PVUSA PROJECT
Safety and Health Action Plan

June 1993

Prepared by:

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PVUSA Safety Committee

Project Manager:

Brian K. Farmer
PVUSA PROJECT
SAFETY AND HEALTH ACTION PLAN

June 1993

Kevin Berg and Bechtel Construction Co.
PVUSA Safety Committee

for

Pacific Gas and Electric Company
Research and Development
San Ramon, CA 94583

Published—September 1994

PREPARED UNDER CONTRACT WITH THE UNITED STATES
DEPARTMENT OF ENERGY

Cooperative Agreement No. DE-FC04-92AL82993
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PROJECT PARTICIPANTS

In addition to the U.S. Department of Energy (including Sandia National Laboratory, National Renewable Energy Laboratory and Jet Propulsion Laboratory), the Electric Power Research Institute, and the California Energy Commission, the support of all the PVUSA Project members in conducting this research and developing this report is greatly appreciated. Members at the time of publication are:

Central and South West Services, Inc.
City of Austin, Texas
New York State Energy Research and Development Authority
Niagara Mohawk Power Corporation
Public Service Company of Colorado
Sacramento Municipal Utility District, California
Salt River Project
San Diego Gas + Electric
State of Hawaii/Maui Electric Company
U.S. Department of Defense
Virginia Power Company/Commonwealth of Virginia
ACKNOWLEDGMENTS

In early 1992 PVUSA recognized the benefits of a more substantial and documented safety program. PVUSA, as a national program with extensive field experience, was in a prime position to develop a safety program tailored to utility photovoltaic installations which could be of use by other utilities or organizations endeavoring to build and operate photovoltaic plants. With the encouragement and support of the U.S. Department of Energy (DOE) and individuals at Brookhaven National Laboratory and Princeton Plasma Physics Laboratory, this safety and health action plan emerged. Although the plan is designed for the PVUSA Davis site, it can be easily adapted to other facilities.

Kevin Berg of Bechtel Construction Co., Safety & Health Services, was instrumental in developing the base document and guiding it through its development. Ron Delucchi and John Vocke both of PG&E, Safety, Health and Claims, provided valuable insight and review.

Although many elements of a safety program and plan are common to various types of construction and operating facilities, many new issues related to PV had to be thought through and developed. The PVUSA Safety Committee lent their expertise, and patience, in addressing these issues, and dealing with the numerous revisions and reviews. Their work is greatly appreciated. The Committee members during preparation of this plan were: Tammie Candelario, Chair; Ron Delucchi, and Steve Hester, all of PG&E; Kevin Berg, John Ostrom, and Dan Shipman, all of Bechtel; and Chuck Whitaker of Endecon. Finally, special thanks to Tammie Candelario for her persistence and guidance in accomplishing this task.
PVUSA SAFETY AND HEALTH ACTION PLAN

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SAFETY AND HEALTH ACTION PLAN

for

PVUSA - DAVIS, CA.

Prepared by

SAFETY AND HEALTH SERVICES

Reviewed & Approved By: [Signature]
Owner Project Manager
Date: June 15, 1993

Reviewed & Approved By: [Signature]
Bechtel Project Manager
Date: May 25, 1993

Reviewed & Approved By: [Signature]
Safety Services
Date: 21 April 93

Reviewed & Approved By: [Signature]
Health Services
Date: 21 April 93
## PVUSA SAFETY AND HEALTH ACTION PLAN

### RECORD OF REVISIONS

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# PVUSA Project
## Safety & Health Action Plan
### Revision #3, 1/19/95

## REVISION INSTRUCTIONS

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Appendix S:  
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GLOSSARY OF TERMS

Basic Eye Protection = Safety glasses with side shields which meet the performance criteria established by ANSI Z87.1 and are marked as such.

Bechtel Safety Services Manager = Regional Safety Manager, employed by Bechtel as a primary Safety and Health advisor and technical resource, located in the Bechtel Office at 50 Beale Street, San Francisco, 94105. Telephone (415) 768-8895.


CALOSHA Standards = California Occupational Safety and Health Standards, Title 8, California Code of Regulations.

Contractor/subcontractor = Employer, engaged by PG&E or Bechtel to perform work or services on the PVUSA site, including lower-tier employers.

Emergency Response Plan = A specific plan to be developed by each employer which provides guidelines and direction for the effective management of any type of emergency (medical or otherwise) which may arise out of or during the course of the employers work. The plan shall include specific information for contacting offsite emergency services (ie. ambulance/fire/rescue), and provide for the training of the employers' employees.

Employee = Any person engaged by an employer to perform work or services on a PVUSA site.

Employer = Any person or group of persons who contracts labor or services to the PVUSA site, including independent contractor/subcontractors.
GLOSSARY OF TERMS (continued)

First Aider = A competent person, trained and qualified to provide first aid treatment for employee injuries. Training must be equivalent to that of the American Red Cross or Mine Safety and Health Administration.

IIPP = A written Injury and Illness Prevention Plan, as required by California Labor Code 6401.7 (SB 198) and General Industry Safety Order 3203.

OSHA / CALOSHA = The Occupational Safety and Health Administration (federal) / California Occupational Safety and Health Administration (state). The requirements of the more stringent of the two Regulatory authorities prevail in all instances.

PG&E Project Manager = The Lead project representative of Pacific Gas & Electric (Owner), located at 3400 Crow Canyon Road, San Ramon, 94583.

PVUSA Staff = Site-assigned personnel, employed and paid directly by Bechtel, PG&E or ENDECON.

Safety and Health Rules = Site specific safety and health rules, developed and implemented as needed. Employees will be informed of such rules upon assignment to the site and as they are developed.

Safety Performance Statistics = Total Recordable Cases and Lost Workday Cases, as determined by the OSHA Recordkeeping Guidelines and the OSHA 200 Log. Frequency Rates are calculated by the following formula:

\[
\text{Frequency Rate} = \frac{\text{Number of Cases} \times 200,000}{\text{Hours Worked}}
\]

Safety Representative = An employee, acceptable to the Site Manager and the PG&E Project Manager, who shall be responsible for coordinating his or her employer's safety and health program and compliance with this Safety and Health Action Plan.
GLOSSARY OF TERMS (continued)

Site Manager = The Lead onsite representative for Bechtel.

Site Visitor = Any person not employed to perform work or services for PVUSA, but present on the site and accepted by the Site Manager or the PG&E Project Manager.

Supervising for Safety Orientation = An orientation which each employer must provide for their site assigned supervisors as described by Program Element D, section 3.2.

Supervisor of Operations = As used and defined in Program Element G, this is the Site Manager or his designee, responsible for authorizing, issuing and coordinating all site clearances in accordance with the PVUSA Safe Clearance Procedure (Tagout).

Tool Box Safety Meeting = A short (i.e., 15 minute) safety training and information meeting to be held by each employer for their employees every week. These meetings must be documented and attendance is mandatory.
POLICY

IT IS THE POLICY OF BECHTEL TO PREVENT INJURIES, ILLNESSES, AND DAMAGES TO EQUIPMENT AND PROPERTY THROUGH SUSTAINED DEDICATION TO SAFETY AND HEALTH EXCELLENCE AND TO PROVIDE QUALITY SAFETY AND HEALTH SERVICES TO THE PROJECT, ITS' EMPLOYEES AND ITS' OWNERS, BY DEVELOPING AND EXECUTING A COST-EFFECTIVE, SITE-SENSITIVE, DYNAMIC SAFETY AND HEALTH ACTION PLAN. UTILIZING THIS PLAN AND INNOVATION, BECHTEL SHALL CONSTANTLY STRIVE TO STRENGTHEN AND IMPROVE SAFETY AND HEALTH PERFORMANCE ON THE PROJECT AND TO PROMOTE AND ENHANCE ACROSS-THE-BOARD EMPLOYEE AND MANAGEMENT INVOLVEMENT AND OWNERSHIP OF THE PROJECT SAFETY AND HEALTH PROGRAM.
Section 1

ADMINISTRATION AND ORGANIZATION

PURPOSE AND SCOPE
To establish guidelines for the implementation and administration of an injury and illness prevention program for PVUSA and to assign specific responsibilities for the execution of the program.

To provide a basic Safety and Health Action Plan (hereinafter referred to as Plan) that assists management, supervision, and project personnel in the recognition, evaluation, and control of hazardous activities and/or conditions within their respective areas of responsibility.

ADMINISTRATION
The Site Manager is responsible for administering an effective Plan which includes auditing individual safety performance for compliance with applicable federal, state, PG&E, and local safety and health requirements.

DUTIES AND RESPONSIBILITIES
Site Manager shall be responsible for:

- Implementing the provisions of this plan.
- Promoting good relations with federal, state, and local authorities.
- Coordinating this Plan with applicable aspects of the Owner's (PG&E) safety requirements.
- Interpreting and ruling on Safety and Health requirements for the project.
- Providing PG&E Project Manager with monthly safety activities and inspection reports and for appraising PG&E of all significant site safety matters in a timely manner.

Site Manager (Bechtel), PG&E, and all Contractors/Subcontractors shall be responsible for the following actions for their respective employees:

- Conducting periodic safety and health inspections of the project.
- Conducting safety and health orientations to acquaint employees with project conditions, safe work practices and procedures.
- Monitoring employee compliance with the applicable safety and health requirements.
• Coordinating the workers compensation insurance reporting requirements (as required).

• Training and advising personnel under their direction on safety and health regulations, PG&E/Bechtel requirements, inspection results, and overall project safety and health activities.

• Providing information to employees regarding their emergency response responsibilities.

• Monitoring employee compliance with fire prevention and protection requirements.

• Conducting and participating in safety and health meetings.

• Maintaining safety performance (injury and illness) statistics.

• Posting safety notices, bulletins, and emergency phone numbers in designated areas.

• Identifying, in writing, a qualified Safety Representative acceptable to the Site Manager, to coordinate and monitor safety and health activities for the contractor/subcontractor's work.

• Maintaining OSHA 200 Logs.

• Conducting/monitoring Tool Box Safety Meetings and safety training.

Contractor/subcontractor supervisors shall be responsible for:

• Providing Safety and Health training for employees. This training will include as a minimum:
  - Potentially hazardous conditions present in the work area.
  - Identification of required personal protective equipment for the work operation.
  - Instructions to each employee on the proper procedure for reporting unsafe conditions they may encounter.
  - Instructions regarding the immediate reporting of work-related injuries or illnesses.

• Implementing immediate action to correct reported or observed substandard safety and health conditions.

• Conducting daily inspections of their work areas and taking necessary corrective actions to eliminate substandard practices and/or conditions.

• Conducting safety meetings and submitting copies of meeting minutes to the Site Manager.

• Assisting the Site Manager and/or Safety Representatives in accident investigations and preparation of required reports.

• Attending safety meetings conducted by the Site Manager.

• Implementing an Emergency Response Plan, designed to effectively handle and manage any form of emergency which may arise.
• Enforcing work rules.

• Evaluating the safety performance of their employees, and documenting disciplinary action (including verbal).

Employees shall be responsible for:

• Working in a safe manner at all times.

• Learning and abiding by those Safety and Health rules and procedures which are applicable to their work tasks and for correcting or reporting substandard practices or conditions to their Supervisor.

• Promptly reporting injuries to their Supervisor and First Aider. All personnel must know where first aid and other emergency equipment is located.

• Knowing that any employee who jeopardizes their safety and health and/or the safety and health of others will be subject to disciplinary action (up to and including immediate removal from site).
Section 2

EMERGENCY PREPAREDNESS

PURPOSE AND SCOPE
To establish emergency guidelines for the protection of personnel, equipment, and materials.

PROCEDURES
Fire
Employees may make a safe attempt to extinguish a small fire provided such action does not endanger themselves or other employees.

If the fire is not easily extinguished, the nearest Fire Department shall be notified immediately. (As soon as practical, the Site Manager shall also be notified.)

- If deemed necessary, a designated employee shall be assigned to direct the Fire Department to the fire location.

- All personnel shall be evacuated from the fire location.

- Personnel shall not be allowed back into a fire location until inspected and declared safe to do so by the Site Manager or local Fire Authority.

A fire incident report will be completed by the responsible contractor/subcontractor and provided to the Site Manager within 24 hours of the occurrence, with a copy forwarded to the PG&E Project Manager.

Accidents Involving Serious Injury Or Death
The Site Manager and Bechtel Safety Manager in San Francisco must be notified immediately. The Site Manager will in turn notify the PG&E Project Manager.

The contractor/subcontractor and employer (if different) shall provide for necessary first aid and medical services. This includes contingency plans for public rescue/medical service to provide assistance as necessary. (Refer to Section 6)

The contractor/subcontractor and employer (if different) shall immediately notify the nearest CALOSHA office by telephone.
All non-essential personnel must remain clear of the accident scene. The contractor/subcontractor and employer (if different) is responsible for controlling the scene.

A full investigation must be conducted by the contractor/subcontractor and employer (if different) within 24 hours of the occurrence. A preliminary report will be given to the Site Manager within 24 hours. A final written report will be completed and forwarded to the Site Manager within five (5) work days, with a copy forwarded to the PG&E Project Manager. (Refer to Section 7)

**Property Damage Accidents**

The first supervisor to arrive on the scene of a property damage accident shall:

- Protect employees, property, and the public against further damage or possible injury where possible.

- Take additional precautions as necessary to protect against secondary damage in the event of fire, explosion, or electric exposure.

- Notify the Bechtel Site Manager and Safety Representative as soon as possible, who in turn will notify the PG&E Project Manager.

- The contractor/subcontractor shall conduct an investigation within 24 hours of the occurrence and file a written report with the Site Manager within five (5) work days of occurrence. (Refer to Section 7)

**Bomb Threat**

All Project employees shall comply with the PVUSA procedure for Bomb Threats. (Refer to Section 9, Element H)

**Evacuation**

All Project employees shall comply with the PVUSA Procedure for Evacuation. (Refer to Section 9, Element A)

**High Wind/Inclement Weather Precautions**

- Material that may become airborne during a high wind must be secured.

- Modules must be stored in a secured manner at all times.

- Modules shall not be handled when wind speeds are above 7 m/s (16 mph).
• All cranes/structures, etc., shall be secured to prevent damage by high winds.

• Contractor/subcontractor must take all precautions necessary to protect construction areas and the public from the effects of possible and/or anticipated adverse weather conditions. This includes protective covers and de-watering systems.

Earthquake

Employees shall be instructed to:

• STAY CALM - Help other employees whenever possible.

• Know the location of exits - watch for falling objects. If in an office, stay away from windows, filing cabinets, book cases, etc.

• Stay under a doorway or desk, if possible.

• Know the location of fire extinguishers and emergency medical supplies.

• Know how to report emergencies and seek outside assistance. Anticipate no phone service, broken water mains and possible gas leaks.

• Do not touch unsafe electrical equipment.

• Prepare for after-shocks.
Section 3

TRAINING

PURPOSE AND SCOPE
To establish a uniform method of providing Safety and Health training to the project staff and contractor/subcontractor employees assigned to the project.

RESPONSIBILITIES
The employer shall be responsible for developing, scheduling, and conducting the Safety and Health Training.

The employer shall be responsible for accomplishing item IIIA below, at the soonest time possible when an employee is hired or transferred to the project.

APPLICATIONS
As a minimum, the following safety and health training shall be conducted as indicated (when appropriate) with appropriate documentation.

Project Safety and Health Orientation
Each new employee or transferee shall receive a safety and health orientation, which will provide the employee with basic information regarding the Project Safety and Health Action Plan, CALOSHA Standards, and applicable PG&E rules and procedures. Additional safety and health instruction applicable to specific tasks may be required for the performance of hazardous, unique, or unfamiliar tasks. (Refer to Program Element-A)

Bechtel Safe Practice Booklet
Each new PVUSA staff employee or transferee shall be issued a copy of the Bechtel Safety and Health Practice Booklet. Each employee will acknowledge receipt of the booklet by signing the tear-out sheet (last page). The tear-out sheet will be retained.
Tool Box Safety Meetings
Each supervisor is responsible for conducting weekly "Tool Box Safety Meetings" with his/her employees. Attendance is mandatory for all employees. Subject material will, on occasions, be furnished by the Site Manager. (Refer to Program Element "B")

Project Safety Meetings
Safety meetings shall be conducted by the employer on a regular basis and may be in conjunction with other project meetings. Employer management personnel will be required to attend.

Hazard Communication Training
Training will be conducted by the employer prior to employees being subjected to an exposure of a known hazardous substance. Training will address the degree of hazard, precautions to be taken, and personal protective equipment required. Material Safety Data Sheets will be used in conjunction with all training. Employees will be instructed to obtain guidance from their supervisor prior to working with any unfamiliar materials. (Refer to Program Element "C")

Safety Orientation for Supervisors
Each supervisor shall receive a "Supervising for Safety" orientation conducted by the employer. This orientation will outline his/her duties and responsibilities for safety and health in daily work activities. As a minimum, this orientation will address the items in Program Element "J".

Staff Safety Training
All PVUSA staff personnel shall receive safety training commensurate with their level of responsibility and position description. This training shall be pre-planned and attended in accordance with Program Element "M".
Section 4
CONTROL MEASURES

PURPOSE AND SCOPE
To establish a basic program for the elimination of substandard practices by employees and to maintain safe physical conditions for all employees at the Project. To reaffirm the employees' basic responsibility for their actions, as originally assigned under Section 5(h) of the Occupational Safety and Health Act of 1970 and California Labor Code Section 6407. The execution of these responsibilities by all employees will be an effective deterrent to accidents.

