



**JOHN DAY DAM NAVIGATION LOCK MAJOR REHABILITATION
SOUTH WALL ANCHOR LIFT-OFF TESTS AND NATIONAL EXPERTS
RUFUS, OREGON**

US Army Corps of Engineers, Portland District

Contract No. W9127N-07-D-0001

Task Order No. 6

**SITE SAFETY AND
HAZARD ANALYSIS PLAN
&
WORK PLAN**

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1 INTRODUCTION

This document summarizes the Site Safety and Hazard Analysis Plan (SSHAP) and Work Plan for the John Day Lock Major Rehabilitation south wall anchor lift-off tests. This work is to be completed for the Portland District, US Army Corp of Engineers (NWP). The SSHAP was prepared in compliance with state and federal occupational safety and health regulations (general industry and construction), and the US Army Corp of Engineers Safety and Health Requirements Manual (EM 385-1-1, 3 November 2003). This SSHAP applies to all Cornforth Consultants, Inc. employees and their subcontractors. This plan has been prepared prior to the start of the intended work. It is considered to be a working document and will be expanded if needed as the work progresses and if additional hazards are identified.

This plan will be kept onsite during field activities and reviewed and updated as necessary. This plan adopts, by reference, the standards of practice (SOPs) contained in the Safety Manual and other SOPs as appropriate. The Project Manager and the Site Safety Officer (SSO) will be familiar with these SOPs. All personnel working under this SSHAP must sign Attachment A, indicating that they have read the plan and agree to follow it.

A Work Plan is also included in this document to outline significant field work operations.

2 PROJECT INFORMATION AND DESCRIPTION

2.1 General Information

Client or Owner: US Army, Corps of Engineers, Portland District

Client Technical Representative: David Scofield

Site Name: John Day Dam Navigation Lock

Site Address: John Day Dam, Rufus, Oregon

Site Map: See Attachments B and C

Date SSHAP Prepared: October 2008

2.2 Site Description

Work under this task order will be performed on the south wall of the Navigation Lock. The lock wall is founded on Columbia River Basalt. The tiedown anchors are located in the lower one-third of the lock wall.

2.3 Land Use of Area Surrounding the Facility

Hydro-electric generating facility.

2.4 Purpose of Study

The purpose of the study is to document the condition and load in 21 tiedown anchors that were installed through the South Navigation Lock wall in 1981.

2.5 Chemical Hazards

No specific chemical hazards have been identified for the proposed work.

2.6 Physical Hazards

The primary hazard for anchor inspections will be potential falls. Primary hazards for anchor stressing work include potential falls, crane operations, and potential anchor rupture during stressing.

2.7 Levels of Protection

Field personnel will utilize Level D personal protective equipment.

2.8 Primary Emergency Contact

John Day Dam Control Room 541-298-9712

Ambulance, Fire, Police 911

2.8.1 Emergency Telephone Protocol

Give name, telephone number, address, location, if different than address, brief description of emergency – be concise (i.e., vehicle fire, chemical fire, personal injury from vehicle accident, unconscious person, cold stress victim, state if there is chemical contamination of victim, etc.)

Do not hang up until information is repeated back to you and is accurate. Hang up only when advised to by the person who received your call.

2.8.2 Non Emergency Numbers

Portland District	
Mark Dasso, Project Manager	503-808-4728
David Scofield, Geotechnical Lead	503-808-4867
Jeremy Britton, Alt. Geotechnical Lead	503-808-4851
Matt Hansen, Structures Lead	503-808-4934
Rowena Musser, Contracting Coord.	503-808-4818, 360-600-5239
John Day Project	
David McIntosh, Primary Contact	541-506-7891
Cornforth Consultants	
Andy Vessely, Project Manger	503-452-1100 (o), 503-636-3620 (h)
Gerry Heslin, Project Engineer	503-848-3949 (h), 503-758-4980 (m)
Tom Westover, Staff Engineer	612-964-8636 (m)
Jensen Drilling	
Chris Humphries	541-726-7435 (o), 541-912-0907 (m)

