

Automated Hazards Analysis (AHA)



**Westinghouse Savannah River
Company**

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What Is It?

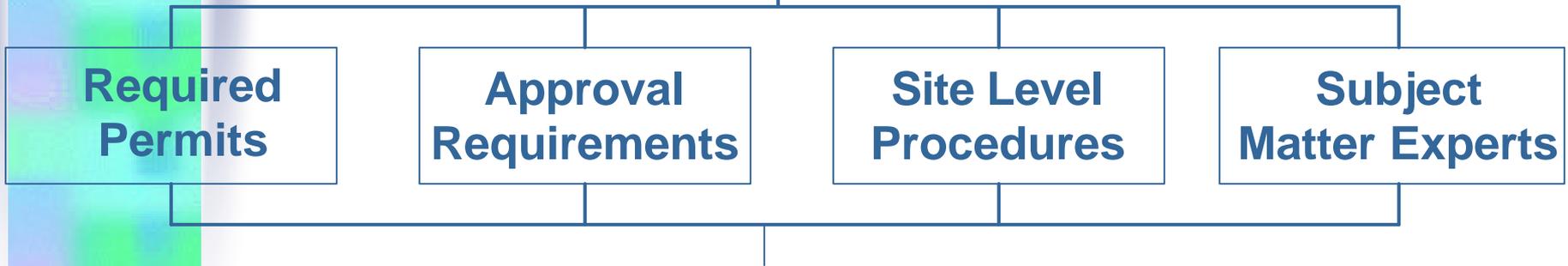
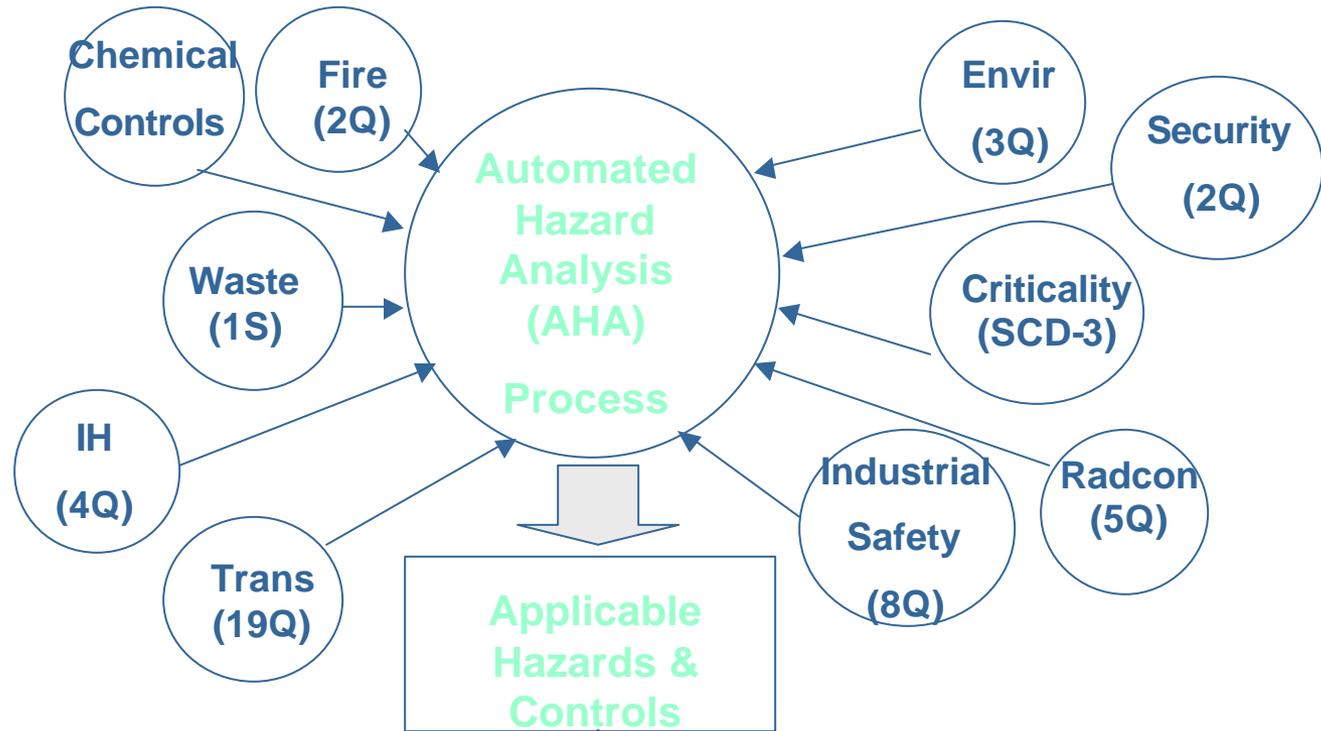
- Software program to identify hazards, hazard controls, Subject Matter Expert involvement and forms/permits for task(s)
- A process that combines software information with employee knowledge to meet the five ISMS functions.
- Incorporates most of the current Work Clearance Permit (WCP) and Job Hazard Analysis (JHA) processes for task(s) hazard analysis into a single action/process
- Key Point: AHA does **not** replace employee knowledge, which is the greatest asset to any system or process.