SUPERVISORY CONTROL
Contractor/subcontractor supervisors shall be responsible for conducting daily surveys of operations, to detect any potential sources of injury to their employees or loss to their operations due to substandard acts or procedures.

NOTIFICATION OF HAZARDS
PVUSA staff and contractor/subcontractor employees shall be instructed to correct and notify their supervisor of the existence of any substandard conditions, property, or equipment at the Project. It is imperative that everyone on site monitor the project for assurance that a safe and healthy workplace is maintained. Deficiencies observed which cannot be corrected by the observer or their supervisor must be reported to the Site Manager for timely remedial action. Also, safety and health concerns may be reported to the Site Manager anonymously in letter form. All such concerns will be reviewed and acted upon as necessary.

SANCTIONS
Sanctions shall be taken by the employer when employees are noted in violation of safety and health requirements, as stipulated in the project work rules. Employees noted in willful violation of safety and health requirements, that endanger themselves or others, may be subject to immediate removal from the site.
HAZARD COMMUNICATION

PURPOSE AND SCOPE
To provide a uniform method of communication regarding hazardous substances used at the site. (Refer to Program Element C).

HAZARDOUS SUBSTANCE LIST
An inventory shall be accomplished by the Site Manager and each contractor/subcontractor to identify hazardous substances in their scope-of-supply and under their control. A Hazardous Substance List shall be developed by them containing the following information:

- The chemical name or the common name used in the Material Safety Data Sheet or container label.
- The quantity and area stored.
- Use of the chemical.

These lists shall be updated whenever hazardous substances are received or removed from the Project, and a current copy provided to the Site Manager.

MATERIAL SAFETY DATA SHEETS (MSDS)
In addition to identifying the substance, the MSDS must provide the following information:

- The physical and chemical characteristics of the hazardous chemicals.
- Known acute and chronic health effects and related health information.
- Exposure limits.
- Whether the chemical is considered to be a carcinogen.
- Precautionary measures, emergency and first-aid procedures.
- The name of the organization responsible for preparing the sheet.
Copies of the Material Safety Data Sheets shall be maintained by the contractor/subcontractor, and will be made readily accessible to employees. A copy of each MSDS shall be provided to the Site Manager.

LABELS

The contractor/subcontractor procurement representative or receiving person shall verify that each container is labeled, or marked with the identity of hazardous substance contained therein and that it shows hazard warnings appropriate for employee protection. The hazard warning may be any type of messages, words, pictures, or symbols which convey the hazard. Labels must be legible, in English (plus any other language required) and prominently displayed.

EMPLOYEE INFORMATION AND TRAINING

Each employer supervisor shall provide training and information to their personnel exposed to hazardous substances. This training will be conducted at the time of initial assignment and updated whenever a new hazard is introduced into their work area. Also, if the material is to be left on site and/or become part of PVUSA operations, PVUSA staff and the Site Manager must receive training by the supplier/installer.

Training shall include as a minimum:

- Hazardous substances currently present in the work area.
- Where written procedures, Material Safety Data Sheets, and hazardous substance lists are located.
- Measures employees can use to protect themselves.
- Methods of observation, such as appearance or odor, that workers can use to detect the presence of hazardous materials.
- Use, maintenance, and care of personal protective equipment.
- Detailed safety information for the performance of non-routine tasks involving hazardous substances.
HAZARDOUS WASTE DISPOSAL

Contractor/subcontractors shall remain responsible for the appropriate control and disposal of all hazardous waste generated by their operations. Hazardous wastes shall be properly identified, segregated, and removed from site by the contractor/subcontractor as soon as possible. Employers shall train their employees in the identification, handling, and disposal of hazardous waste, as required.

Installed equipment, if considered a hazardous waste at the end of its operating life, must be identified as such by the supplier/installer and specific disposal instructions provided to PG&E prior to turnover and acceptance.
PURPOSE AND SCOPE
This section describes the responsibilities for providing first aid, medical services, and emergency transportation for employees who incur occupational injuries or illnesses at the Project. (Refer to Section 2, B-2)

FIRST AID
Each employer shall provide qualified personnel adequately trained to render first aid, as well as facilities and contingency plans for providing first aid for the treatment of occupational injuries and nonoccupational emergencies. Employees shall be instructed to report all injuries, no matter how minor, to their supervisor and first aider. Treatment will be given and the incident will be recorded. (Refer to Section 7). First aid training shall be equal to or greater than that of the American Red Cross or the Mine Safety and Health Administration.

TRANSPORTATION
Routine Transportation of Employees to a Doctor/Medical Facility
An injured or ill employee will be provided transportation by the employer for the initial visit to the doctor/medical facility for work-related injury or illness.

Emergency Transportation
Local ambulance services shall be used for emergency transportation of injured or ill employees. The employer will be responsible for notifying the ambulance and providing information describing the location of the project and the exact location of the accident scene.

LOCAL EMERGENCY TELEPHONE NUMBERS:
The following telephone numbers and information shall be posted by each employer:
  - Ambulance 911
  - Fire 911
  - Police 911
  - Hospital 911 Name of Hospital: Sutter Davis
Section 7

ACCIDENT INVESTIGATION, REPORTING, AND RECORDKEEPING

PURPOSE AND SCOPE
To establish an effective procedure for the investigation and reporting of all accidents involving Project personnel, equipment, or property.

INVESTIGATION
All accidents or incidents that result in a work-related injury or illness must be investigated by the contractor/subcontractor and by the employer (if different).

All property damage accidents must be investigated by the contractor/subcontractor.

Near miss incidents that would have resulted in bodily injury/illness or property damage must be investigated by the contractor/subcontractor.

REPORTING AND RECORDKEEPING
First Aid Log
After attending to an employee's injury/illness, the employer's first-aid trained person shall note the following information in a first aid log:

- Date and time of injury.
- Employee's employment number or social security number.
- Employee's name.
- Name of employee's supervisor.
- Location of accident.
- Nature and cause of injury/illness and exact location of injury (part of body involved).
- What treatment was rendered and by whom.

If there is no evidence of injury or illness, this should be noted in the first aid log.
If an employee reports a non-occupational injury/illness that is clearly non-occupational by the employee's admission or otherwise, the employee shall be advised to consult his/her personal physician. The chief complaint of injury/illness should be documented in the first aid log if:

- The employee departs the project as a result of the injury/illness
- It involves any muscle or joint
- Any complaint the employee states is non-occupational in nature or cannot be related to a specific cause. (Example - "Woke up with aching in back - request aspirin.")

Doctor/Lost Time Cases
When an employee is referred to a physician or medical facility for treatment of an occupational injury/illness, the following forms shall be completed:

- Bechtel Incident Investigation Form (BIIF), or equivalent
- Employee's Description of Incident
- Workers' Compensation Form

Incident Investigation Form (available from Site Manager)
This form or an equivalent form is to be completed by the employer immediately after an employee reports an occupational injury/illness that requires treatment by a physician (off site). A copy must be provided to the Site Manager and PG&E Project Manager.

Employee's Description of Incident
To be completed by the employee in his/her handwriting, describing the circumstances and events leading to and the cause of the accident. This is to be signed and dated by the employee. A copy must be provided to the Site Manager.

Workers' Compensation Form
This reporting form must provide essential information in an orderly sequence. The form must be completed by the employer. Each applicable question should be answered accurately to provide the Insurance Carrier with sufficient information to disburse compensation payments in a timely manner, in accordance with the local laws, rules, and regulations.
OSHA 200 Log

CALOSHA requires that each employer maintain records of occupational injuries and illnesses. The purpose of CALOSHA recordkeeping is to:

- Assist CALOSHA compliance officers in the determination of injury experience.
- Inform employees of their employer's injury/illness experience by posting the information (February of each year).
- Assist the employer in identifying causes of occupational injuries/illnesses.

This log is to be maintained by the employer, in accordance with OSHA recordkeeping instructions.

Reporting Serious Accidents

All injuries and illnesses which require hospitalization (other than observation) or which result in a fatality must be immediately reported to the Bechtel Site Manager. The Site Manager will make timely notification to the PG&E Project Manager, the Bechtel Safety Services Manager (SFRO), and other Bechtel personnel as required by the Bechtel Safety and Health Manual.

The employer will prepare a preliminary written report, which will be submitted to the Site Manager and Safety Services Manager (SFRO) within 48 hours of occurrence.

Final reports shall be completed by the employer within 10 work days of occurrence (if possible).

All accidents that require hospitalization or that result in a fatality must be reported in the following format:

- Name of injured
- Date and time of injury
- Type of injury
- Location of accident
- Brief factual description of the event
- Sequence (activities at the project prior to and after accident)
- Investigation (facts determined during the investigation)
Photographs:

- Use of photographs to document accident investigation should be approved and controlled by the Bechtel Site Manager.

- Photographs shall be taken during the investigation of accidents involving serious personal injury, substantial property damage, equipment or material failure, and all accidents that may, even remotely, involve third-party action.

- Photographs should be sufficient in number to adequately reflect the general area as well as pertinent details from a variety of angles. Photographs must be taken as soon as possible following the accident. A concise record shall be made of the locations and conditions photographed. If photographs may contain proprietary information, mark all photographs "TRADE SECRET."

Exhibits (all exhibits must be referenced in the body of the report)

- Death Certificate/Coroner Report
- Autopsy Report
- Sheriff/Police Report and Photographs
- Witness Statements (all information within the content of the statement must be based upon factual information that can be documented or substantiated; recommendations, guesses, fault, or any other supposition must not be included in the report).
- Miscellaneous (results of analysis or other activities, such as expert consultant's report).

Accidents which involve fatalities, or serious injuries which result in hospitalization for more than 24 hours, are required to be reported by the contractor/subcontractor to the California Occupational Safety and Health Administration immediately by telephone or facsimile. Immediately means as soon as possible but no longer than 24 hours after the incident.

CALOSHCA INSPECTIONS

In addition to inspections conducted by the Bechtel Safety and Health Service Department, insurance representatives, and PG&E, project activities are also subject to periodic inspection by CALOSHCA Compliance Officers. In the event a CALOSHCA Compliance Officer visits the project, he/she should be directed to the Bechtel Site Manager prior to the opening conference. The Bechtel Site Manager will organize an inspection party, consisting of contractor/subcontractor management and employee representatives, who will attend the opening conference and participate in the inspection. The Site Manager
will document inspection activities in accordance with the Bechtel Safety Procedures Manual. In addition, the Safety Services Manager (SFRO) shall be notified.

- Contractors/subcontractors should not refuse access, nor require the Compliance Officer to obtain a search warrant.

- The site manager shall determine the inspection scope prior to the start of the inspection. The compliance officer shall not be allowed to deviate from the inspection scope; should this be attempted, the Bechtel Safety and Health Manager should be immediately contacted.

- Contractors/subcontractors shall forward to Site Manager and PG&E Project Manager, copies of any and all inspection reports and/or citations received from CALOSHA.
PURPOSE AND SCOPE
To establish general safety and health requirements for the execution of work on the project. These requirements are applicable to all contractor/subcontractor personnel, vendors and visitors at PVUSA, and PVUSA staff.

HOUSEKEEPING
Work areas, passageways and floors shall be kept clear of debris. Materials shall be stored in an orderly manner. Storage areas and walkways shall be maintained free of dangerous depressions, obstructions, and debris. Equipment shall be stored or placed in an orderly manner. The public shall be protected from harm at all times.

ELECTRICAL
All electrical operations shall be in accordance with the provisions of applicable Regulatory and project requirements.

Extension cords used with portable electric tools and appliances shall be heavy duty and of the three wire grounding type, and shall conform to the type and configuration required by CALOSHA standards.

GFCI's shall be provided for all 120-V single phase 15- and 20-ampere receptacle outlets which are not part of the permanent wiring of a building or structure (e.g., temporary wiring during construction), or a written assured equipment grounding program shall be implemented.

"TAG-OUT" CLEARANCE PROCEDURE
This project clearance procedure is intended to provide a controlled method for rendering inactive, any electric equipment or operating systems (including mechanical or piped) when equipment is removed from service for any reason; such as repair, removal or replacement, start-up or installation of new equipment. All project clearances are issued by PVUSA Site Manager or his designee. The Site Manager, referred to in the procedure as "Supervisor of Operations," or a trained designee will implement the clearance procedure. The contractor/subcontractor will request the "tagout" and walk the clearance boundaries with
the authorized PVUSA personnel. PVUSA shall follow the PG&E standard practices outlined in the Site
Injury and Illness Prevention Program (IIPP). (Refer to Program Element - G).

SITE VISITORS AND THE "SAFE" TOUR PATH
Site visitors shall be briefed on the potential hazards associated with operating photovoltaics. All visitors
shall remain on the designated and roped-off tour path established at PVUSA. All visitors shall be
accompanied by a PVUSA staff representative throughout the tour. (Refer to Program Element - O).

SMALL TOOLS AND SHOP EQUIPMENT
Power, Air, or Fuel Operated Tools

- Power tools shall not be used if safety equipment, such as shields, tool rests, hoods, and
  guards have been removed or otherwise rendered inoperative.

- Employees using tools under conditions that expose them to the hazards of flying objects
  or harmful dusts shall have required personal protective equipment supplied with the tools.

- All electrical powered tools shall be properly grounded or double insulated.

- Gasoline powered tools shall not be used in unventilated areas. Gasoline shall be
  dispensed only in approved safety cans.

- Portable grinders shall be provided with hood type guards with side enclosures that cover
  the spindle and at least 50% of the wheel. All wheels shall be inspected regularly for signs
  of fracture. Wheels must be rated at or above the rating of the grinder (RPM).

- Bench grinders shall be equipped with deflector shields and side cover guards. Tool rests
  shall have a maximum clearance of 1/8" (inch) from the wheel. Wheels must be rated at or
  above the rating of the grinder (RPM). Tongue guards (top) are required on all bench
  grinders.

- Hoses supplying pneumatic tools shall have couplings secured to prevent accidental
  disconnection.

- Air-supply lines shall be protected from damage, inspected regularly and maintained in
  good condition.

- Air sources supplying hoses exceeding 1/2 inch ID shall be protected by excess flow
  valves to prevent "whipping" in the event of hose separation or failure.

- The pressure of compressed air used for cleaning purposes must be reduced to 30 psi or
  less. Compressed air must never be used for blowing material off employees.
WELDING AND CUTTING

Prior to commencing operations that may produce arcing, sparking, or similar sources of ignition, the following requirements must be satisfied.

Welding

- A suitable fire extinguisher shall be available for instant use in any location where welding is done. Screens, shields, or other safeguards shall be provided for the protection of personnel or materials exposed to sparks, slag, falling objects, or the direct rays of the arc.

- The welder shall wear approved eye and head protection. Employees assisting the welder shall also wear similar protective equipment.

- Electric welding equipment, including cables, shall meet the requirements of the National Electric Code. Welding practices shall comply with all applicable requirements.

- Ventilation shall be provided in those areas where the possibility of accumulation of fumes or vapors may occur.

Burning, Cutting and Gas Welding

- When gas cylinders are stored, moved, or transported, the valve protection cap shall be in place.

- When cylinders are hoisted, they shall be secured in an approved cage or basket.

- All cylinders shall be stored, transported, and used in an upright position. If the cylinder is not equipped with a valve wheel, a key shall be kept on the valve stem while in use.

- An approved fire extinguisher shall be readily available in the event of fire.

- Appropriate personal protective equipment, such as approved glasses, shields, and gloves must be used.

- All cylinders will be secured at all times.

- Cylinders in storage shall be separated (oxygen and acetylene) by a barrier with a one hour fire rating, or by a distance of 20 feet.

- Toxic or flammable coatings and coatings of unknown materials shall be removed to a distance of four inches, or beyond the heat affected zone, whichever is greater.

- Oxygen must NOT be used for blow down or ventilation.
LADDERS

Manufactured Ladders

Portable ladders at the project shall comply with applicable ANSI standards, be non conductive and used in
accordance with applicable CALOSHA standards.

- Ladders with broken or missing rungs, broken or split side rails, or otherwise damaged,
  shall not be used.
- All portable ladders shall be equipped with non-skid safety feet and shall be placed on a
  stable base. The access areas at the top and bottom of ladders in use shall be kept clear.
- The side rails of straight or extension ladders shall extend 36 inches above the landing.
  When this is not practical, grab rails shall be installed. All ladders in use shall be tied,
  blocked, or otherwise secured to prevent accidental displacement.
- Tripod ladders (ladders with three legs) are prohibited. All step ladders shall have four
  supporting rails.
- Folding ladders that have a vertical extension at the top step are prohibited.
- Work shall not be performed off the top 2 steps of a ladder at any time.

PERSONAL PROTECTIVE EQUIPMENT

This section establishes the minimum requirements for personal protective equipment to be used. Only
equipment complying with CALOSHA standards shall be used. All employees shall be responsible for
compliance.

Head Protection

- The wearing of head protection (hard hats) inside the fenced area of the project is
- Bump caps and metallic/conductive hard hats are prohibited.
- Hard hats shall be routinely checked for defects by employees and supervisors and
  changed as necessary. Suspension systems should be changed in accordance with
  manufacturers recommendations.
- Welders are required to wear head protection (hard hat) during welding operations. Use of
  soft cap for welding or cutting is acceptable if approval has been obtained from the
  contractor/subcontractor supervisor.

