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# HAZARD ANALYSIS PROCESS IMPROVEMENTS

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- Development & Implementation

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# Summary of Assisted Hazard Analysis Issues (DNFSB, DOE, WSRC)

- AHA is not user friendly
- Improve hazard identification, analysis, and mitigation
- Work authorization and control requires improvement
- Ineffective worker feedback

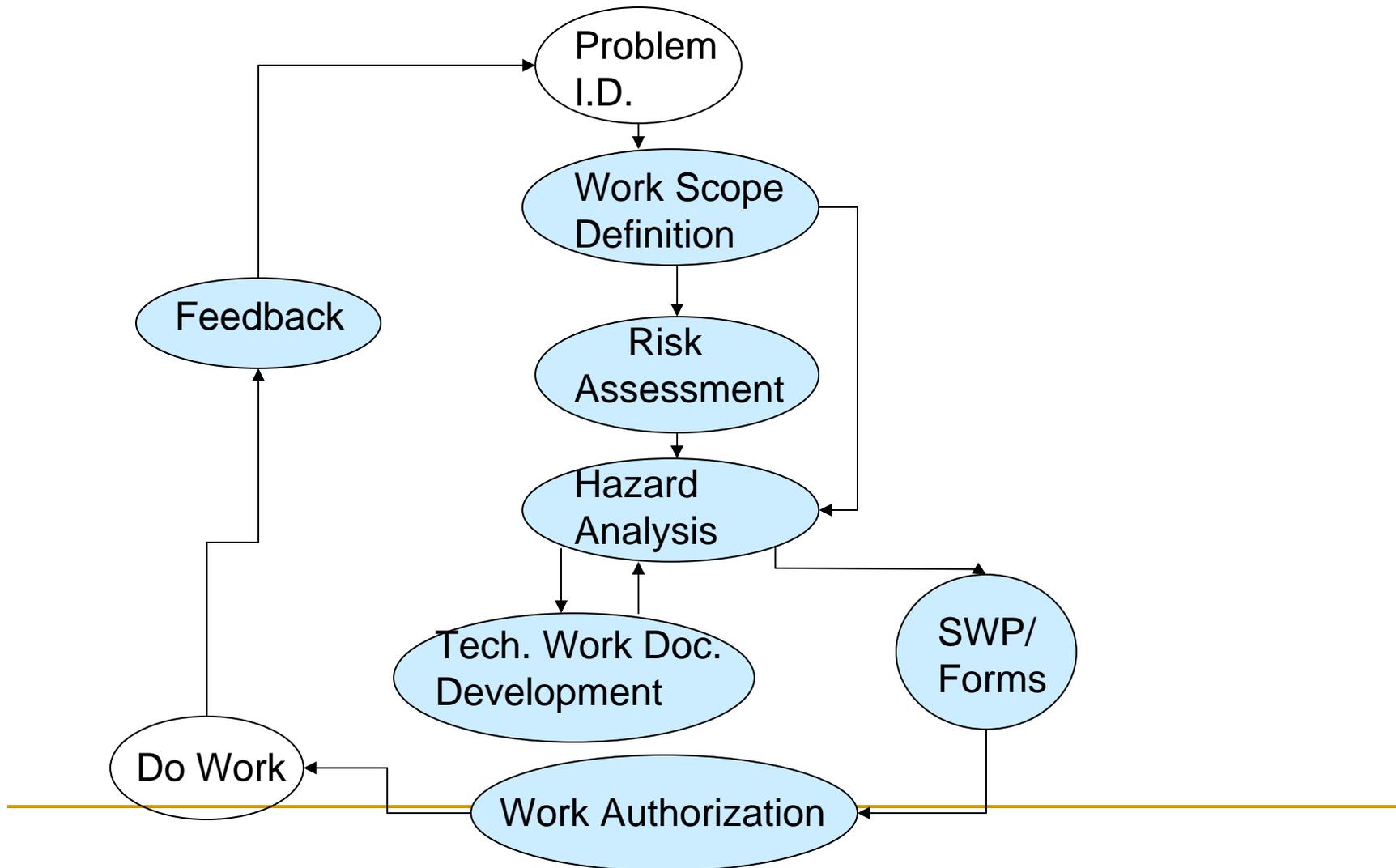


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# Improvement Philosophy

- A core group mentored diverse teams including workers, planners, and managers to:
    - Define needed AHA improvements
    - Craft solutions
    - Plan implementation
  - DOE/DNFSB representatives integrated from the start
  - Concurrence throughout process
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# Hazard Analysis Flow Diagram