Why Change?

- Outside assessments indicated the current WSRC hazards analysis processes (WCP & JHA) do **not** always result in **full** integration of hazards identification
- Work requirements have increased in numbers and complexity, making capture of all safety related requirements more difficult with the current WSRC practices
- AHA provides a **more** comprehensive, effective and efficient method / process to ensure continuous improvement in workers safety

Integrated Vision



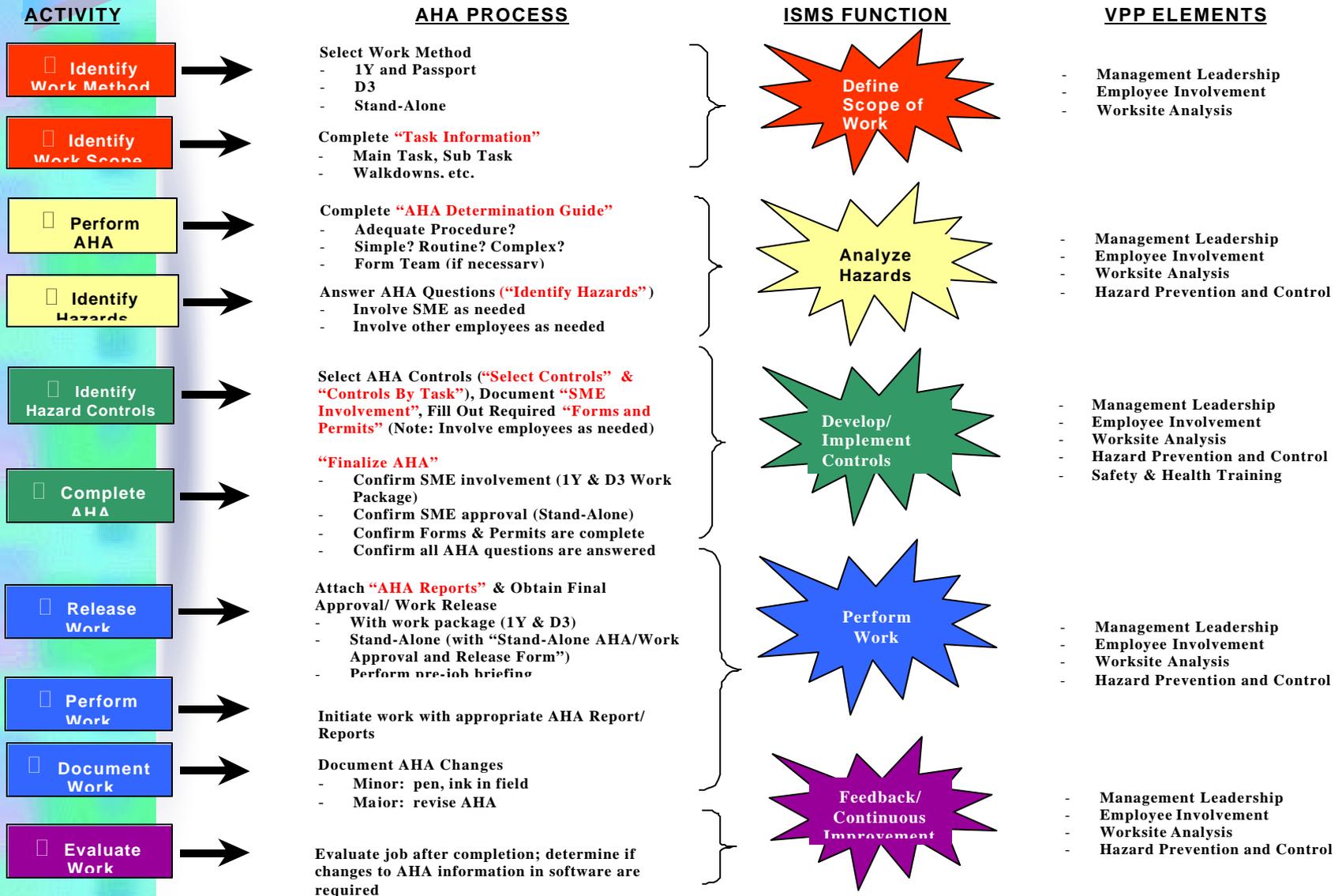
AHA Process Results



Where Did The AHA Come From?