Eye Protection

Employees shall be required to wear approved protective eyewear with side shields whenever hazards to the
eyes exist.
Hearing Protection

Work areas shall be evaluated for sound levels as often as necessary by contractor/subcontractor, but at least annually.

Disposable hearing protection shall be provided and is mandatory in designated areas or for specific tasks as determined by the contractor/subcontractor. (In excess of 85dba)

Respiratory Protection

Respiratory protection devices approved by the National Institute of Occupational Safety and Health or United States Bureau of Mines shall be worn by employees when exposed to hazardous concentrations of toxic dust, fumes, or mists as required by CALOSHA standards. It is the contractors/subcontractors sole responsibility to monitor and identify when such conditions exist.

For known exposures that will require respirator usage, a respiratory protection program written by the contractor/subcontractor, will be necessary.

Fall Protection

Fall protection meeting CALOSHA standards shall be worn by all employees when required. Fall protection lanyards shall be a minimum of one-half inch nylon or equivalent with a maximum length to provide for a fall of no greater than 3 1/2 feet.

Lanyards should be secured to a structural member capable of supporting the force exerted if a fall occurs. This securing position (point) should be at waist level or higher.

Fall protection will be provided and used when working over 6' in height. This includes work in aerial devices such as bucket trucks.

Hand Protection

Hand protection meeting CALOSHA standards shall be worn by all employees when required. This includes the use of electrical insulated gloves when working on energized circuits above 50V ac or dc.

Foot Protection

Serviceable work shoes or boots with a substantial sole and sides that protect the foot are required for all employees. In areas of construction activity, canvas athletic type shoes, sandals, open toed shoes, etc., are not acceptable.
Suitable Clothing

All employees must wear clothing suitable for their work. Minimum clothing is sturdy work shoes, long pants and a T-shirt. Shorts, cut-offs, tank tops and/or mesh shirts are not permissible.

Any time employees on site are working under conditions of significant fire potential, fire-retardant clothing shall be worn.

Maintenance Of Equipment

Employer shall insure that personal protective equipment which has been altered in any manner, so as to reduce its effectiveness, shall be removed from service, repaired, or destroyed.

Other Personal Protective Equipment

Other equipment may be required for unusual circumstances such as high temperature work, handling corrosive liquids, etc. Requirements not specifically covered in this section must be identified by the employer involved and shall be reviewed with the Site Manager.

FIRE PREVENTION

- For all operations involving a potential source of ignition, approved fire protection equipment required to protect personnel, property, and facilities shall be provided by the employer.

- Cutting and welding shall be done in accordance with PVUSA Hot Work permit requirements. (Attachment at end of Section 8.)

- All flammable and combustible materials shall be stored, piled, and handled with due regard to their fire characteristics. Flammable liquids must be stored in an approved manner, and dispensed only in acceptable safety containers.

- Welding gases shall be stored in isolated areas and segregated by type of gas.

CRANE AND RIGGING SAFETY

Crane Inspection

- Inspections shall be required after malfunctions and major repairs. Serious malfunctions shall require intervention by the manufacturer.

- All cranes shall have a current annual certification of inspection posted in the cab. Documentation of inspections shall also be maintained in contractor’s/subcontractor’s project files.

- All rigging equipment shall be maintained in compliance with ANSI and CALOSHA standards.
• Lifting procedures, reviewed and approved by a qualified engineer, will be required for all lifts which involve substantial risk of personal injury or property damage and which are to be made within the fenced area of PVUSA. All such lifts must also be reviewed with the Site Manager and a full time competent "spotter" and/or system isolation may be required. No portion of a crane or load may come within 10 feet of an exposed electrical hazard, in accordance with CALOSHA Regulations.

• Operators of cranes and lifting equipment shall be qualified to operate such equipment. Unless otherwise approved by the Site Manager, crane signals will be by visual observation from a competent person.

CONFINED SPACE
A confined space is any space with a limited means of egress, and/or an area which can accumulate toxic or flammable contaminants or may have an oxygen-deficient atmosphere. (Refer to Program Element E.)

Personnel will not be allowed to enter a Confined Space until it has been tested by the contractor/subcontractor and determined to be safe for entry, and a permit issued by the Site Manager.

VEHICLES AND TRAFFIC
• Only vehicles in safe operating condition shall be allowed on the project.
• Vehicles shall be properly lighted during dark hours.
• Pedestrians shall always have the right of way.
• Overhanging loads shall be properly flagged or a flagman provided.
• Every effort shall be made to avoid blocking roadways and access to fire protection equipment.
• Transportation of employees.
  - Employees are prohibited from riding on loads, fenders, running boards, and tailgates. Employees must sit on the bed or on provided seats.
  - Seat belts shall be used if available in trucks or equipment.
  - Employees shall not ride in beds of trucks or other equipment containing unsecured materials that may shift. Any employee transported in a pick-up truck shall be protected in accordance with CALOSHA standards.
The PVUSA scissor lift shall be used in accordance with the following:

- The scissor lift is to be operated only by trained site personnel or designated individuals.
- The scissor lift is designed to be operated on level concrete, asphalt, or solid level surfaces. Therefore, the scissor lift is to be raised only on compacted roads or parking areas. Exceptions to this requirement may be granted by the Site Manager only.
- The scissor lift working platform may not be extended above 12 feet in height.
- No more than 2 adults may be on the work platform at any one time.
- Visiting photographers must be accompanied by a site lift operator.
- Hardhats are required when standing on the work platform of the scissor lift.

- The scissor lift must be inspected each day prior to operation, in accordance with manufacturer's instructions.

**WATER HAZARDS**

Work shall not take place on electrical systems under wet/inclement conditions unless absolutely necessary and all precautionary measures have been identified and implemented.

**GENERAL SAFETY PRECAUTIONS**

Employees shall not remove any safety device, safety tag, or switch code pin on any existing project equipment. Control devices to which a safety tag is attached shall not be operated.

Where work is to be performed overhead, the area below shall be roped off or barricaded in such a way as to prevent persons from inadvertently walking under the work.

All work shall be performed in such a manner as not to create any undue exposure for employees or the public.
INTERNAL/EXTERNAL INSPECTIONS

Inspections of PVUSA work activities shall be performed on a daily basis by the Site Manager and the PVUSA Staff. Such inspections shall be documented at least twice monthly.

The Bechtel Safety Manager shall, in conjunction with the PG&E Project Manager and Safety, Health and Claims Department, conduct routine inspections and audits of the PVUSA sites and facilities. Such inspections will be conducted at least annually, may or may not be announced, and will be documented.

Documentation associated with all PVUSA inspections shall be submitted jointly to the Site Manager and the PG&E Project Manager. All safety or health discrepancies or concerns identified by such inspections shall be acted upon in a timely manner and corrective actions documented.
PROGRAM ELEMENTS

The following program elements and procedures are included as a part of this Safety Action Plan:

- Project Safety Orientation
- Tool Box Safety Meetings
- Hazard Communication Program
- Contractor/Subcontractor Safety Programs
- Confined Space Entry Procedure
- Equipment Inspection Program
- Safe Clearance Procedure (Tag-Out)
- Bomb Threat Procedure
- Security Program
- Supervisory Safety and Health Orientation
- Excavation and Trenching Program
- Safety Barricade Procedure
- PVUSA Employee Safety Training Program
- PG&E Specific Procedures Applicable at PVUSA
- Site Tours and Visitors
- Ergonomics
- Blood Borne Pathogens
- Biological Hazards
- Heat Stress
Appendix A

PROJECT SAFETY ORIENTATION
Program Element “A”
NEW HIRE SAFETY AND HEALTH ORIENTATION PROGRAM

PURPOSE AND SCOPE

Sufficient time must be allotted for the safety and health orientation of all newly hired or transferred employees. This orientation, although general in nature, is important because it provides the employee with basic safety/health training and provides the employer an opportunity to initiate training required by CALOSHA standards. (When effectively conducted, the orientation also helps reduce the potential for accidents and minimize exposure to future legal liabilities.)

The orientation will be conducted before new employees are assigned to work at the project. Special consideration should be given to the location where the orientation is conducted. The location should comfortably accommodate the number of attendees and provide a quiet environment, free of normal plant distractions. The intent of the orientation is to provide each employee effective safety and health training.

Supervisors will attend and/or conduct the orientation. Active supervisory participation demonstrates a commitment to safety and improves the effectiveness of the presentation.

This section contains the minimum information required.

1. STARTING THE ORIENTATION

a. Introduce yourself and other supervisors attending by name and title.

b. Welcome employees to the project.

c. Summarize your historical commitment to safety, emphasizing that your company is committed on this project to providing employees a safe place to work.

d. State that the purpose of this orientation is to provide the employee a basic understanding of safety requirements and to clearly define the employee’s safety and health responsibilities while employed at this project.

e. Review the organization and identify the key members of project management (i.e., Project Site Manager, PG&E, Supervisors, First Aider).

f. Give a brief description of project operations emphasizing any unique features.

2. EMPLOYEE INVOLVEMENT

a. The safety program at this project can only be effective if you personally get involved. Your employer expects you to be responsible for your personal safety.

b. Prior to beginning a task, check the work area to determine what problems or hazards may exist.

c. If your activity may endanger fellow workers or nearby equipment and materials, take the necessary steps to safeguard them.

d. Always review the safety requirements of each task with your supervisor. You will not be expected to do a job that might result in injury or illness to yourself or to others.

e. Report unsafe equipment, hazardous conditions, and unsafe acts which you observe to your supervisor. If you prefer, you may submit safety concerns to the Site Manager anonymously in letter form. Situations that are immediately dangerous must be reported to the contractor/subcontractor and the Site Manager. DO NOT BYPASS UNSAFE SITUATIONS.
3. **FIRST AID**
   
a. Report all injuries, no matter how minor, to your supervisor and First Aider. Treatment will be rendered and the incident will be recorded. Should later medical care be needed, the supervisor will have a record of your injury.

b. Notify your supervisor prior to leaving the jobsite because of a work-related injury or illness.

c. If you get outside medical treatment for a work-related injury or illness, you must notify First Aid and your supervisor at the start of the next scheduled work day.

d. Prior to returning to work after a work-related injury or illness, you must present a medical clearance (return to work slip) from the attending physician to your supervisor. Employees with work restrictions must perform regularly established jobs.

e. If you are required to wear any external appliance for a personal injury such as a cast, brace, splint, etc., that may restrict your work activity, you must present a medical clearance from your attending physician to your supervisor.

4. **EMERGENCY PROCEDURES**
   
a. In the event of a project emergency, such as an accident, employee injury, or fire, use the most available means to communicate the problem to those who can obtain or provide necessary emergency help. The following emergency numbers shall be posted by all project telephones. (Also, see Section 2, Emergency Preparedness)

<table>
<thead>
<tr>
<th>Department</th>
<th>Telephone</th>
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<tbody>
<tr>
<td>First Aid -</td>
<td>911</td>
</tr>
<tr>
<td>Fire -</td>
<td>911</td>
</tr>
<tr>
<td>Ambulance -</td>
<td>911</td>
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<tr>
<td>Doctor -</td>
<td>911</td>
</tr>
<tr>
<td>Hospital -</td>
<td>911</td>
</tr>
</tbody>
</table>

b. When reporting an emergency, remain calm and give the following information:

   o Nature of emergency
   o Exact location
   o Extent of injury, if any
   o DO NOT break communication

c. In the unlikely event that an incident occurs which requires evacuation of the work area or project, you should proceed to the designated project staging area and wait for information from project management. The staging area for this project is (to be determined by project).

5. **OCCUPATIONAL HEALTH**
   
a. An effective occupational health program requires an increased amount of cooperation and communication between the employee and the employer. Your support is requested at all times.
An employee who has any physical, mental, or general health problem including fear of heights, confined spaces, or darkness, or any other disorder that may prevent that employee from working safely or that may endanger the well-being of a fellow employee, will be asked to report this condition to his or her supervisor, who in turn will notify the Safety Representative, and project management.

In order to make reasonable accommodations and facilitate the safety and health of pregnant women working at the plant and their unborn children, it is requested that all women report the first knowledge of pregnancy to their supervisor. Pregnant women will be required to present a medical clearance from their attending physician following the initial determination of pregnancy and a medical clearance from their physician following each visit thereafter.

Confined or enclosed space means any space having a limited means of egress, and/or that is subject to the accumulation of toxic or flammable contaminants, or that may have an oxygen-deficient atmosphere. Confined or enclosed spaces include but are not limited to caissons, storage tanks, process vessels, bins, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, tunnels, pipelines, and open-top spaces that are more than 5 feet deep, such as pits, tubes, vessels, vaults, and sumps. Before entering a confined space, you must take the following precautions:

All confined space work will be done in compliance with the PVUSA Confined Space Procedure.

HAZARD COMMUNICATION

It is Bechtel's policy that employees who work with hazardous materials be made fully aware of their hazards. As part of this effort, a written hazard communication program has been developed for PVUSA. (See Section 5, Hazard Communication, and Section 9, Element C, Hazard Communication Program.) This program is intended to supplement your employer's HAZCOM Program and help you understand the hazardous materials you work with and the precautions necessary for your well-being and the well-being of your co-workers, the public, and the facilities where you work.

Before handling or working with unknown hazardous substances, you must contact your supervisor for specific instructions.

PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) is available for your use. When equipment has been specified for certain work assignments or areas, you must use it.

Supervision must comply with the requirements of the revised OSHA Standard 1910.132. The revised standard for personal protective equipment requires that:

- The Site Manager must conduct an assessment of the work place to identify potential hazards. This assessment must be reduced to writing, signed, and dated.
- PPE must be selected and furnished to the employee based upon hazard assessment; and
- Address the hazards and selected PPE through employee training. This must be reduced to writing, signed, and dated.

a. All employees must wear a hard hat inside the fenced area. Alterations must not be made to the hat or its suspension.

b. You must wear clothing suitable for the work you are doing. Minimum attire is long pants, closed-toe work shoes and a T shirt. No shorts, cutoffs, tank tops, or mesh shirts are allowed. Sturdy work shoes or approved safety shoes are required in areas of construction activity.
c. On this project, appropriate eye protection is available from your employer and must be worn. There are many situations where double eye protection is mandatory. Employees who are welding, cutting, grinding, chipping, or handling chemicals must wear an appropriate welding hood or face shield IN ADDITION to their basic eye protection.

d. Hearing protection is mandatory in designated areas or for specific tasks where noise levels are above limits established by CALOSHA.

e. Respiratory protective equipment may be required in areas where health hazards exist due to accumulations of dust, fumes, mists, or vapors. When respiratory protective equipment is required, employees must be clean shaven to ensure a proper fit. Employees who are required to wear respirators must be fit tested, trained and medically qualified. Use of respiratory protective equipment must be coordinated with your supervisor.

f. Safety belts and lifelines must be used when other safeguards are not provided. Be sure safety lines are independent of other rigging. The lanyard should be secured at or above the level of the belt. Safety nets will be installed as required by CALOSHA standards.

g. Gloves may be required when handling objects or substances that could cut, tear, burn, or otherwise injure the hands. Employees using insulated gloves should inspect them for defects before each use.

h. Situations that may require unique safety equipment and special training should be discussed with your supervisor before starting work.

i. Modification or alterations of any personal protective equipment is strictly prohibited. Defective or damaged personal protective equipment must be returned to your supervisor for replacement.

8. SCAFFOLDING

After erection, alteration or moving, each scaffold must be inspected and approved by a competent person to ensure that it conforms with established standards. Scaffolds shall not be used at PVUSA unless electrically safe to do so.

a. Guardrails, midrails, and toeboards must be installed on all open sides of scaffolds.

b. All scaffolds must be fully planked. Scaffold planks must be at least 2 x 10 inch full-thickness lumber, structural grade, or the equivalent, and must be cleated or secured from movement.

c. Access ladders must be provided for each scaffold. Climbing the end frames is prohibited unless their design incorporates an approved ladder.

d. Scaffold tagging procedures, must be followed at all times.

e. Scaffolds or work platforms must not be altered by unauthorized personnel.

f. All scaffold members must be visually inspected before each use. Damaged scaffold members must be removed from service immediately.

9. LADDERS

Different types of ladders are available at the project for your use. All must be non-conductive. There is no excuse for using a makeshift means of access to a work area.

a. All straight and extension ladders must be equipped with safety feet or be secured at the bottom.

b. All straight or extension ladders must be tied off at the top or otherwise secured to prevent movement.
c. Ladders used for access to a floor or platform must extend at least 36 inches above that floor or platform.
d. Always move the ladder to avoid overreaching.
e. Stepladders must be fully opened to permit the spreader to lock.
f. Employees must never stand on the top two steps of a stepladder.
g. Broken or damaged ladders must not be used. Ladders that need repair must be reported to your supervisor, tagged out, and removed from the work area.

10. FLOOR/WALL OPENINGS

a. Floor openings must be barricaded or covered, secured, and labeled, "Floor Opening - DO NOT REMOVE."
b. Wall openings must be guarded with a top rail, midrail, and toeboard.
c. Every open-sided floor or platform 6 feet or more above the adjacent floor or ground level must be guarded by a top rail, midrail, and toeboard.