2.8.3 State and Federal Emergency Response Phone Numbers

National Response Center	800-424-8802
United States Coast Guard	
Other Marine Emergencies	503-204-9311
General Information	503-240-9315
Washington Office of Emergency Management	800-562-6108
24-hour Emergency Spill Response	800-258-5990
Oregon Office of Emergency Management	503-378-2911
Oregon Emergency Response System	800-424-8802

Oregon Poison Control Center	800-452-7165
Washington Poison Control Center	800-732-5985
Oregon Department of Environmental Quality	503-229-5395
Washington Department of Ecology	360-407-6300
Columbia Marine Safety Field Office	503-229-6103

2.9 Medical Centers Near Site



Figure 1: Location map of Mid-Columbia Medical Center

2.9.1 Mid Columbia Medical Center, The Dalles, OR

Mid Columbia Medical Center
 1700 East 19th Street
 The Dalles, OR 97058
 Telephone: (541) 296-1111

2.9.2 Directions to Hospital from John Day Dam

Get on I-84 West	go 18.7 mile
Take Exit 85	go 0.2 mile
Turn left at Cascade Ave/US-30	go 0.2 mile
Turn right at E 2 nd Street/US-30	go 0.1 mile
Turn left on Brewery Grade	go 0.4 mile
Turn left at East 9 th Street	go 0.1 mile
Turn right at Oregon Street	go 0.5 mile
Turn right at East 19 th Street	go 0.1 mile
Arrive at 1700 East 19 th Street	

2.10 Team Members and Responsibilities

The following is a list of the contractor and subcontractors who will be involved with the exploration project and their main point of contact and responsibilities:

Firm: Cornforth Consultants, Inc. (CCI)

Project Role: Prime A/E Consultant
 Point of Contact: Andy Vessely (503) 452-1100
 Field Personnel: Tom Westover (612) 964-8636

Firm: Jensen Drilling

Project Role: Lift-Off Testing
 Point of Contact: Chris Humphries (541) 726-7435 / (541) 912-0907

3 KEY PERSONNEL AND AREAS OF RESPONSIBILITY

3.1 Project Manager

Andy Vessely is the Project Manager. The Project Manager is responsible for generating and updating the SSHAP and coordinating briefing(s) for field personnel. Implementing the SSHAP involves the following:

- 1) Provide safety training for new personnel on the project site.
- 2) Continue safety training for all project personnel.
- 3) Provide an adequate number of personnel certified in first aid and CPR to comply with the requirements of EM 385-1-1.
- 4) Provide personnel with necessary equipment, supplies, and training to perform duties in a safe manner.
- 5) Coordinating a safety briefing at the beginning of the project.

3.2 Site Safety Officer (SSO)

Cornforth Consultants' field personnel will act as the Site Safety Officer (SSO). The SSO is responsible for on-site safety and compliance with the SSHAP. The SSO is responsible to inform field personnel of chemical and physical hazards as he/she becomes aware of them. Additional SSO responsibilities include:

- 1) Provide site safety briefing for team members.
- 2) Update equipment or procedures to be used on site based on new information.
- 3) Inspect personal protective equipment (PPE) prior to use.
- 4) Assist the PM in documenting compliance with the SSHAP.
- 5) Post the route to the nearest medical facility; arrange emergency transportation.
- 6) Post the telephone numbers of emergency services.
- 7) Promptly report accidents to the PM.
- 8) Identify and correct operations that threaten personnel safety and/or the environment.
- 9) Observe personnel for signs of exposure or stress.
- 10) Observe that all personnel on the project use adequate PPE and personal flotation devices (PFD), as appropriate.

- 11) Conduct weekly safety meetings to update changes to SSHAP and/or identify new work hazards.

3.3 Field Superintendent

The Field Superintendent is responsible for completing work in compliance with the SSHAP and documenting deviations from the plan. Additional responsibilities include:

- 1) Provide experienced personnel.
- 2) Monitor work and correct unsafe practices.
- 3) Provide first aid kits, fire extinguishers, and other safety equipment.
- 4) Brief personnel on locations of first aid kits, fire extinguishers, and other safety equipment.
- 5) Report unsafe conditions or practices to the SSO.
- 6) Report details of incidents resulting in injury or exposure to toxic materials to the SSO.
- 7) Report equipment malfunctions to the SSO.
- 8) Complete maintenance and repairs in a manner that minimizes risk of spills or accidents.

