training	IH Monitoring
Industrial hygiene hazards >> Toxic chemicals and dusts >> Dusts >> particulates >> Silica >> Drilling, sawing, coring, or manual breaking of concrete or other crystalline silica-containing material Task-Hazard Relationship: drilling into concrete	ANSI-compliant eyewash (able to be reached in < 10 sec. and path of travel shall be free of obstructions) Barricade/warning tape Face shield or safety goggles [safety goggles] Gloves (specify type) [nitrile gloves under work gloves] Local exhaust ventilation (specify type) or use HEPA-filtered vacuum cleaner [HEPA vac directly in area of drilling] Respirator (specify type) [full face respirator required until IH monitoring results indicated wet methods and HEPA vac are effective methods] Safety shoes if specified by SME [steel toe over the ankle boots required] Warning sign (specify) [sigage around area "warning"] Wet methods (specify type) [use enough water to minimize dust in area]	No Courses Needed	Assigned Task: <input type="text"/> Recommendations: <input type="text"/> Request Monitoring: <input type="checkbox"/>

- A summary of changes is provided to reviewers
- Industrial Hygiene documents recommendation for monitoring based on the task and hazard selected
- Reviewers have the ability to approve or disapprove and add comments

WHERE WE ARE HEADING

FUTURE FOR WORK PLANNING AND CONTROL

System integration and system enhancements

- Integration with our chemical management system
 - Ability to select chemicals
 - Pre-populate physical and health hazards
- Reactive chemistry review process
- Integration with our Industrial Hygiene system
- Hazard control set
 - Adding, modifying, and deleting control sets based on users input and changes
- Work flow improvements
- Reporting and metrics
- Streamline system output reports
 - PPE summary reports
 - Print selection table

THANK YOU.

DO YOU HAVE ANY QUESTIONS?

www.anl.gov