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# What Will Change

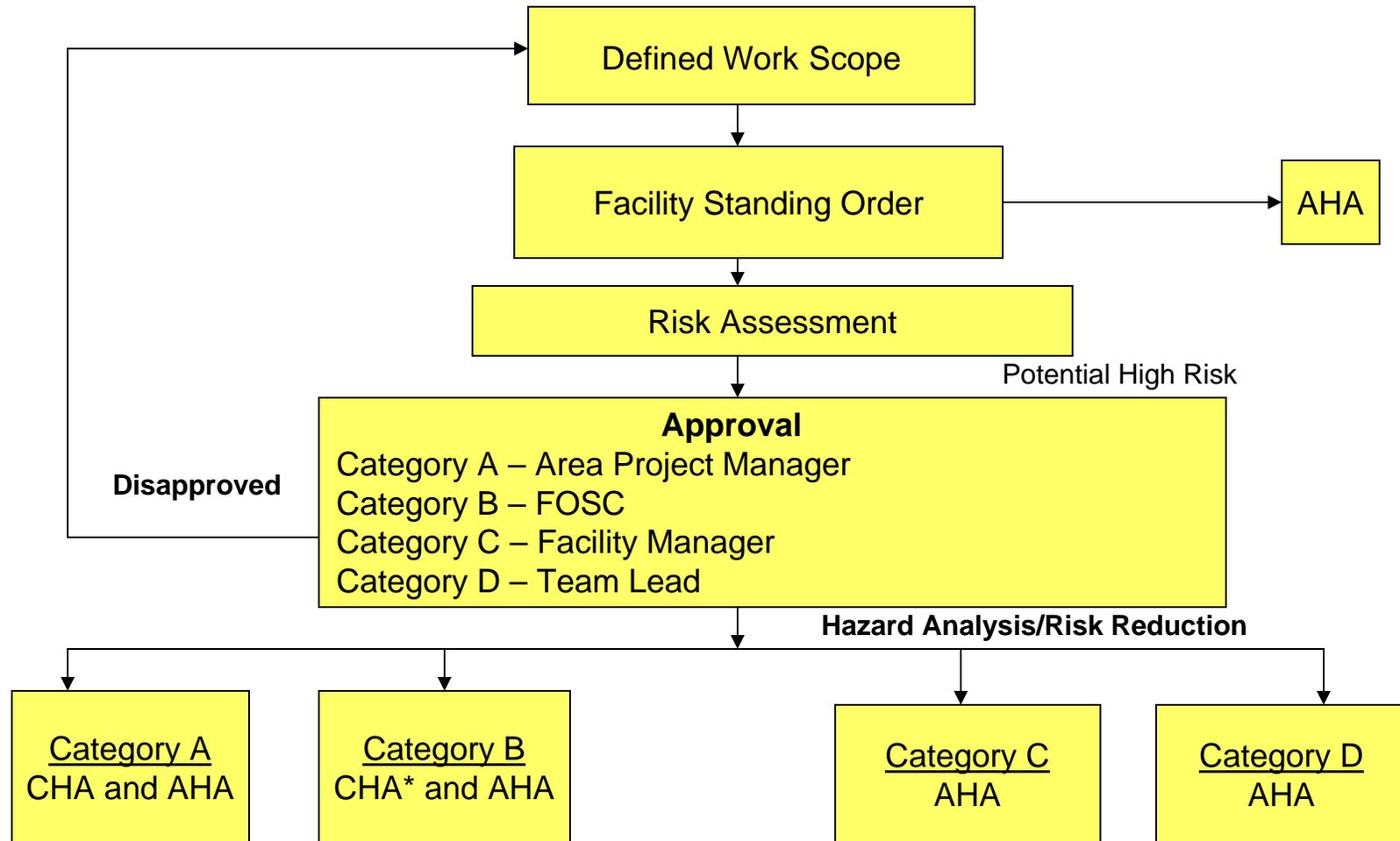
- Added rigor to scope definition
    - Work Scope Definition Checklist
  - Added risk assessment capability
    - The right team dispositions hazards and analysis at the start of planning. (Modified SW program)
  - AHA software improvements
    - Hierarchy of controls prompts within the mini-helps
    - SME recommended control dispositions
    - Consolidated PPE requirements
    - Hazard Tree corrected & streamlined
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# What Will Change