11. EXCAVATIONS AND TRENCHES

All excavating and trenching operations and work performed in such areas must conform with established standards and be monitored by a competent person employed by the contractor/subcontractor.

a. Trenches 5 feet or deeper must be shored or sloped back to the angle of repose. Any excavation in unstable soil may require shoring or sloping.
b. Materials must be placed 2 feet or more from the edge of the excavation. Precautions must be taken to prevent such materials from falling into the excavation.
c. Each excavation must be inspected daily and after each rain, snow, freeze, etc., by the responsible supervisor and competent person. If evidence of cave-ins or slides is apparent, all work in the excavation must cease until necessary precautions have been taken to safeguard employees.
d. Where vehicles or equipment operate near excavations or trenches, the sides of the excavation must be shored or braced as necessary to withstand the force exerted by the superimposed load.
e. Safe access must be provided into all excavations by means of ladders, stairs, or ramps.
f. Trenches must have ladders spaced so that employees' lateral travel does not exceed 25 feet. Such ladders must extend to at least 36 inches above the grade level.

12. HOUSEKEEPING, MATERIAL HANDLING, AND STORAGE

a. Good housekeeping is an important part of any safety program. It is your responsibility to keep your work area clean and free from hazards.
   o Protruding nails must be bent over or pulled.
   o All materials must be properly stacked and secured to prevent sliding, falling or collapse. Aisles, stairs and passageways must be kept clear and clean. Exit ways and work areas must not be blocked.
b. When handling heavy and/or awkward materials, use mechanical assistance or ask your supervisor for help. Always use proper lifting technique when handling material:
Keep your back straight. Do not lean over.

Bend your knees, get down close to the load.

Lift gradually, using your legs. Do not jerk or twist.

Get help for bulky or heavy loads.

Whenever possible, try to use mechanical aids to reduce the amount of lifting you are required to do.

13. **FIRE PROTECTION AND PREVENTION**

Read, understand, and comply with PVUSA fire reporting instructions. In case of fire, assure the safety of all personnel, then use the appropriate fire-fighting equipment until help arrives. NEVER JEOPARDIZE YOUR SAFETY ATTEMPTING TO FIGHT A FIRE.

a. Report all fires regardless of size to the Supervisor.

b. You are expected to know the location of all fire-fighting equipment and alarms in your work area.

c. Learn the classifications of fires:

   o Class A - Ordinary combustible materials such as wood, coal, paper, or fabrics where wetting and cooling is the method of extinguishment.

   o Class B - Flammable petroleum products or other flammable liquids where oxygen must be excluded for extinguishment.

   o Class C - Fires in or near energized electrical equipment where, because use of water would be hazardous, a "non-conducting" extinguishing agent must be used.

   o Class D - Fires in combustible metals. A special powder is provided.

d. Keep the work area neat. An orderly work area reduces the fire and accident hazard.

e. Where fire hazards are prevalent, check with your supervisor for the proper precautions.

14. **HAND AND PORTABLE POWER TOOLS**

a. Tools must be inspected prior to each use to ensure that they are in proper working order. Defective tools must be returned for repair.

b. Power saws, grinders, and other tools that are made for guards, must have those guards in place at all times. Don't abuse electrical tools by lifting them by their power cords.

c. Only employees who possess valid credentials are permitted to use powder-actuated tools. Certification cards issued by the appropriate tool manufacturer must be carried by employees using powder-actuated tools.

15. **ELECTRICAL EQUIPMENT**

All commercially available electrical equipment used at the project must be listed by approved testing laboratory (Underwriters Laboratories, Inc., Factory Mutual Laboratories, et. al.) for the specific application. All non-listed electrical equipment must undergo a design safety review prior to project acceptance.

a. All electrical tools and equipment must be grounded or double insulated.
b. Ground fault circuit interrupters must be utilized on all 120 volt, single phase, 15 and 20 ampere construction receptacle outlets or an assured equipment grounding conductor program must be implemented.

c. Damaged or defective electrical tools must be tagged out of service and returned for repair.

d. Tampering with or the unauthorized repair of electrical tools or equipment is prohibited.

e. Temporary lighting must have guards over the bulbs. Broken and burned-out lamps must be replaced immediately. Bulbs must not extend beyond the protective guards. Do not attempt to remove broken bulbs until the circuit is de-energized.

f. Energized wiring in junction boxes, circuit breaker panels, and similar places must be labeled and covered at all times.

g. Hazardous areas must be tagged, barricaded, and appropriate warnings signs posted.

16. CRANES, MOTOR VEHICLES, HEAVY EQUIPMENT

Equipment is built for safe operation, but it is only as safe as the operator.

All cranes, hoists, motor vehicles, and heavy equipment must be operated and maintained to conform with established standards. Use inside the fenced area must be approved by the Site Manager.

a. When working with equipment, operators must take signals from only one person; in an emergency, however, a STOP signal can be given by anyone.

b. Only standard hand signals will be acknowledged.

c. Accessible areas within the swing radius of all cranes must be barricaded to prevent employees from being struck by the counterweight.

d. No crane or other equipment should be operated within 10 feet of energized electrical transmission or distribution lines. A "spotter" is required at all times cranes, etc. are used inside the fenced area.

c. Loads must not be suspended on an unattended crane.

f. Employees are prohibited from riding on loads, fenders, running boards, tailgates, or trucks with unsecured loads. Sit on the bed or on a provided seat.

g. Do not operate any vehicle or equipment that you feel is unsafe. Report any unsafe vehicle or equipment to your supervisor.

17. RIGGING

Makewhit rigging will not be permitted.

a. Mechanic’s tow chains with grab hooks must not be used for overhead lifting.

b. All rigging equipment must be inspected before use and removed from service if defective. Job-made rigging fixtures must be designed by a qualified engineer and proof tested before service.

c. Number 9 wire, tie wire, etc., shall not be used to suspend loads.

d. A signal person must be used whenever hoisting. Don’t hoist any loads over anyone’s head. Audible warning must be signaled before hoisting near other workers.
Taglines are required for handling suspended loads. When walking loads with the crane, the load must be tied back to the crane to prevent unnecessary movement.

Chainfalls and come-a-longs shall be used for the positioning of loads. They should not be used to suspend loads beyond the end of the shift. Proper lashing should be used to secure the load in position.

18. WELDING AND BURNING OPERATIONS

Welding and burning operations have a high potential for personal injuries and fires. When performing either task, it is essential to always follow these precautions:

a. Before starting to burn or weld, you must inspect your work area to ensure that sparks or molten metal will not fall on flammable or combustible materials. If you cannot provide the necessary safeguards, check with your supervisor before starting work.

b. You must be sure that suitable fire extinguishing equipment is available in your work area.

c. When you are involved in any welding operations, you must wear an approved hard hat with welding hood/face shield.

d. During storage, use, and transport, cylinders must be properly capped and secured in an upright position.

19. SAFETY SIGNS, BARRICADES, AND SAFETY TAGS

a. Safety signs and barricades are used to provide warning and protection from potential workplace hazards. You must read and obey all signs and honor all barricades.

b. Safety tags and locks are a temporary means of providing a warning to personnel of a hazardous condition, defective tools or equipment, etc. These tags are installed to prevent injury from accidental startup. Your employer must explain the PVUSA Lock/Tag Procedure to you in detail prior to your performing any work requiring isolation.

   o Never alter the position of a safety-tagged piece of equipment.

   o Do not remove safety tags. Only the person who installed the tag is authorized to remove it.

20. OTHER REQUIREMENTS (PG&E)

a. Client Procedures and Rules - See attachment

b. Site-Sensitive Requirements - See attachment

21. SAFETY ENFORCEMENT

Employees who disregard established safe practices and jeopardize their health and safety or the health and safety of others will be subject to disciplinary action as defined in the jobsite work rules.
Appendix B

TOOL BOX SAFETY MEETING
Program Element "B"

TOOL BOX SAFETY MEETING

I. Tool box safety meetings shall conform to the following guidelines:

- The subject material should be developed by the contractor/subcontractor and should be typed, reproduced, and distributed to each supervisor.
- The subject material shall be pertinent to the work being performed and shall conform to the attached format.
- The meetings shall be conducted by each supervisor with his/her crew at the time designated, using the subject material furnished.
- The meeting shall provide employees with the opportunity to ask questions regarding safety and health.
- The actual meeting times should not exceed 15 minutes.
- All attendees should sign the attendance sheet (Form on Page B-2).

II. Contractor/subcontractor Supervisory personnel should attend these meetings. Non-manual employees should participate in a weekly departmental safety and health meeting, covering topics pertinent to their work.

III. The tool box safety meeting must be in compliance with CALOSHA requirements, therefore the following is required:

- Each supervisor who conducts a tool box safety meeting shall ensure that all attendees sign the attendance form (Form on page B-2).
- Each supervisor shall list all safety suggestions and/or questions developed during the meeting.
- The completed tool box safety meeting report shall be signed by the supervisor and superintendent, and required corrective actions shall be noted on the report. Completed reports shall be routed to the Site Manager by the end of the shift.

IV. The initial subcontractor tool box meeting shall be a pre-job safety meeting. Specific safety risks associated with the work shall be discussed during the pre-job meeting. The following forms shall be utilized to document/record subcontractor and client representative attendance and items discussed:

- Subcontractor pre-job/toolbox safety meeting (Form on page B-2)
- Subcontractor pre-job safety checklist (Form on page B-3)
### SUBCONTRACTOR PRE-JOB/TOOLBOX

#### SAFETY MEETING

<table>
<thead>
<tr>
<th>Date:</th>
<th>Subcontractor:</th>
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<tbody>
<tr>
<td>Time Began:</td>
<td>Meeting Leader Name (Print):</td>
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<tr>
<td>Time Ended:</td>
<td>Meeting Leader Signature:</td>
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<tr>
<td>Location:</td>
<td>Meeting Leader Social Security #:</td>
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</tbody>
</table>

Topics discussed and specific safety precautions for this task (attach or identify all documents, handouts or videos provided, viewed and/or discussed).

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<tr>
<th>ATTENDEES</th>
<th>PRINT LAST NAME</th>
<th>SIGNATURE</th>
<th>SOCIAL SECURITY #</th>
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SUBCONTRACTOR PRE-JOB SAFETY CHECKLIST

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>COMPLETED</th>
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<tbody>
<tr>
<td>1. Review scope of work</td>
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<tr>
<td>2. Review site location and emergency response plan</td>
<td></td>
</tr>
<tr>
<td>3. Use of cellular phone for emergency response</td>
<td></td>
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<td>4. Two-man rule if applicable; use of canes</td>
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<tr>
<td>5. Use of protective equipment; i.e. safety glasses, gloves, and hardhats</td>
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<tr>
<td>6. Field safety boxes</td>
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<tr>
<td>7. Review of hazardous materials if applicable</td>
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<tr>
<td>8. Review of scaffold, ladder, or lift equipment safety if applicable</td>
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<tr>
<td>9. Specific PV safety concerns when applicable</td>
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<tr>
<td>10. Review any clearances required, walkdown, sign clearance receipt</td>
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</tbody>
</table>

Subcontractor Rep.  

Safety Instructor  

print print  

sign sign  

SS# SS#  

Subcontractor
Appendix C

HAZARD COMMUNICATION PROGRAM
Program Element “C”
HAZARD COMMUNICATION PROGRAM

I. SCOPE AND APPLICATION

This program describes the requirements, procedures, training, and information applicable to this project, with regard to hazardous substances. This program applies to all Bechtel personnel and contractors/subcontractors working at the PVUSA Project. It does not relieve each contractor/subcontractor of their responsibility to have and implement an effective, written HAZCOM program.

II. OBJECTIVES

a. To minimize and/or control employees exposure to hazardous substances.

b. To document efforts in identifying, assessing, and controlling potential exposures to hazardous substances.

III. RESPONSIBILITIES

a. The Site Manager shall be responsible for the implementation and administration of this program.

b. Procurement Department or originator of material requisitions (whether Bechtel, contractor, or subcontractor) will be responsible for requiring Material Safety Data Sheets (MSDS) from vendors when purchase orders are issued. If the material arrives without the MSDS, originator will immediately telephone the vendor and request the information be verbally transcribed. If the information is not available, the Project will not accept delivery of the material. Hazardous substances will not be issued for use until the MSDS has been reviewed by the employer placing the order and the supervisor in charge of the product’s use. A master file and list of all products on site and of all MSDSs will be maintained by the Site Manager. Each contractor/subcontractor must supply this information to the Site Manager.

c. Each contractor/subcontractor shall be responsible for the following:

1. Conducting surveys periodically to determine if unidentified hazardous substances are present.

2. Maintaining current Hazardous Substance List Inventory for their work on the project.

3. Maintain current copies of MSDS for each hazardous substance.

d. Supervisors are responsible to see that:

1. Employees under their supervision wear, use, maintain, and service personal protective/monitoring equipment that is assigned to them.

2. Employees have been trained in the proper handling of hazardous substances that they are assigned to use.
IV. VISITORS/VENDORS

As a matter of policy, vendors will be provided access to or a copy of the hazardous substance inventory list prior to the commencement of their work on the premises and visitors will be informed of this Program. This does not apply to escorted tours.

V. DEFINITIONS

a. Hazardous Substance - Those organic or inorganic substances or biological agents, that employees may encounter in their work environment and which present a recognized health hazard. Substances which have been identified as having intrinsic properties capable of producing adverse effects on the health of employees.

b. Occupational Exposure - Exposure which occurs when an employee contacts, through any route of entry (inhalation, ingestion, or absorption) a hazardous substance while in the work environment.

VI. WARNING LABELS

The warning label system used by manufacturers for hazardous materials is a nonstandard system. These labels vary in appearance and content but, as a minimum, normally contain the following information:

a. Identifies the hazardous substance.

b. Lists appropriate hazard warning.

c. Gives name and address of manufacturer or other responsible party.

Warning labels must be read and understood prior to any employee using the material. Employees will contact their supervisor for further instructions and training, if necessary.

VII. HAZARDOUS SUBSTANCE SURVEY

The Site Manager shall conduct surveys of work areas and operations, to determine if hazardous substances may be present. (This does not relieve the contractor/subcontractor of their responsibility to conduct such surveys.) If suspected hazardous substances are noted during these surveys, MSDSs will be obtained for review and possible incorporation into the Hazardous Substance Inventory List. A current listing of all hazardous substances will be posted for employee review and copies made available to PG&E.

VIII. MATERIAL SAFETY DATA SHEETS (MSDS)

Each contractor/subcontractor shall maintain a current file of MSDSs for hazardous substances present at their work locations. (See Section 5, Hazard Communication.) The MSDSs will be available for employee review. Upon reasonable notice, employees may receive a copy of the MSDS for the particular substances that they use.

IX. EMPLOYEE NOTIFICATION AND EDUCATION

The following methods will be used to notify and educate employees as to the location and/or work operations which involve hazardous substances.
a. **Safety Orientation** - A portion of the orientation program will be used to notify employees of the presence of known hazardous substances.

b. **Safety Meetings** - Safety Meetings will be used to re-emphasize the precautions associated with hazardous substances.

c. **Specific Hazardous Substance Training** - All employees whose work involves the use of hazardous substances shall receive specific training by the contractor/subcontractor. Training will address the degree of hazard, precautions to be taken, and personal protective equipment required. Employees will not be allowed to work with hazardous substances until they receive training. MSDSs will be used for all training.

d. **Hazard Substance Inventory List** - This list will be posted for employees’ review. Employees will be encouraged to report any unfamiliar substances for investigation and possible incorporation to the Hazardous Substance Inventory List.

e. **Hazardous Non-Routine Tasks** - Periodically, employees may be required to perform non-routine tasks which may pose a potential hazard. Prior to beginning work on such operations, each affected employee will be given further information by their supervisor regarding the hazardous chemicals to which they may be exposed during such activities. This information will include as a minimum:

   - Specific chemical hazards
   - Protective/Safety measures the employee must take
   - Measures the contractor/subcontractor has taken to lessen the hazards including ventilation, respirators, presence of another employee, and/or emergency procedures.

X. **DOCUMENTATION**

Detailed hazardous substance training records, including name, date, job title, and description of the subjects covered, shall be maintained by the contractor/subcontractor.
"RIGHT TO KNOW"

POLICY STATEMENT
RIGHT TO KNOW

It is our policy to comply with the applicable hazard communication laws. The law provides that employees who work with hazardous substances be made fully aware of these hazards and that the safety/health procedures be effectively communicated.

As part of this effort, we have a written hazard communication program for PVUSA. This program is intended to help you understand the hazardous substances that you may work with and the precautions necessary for your well-being and the well-being of others. It is in addition to the HAZCOM Program your employer is required by law to have. There are five (5) components to this program:

- A written hazard communication program
- Warning labels on containers
- Hazardous materials list
- Material Safety Data Sheets (MSDS/Osha Form 20)
- Employee information and training

As with all safety and health programs, this will require everyone’s cooperation and assistance to make it a successful endeavor. For your information, copies of the Hazard Communication Program, Hazardous Substance List and Material Safety Data Sheets (MSDS) are available for your review. Your questions or comments concerning this matter should be brought to the attention of your supervisor.
MSDS

LETTER TO VENDORS
SAMPLE LETTER FOR REQUESTING MATERIAL SAFETY DATA SHEETS

Date

Manufacturer/Supplier
Address

Attention: MSDS Request

Dear (as required):

The OSHA Hazard Communication Standard 29CFR 1910.1200 and equivalent CALOSHA standard, Title 8 CCR 5194, require employers to have in their possession the most up-to-date Material Safety Data Sheets relevant to all hazardous substances in use in their workplaces. Additionally, the standards require manufacturers of hazardous substances to prepare and provide MSDSs to their purchasers, either directly or through their suppliers.