- **Hanford provided the initial software program.**
- **The Hanford software program was customized to fit WSRC business processes and hazards.**

What Is The AHA Process?



How Does The AHA Compare To The WCP?

	<u>WCP</u>	<u>AHA</u>
Up-Front Planning Process	X; Optional	Ö; Required by AHA Process
Graded Approach Option	X; not available	Ö; “AHA Determination Guide”
Multi-Task Capabilities	X; single task	Ö; Main Tasks and up to six subtasks
Semi-Auto Hazard I.D.	X; limited discretionary checklist (Section 2)	Ö; Yes / No questions
Semi-Auto Hazard Control I.D.	X; limited discretionary checklist (Section 3)	Ö; based on question answers
Semi-Auto SME Involvement, I.D.	X; discretionary	Ö; based on question answers
Auto-Forms/Permit	X; separate and discretionary	Ö; based on question answers and inclusive in AHA
Checklist (i.e., Fire safety checklist, etc.) and User Guide (i.e. IH Screening Guide, etc.)	X; partially as a reference	Ö; incorporated into AHA questions where possible
Work Release Approval	Ö	Ö
Adaptability to Current Work Process	Ö	Ö
Auto “Cloning” Capability	X; not available	Ö; AHA software capability
Repetitive Task Capability	X; limited capability	Ö; “Models” are “Standing” AHAs
Index Capability	X; not available	Ö; AHA software capability



How Does The AHA Compare To The JHA?

	<u>JHA</u>	<u>AHA</u>
Criteria for When to Perform?	ö	ö
Task Breakdown Capabilities	ö	ö
Team Involvement	ö	ö
Template for Hazard Screening	X	ö
Single Hazard Analysis Process	X; results have to be Cross-checked with WCP's, Checklist, forms/printer, etc.	ö; fully integrates hazard analysis into one location
Available for New Procedures/ Major Procedure Revision	ö	ö

Guide Screen Hazard Help, Mini Help

The screenshot displays the 'Automated Hazard Analysis' software interface. The main window is titled 'Hazard Analysis' and shows a list of hazards on the left and a 'Hazard Question' dialog box on the right. An orange callout bubble points to the 'Hazard Help' button in the top navigation bar. Another orange callout bubble points to the 'Mini Help' text in the dialog box.

Automated Hazard Analysis

Navigation: [Determination Guide](#) [Containment Selection](#) [Select Controls](#) [Comments](#) [Hazard Help](#) [AHA User Guide](#)

Facility: SRS Task: Put on addition to house Locked: No

Hazard Analysis

AHA Hazard

- Scaffolding needed (IS)?
 - Incomplete Scaffold platform >= 6 ft high with unprotected sides?
- Excavation work (IS, Radcon, SW)?
- Elevating work platforms (IS)?
 - Manually or self-propelled?
 - Vehicle mounted or boom supported platform?
- Portable ladder (IS)?
- Hoisting, Rigging, or Cranes (IS)?
 - Mobile crane?
 - Overhead or gantry crane?
 - Material hoists or monorail cranes?
 - Critical lift?
 - A preengineered production lift?
 - Requires lifting personnel on lift platforms or baskets suspended from r...
- Near overhead power lines; critical piping; poles, towers and guy wires
- Use of forklift (lift truck) (IH)
- Falls from elevation (IS)?
- Slip or trip hazards (IS)?
- Hazards from falling objects (IS)?
- Inadequate lighting or a...
- Requires manual lifting, c... repetitive motio
- Chemicals/chemical products (IH, Chem)?
- Use of OSHA regulated or ACGIH A1 or A2 Carcinogens (IH)?
- Removing or replacing floor grating, manhole covers or deck plates (IS)?

Hazard Question:

Does the work activity involve the use of OSHA regulated or ACGIH A1 or A2 Carcinogens?

Hazard?

Yes No

Mini Help: Click text for scroll bar.

See Help file for more information concerning ACGIH A1 or A2 Carcinogens. For operations conducted in a laboratory covered by 29 CFR 1910.1450, comply with the Chemical Hygiene Plan, as applicable.