- Focused, user friendly output documents
    - Safe Work Permit (SWP)
    - Disposition Reports
  - Improved implementation
    - Hazard identification & mitigation emphasis
    - Linked to facility roll-out (similar to PassPort roll-out)
  - Improved work authorization and control (SWP)
  - Better feedback from workers
    - Time Out process currently working
    - Developing further improvements
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# Risk Assessment Screening Process

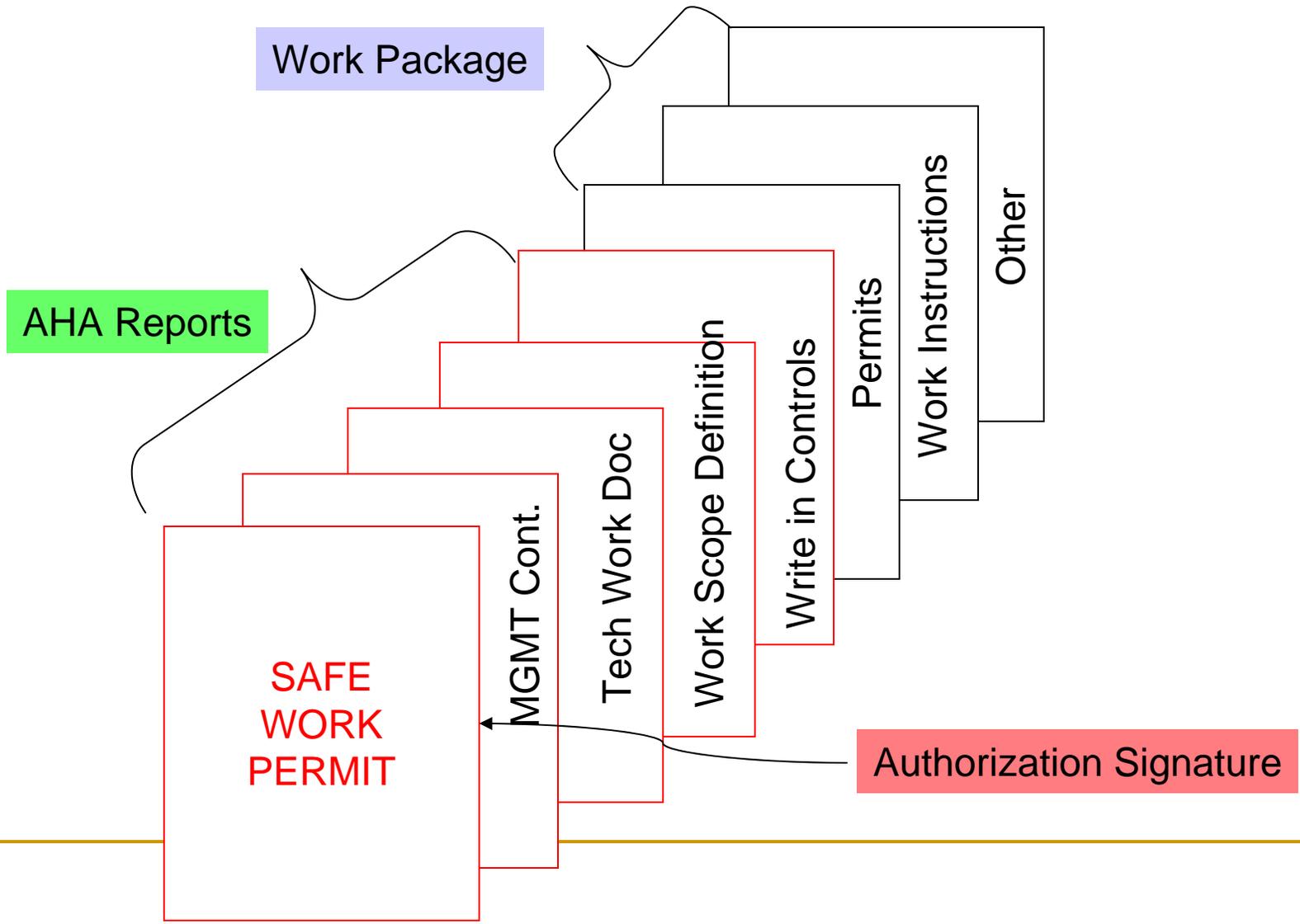


\*Decision to use CHA should include consideration of primary drivers for the risk category. CHA's focus on process Hazards; AHA's focus on industrial hazards.