Accordingly, we are updating our MSDS files, OSHA Form 20, on hazardous products which we purchase from your company. We request your assistance in providing current health and safety information on these products.

Enclosed is a listing of products which we are currently purchasing or have purchased from your company. Will you please provide your current MSDS on each of the substances listed or a statement that the substance is exempt from these regulations and why? Will you also please certify that your MSDSs meet the OSHA requirements?

A timely reply will be very much appreciated.

Sincerely,

Your Name
Title

Enclosure
HAZARDOUS SUBSTANCE LIST

(SEE MSDS BINDER ON SITE)
EMPLOYEE TRAINING

TOOL BOX SAFETY MEETING TOPIC
HAZARDOUS SUBSTANCES

Modern life would be impossible without chemicals. Plastics, drugs, and fibers are just a few of the things that use chemicals in their production. But chemicals have to be treated with respect, too. Many can cause injury or illness if not treated properly.

What makes a substance hazardous? Simply put, it can be considered hazardous if it can cause harm to people or the environment. It can be:

1. Corrosive - burns the skin or eyes on contact.
2. Explosive.
3. Flammable - catches fire easily.
4. Reactive - burns, explodes, or releases toxic vapors if exposed to other chemicals, heat, air, or water.
5. Toxic - cause illness or possibly death.

To avoid problems, be prepared! Before using any substance, always read the label on the container first. The label usually tells you:

1. What's in the container
2. What the hazard could be (health, fire, etc.)
3. Special Instructions
4. How to protect yourself
5. Basic First Aid

Although reading the label is a good starting point, the label does not have room for everything you should know about a substance. There is another source available with more detailed information, the Material Safety Data Sheet (MSDS). The MSDS tells you:

1. What the chemical is - name, manufacturer, physical and chemical properties.
2. Why it is hazardous - physical risks like fire, health risks, ways you can be exposed (skin, inhaling, etc.).
3. How to work with it safely - protective equipment, proper handling and storage, emergency and first aid procedures.

It's up to you! Hazardous substances don't have to be dangerous, if you handle them with respect. Remember, these general rules when working with hazardous substances:

1. Know what you are working with.
2. Understand and respect the risks.
3. Use specified personal protective equipment.
4. Protect yourself and your co-workers.
5. Don't be afraid to ask questions.

The Hazardous Substance List and Material Safety Data Sheets are maintained by your Safety Representative and are available for your review.
HAZARD COMMUNICATION

CHECKLISTS
HAZARD COMMUNICATION CHECKLIST

1. Has a list been prepared of all hazardous chemicals in the work place?
2. Is the company prepared to update the hazardous chemical list?
3. Has the company obtained a Material Safety Data Sheet for each hazardous chemical we use?
4. Has a system been developed to ensure that all incoming hazardous chemicals are checked for proper labels and data sheets?
5. Are procedures in place to ensure labeling and warning signs for containers that hold hazardous chemicals?
6. Are employees aware of the specific information and training requirements of the Hazard Communication Standard?
7. Are employees familiar with the different types of chemicals and hazards associated with them?
8. Have employees been informed of the hazards associated with performing non-routine tasks?
9. Do employees understand how to detect the presence or release of hazardous chemicals in the work place?
10. Are employees trained about proper work practices and personal protective equipment in relation to the hazardous chemicals in their work area?
11. Does the training program provide information on appropriate first aid, emergency procedures, and the likely symptoms of overexposure?
12. Does the training program include an explanation of labels and warnings that are used in each work area?
13. Does the training describe where to obtain data sheets and how employees may use them?
14. Is a system in place to ensure that new employees are trained before beginning work?
15. Is a system in place to identify new hazardous chemicals before they are introduced into a work area?
16. Is a system in place to inform employees of new hazards associated with a chemical?
HAZARDOUS COMMUNICATION ORIENTATION TRAINING

Hazards in the Workplace: Your Right to Know

BECHTEL

Please complete and return to your supervisor

Job Number: ________________________ Date: ________________________

I acknowledge the receipt of this booklet and have read and comprehend the contents. In addition, I understand the elements of the Hazard Communication Program and my rights and responsibilities.

Please Print:

Last Name: ________________________ First: ________________________ Middle: ________________________

Sec. Sec. No: ________________________ Employee No: ________________________

Signed: ________________________

WE BELIEVE IN Safety
Appendix D

CONTRACTOR/SUBCONTRACTOR SAFETY PROGRAMS
CONTRACTOR/SUBCONTRACTOR SAFETY PROGRAMS

1.0 CONTRACTOR/SUBCONTRACTOR SAFETY PROGRAM

Each contractor/subcontractor shall prepare and submit to Bechtel for review their written project safety and health program fully describing their commitments for meeting safety and health obligations, complying with California Injury and Illness Prevention Program requirements and generally contributing to safety at the project. The contractor/subcontractor's safety and health program shall reference federal/state OSHA standards and any other rules, regulations, or standards applicable to construction activities in the state. Contractor/subcontractor shall also complete and submit along with their program, the form titled "WRITTEN INJURY AND ILLNESS PREVENTION PROGRAM" included at the end of this section.

2.0 RESPONSIBILITIES

The safety and health requirements prescribed herein are not intended to relieve the contractor/subcontractor of its contractual obligations to provide a viable accident prevention program for its employees. All contractors/subcontractors shall establish, maintain, and enforce safe practices and implement an accident prevention program, intended to ensure safe and healthful operations at the project.

The contractor/subcontractor is responsible for ensuring that its lower-tier subcontractors are aware of and will comply with the requirements set forth herein.

The contractor/subcontractor is solely responsible for maintaining safe operations. Neither PG&E nor Bechtel are directly or indirectly responsible for ensuring that a contractor/subcontractor performs its work in a safe manner.

3.0 REQUIREMENTS

Contractor/subcontractor safety and health programs shall include, but are not limited to, the following:

3.1 SAFETY AND HEALTH ORIENTATION

Each new or reassigned employee shall receive a thorough safety and health orientation, which gives the employee the basic information about the contractor/subcontractor safety program, federal OSHA and other applicable safety rules and regulations. If necessary, the contractor/subcontractor shall provide additional safety instructions at a later date for the performance of hazardous or unfamiliar tasks. Employee attendance shall be required and appropriate records shall be maintained on file in contractor/subcontractor's office.

The contractor/subcontractor's safety orientation shall include, but is not be limited to, the following topics:

- Employer/employee responsibilities under the federal/state Occupational Safety and Health Act (OSHA/CAL/OSHA).
- Hand protection
- Eye protection (mandatory).
- Head protection (hard hats).
- Hearing protection (mandatory where designated).
o Respiratory protection (where required).
o Safety belts and lifelines.
o Scaffolding.
o Perimeter guarding.
o Housekeeping.
o Fire protection.
o Injury/illness reporting.
o Hazard Communication (Right To Know).
o Emergency procedures.
o Evacuation.
o Client requirements and procedures.
o Suitable work clothing.
o Trenching and excavations
o Material handling, rigging procedures and crane safety.
o Electrical safety.

3.2 SUPERVISOR’S SAFETY ORIENTATION

Contractor/subcontractors shall familiarize their supervisory personnel with the contractor/subcontractor's safety and health responsibilities by conducting a safety and health orientation with each supervisor upon promotion or assignment. Each orientation must cover, as a minimum, all the subjects outlined below. Orientation records shall be maintained on file in contractor/subcontractor’s office.

- **Safety Program**
  Contractor/subcontractor shall review its safety and health program in detail with each supervisor.

- **Safe Work Areas**
  Contractor/subcontractor shall require each of its supervisors to be familiar with the conditions in each area of the project to which employees of the supervisor’s crew or group are assigned. The contractor/subcontractor shall direct its supervisors to correct, when possible, unsafe conditions that exist in the work area before work begins. Otherwise, the problem shall be brought to the attention of the next higher level of supervision for resolution.

- **Safe Work Practices**
  Contractor/subcontractor shall require each supervisor, when making work assignments, to inform the crew or group involved of the safe practices, work methods, and personal protective equipment required. Each supervisor shall be responsible for determining that workers have and use the proper personal protective equipment and tools for the work assignment.

- **Supervising for Safety**
  Contractor/subcontractor shall require their supervisors to constantly review the safe practices and procedures used by their crews, and initiate corrective action when necessary.
SAFETY AND HEALTH ACTION PLAN

o Tool Box Meetings

Contractor/subcontractor shall require each supervisor to conduct a Tool Box Safety Meeting with their crew or group, on a weekly basis, using subject material provided by the contractor/subcontractor.

o Supervisor’s Safety Meetings

Contractor/subcontractor shall conduct supervisor’s safety meetings on a monthly basis. Topics discussed at these meetings must be chosen to assist each supervisor in supervising for safety. Attendance at these meetings shall be mandatory and attendance records shall be maintained on file in contractor/subcontractor’s office.

o Emergency Procedures

Contractor/subcontractor shall familiarize all supervisors with the emergency procedures developed for the project, so they may provide the leadership required to cope with serious injuries, fires, evacuations, and similar situations.

o Accident Investigations

Contractor/subcontractor shall require each supervisor to participate actively in the investigation of any accident which results in: (a) personal injury to a member of that supervisor’s crew or group, (b) equipment or property damage in that supervisor’s area of responsibility, or (c) near misses that had a potential for serious injury or death.

o First Aid

Contractor/subcontractors shall require each supervisor to notify all employees of their obligation to immediately report all injuries, however minor, in accordance with the contractor/subcontractor’s procedures. Contractor/subcontractor shall assure a person adequately trained to render first aid is present on site at all times.

o Fire Protection and Prevention

Contractor/subcontractors shall require their supervisors to maintain a constant awareness of the fire potential in their area of responsibility. If a potential fire hazard is noted, the supervisor must initiate corrective action.

3.3 WEEKLY TOOL BOX MEETINGS

Contractor/subcontractors shall conduct weekly tool box safety meetings, to provide their employees with up-to-date safety and health information. Employee attendance shall be mandatory and attendance records shall be maintained on file in contractor/subcontractor’s office.

3.4 DESIGNATED SAFETY REPRESENTATIVE

Contractor/subcontractor shall designate in writing a qualified safety representative, who shall be a non-manual employee with authority to correct safety and health problems, and who shall possess all certifications required by the nature of the work and/or by regulation.

3.5 SAFETY INSPECTIONS

Contractor/subcontractors shall conduct periodic safety inspections of their work areas and operations. During these inspections, the contractor/subcontractor’s safety representative shall identify and correct safety discrepancies. Contractor/subcontractors shall participate in general safety inspections conducted by PG&E and/or Bechtel.
SAFETY AND HEALTH ACTION PLAN

3.6 OSHA/CALOSHA INSPECTIONS

Contractor/subcontractors are not permitted to refuse access or to require the OSHA/CALOSHA Compliance Officer to obtain a search warrant. Contractor/subcontractors shall forward to Bechtel copies of any and all inspection reports and/or citations received from OSHA/CALOSHA.

3.7 FIRST AID

Contractor/subcontractors shall provide first aid and medical services for their employees as required by federal, state, and local requirements.

3.8 INCIDENT REPORTING

Contractor/subcontractors shall cooperate with the Client and/or Bechtel in investigating any accident or incident. Additionally, the contractor/subcontractor shall immediately investigate and submit to Bechtel written reports of any accident wherein disabling injuries or fatalities occur, or which results in property damage or fire loss in excess of five hundred dollars. These reports shall be submitted to Bechtel within twenty-four hours of occurrence.

3.9 RECORDKEEPING

Contractor/subcontractors shall maintain all records required by federal and state agencies which pertain to work-related injuries or illness, and by the PVUSA Safety and Health Action Plan. The contractor/subcontractor shall complete workers compensation forms as required. A copy of each workers' compensation form shall be provided to Bechtel. (NOTE: BY REGULATION, MEDICAL/MONITORING/EXPOSURE RECORDS MUST BE RETAINED FOR LENGTH OF EMPLOYMENT PLUS 30 YEARS.)

3.10 OCCUPATIONAL HEALTH

Contractor/subcontractors shall take all reasonable steps and precautions to protect the health of their employees and other project personnel. Contractor/subcontractors shall conduct occupational health monitoring and/or sampling as required to determine the levels of exposure of its employees to hazardous or toxic substances or environmental conditions. Copies of any sampling results will be provided to Bechtel.

- **Hazard Communication**

  Contractor/subcontractor shall develop and implement a hazard communication program which complies with federal, state, and local requirements. Material Safety Data Sheets will be maintained for each substance used/stored on the project.

- **Hazardous Waste**

  Contractor/subcontractors shall develop a plan to properly handle and dispose of all hazardous wastes they generate. Such plans shall comply with Environmental Protection Agency, state, Client, and local requirements.

- **Confined Spaces**

  Contractor/subcontractors shall develop and implement a confined space entry procedure as required. Such procedure shall comply with OSHA and Client requirements.

- **Respiratory Protection**

  Contractor/subcontractors shall develop and implement a respiratory protection program which complies with OSHA and Client requirements.
o Hearing Protection

Contractor/subcontractors shall monitor their work areas, post signs, and issue hearing protection to employees as required.

3.11 FIRE PROTECTION AND PREVENTION

o Fire Extinguishers

Contractor/subcontractors shall provide fire extinguishers and equipment, adequate for potential hazards that may be encountered during their operations and shall instruct employees in the proper use of such equipment.

o Materials

Contractor/subcontractors shall insure that the material it proposes to use on the project conforms to contract requirements, insofar as flame-resistant or fireproof characteristics are concerned. Specific materials in this category include fuels, solvents and coatings, plastic covering materials, construction lumber, scaffold planks, paper, boxes, and crating materials.

3.12 TAG AND LOCK OUT

When applicable, Contractor/subcontractors shall comply with PG&E and/or Bechtel Tag/Lock Out Procedures. Adequate notice shall be given to obtain tags/locks from the Site Manager.

3.13 CRANE AND MATERIAL HANDLING

Contractor/subcontractors shall comply with rules, regulations, and standards associated with crane safety and material handling. Contractor/subcontractors shall not bring equipment or machinery intended for material or personnel handling on-site without having written proof of a current inspection. Contractor/subcontractors shall renew any inspection report prior to expiration. Failure to maintain current inspection reports may result in shutdown of the equipment.

3.14 RADIOGRAPHY

Contractor/subcontractors, if involved in radiography, shall implement safe operating procedures for radiological activities as required by applicable regulations and standards.

3.15 NONCOMPLIANCE WITH SAFETY, HEALTH, OR FIRE REQUIREMENTS

Bechtel and PG&E will monitor the safety performance of contractor/subcontractors working on the project. All contractor/subcontractors shall be required to comply with their safety obligations as established in the subcontract. Noncompliance with safety, health, or fire requirements may result in cessation of work operations until items (persons) in noncompliance are corrected.

o Employee Sanctions

Contractor/subcontractors shall advise its employees that any employee who jeopardizes his or her health and safety, or the health and safety of others, will be subject to disciplinary action, including immediate removal from the project.
3.16 **GENERAL SAFETY REQUIREMENTS**

- **Barricades**
  
  Contractor/subcontractors shall erect and maintain all barricades required to protect personnel from their work operations.

- **Safety Signs**
  
  Contractor/subcontractors shall post any signs or posters that may be needed to advise employees of unsafe areas or conditions.

- **Scaffolds**
  
  Contractor/subcontractors shall erect all scaffolds in conformance with OSHA standards.

- **Floor and Roof Openings**
  
  Contractor/subcontractors shall barricade or cover all floor and roof openings to protect employees from falls.
SAFETY AND HEALTH ACTION PLAN

WRITTEN INJURY AND ILLNESS PREVENTION PROGRAM FORM

Completion of this form indicates that it is the policy of the employer to fully comply with California Labor Code 6401.7 (SB 198) and General Industry Safety Order 3203, Injury and Illness Prevention Program.

I. EMPLOYER INFORMATION

Organization Name: ____________________________________________________________
Address: _________________________________________________________________
City: ____________________ State: ___________ Zip Code: _______________
Telephone Number: _____________________________

Type of Business: __________________________________________________________

Main Activities: _____________________________________________________________

II. PERSON(S) WITH AUTHORITY AND RESPONSIBILITY FOR IMPLEMENTING
THIS EMPLOYER'S INJURY AND ILLNESS PREVENTION PROGRAM:

Name/Title _______________________________________________________________

Description of Authority and Responsibility: Implementation of injury and illness prevention program, employee training, inspections, injury and illness investigations.

Name/Title _______________________________________________________________

Description of Authority and Responsibility: General authority and supervision of injury and illness prevention program; allocates necessary resources, assures hazards are abated in a timely manner.

III (A). THIS EMPLOYER'S SYSTEM FOR IDENTIFYING, EVALUATING AND PREVENTING
OCCUPATIONAL SAFETY AND HEALTH HAZARDS INCLUDES THE FOLLOWING:

- Review of applicable General Industry Safety orders and other Safety Orders that apply to the operation.
- Review of industry and general information (including Material Safety Data Sheets for chemicals used) on potential occupational safety and health hazards.
- Investigation of all accidents, injuries, illnesses, and unusual events that have occurred at this location (PVUSA).
- Periodic and scheduled inspections of general work areas and specific work stations.
- Evaluation of information provided by employees.

