

7.4 Construction Hazards

The below construction hazards analysis indicates that much of the construction activity in the decommissioning of SPEAR2 and installation of SPEAR3 will be conducted by sub-contractors. A copy of the SLAC Pre-Work Hazards Analysis Form required to be completed by SLAC sub-contractors is attached to this section.

Initiating Event

Construction activities will occur during the decommissioning of SPEAR2 and the installation of SPEAR3 and may include the use of heavy equipment, material handling, vibrating equipment, scaffolding, demolition, excavation, *etc.* Other OSHA type construction related hazards might also exist during this period.

Method of Detection

As sub-contractors will perform most, if not all of the construction activities, the primary method of hazard detection will be in the pre-work hazards analysis required to be submitted under the contract with the SLAC contract administrator. ES&H staff then reviews the pre-work hazards analysis and once all parties are in agreement, it becomes part of the contract. Observation by personnel in the affected area, daily meetings with sub-contractors and a strong “Stop Work/Stop Activity Program” are also used as tools to identify and correct hazards.

Subcontractors must also submit a written Subcontractor Safety and Health Plan (SSHP) to the SLAC Contract Administrator before work begins. The plan will be implemented and maintained by the subcontractor for work being performed at SLAC. The Safety and Health Plan is not required to be job specific and it may outline the overall safety and health methodologies to be used for more than one job. The Subcontractor Safety and Health Plan is intended to describe the generic safety program of the subcontractor, whereas the Pre-Work Hazard Analysis described previously is designed to provide the job specific hazards and hazard control steps for the work. The Subcontractor may submit a California Illness and Injury Prevention Program as a substitute for the Safety and Health Plan required by this procedure.

Preventive/Mitigating Features

- Review and approval of the pre-work hazards analysis by both the ES&H Division and SPEAR3 ES&H oversight.
- Apprising subcontractors about SLAC and DOE safety criteria and of hazards they may encounter prior to commencing any activities.
- Conducting periodic inspections of subcontractor work areas, their adherence to safety programs and quality of work.
- Communicating and resolving safety deficiencies identified by SLAC and subcontractor personnel.
- Daily work meetings with sub-contractors where ES&H is the first standing item.

- Posting, adherence and enforcement of sub-contractor pre-work hazard analysis and company safety plan (if applicable) at work site.
- Implementation of the SLAC Subcontractor Oversight Program.
- Adherence and enforcement of *Title 29 Code of Federal Regulations*, Part 1926 “Safety and Health Regulations for Construction.”

Consequences

A construction related incident, could include possible injury or death to personnel and damage to equipment, the consequences would be low.

Likelihood

With the effective and appropriate use of engineering controls, the adherence to administrative standards and the use of personal protective equipment (PPE), then the probability of a construction related hazard is unlikely.

Risk

The risk from this operation is acceptable.

SLAC Pre-Work Hazards Analysis Form

Subcontractor _____ Date Prepared _____

Prepared by (Foreman if possible) _____ Phone _____ Pager _____

Subcontractor Foreman/Supervisor for the job _____ Phone _____ Pager _____

Subcontractor Employee Responsible for Safety Inspections _____ Phone _____ Pager _____

List The Work Crews That Will Be Briefed About This Analysis _____

_____ Date of Briefing _____

Job Description _____

Job Number _____ Job Location (Bldg.No./Site) _____

Submission of this completed form is a prerequisite for issuance of the Start Work Notice.

Instructions: Complete this form for all construction work. Identify all hazards that could be present in the job to be performed. If a box is checked "Yes", then state the hazard and describe your hazard control method. If a hazard is not listed below and is present in the job, then check the box for item 41 "Other" and describe hazard and hazard control method.

EXAMPLE YES NO [X] [] Ladders/Scaffolds/Stairways - for example: Body Harness, Lanyards, Training, Safety Net, other
Hazard/Hazard Control Ladder Use - Our employees are only using 6 foot ladders. If a greater height needs to be reached, a man basket will be used.

YES NO

1. [] [] Fall Protection - for example: Fall Protection Plan, Body Harness, Lanyards, Guardrails, Handrails, Training, other
Hazard/Hazard Control _____

2. [] [] Ladders / Scaffolds / Stairways - for example: Body Harness, Lanyards, Safety Net, Aerial Lifts, Guardrails, Training, other
Hazard/Hazard Control _____

3. [] [] Excavation / Trenching / Shoring - for example: Excavation Permit, Selection of Protective Systems, Shoring, Slope Detail, Spoils Pile, Soil Classification, Sloping and Benching, Hydraulic Shoring, Access Ladders, Traffic Plates, other
Hazard/Hazard Control _____

4. [] [] Lockout and Tagout Control of Hazardous Energy - for example: Locks and Tags, Blinds, Safety Meetings, Training, other
Hazard/Hazard Control _____

5. [] [] Electrical Hot Work Permit Required - for example: Energized Electrical Permit, Rubber Mat, Sleeves, PPE, other
Hazard/Hazard Control _____

6. [] [] Electrical / Power Transmission - for example: Wiring Design, Wiring Protection, Hazardous Location Installation, other
Hazard/Hazard Control _____

- 7. **Hoisting / Rigging** – for example: Operator Permits, Equipment Inspections and Tags, Training, other
 Hazard/Hazard Control _____

- 8. **Confined Space** – for example: ESH Entry Approval/Permit, Training, Air Monitoring, Rescue Plan and Equipment, other
 Hazard/Hazard Control _____