3.4 Crane Operator

The Crane Operator is responsible for ensuring that the crane equipment performs in accordance with the work plan and SSHAP, and that any deviations from these plans are based upon field conditions encountered and are well documented in the field notes. An initial equipment safety inspection will be performed on the crane by a Corps of Engineers representative prior to performing any work, if necessary. Other health and safety responsibilities include:

1. All operators will be experienced and properly trained.
2. The operator shall not engage in any activity, which will divert attention while operating the crane.
3. The operator shall respond to signals from the person who is directing the lift or an appointed signal person.
4. Each operator is responsible for those operations under his direct control, including those items under (5), below. Whenever there is any doubt as to safety, the operator shall consult his supervisor before commencing the operation.
5. Before a lift, the rigger shall ensure that:
 - a) the crane is level and, where necessary, blocked,
 - b) the load is well secured and balanced in the sling or lifting device before it is lifted more than a few inches,
 - c) the lift and swing path is clear of obstructions and adequate clearance is maintained from electrical sources, and
 - d) all persons are clear of the swing radius of the counterweight.

3.5 All Individuals

No one is permitted to work in an unsafe manner, or in unsafe working conditions. If any project personnel feel they are working in unsafe conditions, or in an unsafe manner, they are directed to immediately stop what they are doing and to discuss the situation with the SSO. Additional responsibilities include:

- 1) Be familiar with the SSHAP.
- 2) Report injuries, accidents, unsafe working conditions or tools to the SSO.
- 3) Use proper PPE and PFD.
- 4) Work free from influence of intoxicants.

3.6 Accident Reporting

All accidents that occur during the project operations will be reported to the Clients Technical Representative, Portland District USACE, who will work with Cornforth Consultants to ensure the accident has been promptly investigated and reported on the prescribed forms.

- 1) Report all injuries/illness/property damage immediately to the SSO.
- 2) The Project Manager is responsible for reporting all injuries to the Clients Technical Representative, Portland District, USACE, within 24 hours.
- 3) SSO is responsible for accompanying injured persons to the hospital.

An accident with any of the consequences listed below will be immediately reported to the Clients Technical Representative, Portland District, USACE. These accidents will be investigated in depth to identify all causes and to recommend hazard control measures. Consultants or subcontractors are responsible for notifying the Occupational Safety and Health Administration when one or more of their employees are seriously injured.

- 1) Fatal injury
- 2) Three or more persons admitted to the hospital.
- 3) Property damage in excess of \$200,000.
- 4) Injury resulting in either total or partial permanent disability.

Except for rescue and emergency measures, the accident scene shall not be disturbed until it has been released by the investigating official.

OSHA will be notified by telephone within 8 hours after the death of an employee from a work-related incident or the in-patient hospitalization of 3 or more employees as the result of a work-related incident.

3.7 First Aid Reporting

The PM will file a report with the Clients Technical Representative, Portland District USACE if first aid is rendered as a result of work-related activities.

4 HAZARDS

4.1 Hazardous Materials

The following is a list of the potentially hazardous materials that will be on site:

- Approximately 10 gallons of hydraulic oil in stressing equipment.
- Approximately 10 gallons of gasoline for small auxiliary equipment.

4.2 Hazards Posed by Materials Brought Onsite

Material Safety Data Sheets (MSDS) will be available for hazardous materials listed above.

4.3 Physical Hazards

Physical hazards include potential falls from the scaffolding, suspended loads from the crane, and potential anchor tendon rupture during stressing.

4.4 Utilities

There are no overhead lines in the vicinity of the work. Operations will not impact any underground utilities.

5 WORK PRACTICES

5.1 Personal Protective Equipment

Safe work practices are part of assuring a safe working environment. Safe work practices to be employed during the fieldwork are as follows:

- 1) Set up, assemble, and test equipment prior to use.
- 2) Use appropriate protective clothing and PPE.
- 3) Check in and out with the SSO upon arrival and departure from the site.