Or
- An effective alternative method as described below or attached to this program.
III (B). HAZARD EVALUATIONS HAVE BEEN CONDUCTED FOR THE FOLLOWING GENERAL AND SPECIFIC WORK OPERATIONS (JOB SAFETY CLASS):

(1) Name 
Description of General Area 
Job Safety Class 

(2) Name 
Description of General Area 
Job Safety Class 

(3) Name 
Description of General Area 
Job Safety Class 

(4) Name 
Description of General Area 
Job Safety Class 

(5) Name 
Description of General Area 
Job Safety Class 

III (C). THE OCCUPATIONAL SAFETY AND HEALTH HAZARDS IDENTIFIED ARE DOCUMENTED IN THE FOLLOWING MANNER:

- Hazard evaluation form for general work area and specific job safety classes are maintained in the employer’s office.

Or

- Other documentation 

Maintained at the following location 

III (D). SAFE WORKING CONDITIONS, WORK PRACTICES AND PROTECTIVE EQUIPMENT REQUIREMENTS ARE DOCUMENTED AND COMMUNICATED IN THE FOLLOWING MANNER:

- Codes of Safe Practices have been developed for general and/or specific job safety classes or work stations and are maintained at the employer’s office.

Or

- Other documentation
IV. INSPECTIONS ARE CONDUCTED TO VERIFY COMPLIANCE WITH CODES OF SAFE PRACTICES AND OTHER SAFETY REQUIREMENTS, TO IDENTIFY ANY ADDITIONAL HAZARDS AND TO INVESTIGATE ACCIDENTS, INJURY AND ILLNESS CASES AND UNUSUAL OCCURRENCES:

Frequency and Responsibility for Inspections:

(1) Area/Job Safety Class ________________________________

Frequency of Scheduled Inspections __________________________

Person(s) Responsible ________________________________

(2) Area/Job Safety Class ________________________________

Frequency of Scheduled Inspections __________________________

Person(s) Responsible ________________________________

(3) Area/Job Safety Class ________________________________

Frequency of Scheduled Inspections __________________________

Person(s) Responsible ________________________________

(4) Area/Job Safety Class ________________________________

Frequency of Scheduled Inspections __________________________

Person(s) Responsible ________________________________

(5) Area/Job Safety Class ________________________________

Frequency of Scheduled Inspections __________________________

Person(s) Responsible ________________________________

(6) Area/Job Safety Class ________________________________

Frequency of Scheduled Inspections __________________________

Person(s) Responsible ________________________________

Documentation of Inspections

- Periodic scheduled inspections are documented on an Inspection Checklist and Correction Form, which includes methods of correction of hazards identified, and are maintained in the employer's office.

Or

- Other forms of documentation (describe) __________________________
SAFETY AND HEALTH ACTION PLAN

Accident and Injury/Illness Investigation

- Inspections (investigations) are conducted as soon as possible after an accident, occupational injury or illness, or hazardous unusual occurrence is reported. These investigations are documented on a Incident Investigation Form. These forms are maintained in the employer's office.

Or

- The employer uses an alternative method of injury or illness investigation (describe)

V. EMPLOYEE SAFETY TRAINING IS PROVIDED INITIALLY OR IN THE FOLLOWING CIRCUMSTANCES:

- Initial training for all current employees upon transfer to this site
- New employees are provided initial training upon hiring, prior to assignment.
- Employees are provided training when assigned to a new task for which training has not been received.
- Supervisors are trained on hazards and safe practices in their area of responsibility.
- Training includes general area safety and specific assignment or job safety class training, and the potential occupational safety and health hazards and the Code of Safe Practice for the area.
- Documentation of training is maintained on initial orientation training form and/or group training sessions. This documentation is maintained in the employer's office.
- Refresher training is provided annually.

Or

- Equally effective alternative training has been provided in the manner described below or on the attached page

VI. EFFECTIVE COMMUNICATIONS WITH EMPLOYEES HAVE BEEN ESTABLISHED WHICH INCLUDE THE FOLLOWING METHODS TO MEET THE STANDARD'S REQUIREMENTS:

- Communication of safe working conditions, work practices, and required personal protection equipment is included in initial and all subsequent training.
- Other forms of employer-to-employee communications on safety topics include (specify posters, letter, meeting, etc.)
- Employees have been advised by the following methods and training that safe work conditions, safe work practices, and required personal protective equipment are mandatory and will be enforced by the following:
  - Recognition for compliance/good safety record awards program.
  - Discipline for non-compliance, including reprimand, suspension, termination.
This employer's method to solicit safety-related information from employees includes: reports to supervisors and by submitting safety suggestions anonymously to the Site Construction Manager. A Safety Suggestion Form has been made available for this purpose.

Employees have been advised there will be no reprisals or other job discrimination for expressing any concern, comment, suggestion, or complaint about a safety-related matter.

Alternatively, this employer has established a labor-management safety committee which complies with the requirements of 8 CCR 3202 (c).

VII. RECORDKEEPING REQUIREMENTS OF 8 CCR 3203(D) WILL BE ADHERED TO, INCLUDING:

- Maintenance of all written records for three years, except:
  - Maintenance of training records for employees who have worked less than one year may be terminated, if the former employer receives a copy of such record.

VIII. REVIEW AND APPROVAL:

This Injury and Illness Prevention Program is hereby approved.

Signature (Employer Official) Date

Title

Responsible Person(s): Signature indicates that a copy of the program has been provided and responsibility to implement the program is understood.

Signature Date

Title

Signature Date

Title

Signature Date

Title
Appendix E

CONFINED SPACE ENTRY
Program Element “E”
CONFINED SPACE ENTRY PROCEDURE

1.0 PURPOSE

The purpose of this procedure is to provide guidance in implementing and administering an effective Confined Space Entry Procedure.

2.0 SCOPE

This procedure applies to all personnel assigned to work (enter) in confined spaces at PVUSA. This procedure also applies to contractor/subcontractors or vendors who may perform work (enter) in confined spaces at the Project.

3.0 DEFINITION

A confined or enclosed space is any space with a limited means of egress, and/or which can accumulate toxic or flammable contaminants or which may have oxygen-deficient atmosphere. Confined or enclosed spaces include caissons, storage tanks, process vessels, bins, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, tunnels, pipelines, and open top spaces that are more than 4 feet in depth, such as pits, tubes, vessel vaults, and sumps.

4.0 TRAINING

Employees required to enter a confined space shall be instructed by their supervisor as to the nature of the hazards involved, necessary safety precautions to be taken, and the emergency/protective equipment required prior to entry. Employees should also know the hazards involved and allowable limits (minimum and maximum).

5.0 PERSONAL PROTECTIVE EQUIPMENT

Necessary rescue and work equipment including life lines, harnesses, belts, stretchers, mobile cranes or hoists should be available at all times. Appropriate protective clothing will be worn by employees exposed to chemical or physical hazards. Respiratory protection such as a self-contained breathing apparatus, 5 minute air capsules, or air-line respirators should be provided when required.

6.0 ENTRY INTO A CONFINED SPACE

Employees required to enter a confined space shall obtain a confined space entry permit from the Site Manager before doing so.

7.0 EMERGENCY LIGHTING

Emergency lighting should be provided at all entrances and exits. When this is not practical, flashlights shall be provided. Explosion-proof lighting shall be used when employees are working in a potentially explosive atmosphere. Low-voltage lighting shall be provided for damp environments.
8.0 **ENVIRONMENTAL TESTING**

a. The confined space atmosphere will be tested by a qualified person employed by the contractor/subcontractor to ensure that explosive or toxic limits are not exceeded, and that the oxygen concentration is not below 19.5 percent. This atmospheric monitoring should be done within one hour before employees enter the area, unless a permanent monitor is installed, in which case the area should be monitored once per shift.

b. During inert gas welding or other work that could create an oxygen deficient atmosphere, portable or fixed oxygen analyzers with visual and audible alarms shall be provided in the confined space.

c. The following precautions should be taken by the responsible supervisor for any confined space suspected of being oxygen deficient, or exceeding toxic or explosion limits.

   o Station someone at the entry to stop others from entering the area.
   o Promptly report the danger to the responsible Superintendent and Site Manager.
   o Post appropriate warnings: "Area Unsafe - Do Not Enter."
   o Ventilate or exhaust with fresh air for 30 minutes.
   o Recheck atmosphere before entry.
   o Determine and eliminate the problem, if possible.

d. The supervisor in charge of the operation is responsible for assuring proper ventilation and exhaust is provided for environments that fail entry tests. A qualified person shall make appropriate tests and advise the supervisor in charge when the breathing air meets requirements and the confined space is safe for entry.

e. In areas where ventilation and/or exhaust fails to eliminate the cause of entry test’s failure, personnel required to enter the environment will wear appropriate self-contained breathing apparatus and other protective equipment as required.

9.0 **RECORDKEEPING REQUIREMENTS**

A confined space entry permit shall be prepared and signed by the person in charge before anyone enters the confined space. The permit will consist of a checklist that includes exits, emergency lighting, toxic gases, flammable gases, oxygen monitors, fire protection, breathing apparatus, and emergency equipment. A copy of the permit (or tag) shall be posted at the primary entry point to the confined space.

10.0 **TRAINING**

This topic will be addressed in safety orientation and by the contractor/subcontractor prior to entering unusual confined spaces. Records of all confined space training shall be maintained in project files on site.
11.0 FIRE PROTECTION

The following precautions should be considered and taken prior to entry into confined or enclosed spaces:

1. Flammable liquids (e.g., acetone, alcohol) shall be stored in Underwriters Laboratory or Factory Mutual approved flammable liquid containers or dispensers. Only the amount necessary to perform the work each day will be allowed.

2. Proper and adequate fire extinguishers shall be immediately available.

3. Cylinders containing oxygen, acetylene, or other fuel gases shall not be taken into confined or enclosed spaces.

4. All rags, brushes, wipes, gloves, etc., should be stored in metal containers with lids when not in use.

5. A person shall be posted to monitor for fires during all welding, burning, and heating operations.

6. Combustibles that could be exposed to flames or sparks should be removed or adequately covered to prevent ignition.

7. The gas supply to the torch valves shall be shut off whenever the torch is not in use, such as during the lunch period. During a shift change, the torch and hose should be removed from the confined space and discontinued at the gauges or manifold. Open end fuel gas and oxygen hoses should be immediately removed when they are disconnected from the torch or other gas-consuming device. All gas isolation valves should be closed at the end of each shift or when the job is completed. Flammable gas equipment (hoses, etc.) shall be free of defects and must be inspected before each use.

12.0 COMMUNICATIONS

Communications will be maintained with all personnel in enclosed or confined spaces, using one or more of the following methods:

1. Someone outside the confined space who can see the workers.

2. Someone outside the confined space who can hear the workers.

3. Telephone - via hard wire.

4. Two-way radio.
Appendix F

EQUIPMENT INSPECTION PROGRAM
Program Element "F"
EQUIPMENT INSPECTION PROGRAM

I. SCOPE

a. The program described in this section includes inspection, maintenance, operations, and recordkeeping for all material handling equipment.

II. INSPECTION PROCEDURES

a. The safety and reliability of equipment cannot be ensured unless it is regularly inspected, tested, and maintained. Regular and thorough inspections are particularly important, because they provide the only means of detecting potential hazards. They also point out necessary maintenance which avoids serious deterioration of the equipment and expensive replacement or repair charges.

b. All equipment inspections should be performed by or under the immediate supervision of trained inspectors. They must have enough training to detect and assess the seriousness of defects and potential hazards. They must also keep comprehensive records of all inspections conducted.

c. The contractor/subcontractor will be responsible for ensuring that all material handling equipment is given thorough, frequent, and periodic inspections in accordance with the manufacturer's recommendations and all other applicable governing standards. The manufacturer cannot recommend exact time intervals for inspections because the operating conditions vary widely. (CALOSHA requires annual inspection certifications be maintained in the operator cab.) The employer must modify recommendations and enforce frequent inspections if the operating situation is abnormal. Consideration must be given to the type of operation, condition of the machine, and adverse weather or any other changing environmental conditions.

III. INTERVALS OF INSPECTION

a. Before initial use, all new and altered equipment that is owned, rented, or leased must be inspected to ensure compliance with all applicable manufacturer's, Occupational Safety and Health Administration (OSHA/CALOSHA) standards, American National Standards Institute requirements and state/city codes (if any).

b. Equipment in regular service should be inspected frequently (daily) and periodically (monthly). During a frequent inspection, the following should be inspected (this includes observation during operation for any defects which may appear between regular inspections):

1. All control mechanisms for maladjustment that interfere with proper operation (daily).
2. All control mechanisms for excessive wear of components and contamination by lubricants or other foreign matters.
3. All safety devices for any malfunction.
4. Deterioration or leakage in air or hydraulic systems (daily).
5. Electrical apparatus for malfunctions, signs of excessive deterioration, dirt, and moisture accumulation.

Any deficiencies should be carefully examined to see if they constitute safety hazards. The OSHA Crane & Derrick Inspection Report should be used to document monthly inspections.
c. During a periodic inspection, the following items should be checked:

1. Deformed, cracked, or corroded members in the crane structure.
2. Loose bolts or rivets.
3. Worn, cracked, or distorted parts, such as pins, bearings, shafts, gears, rollers, and locking devices.
4. Load and other indicators over their full range for any significant inaccuracies.
5. Gasoline, diesel, electric, or other power plants for improper performance or noncompliance with safety requirements.
6. Travel steering, breaking, and locking devices for malfunction.
7. Excessive worn or damaged wheels.

Any deficiencies should be examined to see if they constitute a safety hazard. The Annual Inspection Report and Wire Rope Inspection Reports forms should be used to document periodic inspections of cranes.

d. Equipment which has been idle for one month or more, but less than six months, should be given a frequent inspection before being placed into service.

e. Equipment which has been idle for a period of over six months should be given a thorough inspection before being placed into service.

f. Standby cranes should be inspected at least semi-annually. Equipment which is exposed to adverse environments should be inspected more frequently.

IV. INSPECTION RECORDS

Written, dated, and signed inspection reports and records should be made daily, monthly, or yearly as required by the manufacturer. The inspection report forms (samples) contained in this section should be used for documentation purposes, unless manufacturer/vendor forms are provided which meet or exceed the inspection requirements. These records shall maintained by the contractor/subcontractor on site.
Appendix G

SAFE CLEARANCE PROCEDURE (TAGOUT)
Program Element “G”
SAFE CLEARANCE PROCEDURE
(TAG-OUT)

1.0 Introduction

Protective tags and padlocks will be used as necessary on equipment to protect personnel working on or near equipment. Tags used other than to protect personnel from potential hazardous conditions (information, etc.) are not to be considered protective tags and will not resemble protective tags in color or markings or be part of this procedure.

2.0 Purpose

This procedure defines the specific requirements for providing protection to personnel performing work activities on equipment and systems at PVUSA and includes the following:

- Administrative control of protective tags.
- Protective clearance for personnel, contractor and vendors.

3.0 Scope

This procedure applies to all personnel working on plant equipment/systems. It is to be used in conjunction with the project Safety & Health Action Plan and Injury and Illness Prevention Program.

This procedure does not apply to personnel safety protection (i.e., safety glasses, hard hats, confined atmosphere sampling, etc.). These requirements are addressed and controlled by the Safety & Health Action Plan.