Form View NUM



How Many Question Are There?

- **Level 1 Questions: 69**
- **Level 2 Questions: 107**
- **Level 3 Questions: 49**
- **Total: 225**

Hazard Analysis - Drill Down

ty: ID: Rev: MainTask: Locked:

A Hazard ID Navigation:

- 620 Handling sharp objects or using manual cutting tools such as knives, E
- 630 Concrete or masonry work?
- 640 Demolition/Renovations (see minihelp for demolition definition)?
- 680 Blasting or the use of explosives?
- 690 Hazardous energy sources can be contacted or released (includes Lo
- 740 Installing, removing, or performing inspections or maintenance on batte
- 750 Roof work/access?
- 760 Machine guarding issues?
- 770 Working in Remote Locations?
- 780 Hand or portable power tools used?
- 790 Activity involves penetration of floors, walls, ceilings?
- 800 Confined Space Entry?
- 890 Tank, line, vessel opened/breached?
- 1000 Alters or affects pressure vessels or pressure relief devices?
- 1010 Coating/Painting/Prepping?
- 1090 Lead or lead-containing materials?
- 1170 Alters or affects ventilation systems?
- 1220 Chemicals/chemical products?
- 1230 Chemicals/chemical products used (not including paints or finish
- 1240 Chemicals located or stored in close proximity involved?
- 1250 New chemicals/chemical products?
- 1260 Potential release of gas/vapor (Includes asphyxiation)?
- 1270 Is chemical/chemical product flammable or combustible?
- 1280 Significant noise sources present so that you have to raise your voice

Hazard Question:

1220 Does the activity involve chemicals or chemical products (IH, Chem)?

Hazard?

Yes
 No

Mini Help:

Click text for scroll bar.

This includes materials, but not limited to: Mercury, Benzene, Cryogenic, Radiological, Flammable, Combustible, etc. Refer to Chemical Homepage on Shrine for the definition of a "chemical" and the MSDS link to chemicals/chemical products.

Guide Screen Hazards Help Files

Automated Hazards Analysis
File Edit Bookmark Options Help
Help Topics Back Print << >>

Scaffolding

[Requirements](#)

[Definitions/Explanatory Information](#)

Automated Hazards Analysis
File Edit Bookmark Options Help
Help Topics Back Print << >>

Requirements

- OSHA Construction Standard [29 CFR 1926 Subpart L](#), Scaffolding
- OSHA General Industry Standard [29 CFR 1910.28](#), Safety Requirements For Scaffolding
- WSRC 8Q, [Procedure 1B](#), "Ladder and Scaffold Safety Requirements"

Internet Links to Documents

Chemicals/Chemical Products (IH, Chem)**[Requirements](#)****[Definitions/Explanatory Information](#)****[Guidance on Hazard Controls](#)****[Facility Specific Information](#)**

Disclaimer: HELP Screen Information consists of condensed and summary information that is deemed noteworthy and instructive. However, the information presented is generalized and abbreviated. Refer to the Requirements Documents for complete information. In the case of any inconsistencies or omissions between the Requirements Documents and the HELP Screen Information, the Requirements Documents shall prevail.

Chemicals/Chemical Products: Requirements

Occupational Safety and Health Standards, Subpart Z--Toxic and Hazardous Substances, [29 CFR 1910](#), Subpart Z

Air Contaminants, [29 CFR 1910.1000](#)

Threshold Limit Values for Chemical Substances and Physical Agents, American Conference of Governmental Industrial Hygienists (ACGIH) (Internet not available)

Carcinogens, [29 CFR 1910.1003](#)

Carcinogenic Hazard, [WSRC Manual 4Q, 302](#)

[Appendix A](#)

[Appendix B](#)

Hazard Communication, [29 CFR 1910.1200](#)

Appendix [A](#),

Appendix [B](#),

Appendix [C](#),

Appendix [D](#),

Appendix [E](#).