5.2 Personal Protective Clothing

- Leather Gloves or PVC Gloves
- Work Boots
- Safety Glasses
- Hardhat
- Hearing Protection
- Sturdy work clothes suitable for the weather conditions.

5.3 Safety Equipment

- First Aid Kit
- Eyewash Kit
- Oil Absorbent Diapers

5.4 Lift-Off Testing

The SSO and Field Superintendant will evaluate the condition of the crane and stressing equipment before the start of work.

5.5 Emergency Procedures

The SSO, PM, and Field Superintendant will determine the appropriate response to an emergency. The response sequence will be: (1) remove personnel from the area; (2) assess the severity of the incident; (3) contact appropriate emergency assistance; and (4) move to safe area for aid.

5.6 Site Emergency Warning Systems

Emergency instructions will be issued verbally or with radios depending on operations.

In an emergency:

- 1) Stop all non-emergency communication. Issue pertinent information to the SSO.
- 2) Shut down power equipment.
- 3) Proceed to the pre-designated meeting location.
- 4) The SSO will complete a head count at the meeting location. Remain at the meeting location for further instructions.

5.7 Planning Measures

The following planning measures will be instituted by the SSI to facilitate responses to emergency situations:

- 1) Conduct a safety briefing at the beginning of the project and issue all personnel a copy of the SSHAP.
- 2) The crane and other equipment will be inspected before the start of work.
- 3) Verify deficiencies identified during the inspection are implemented before work starts.
- 4) Establish an emergency meeting location.
- 5) Issue all personnel directions to the nearest hospital.
- 6) The SSO and Field Superintendent will review planned operations with respect to the SSHAP.

6 SPILL CONTAINMENT AND CLEAN-UP PROCEDURES

6.1 General

The most likely spill hazard during the progress of this work would be the accidental discharge of minor amounts of hydraulic oil on the top deck of the Navigation Lock. The following procedures will be utilized to respond to spills.

- 1) The SSO and field superintendent will evaluate equipment daily.
- 2) Petroleum absorbent pads and/or drain pans will be used to treat minor leaks.
- 3) In the event of a leak or spill:
 - a) Identify the source.
 - b) Position absorbent pads to contain the spill, if possible.
 - c) Isolate and repair the source of the leak.
 - d) Clean spilled material using the absorbent pads and loose granular materials.
 - e) Dispose of all waste contents in an appropriate manner.

Cornforth Consultants would assist the Corps of Engineers in preparing necessary follow-up spill or incident reports.

7 FIRST AID AND CPR REQUIREMENTS

At least two members of each work crew will be qualified to administer first aid and CPR.

8 WORK PLAN

8.1 Proposed Inspection and Testing

Field work for this task order includes anchor head inspections and anchor lift-off testing. All field work would be performed on the south wall of the navigation lock. We understand that the upstream gate of the Navigation Lock will be replaced in late October of 2008. Anchor inspections would be completed first to provide data to plan anchor lift-off testing operations. Anchor inspections could be completed without impacting repair work for the upstream navigation lock gate. Anchor lift-off testing would require a crane to be set on the south navigation lock deck. For this reason, lift-off testing would be conducted after navigation lock upstream gate repairs have been completed.

8.2 Anchor Head Inspections

Anchor head inspections would likely be performed while repair work is in progress for the upstream navigation lock gate. Anchor heads would be accessed by rappelling from the deck of the navigation lock down to the scaffolding at the elevation of the anchor heads. Personnel would remain tied-off during the inspection process where the existing scaffolding is unsafe. Inspectors would have the option of rappelling to the ground or using ascenders to return to the navigation lock deck when necessary to move laterally along the navigation lock wall.

8.3 Anchor Lift-Off Testing

Anchor lift-off testing would be scheduled for a time after repair work for the navigation lock upstream gate is completed. Anchor heads would be accessed using a man basket lowered by a crane. Temporary decking would be added to the existing steel scaffolding frame to facilitate testing. A hydraulic jack would be lowered to the anchor and threaded onto the stressing head. The jack would remain tethered to the crane at all times to minimize the potential for injury in the event of anchor tendon rupture during stressing.