4.0 Responsibilities

4.1 SITE MANAGER

The Site Manager, or his authorized representative:

- Identifies and trains personnel who are authorized to act as tagging authorities
- Ensures that all site/staff personnel are adequately instructed in the requirements of this procedure
- Is the Supervisor of Operations and responsible for authorizing, issuing, and coordinating all site clearances
- Controls and maintains accountability of tags and authorizes their use for system isolation
- Requests clearances from Vaca-Dixon PG&E, if required (specific to PVUSA Davis)
- Controls and reviews the switching log, provides copy to contractor/subcontractor
- Performs clearance walkdown with initiators
4.2 CONTRACTOR/SUBCONTRACTOR MANAGER

The contractor/subcontractor Manager or an authorized representative:

a. Requests/initiates the safe clearance procedure

b. Exercises control over employees to ensure that they comply with the safe clearance procedure when working on equipment/systems

c. Maintains accountability of tags under the protection of which it operates

d. Requests, in conjunction with Site Manager, the removal of tags and locks from systems if tag stubs are lost

e. Walks down all clearances with the Site Manager prior to start of work

f. Receives a copy of the switching log for all clearances requested

g. Trains all of its employees on the use of tags and the Project Tagout Procedure
### Switching Log

<table>
<thead>
<tr>
<th>(1) SWITCHING LOG NUMBER</th>
<th>(2) Sheet Number</th>
<th>(3) SWITCHING CENTER</th>
<th>PVUSA</th>
<th>(4) Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

<table>
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</thead>
<tbody>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>(6) Operation No.</th>
<th>(7) Location</th>
<th>(8) Operation</th>
<th>(9) Apparatus Number</th>
<th>(10) Instructions</th>
<th>GIVEN FOR EXECUTION TO</th>
<th>REPORTED EXECUTED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TIME</td>
<td>PERSON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TIME</td>
<td>PERSON</td>
</tr>
</tbody>
</table>

Figure 1. Switching Log

SWITCHING PREPARED BY: ____________________ DATE: ____________

SWITCHING CHECKED BY: ____________________ DATE: ____________

SWITCHING DIRECTED BY: ____________________ DATE: ____________
4.3 **Tag Issuing Authority**

The tag issuing authority is responsible for:

a. Making or receiving requests for tagging (Figure 2)

b. Processing requests and coordinating the tagging activities

c. Making appropriate log entries for the requests

d. Assuring that system status and configuration are appropriate

e. Hanging tags

f. Removing tags when work is completed

g. Returning systems to appropriate status or configuration

h. Making appropriate log entries to release clearances

i. Coordination with PG&E Vaca-Dixon (specific to PVUSA Davis)

4.4 **Requester**

The requester is the individual requesting protection, or clearance, to allow the execution of an activity on a component or system. The requester is responsible for:

a. Defining the work or testing to be performed

b. Recommending the equipment and electrical circuits to be tagged

c. Upon issuance of the tag-out approval by the tag issuing authority, ensuring that the isolation boundaries are satisfactorily established for the work or testing to be performed

d. When the work has been completed, promptly notifying the tag issuing authority that the work is complete, to permit the tag to be removed.
## SAFETY AND HEALTH ACTION PLAN

Pacific Gas and Electric Company
Application

<table>
<thead>
<tr>
<th>Electric Operations</th>
<th>Clearance</th>
<th>Relay Work</th>
<th>Hot wash</th>
<th>Nontest</th>
<th>Dead wash</th>
<th>Auto test</th>
<th>Load transfer Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requested by:</td>
<td>Received by:</td>
<td>Date</td>
<td>Notified</td>
<td>Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date(s) Required:</td>
<td>Times to Times</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line or Apparatus:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 5) Clearance Limits:

| 6) Purpose: |
| Location: |

### 8) Additional Equipment/Clearance required:

| 9) Special setups required: |
| Log no. |

### 10) Phasing/Rotation required: Location:

### 11) Emergency Restoration Time: Weather code 1 2 3

| 12) Job No. | Acc# | Sub Acc# | Fac. ID# | Map |
| Customer Shut Down Time(s): to | Notified by: |

### 14) Approved Disapproved by: (Pwr Control) (Region)

| Date | Time |
| Date | Time |

### 15) Concerned Parties Notified Time Date By

### 16) Switchmen Requested Time Location By

### 17) Remarks: SEE BACK OR ADDITIONAL PAGE FOR MORE INFO OR SKETCH yes no

---

**Figure 2: Tagout Request/Application for Clearance**
5.0 Man-On-Line Tags

Man-On-Line tags (Figure 3) will have the highest priority of all system isolation tags. The rules for using these tags include the following:

a. Tags will be used to isolate systems or components when there is a potential for injury or damage.

b. Tags and supporting boundary tags will be used to identify limits of adjacent systems or components that are not included in the clearance.

c. Systems, components, or devices carrying these tags will not be operated, energized, pressurized, or otherwise disturbed.

d. When more than one discipline is working on a system, separate tags will be issued for each discipline by the tagging authority.

e. A component (valve, switch, or circuit breaker) must remain in a specific position during the work activities, and its position must be written on the tag.

Only the tagging authority may enter special instructions or information on the back of the tag. **ONLY THE TAGGING AUTHORITY MAY REMOVE LOCKS OR TAGS.**

5.1 Caution Tag

The Caution tag (Figure 4) will be used on systems or components that are undergoing testing (i.e., I.V curve testing). It may also be used when individual components are being operated by vendor or contractor personnel (e.g., bumping a motor, checking valve actuation).

The requester must ensure that all personnel working in adjacent areas are warned of any possible danger. The rules for using this tag and its supporting boundary tags will include the following:

a. No repair or maintenance work can be done on systems or components isolated with these tags.

b. The tags must not be placed on a component that has a Man-On-Line tag installed.

c. Only test personnel authorized and assigned by the requester can operate, energize, or disturb a system, component, or test device once these tags have been installed by the tagging authority.

d. The tags must remain on all items until testing has been completed and signed off. Boundaries may not be changed.

If a personnel hazard exists, a Man-On-Line tag must be used.
Figure 3. Man-On-Line tagging

INSTRUCTIONS

A Man On Line Tag must be attached to the control or operating mechanism of all switches, gates, or valves that control the supply of electricity, gas, steam, or water to the line or apparatus before men are permitted to work on such line or apparatus and must not be removed or the switch, gate, or valve operated until all men have reported clear of the line or apparatus.

If such switches, gates, or valves are not operated by a control handle or operating mechanism, the tag must be attached to an adjacent location in clear view of the position from which the switch, gate, or valve is operated.

All information on this tag must also be entered in the station log along with a complete record of the switching involved with this clearance.

Refer to Standard Practice 403-3 for further detailed instructions in the use of this tag.
CAUTION
Do Not Operate This Equipment Or Remove This Tag Except Upon Instructions

FROM ________________________________
Tag attached to __________________________
Tag attached by __________________________
Reason _________________________________
Time _________ on ________________________ 19 ______ (over)

Figure 4. Caution Tagging

INSTRUCTIONS
This tag is to be used to mark any equipment such as switches, valves, gates, machines, etc., which, for some special reason, must not be operated or changed except upon specific instructions from the station or individual entered on the tag.

This tag is not to be used in place of MAN ON LINE or NON-TEST tags where men are working on lines or equipment.

Refer to Standard Practice 403-3 for further detailed instructions in the use of this tag.
6.0 **Sequence for Tagging**

It is mandatory that the following sequence be followed from the time a request is made for tagging until the tags have been returned to the tagging issuing authority.

6.1 The requester will identify the components and boundaries of the system to be isolated and submit his/her request to the tagging authority.

6.2 The tagging authority will take the following steps:

   a. Review the request to ensure that system boundaries and components can be isolated.

   b. Determine what type of tags must be used.

   c. Coordinate contractor/subcontractor interface requirements through the Site Manager.

   d. Complete the applicable portions of the appropriate tags and tag stubs (additional information may be noted on the back of the tag as required).

   e. Place tags on designated components or systems.

   f. Turn over a copy of the switching log to the requester.

   g. Walk down the clearance with the requester.

   h. Remove tags when requested by contractor/subcontractor.

6.3 The requester will take the following steps:

   a. Ensure that all components and systems that need to be isolated are tagged correctly and that safe conditions for work or testing have been established.

   b. Sign for receipt of the switching log and walk-down (See Fig. 5).

   c. Direct the efforts of employees or test crews doing the required work or test.

   d. Request the switching authority to "go normal."

6.4 The tagging authority will take the following steps:

   a. Collect all tags to compare with switching log tagging requirements.

   b. Insert copy of switching log and receipt of clearance into site clearance control log.
Figure 5. Clearance Receipt

PVUSA CLEARANCE RECEIPT

__________________________________________ has received a copy of CLEARANCE #__________. The contractor/subcontractor acknowledges that a walkdown of the clearance boundaries has been performed in conjunction with the site manager or his designee. The contractor/subcontractor also acknowledges that they have been trained in the PVUSA procedures governing clearances, locking devices, and tagging.

CONTRACTOR/SUBCONTRACTOR

DATE

PVUSA CLEARANCE AUTHORITY
SAFETY AND HEALTH ACTION PLAN

7.0 Lost Safe Clearance Stubs/Tags

If a system must be released but the tag cannot be found, only the Site Manager or his designee can authorize removal of the clearance. First, however, the following steps must be taken:

7.1 Ensure that releasing boundaries will not endanger personnel or equipment.

7.2 Verify that it is essential to remove the clearance.

7.3 Verify that all reasonable effort has been expended to recover the tag.

7.4 Verify that the requester (or supervisor) has been notified and has acknowledged that the clearance can be released.

7.5 Note the circumstances in the log.

8.0 Placement and Location of Tags

This section explains where tags should be placed and the configuration equipment must be in before attaching Man-On-Line tags and supporting boundary tags.

8.1 Medium Voltage Equipment - 600 V to 12.47 kV

a. Manual Disconnect

   Condition: Disconnect open (visually inspected)
   Tag Location: Padlocking device

b. Motor-Operated Disconnect

   Condition: Disconnect open (visually inspected)
   Tag Location: Motor-operated disconnect circuit breaker

Note: Air circuit breakers must not be used for isolation purposes.

c. Circuit breakers

   Conditions: Tripped and racked out (elevator down-breaker disconnected)
   Fuses pulled or pulled and turned to off position.

   Tag Location: Elevator latching device
   DC control fuses
   PT fuses and service power

Note: PT fuses and service power (space heaters, fans, etc.) must be isolated only when someone is working on or close to these circuits.

8.2 Low Voltage Power Equipment - Below 600 V

a. Load Center Breakers

   Condition: Tripped and racked out
   Tag Location: Breaker locking device
b. Motor Control Center Breakers

<table>
<thead>
<tr>
<th>Condition</th>
<th>Tag Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breaker open</td>
<td>Breaker locking devices</td>
</tr>
</tbody>
</table>

c. Distribution Panel and other Molded Case Breakers

<table>
<thead>
<tr>
<th>Condition</th>
<th>Tag Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breaker open</td>
<td>Breaker operator</td>
</tr>
</tbody>
</table>

### 8.3 Control and Instrumentation

a. Circuit Breakers

<table>
<thead>
<tr>
<th>Condition</th>
<th>Tag Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open</td>
<td>Breaker operator</td>
</tr>
</tbody>
</table>

b. Fuses

<table>
<thead>
<tr>
<th>Condition</th>
<th>Tag Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulled or pulled and turned to off position</td>
<td>Fuses or handle</td>
</tr>
</tbody>
</table>

### 8.4 Mechanical Equipment

a. Motors

Tag Location: Circuit breaker

Note: Additional tags may be required when disconnecting the motor.
Appendix H

BOMB THREAT PROCEDURE
Program Element “H”
BOMB THREAT PROCEDURE

I. PURPOSE
To define a course of action in the event a bomb threat is received at the PVUSA facility.

II. SCOPE
This procedure applies to all activities and facilities associated with PVUSA.

III. RESPONSIBILITIES
A. Person Receiving Threat
When a bomb threat is received at the facility, the person receiving the call should:

1. Keep the caller on the phone as long as possible by encouraging conversation. Listen attentively and remain calm.
2. Use the Bomb Threat Checklist as a guide to question the caller and to document the conversation as thoroughly as possible. Bomb Threat Checklists should be available by all telephones that can accept outside calls.
3. Notify the Site Manager (or designee) as soon as possible. Deliver the Bomb Threat Checklist to this person as soon as documentation of the threat has been completed.

B. Site Manager

1. Notify local law enforcement agencies. Depending on the situation, local agencies should make all further notification to other emergency services that may be required.
3. Analyze the threat. An analysis of the threat is required in order to determine the subsequent course of action. Some considerations are as follows:
   - Bomb threats communicated by the threatener directly to the local news media tend to be reliable since an initial means of desired publicity is established.
   - If the threatener gives details regarding the type, size, location and time of detonation of the bomb, the threat should be taken more seriously than one that is vague or evasive.
   - Vague threats to "bomb the whole plant" may indicate that the threat is not credible. However, if bombings have occurred recently in the area, this must be taken into consideration even if they seem to be wild threats.
   - If the geographical area has had repetitive bombings, and if the jobsite has already been a threat target, the seriousness of the threat is magnified.
   - A threat from a terrorist group known to be charged with previous bombings is considered more serious than an anonymous communication.
   - Threats following the same pattern as a previous false threat or is accompanied by laughter or trivial background chatter tend to be false.
SAFETY AND HEALTH ACTION PLAN

4. Determine course of action. After an analysis of the threat, a decision must be made as to the type of response that should be initiated. Appropriate alternatives include the following:

- Search the area specified by the threatener, without evacuation.
- Search the entire project/facility, without evacuation.
- Evacuate the area specified by the threatener, and conduct search.
- Evacuate the project/facility, and conduct the search.
- Neither search nor evacuate.

5. Direct personnel to evacuate all or a part of the project/facility, depending on the information available. Personnel evacuating should be directed to a designated staging area, which is a safe distance from the project/facility. Personnel should remain in the staging area until further directions are issued by the Responsible Person in charge (or designee).

6. Cooperate with local emergency agencies in search activities. If requested, assist with search efforts by soliciting volunteers that are familiar with the project/facility.

a. Search teams should be comprised of two (2) persons, one (1) of which could be used as a runner for communication purposes. They should be provided with all the information regarding the threat.

b. The search must be conducted systematically, looking for suspicious items or objects that appear to be out of place. If suspicious items or objects are noted, they should not be moved or otherwise disturbed. The runner should be sent to notify the emergency response team.

c. An assembly area should be designated and a time specified for searchers to report.

d. Radios should not be used for communication during the search because their use may activate the detonation device.

Notify the Bechtel Safety Services Manager in San Francisco regional/home office.

After consulting with local emergency agencies, determine if evacuated personnel may return to work. If so, notify personnel that they may return, but should be watchful for any suspicious items or objects.

IV. TRAINING

Project/facility personnel must receive instructions as soon as possible after assignment. A sample training outline is provided in attachment B.
GENERAL INSTRUCTIONS -
BOMB THREAT CHECKLIST

INTRODUCTION

Few people ever think of bombs in terms of thermos bottles, shoe boxes, beer cans, floral planters, or other "unlikely" containers that can be used to conceal an explosive device.

The bomb is limited only by the bombers' own skill, imagination, and supplies available; infinite variables are what make homemade bombs so dangerous - no two of them will ever be exactly alike. Therefore, there can be no set procedures for handling them.

TYPES OF BOMBS

Essentially, there are three types of bombs:

- **Open** - The open bomb is one in which all component parts are visible to the naked eye. With this type of bomb, a person can see without touching it that the item really is a bomb.

- **Closed** - In a closed bomb, none of the parts are visible to the naked eye. This is a dangerous bomb because at first glance there is no way of knowing if it is a bomb. The best rule to follow is isolation of the suspicious object. Do not touch it. Do not try to shake it or listen to it. Call for help.

- **Partly Closed** - The partly closed bomb can usually be identified as a bomb by visual inspection since some of its parts will be exposed. But because it is only partly visible, how it works and how to dispose of it requires further evaluation and investigation by a specialist.

PROTECTION AGAINST BOMBS

The best protection against a bomb is distance and barriers. When a bomb explodes, it follows the path of least resistance. If barriers are strong enough, the explosion will bounce or ricochet off. However, if sturdy barriers are not available, the next best thing is distance - putting as much distance as possible between the bomb and potential victims.

Lying flat on the ground is also a form of protection, since the shock wave of the explosion bounces off a flat surface and may pass over a prone person near the bursting radius of the bomb.

**WHAT NOT TO DO**

- Do not touch suspected bombs
- Do not move items that cannot be identified
- Do not place suspected bombs in water
- Do not shake suspicious items
- Do not cut wires
- Do not pull fuses
- Do not try to move a suspected bomb away from people - move people away from the bomb
- Do not get near suspected bombs
Appendix I

SECURITY PROGRAM
Program Element “I”

BECHTEL ACCESS CONTROL AND SECURITY PROGRAM

1.0 GENERAL

This program establishes access control and security requirements for project personnel, material, and equipment incidental to the execution of the scope of work by Bechtel and its contractor/subcontractors.

2.0 SCOPE

All project personnel, including contractor/subcontractors, are required to comply with this program.

3.0 PERSONNEL ACCESS REQUIREMENTS

a. Subcontractors must upon request provide the Site Manager a list of employees names who are on site performing work.

b. Any manual employee who is unable to produce a valid I.D. will be allowed access to the jobsite only with proper verification by the employee’s supervisor.

4.0 VISITORS AND VENDORS

a. Visitors and vendors requiring entry to the project will make prior arrangements. Access will be granted to those visitors who have been approved by the designated Bechtel or contractor/subcontractor representative. Visitor entry will be approved on a daily basis only.

b. Upon arrival, visitors will sign in at the Project Office and identify the individual that they wish to see. Directions and safety information will be given to the visitor as appropriate.

c. All visitors shall comply with established procedures while on the project. The person being visited will be responsible for ensuring compliance with these procedures.

5.0 VEHICLE ACCESS REQUIREMENTS

a. A vehicle parking area is provided in the vicinity of the Gate. Vehicles will not be allowed on site without prior authorization from the Bechtel Site Manager.

b. Employees and visitors authorized to bring vehicles on the project will be held to a minimum. Vehicle access will be limited to specifically identified company vehicles and to those personnel specifically authorized by the Bechtel Site Manager.

c. When vendors/visitors are delivering or picking up materials, they must travel directly to the PVUSA site office. Vendors will be instructed to proceed on the most direct/approved route to pick up or drop off the materials and then immediately exit the project. Visitors will be escorted at all times while on site.
6.0 TOOLS, EQUIPMENT AND MATERIALS

a. Bechtel and each contractor/subcontractor will be responsible for the security of their tools, equipment, and materials. These items shall be marked so that they are easily identifiable.

b. Construction-related tools, equipment, and materials will not be allowed off the project unless approved by the designated Bechtel or contractor/subcontractor representative. An approved property removal pass may be necessary.

c. Tools, equipment, and materials which have been discovered missing or damaged should be reported to the appropriate employer and to Bechtel immediately.
Appendix J

SUPERVISOR SAFETY AND HEALTH ORIENTATION
Program Element “J”

SUPERVISOR SAFETY AND HEALTH ORIENTATION

I. Each Supervisor shall receive an orientation by his or her employer upon promotion or hire and prior to working on PVUSA. Such orientation shall include, as a minimum, the following items.