## Risk Assessment Outcomes:

- Set path for approval
- Determine best path for Risk Reduction/Hazard Abatement (hierarchy of Controls)
- Disapprove (Unacceptable Risk)

# Work Authorization





Hazards & Controls  
Tailored to Worker's  
Needs

Safe Work Permit

Tasks

Hazards

Controls

<b>Main Task:</b> Repair Leaking Steam Union						
<b>Subtask #1:</b> Perform Shop Fabrication for Piping						
<b>Subtask #2:</b> Replace Union						
<b>Subtask #3:</b> Repair/Replace Trap						
<b>Tasks</b>						
<b>M</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
		X	X			350 Portable Ladder Used
		X	X			560 Fall Hazards Exist
X						570 Slip/Trip Hazards Exist
X						580 Falling Objects are Potential Hazard
		X	X			690 Hazardous Energy Sources
		X	X			780 Tools Used (handheld or portable powered)
		X	X			890 Tanks, Lines, Vessels Opened or Breached
	X	X				1540 Hot Work (Electric Arc, Oxygen-Fuel Cutting/Welding or Heavy Grinding)
X	X	X				2500 Personal Protective Equipment needed (non-Res)
<b>Safe Work Permit Controls</b>						
		X	X			350 Area barricaded and warning tags posted
		X	X			Barricade area to protect personnel from falling objects, grinding debris, welding sparks, etc.
X						570 Housekeeping before/during/ after activity
X						570 Secure hoses, cords, lines portable equip
		X	X			690 Lockout energy sources per 8Q 32
		X	X			Covered by lockout.
		X	X			780 Use with ground fault interrupter
		X	X			890 Notify Shift Manager prior to and after job
	X	X				1540 Standby fire extinguisher present
	X	X				ABC type extinguisher on hand at job site
X						1540 Fire retardant personal protective clothing
X						2500 Eye Protection - Safety Glasses
	X	X				2500 Face Protection - Face Shield
	X	X				Face shield when grinding
X						2500 Hand Protection - Leather gloves
	X	X				2500 Hand Protection - Welding gloves
	X	X				Only when welding.
	X	X				2500 Face Protection - Welding Hood
	X	X				Only when welding.
X						2500 Foot protection - Safety shoes
	X	X				2500 Hearing protection - Ear plugs
	X	X				T1)Wear ear plugs when using grinder. T2) Wear ear plugs when using Sawzall.

## Technical Work Document Summary Report

<b>AHA #:</b>								
<b>Technical Work Document #:</b>								
<b>Main Task:     Repair Leaking Steam Union</b>								
<b>Subtask #1:    Perform Shop Fabrication for Piping</b>								
<b>Subtask #2:    Replace Union</b>								
<b>Subtask #3:    Repair/Replace Trap</b>								
<b>Tasks</b>							<b>Hazards</b>	
<b>M</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		
		X	X				350 Portable Ladder Used	
		X	X				560 Fall Hazards Exist	
X							570 Slip/Trip Hazards Exist	
X							580 Falling Objects are Potential Hazard	
		X	X				690 Hazardous Energy Sources	
		X	X				780 Tools Used (handheld or portable powered)	
		X	X				890 Tanks, Lines, Vessels Opened or Breached	
	X	X					1540 Hot Work (Electric Arc, Oxygen-Fuel Cutting/Welding or Heavy Grinding)	
X	X	X					2500 Personal Protective Equipment needed (non-Rad)	
							<b>Technical Work Document Controls</b>	<b>Additional Text</b>
		X	X				690 Double boundary isolation	Covered by lockout.
		X	X				690 Stored Energy Released	Covered by lockout.
		X	X				690 Lines drained and depressurized	Covered by lockout.
		X	X				690 System cooled down	Covered in Maintenance Instructions.
X	X						1540 Complete Hot Work permit	Covered by work package.

**Note: Routing of package for approval implies the Planner has reviewed this report and has incorporated the indicated controls as into the appropriate technical work document.**

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# Field Validation to Date

- Validated Risk Analysis process against two high risk jobs in F Canyon
    - Matched Canyon results, but would have involved the right level of management earlier in the planning process
  - Compared revised hazard analysis process against 278 recorded injuries in 2004
    - Results showed that the new process would have added value in potentially preventing one third of those injuries
  - Planners compared existing AHAs to improved AHA reports
    - Results validated significantly improved output to workers
  - Expanded Work Scope Definition Checklist undergoing field evaluation
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# Benefits

- Improved Worker Safety:
    - ❑ User friendly program
    - ❑ More Focused Hazard Analysis Process
    - ❑ Work Authorization and Control improved
    - ❑ Feedback improved
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# Remaining actions needed

- Identify additional programming during pilot.
  - Effectiveness assessment by FMF six months after implementation.
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