- 9. **Demolition** – for example: Preparatory Operations, Work Practices, Chutes, Mechanical Demolition, Barricades, other
 Hazard/Hazard Control _____

- 10. **Signs/Signals/Barricades** – for example: Caution Tape, Barriers, Barricades, Signs, Traffic Cones, Tags, Traffic Vests, other
 Hazard/Hazard Control _____

- 11. **Head Protection and Rollover Protective Structure** – for example: Hard Hats, Bump Caps, Equipment Inspection, other
 Hazard/Hazard Control _____

- 12. **Eye Protection** – for example: Safety Glasses, Safety Goggles, Face Shields, Portable Eye Wash Unit, other
 Hazard/Hazard Control _____

- 13. **Ear Protection** – for example: Ear Plugs, Ear Muffs, other
 Hazard/Hazard Control _____

- 14. **Breathing Protection** – for example: Engineering Controls, Respirators, Air filters, Dust Masks, HEPA Filters, other
 Hazard/Hazard Control _____

- 15. **Hand Protection** – for example: Gloves, Gauntlets, Sleeves, Barrier Cream, other
 Hazard/Hazard Control _____

- 16. **Torso Protection** – for example: Flame Resistant Clothing, Coveralls, Aprons, Bib Overalls, other
 Hazard/Hazard Control _____

- 17. **Foot Protection** – for example: Steel Toed Shoes, Metatarsal Guards, Boots, other
 Hazard/Hazard Control _____

- 18. **Site Exits / Means of Egress** – for example: Emergency Action Plans, Marked and Clear, Outdoors Job, other
 Hazard/Hazard Control _____

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19. **Fire Protection/Prevention** – for example: Extinguishers, Fire Watch, 2-Way Radio, Pull Box, Alarms, other
Hazard/Hazard Control _____
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20. **Welding/Cutting/Brazing** – for example: Welding/Burn Permit, Fire Watch, Fire Blanket, Site Screen, Gas Bottle Safety, other
Hazard/Hazard Control _____
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21. **Hot Work Permit Required** – for example: Welding, Brazing, Torch Cutting, Temporary Heating, Pressured Air Line, other
Hazard/Hazard Control _____
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22. **Material Handling, Storage, Use, and Disposal** – for example: Flammables, Combustibles, Labeling, Gas Bottle Storage, LP-Gas Safety, Safety Containers/Cans, Waste Materials, Disposal Process, other
Hazard/Hazard Control _____
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23. **Concrete / Masonry** – for example: Debris Pile, Chutes, Wet Cuts, other
Hazard/Hazard Control _____
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24. **Crane / Derrick / Hoist / Helicopter / Conveyors** – for example: Drum Hoists, Elevators, Cable Inspections, other
Hazard/Hazard Control _____
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25. **Tunnel / Shaft / Caissons / Compressed Air** – for example: Underground Construction, Cofferdams, Blasting Safety, other
Hazard/Hazard Control _____
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26. **Steel Erection** – for example: Falling Object Protection, Site-Specific Erection Plan, Construction Sequence, other
Hazard/Hazard Control _____
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27. **Vehicle Safety / Mechanized Equipment** – for example: Operator Permits, Equipment Inspection, Hydraulic Inspection, other
Hazard/Hazard Control _____
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28. **Construction Power** – for example: Extension Cords, GFCI, Generators, Battery Charging, Air Receivers, other
Hazard/Hazard Control _____
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29. **Blasting and Use of Explosives** – for example: Blaster Qualifications, Transportation, Storage, Loading, Inspection, other
Hazard/Hazard Control _____
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- 30. **Powder Actuated Tool Safety** – for example: (HILTI) Operator Training, Valid License, other
Hazard/Hazard Control _____

- 31. **Power & Hand Tool Safety** – for example: Guards, Cords, Ground Prong, GFCI, Jacks, Abrasive Wheels, other
Hazard/Hazard Control _____

- 32. **Area Lighting** – for example: Flood Lights, Traffic Control Lights, Drop Lights, Flashlights, other
Hazard/Hazard Control _____

- 33. **Housekeeping** – for example: Debris Pile, Hazardous Waste Disposal Containers, Clear Work Area, other
Hazard/Hazard Control _____

- 34. **Traffic Control** – for example: Flagman, Signboard, Caution Lights, Traffic Vests, Whistle, other
Hazard/Hazard Control _____

- 35. **Hazard Communication / Toxic Substances** – for example: Material Safety Data Sheets, Asbestos, Benzene, other
Hazard/Hazard Control _____

- 36. **Ionizing & Nonionizing Radiation** – for example: Radiation Badges, Training, Distance, Shielding, Time, other
Hazard/Hazard Control _____

- 37. **Environmental** – for example: Excavation Permit, Segregated Debris Pile, Asbestos, Run-off Prevention, other
Hazard/Hazard Control _____

- 38. **Medical Protection** – for example: First Aid Kit, C.P.R. Trained Personnel, 2-Way Radio, Telephone 9-911, other
Hazard/Hazard Control _____

- 39. **General Health & Safety Provisions** – for example: Recordkeeping, Work Practices, Equipment Maintenance, Training, other
Hazard/Hazard Control _____

- 40. **Sanitation** – for example: Drinking Water, Toilets, Eating Areas, Washing Areas, other
Hazard/Hazard Control _____

- 41. **Other** – Identify any other hazard control associated with this job

Hazard/Hazard Control _____