Hazard Communication—[WSRC Manual 3B- 2-3](#)

Respiratory Protection, [WSRC Manual 4Q, 1301](#)

Chemicals/Chemical Products: Definitions/Explanatory Information

1. The [Material Safety Data Sheets \(MSDS\)](#) for chemicals are an excellent source of information regarding chemical product constituents, toxicity, flammability, etc.
2. If feasible, select chemicals and products that are of relatively lower toxicity, flammability, corrosivity, and/or reactivity. Many times, substitution of more hazardous chemicals with less hazardous ones is the best hazard control measure.
3. When evaluating the hazard that the chemical agent poses to the worker, exposure through inhalation is often one of the first things considered. But be sure to also consider the skin and eye hazards.
4. Work with [carcinogens](#), especially [OSHA carcinogens](#) and [ACGIH A1 and A2 carcinogens](#), should be considered a high risk activity. Hazard controls, training, worksite supervision, industrial hygiene support, work practices, and work instructions should reflect the higher level of risk.
5. [Substance specific OSHA standards](#) apply to certain chemicals (e.g., benzene, lead, inorganic arsenic, formaldehyde). Refer to these standards for specific requirements.
6. When work does not directly involve chemicals, but is being performed in areas where chemicals/products are stored or used, plan the work activity to protect against damaging, spilling, releasing, igniting, or otherwise impacting these chemicals and products.
7. When using or handling chemicals in radiological areas, be sure to avoid or minimize generation of mixed wastes, whenever feasible. See your Industrial Hygienist, RadCon Representative, and or Environmental Officer/Representative.
8. Always consider waste minimization, pollution prevention, and recycling and reuse when dealing with chemicals and chemical products.

Select Controls

AHA ID: Locked:

Identified Hazards:

0 Chemicals/chemical products?

- 1270 Is chemical/chemical product flammable or combustible?
- 1230 Chemicals/chemical products used (not including paints or f
- 1240 Chemicals located or stored in close proximity involved?



Main Task:	Performing Decon efforts in 772-F(mainly for the Rad. Improver
SubTask 1:	Radiologically survey the area to be decontaminated
SubTask 2:	Perform decontamination/fixative steps
SubTask 3:	Perform exit Radiological survey
SubTask 4:	
SubTask 5:	
SubTask 6:	

	Main	1	2	3	4	5	6
Identify significant chemicals/products	<input checked="" type="checkbox"/>	<input type="checkbox"/>					
Brief description of chemical use/activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>					



Forms and Permits cont.

Automated Hazard Analysis (SRS1-9/25/2001) - [Forms and Permits]

Navigation Controls by Task Involvement User Guide

Forms and Permits

AHA ID: SRS-413 Rev: 0
Facility: SRS Locked: No

Forms/Permits that are required by the identified hazards:

Name
Excavation / Trenching Checklist DSR 18-125

Clear Selection

Form/Permit Options:

- View/Edit
- Create
- Clone
- Revision
- Remove
- ID Existing
- Add From Inventory
- Complete (Toggle)

Forms/Permits that exist in this A

Name	Revision	PermitID	Complete
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Required Forms/Permits based on Hazards

Create required Forms/Permits

Guide Screen SME/Participant Involvement

Automated Hazard Analysis (SRS1-9/25/2001) - [Involvement]

Navigation | Forms and Permits | Finalize the AJHA | Print Req. SME List | User Guide

Subject Matter Expert/Participant Involvement

Current Facility: SRS AHA ID: SRS-403 Locked: No

The following involvements were triggered by the hazards and controls:

Involve SME's	Identified Hazard Leading to Involvement
<input checked="" type="checkbox"/> ALARA Coordinator	Potential to exceed any ALARA contamination trigger
<input type="checkbox"/> Area Environmental Coordinator	Excavation work?
<input type="checkbox"/> Environmental Protection Department	Excavation work?
<input type="checkbox"/> HVAC Coordinator	Alters or affects process ventilation systems?
<input type="checkbox"/> Lead workgroup Supervisor	Potential to exceed any ALARA contamination trigger
<input type="checkbox"/> Operations	Hazardous energy sources can be contacted or released

SME's add their involvement indications below (press the Add Subject Matter Expert) or add Participants:

SME/Participant List	Name	Title / Text
<input type="checkbox"/>	Smith, Jane I 5/22/02	Ops Supv.
<input type="checkbox"/>	Doe, John D 5/22/02	LWG Supv.

Required Subject Matter Experts based on hazards

Subject Matter Expert signoffs

What Does Standard Report look Like?