Attachment A

HEALTH AND SAFETY PLAN CONSENT AGREEMENT

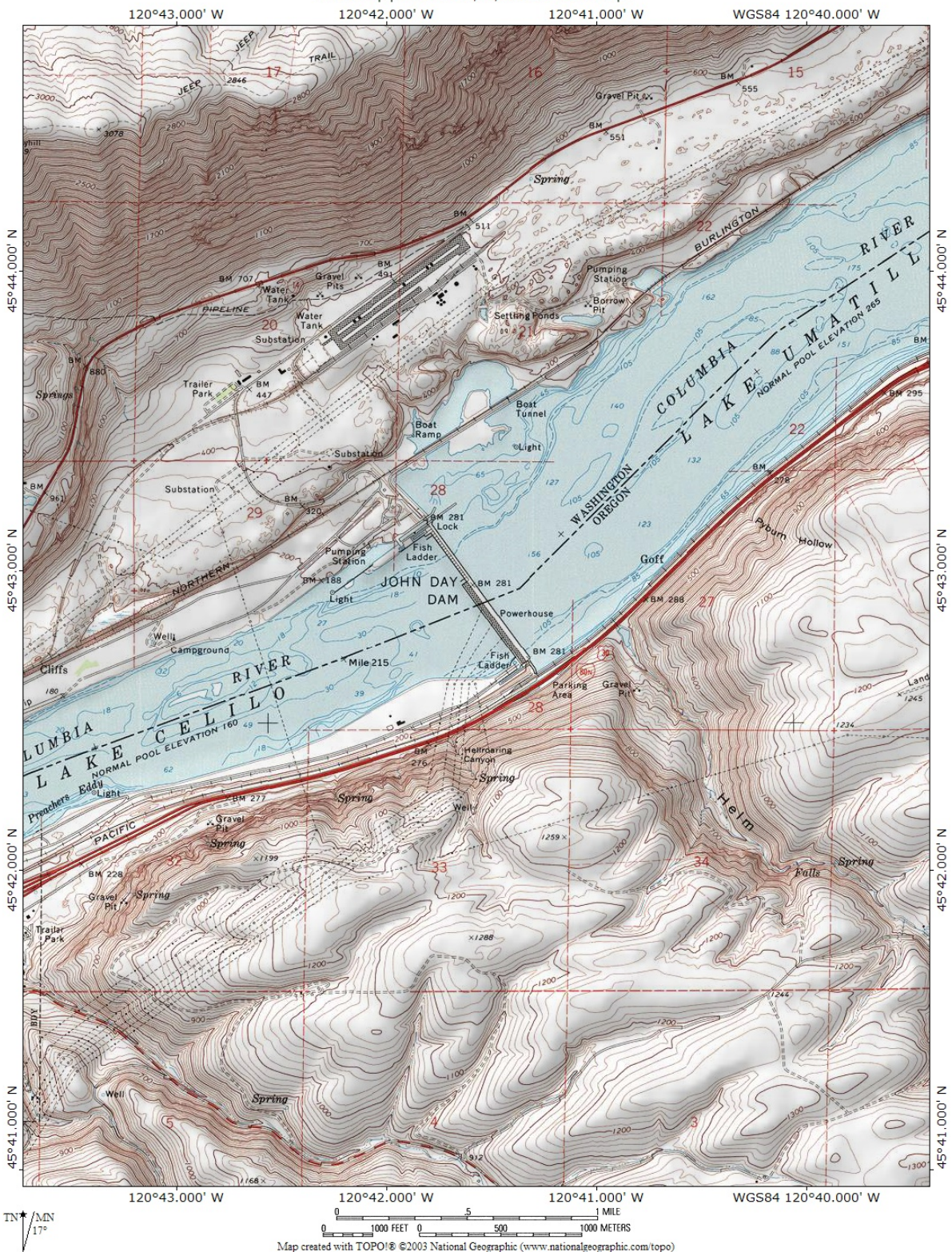
I have reviewed the Site Safety and Hazard Analysis Plan for the John Day Dam Navigation Lock anchor inspections and lift-off testing. I understand its purpose and consent to adhere to its policies, procedures, and guidelines.

Employee Signature _____

Date _____

Attachment B

TOPO! map printed on 10/02/08 from "Untitled.tpo"



Attachment C