AHA ID: SRS-43 Rev - 0	AHA REPORT	Status: AHA initiated / AHA not complete	Date: 6/13/02					
Prepared By: SMITH, JANE I	Work Package No: WO00159	Work Location: BLDG 241-F						
Description: Service ground water feed pump P-1101								
Pre-Job Walkthrough Conducted: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Walkthrough Date:								
Specific Work Location(s):								
Emergency Contact Person(s): _____ Primary _____ Secondary								
Emergency Radio/Phone No: _____								
KNOWN OR POTENTIAL HAZARDS								
	Yes	No		Yes	No		Yes	No
Scaffolding Involved	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Exposed or Rotating/Moving Machinery (e.g., Pinch, Nip Points)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Portable Heating Equipment (Potential Fire, Burn, Exposure)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation Work	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Remote work location	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Temporary or permanent installations or mods are adjacent to existing facility.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Elevating Work Platform Involved	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Powered Hand Held Tools Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fire hazards increased, or change in facility operation use & occupancy.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Portable Ladder Used	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Confined Space Entry	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fire suppression or fire alarm detection system impacted	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reference WSPC Manual TM-90-7. In Shrine, enter "hoist" and click on QUICK SEARCH to go to the Hoisting & Rigging Homepage.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Painting, Finishing, Preparing Painted Surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Smoke, fumes, etc. and/or heat source impacts fire alarm detection device.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Activity near overhead power lines; critical piping; poles, towers and guy wires supporting power lines or piping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Lead/Lead Containing Material Involved	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fire system electrical power supply effected	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Forklift Used	<input type="checkbox"/>	<input type="checkbox"/>	Tanks, Lines, Vessels Opened or Breached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Permanent or transient fuel loading increased	<input type="checkbox"/>	<input checked="" type="checkbox"/>

What Does Standard Report look Like?

AHA ID: SRS-43 Rev - 0	AHA REPORT	Status: AHA initiated / AHA not complete	Date: 6/13/02
Prepared By: SMITH, JANE I	Work Package No: WO00159	Work Location: BLDG 241-F	

Description: Service ground water feed pump P-1101

Comments: This job requires three people to lower the pump when it is disconnected.

INVOLVEMENT:

SME	Name	Title/Text
Industrial Safety	Adams, George	6/18/02
Scaffolding Competent Person	JAEGER, MILES B	by TEST 6/18/02
	SMITH, JANE I	6/18/02
Industrial Hygiene	T1234	6/18/02
System Engineer	Adams, George	6/18/02
USQ Evaluator	Adams, George	by TEST 6/18/02
Asbestos Competent Person	Adams, George	6/18/02

REQUIRED FORMS AND PERMITS

Form/ Permit	Revision	Permit ID	Complete
ALARA Report (Pre-Job ALARA Check List; OSR 4-528)	0		Yes
ALARA Report (Pre-Job ALARA Check List; OSR 4-528)	0		Yes
Site Clearance Permit (OSR 3-121)	0		Yes
Fire Safety Review Checklist (OSR 20-168)	0		Yes
Fire Safety Review Checklist (OSR 20-168)	0		Yes
Confined Space Entry Permit (OSR 20-15)	0		Yes

What Does Standard Report look Like?

AHA ID: SRS-43 Rev - 0	AHA REPORT	Status: AHA initiated / AHA not complete	Date: 6/13/02
Prepared By: SMITH, JANE I	Work Package No: WO00159	Work Location: BLDG 241-F	

SPECIFIC HAZARD ANALYSIS AND SAFE WORK REQUIREMENTS:

A detailed discussion of the unique hazards specific to the work activity/location, including those noted above, will be provided on subsequent pages of this AHA. The discussion must include identification of the work activity, the specific hazards present, and the safe work requirements/controls (including PPE) to be used to alleviate/control the hazard(s).

MAIN TASK: Service ground water feed pump P-1101		
IDENTIFIED HAZARD	CONTROLS	ADDITIONAL TEXT
Portable Ladder Used	Assign users who have read and are familiar with 8Q, Procedure 16 to recognize ladder hazards, use safe practice and conduct inspections	
Reference WSRC Manual TM-90-7. In Shrine, enter 'hoist' and click on QUICK SEARCH to go to the Hoisting & Rigging Homepage. Overhead or Gantry Crane	Rigging Authority or designee classifies lift as ordinary, critical or preengineered production Install a barricade around the work area per 8Q, Procedure 9 and Hoisting and Rigging Manual TM-90-7 Complete required daily before use inspections of equipment (hoist, crane, below hook devices etc.) Assign qualified operators for specific equipment Assign a qualified rigger for load handling Assign a qualified person to operate any 'below-the-hook' lifting device Use a qualified signal person for communications	
Fall Hazards Exist	Ensure workers who will be exposed to a potential fall of greater than six feet are trained per 8Q, Procedure 63	



Summary

- **Questions?**
- **Contact: Tim Flake**
 - **(803)725-1107**
 - **tim.flake@srs.gov**