A. Safe Work Areas

Supervisors shall become familiar with the conditions in each area of the project to which their employees are assigned. Unsafe conditions that exist in the work area shall be corrected prior to commencement of work. If this is not possible, the situation shall be brought to the attention of the next higher level of supervision, who will initiate corrective action.

B. Safe Work Practices

When making work assignments, supervisors shall inform employees of the safe work practices, work methods, and personal protective equipment required. Supervisors are responsible for ensuring that their employees use the proper personnel protective equipment and proper tools for the task.

C. Emergency Procedures

Supervisors shall become familiar with the emergency procedures developed for the project, so that they may provide the leadership and guidance required to cope with serious injuries, fires, evacuations, etc.

D. Accident Investigation

Supervisors shall participate actively in the investigation of any accident or incident that occurs in their area of responsibility, that results in:

1. Personal injury.
2. Equipment or property damage.
3. Near misses that had a potential for serious injury or loss.

The investigation will concentrate on determining facts, not fault, so that recurrences may be prevented.

E. Safety Surveillance

Safety and health inspections will be conducted by each Supervisor on a regular basis. Safety violations will be identified, recorded, and corrected by the responsible supervisor.

F. Fire Protection and Prevention

Supervisors shall maintain a constant awareness of the fire potential in their areas of responsibility. If a fire occurs, the supervisor shall immediately sound the alarm and take the necessary action to protect life and property.

1. In areas where fire protection equipment is not present: 1) fire extinguishers or other temporary fire protection will be made available. 2) Emergency equipment, such as fire extinguishers and hose reels, shall be well maintained and used only for its intended purpose. This equipment must not be blocked or otherwise tampered with. 3) Flammable liquids must be kept in appropriate safe containers. A 20 lb. (ABC Type) fire extinguisher must be available at any active flammable liquid storage area.

G. Enforcement Policy

Supervisors shall inform their employees that any person who jeopardizes their safety and health and/or the safety and health of others will be subject to disciplinary action up to and including immediate removal from site.
Appendix K

EXCAVATION AND TRENCHING PROGRAM
I. **PURPOSE**

The purpose of this program is to establish minimum requirements for work operations involving excavations and trenches.

II. **SCOPE**

This program shall apply to all contractor/subcontractor employees involved in excavating and trenching operations.

III. **DEFINITIONS**

A. **Excavation**

Any human-made cavity or depression in the earth's surface, including its sides, walls, or faces, formed by earth removal and producing unsupported earth conditions by reasons of the excavation. If installed forms or similar structures reach the depth-to-width relationship, an excavation may become a trench.

B. **Trench**

A narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width of the trench is not greater than 15 feet.

C. **Competent Person**

One who is capable of identifying existing and predictable hazards in the surroundings and who can identify work conditions which are unsanitary, hazardous, or dangerous to employees. The competent person has the authorization to take prompt corrective measures to eliminate unsatisfactory conditions.

D. **Protective System**

A method of protecting employees from cave-ins and material that can roll or fall or collapse from adjacent structures. The protective system shall be selected from OSHA 29 CFR 1926.652 or the equivalent CALOSHA standard and must be designed by a registered professional engineer.

IV. **REFERENCES**

A. U.S. Department of Labor, Occupational Safety and Health Standards, 29 CFR 1926.650, or equivalent CALOSHA standard when finalized.

B. Bechtel Corporate Safety and Health Procedures Manual.

V. **RESPONSIBILITIES**

All contractor/subcontractor engineers, superintendents, supervisors, and employees involved in excavation and trenching activities are responsible for compliance with this procedure.

VI. **PROCEDURE**

A. **Excavation and Trenching**

1. When excavating or trenching becomes necessary, the superintendent or engineer in charge of the work shall ascertain that all known maps and prints have been reviewed and that PG&E has been contacted to determine the exact location of underground interferences prior to excavation. If the
trench or excavation is to be 5 feet or more in depth and there is a possibility that employees may
need to enter, the contractor/subcontractor must obtain a CALOSHA permit, as required by
regulation.

2. The superintendent or engineer shall "stake-mark" the location, depth, and identify all interferences.
The superintendent shall also mark the ground directly above the interference by a suitable means.

3. Where information is limited (no "as-builds" available) as to the exact location of possible interfering
buried utilities, they shall be de-energized or shut off and locked and tagged before work begins.

4. Known or questionable interferences shall be "hand-dug" before powered equipment digs within six
(6) feet of the suspected interference. (Exception: The superintendent may give written permission
for power equipment to dig within this limit in the case of non-critical storm drains, water lines and
sewers. Such permission shall not be granted on any electrical line, process line, or drain.)

5. "Hand-dug" shall imply hand shovels or post hole diggers only.

6. All pneumatic, gasoline, or electric tools used for digging into an area of known or questionable
hazardous interferences shall be grounded (in addition to the normal ground).

7. Heavy equipment shall not operate within five (5) feet of the slope of any excavation without the
approval of the superintendent.

8. Excavated or other materials shall not be stored nearer than two (2) feet from the edge of any
excavation and shall be stored and retained so as to prevent its falling or sliding back into the
excavation.

9. Each employee in an excavation shall be protected from cave-ins by an adequate "protective system." 
Responsible engineers shall refer to 29 CFR 1926.652 and appendices concerning design and
determinations applicable to soil classifications, sloping, benching and shoring. The responsible
engineer and superintendent shall complete an "Excavation and Trench Checklist." (Sample list in
section 14.7 of Bechtel Safety and Health Manual, Volume I.)

10. The responsible engineer will specify, in the written work plan, when sloping or shoring is required. 
The Safety Representative shall review sloping, access, shoring, etc., before work begins in an
excavation or trench.

11. Inspection by the superintendent shall be conducted daily before work begins and after rain, snow,
freezing/thawing, or conditions which may affect the stability of the soil or shoring.

12. Where employees are required to be in trenches/excavations four (4) feet deep or more, ladders (or
other acceptable means of ingress/egress) extending from the floor of the trench/excavation to at least
three (3) feet above the top of the excavation shall be provided and so located as to provide means of
exit with no more than 25 feet of lateral travel. Ladders shall be secured to prevent movement.

13. In excavations or trenches greater than four (4) feet in depth, where the possibility of oxygen
deficiency or toxic/explosive conditions may exist, the atmosphere shall be tested in accordance with
Program Element "E" (Confined Space Entry Procedure). Controls shall be established to assure
acceptable atmospheric conditions. When hazardous gases are present, adequate ventilation shall be
provided and sources of ignition eliminated. Attended emergency rescue equipment such as breathing
apparatus, a safety harness and line, basket stretcher, etc., shall be readily available where adverse
atmospheric conditions may exist or develop in an excavation or trench.

VII. DOCUMENTATION

The excavation and trench checklist shall be completed and retained in the project file. Copies of the relevant
checklists shall be retained in accident/incident files whenever an excavation or trenching accident or incident
occurs.
Appendix L

SAFETY BARRICADE PROCEDURE
Program Element “L”
SAFETY BARRICADE PROCEDURE

I. PURPOSE
To establish a procedure that controls the usage of barricade tape on the project.

II. OBJECTIVE
To provide a means of identifying temporary hazards on the project.

III. PROCEDURE
A. Two (2) types of safety tape barricades are permitted on the project - yellow tape with “Caution” in black letters and red tape with “Danger” in black letters.

B. Safety barricades of either type may be used by any contractor/subcontractor who is aware of a hazardous condition, as long as its use is in accordance with the following:

1. Yellow Tape (CAUTION)
   a. Yellow tape shall be used to identify any area where a warning barrier is needed but imminent danger does not exist.
   b. Yellow tape shall be placed at waist height and shall encompass the hazard to prevent employees from unknowingly entering the hazard area.
   c. Employees may enter the area after identifying the hazard and determining what safe conditions are necessary for entry.
   d. Examples for the use of yellow tape include but are not limited to: excavations/trenches while being dug, identification of hot work areas, etc.
   e. Yellow tape shall be removed immediately upon resolution of the hazard.

2. Red Tape (DANGER)
   a. Red tape shall be used to identify imminent danger situations only. Imminent danger situations are any hazard that is potentially disabling or life threatening.
   b. Red tape shall be placed at waist height and shall encompass the hazard to prevent employees from unknowingly entering the hazard area.
   c. Personnel shall not cross red tape barricades unless they're directly involved in correcting the hazard and only after taking proper safety precautions.
   d. Examples for the use of red tape include, but are not limited to: material drop zones, hazardous overhead work (steel erection, heavy lifts, etc.) open electrical panels, floor holes, etc.
   e. Red tape shall be removed immediately upon resolution of the hazard.

C. Abandoned Tape Barricades

When safety barricades are found to be apparently abandoned, employees are not to enter the area until it is determined the hazard no longer exists. The Site Manager or responsible contractor/subcontractor is to be contacted for assistance. If the hazard has been eliminated, the tape can be removed.

D. Barricade tape shall not be used in lieu of physical barriers such as guard rails, etc.
Appendix M

PVUSA EMPLOYEE SAFETY TRAINING
Program Element “M”
PVUSA EMPLOYEE SAFETY TRAINING

PVUSA will provide a personalized staff safety training program for each employee who is assigned to a PVUSA field site. The safety training will be aligned to the specific job description and level of responsibility of the employee. The training shall remain current with all new code requirements and revisions to the PVUSA Safety and Health Action Plan.

The formalized staff training shall be in addition and provide enhancements to all other safety training outlined in Section 3 of this Safety and Health Action Plan. The Site Manager shall be responsible for assuring that individualized training programs are updated, completed, and documented in site files. The updated plans shall be approved by the project safety committee annually. Each employee shall be responsible for input into the development of their personalized program based upon current and future needs.

A copy of each individual's annual program shall be stored in a permanent site file. The individual programs may include but not be limited to the following:

- Automobile Safety Training
- American Red Cross First Aid Training
- American Red Cross CPR Training
- Fire Extinguisher Training
- PG&E and Other Electrical Safety and Operations Training
- Offsite Safety and Health Seminars/Conferences
- Video Training Programs Onsite
- Ergonomics
- Safety and Health Publications - Reading Assignments
- Review/Study of the California Code of Regulations
- High Voltage Training
- PVUSA Isolation Procedure Review
- Photovoltaic Specific Training/Education Conferences
- Review/Study of National Electric Code
- PVUSA One-Line Diagram and Electrical symbol refresher
- Emergency Response Coordination Training

A general outline of required training by staff position follows:
TRAINING OUTLINE FOR CFY '93
PVUSA SITE MANAGER

- PVUSA CLEARANCE PROCEDURE REFRESHER (ANNUAL)
- AMERICAN RED CROSS FIRST AID TRAINING (ANNUAL)
- AMERICAN RED CROSS CPR TRAINING (ANNUAL)
- FIRE EXTINGUISHER TRAINING (ANNUAL)
- PG&E-SPONSORED OPERATIONS TRAINING (MINIMUM 1 COURSE)
- REVIEW OF CALIFORNIA CODE OF REGULATIONS (MINIMUM 8 HOURS)
- OFFSITE SAFETY SEMINAR (MINIMUM 1 SEMINAR)
- HIGH VOLTAGE TRAINING (ANNUAL)
- REVIEW OF NATIONAL ELECTRIC CODE (MINIMUM 4 HOURS)
- REVIEW OF FEDERAL CODE OF REGULATIONS - PART 29 (MINIMUM 4 HOURS)
- PVUSA ONE-LINE DIAGRAM AND ELECTRICAL SYMBOL REVIEW (MINIMUM 4 HOURS)
- PHOTOVOLTAIC SPECIFIC SAFETY TRAINING (MINIMUM 1 OFFSITE SEMINAR)
- EMERGENCY RESPONSE COORDINATION TRAINING (MINIMUM 4 HOURS)

TOTAL MANAGEMENT TRAINING IS 12-15 DAYS ANNUALLY.
TRAINING OUTLINE GFY '93
PVUSA RESEARCH ANALYST

- PVUSA CLEARANCE PROCEDURE REFRESHER (ANNUAL)
- AMERICAN RED CROSS FIRST AID TRAINING (ANNUAL)
- AMERICAN RED CROSS CPR TRAINING (ANNUAL)
- FIRE EXTINGUISHER TRAINING (ANNUAL)
- REVIEW OF NATIONAL ELECTRIC CODE (MINIMUM 2 HOURS)
- PHOTOVOLTAIC SAFETY PUBLICATIONS REVIEW/STUDY (MINIMUM 8 HOURS)
- ONSITE VIDEO COURSE TRAINING (MINIMUM 3 VIDEOS)
- ERGONOMICS (MINIMUM 2 HOURS)
- EMERGENCY RESPONSE COORDINATION TRAINING (MINIMUM 4 HOURS)

TOTAL MANAGEMENT TRAINING IS 8-10 DAYS ANNUALLY.
TRAINING OUTLINE GFY '93
PVUSA O&M RESEARCH ENGINEER

- PVUSA CLEARANCE PROCEDURE REVIEW (ANNUAL)
- AMERICAN RED CROSS FIRST AID TRAINING (ANNUAL)
- AMERICAN RED CROSS CPR TRAINING (ANNUAL)
- FIRE EXTINGUISHER TRAINING (ANNUAL)
- PG&E-SPONSORED OPERATIONS TRAINING (MINIMUM 1 COURSE)
- PVUSA ONE-LINE DIAGRAM AND ELECTRICAL SYMBOL REVIEW (MINIMUM 4 HOURS)
- REVIEW OF NATIONAL ELECTRIC CODE (MINIMUM 4 HOURS)
- REVIEW OF CALIFORNIA CODE OF REGULATIONS (MINIMUM 8 HOURS)
- REVIEW OF ELECTRICAL SAFETY PUBLICATIONS AND PAPERS (MINIMUM 4 HOURS)
- HIGH VOLTAGE TRAINING (MINIMUM 2 HOURS)
- ERGONOMICS (MINIMUM 2 HOURS)
- EMERGENCY RESPONSE COORDINATION TRAINING (MINIMUM 4 HOURS)

TOTAL MANAGEMENT TRAINING IS 12-15 DAYS ANNUALLY.
TRAINING OUTLINE FOR GFY '93
PVUSA ELECTRICAL FIELD ENGINEER

- PVUSA CLEARANCE PROCEDURE REVIEW (ANNUAL)
- AMERICAN RED CROSS FIRST AID TRAINING (ANNUAL)
- AMERICAN RED CROSS CPR TRAINING (ANNUAL)
- PHOTOVOLTAIC OR PG&E-SPONSORED SAFETY SEMINAR (ANNUAL)
- REVIEW OF NATIONAL ELECTRIC CODE (MINIMUM 8 HOURS)
- REVIEW OF CALIFORNIA CODE OF REGULATIONS, ELECTRICAL SAFETY ORDERS (MINIMUM 8 HOURS)
- FIRE EXTINGUISHER TRAINING (ANNUAL)
- HIGH VOLTAGE TRAINING (ANNUAL)
- PVUSA ONE-LINE DIAGRAM AND ELECTRICAL SYMBOL REVIEW (MINIMUM 4 HOURS)
- EMERGENCY RESPONSE COORDINATION TRAINING (MINIMUM 4 HOURS)

TOTAL MANAGEMENT TRAINING IS 9-12 DAYS ANNUALLY.
TRAINING OUTLINE GFY '93
PVUSA SITE CLERICAL

- PVUSA SITE CLEARANCE PROCEDURE PRIMER (MINIMUM 2 HOURS)
- ERGONOMICS (MINIMUM 2 HOURS)
- ONSITE SAFETY VIDEO TRAINING (MINIMUM 3 VIDEOS)
- AMERICAN RED CROSS FIRST AID TRAINING (ANNUAL)
- AMERICAN RED CROSS CPR TRAINING (ANNUAL)
- FIRE EXTINGUISHER TRAINING (ANNUAL)
- SAFETY PUBLICATIONS REVIEW (MINIMUM 8 HOURS)
- EMERGENCY RESPONSE COORDINATION TRAINING (MINIMUM 4 HOURS)

TOTAL MANAGEMENT TRAINING IS 5-6 DAYS ANNUALLY.
Appendix N

PG&E PROCEDURES APPLICABLE AT PVUSA
Revised 1/19/95  N-1

Program Element "N"
PVUSA PG&E PROCEDURES

1. 403-1 Switching procedures, applicable forms and their use.
2. 403-3 Proper use of tags and control handle barricades; Man-on-line, non-test, caution, and approved tag holders.
3. 403-4 Instructions for obtaining clearances to work on apparatus lines.
4. 571-3 Protective suit and gloves (protective clothing)
5. Electrical General Operating Instructions.
6. PG&E General Operating Orders for Steam Electric Power Plants.

Located in Switching Procedures
Binder in Site Managers office
Appendix O

SITE TOURS & VISITORS
Program Element “O”
SITE TOURS & VISITORS

I. SCHEDULING TOURS

A. All tours shall be scheduled by the designated site contact person (presently, Dawn McKibben). A tour scheduling calendar shall be maintained by the site contact person. The calendar shall indicate scheduled events that may affect site tours, such as shooting range usage.

B. The site contact person shall use a list of site personnel for scheduling a tour guide, depending on rotation and level of technical expertise required. The Endecon personnel shall be primarily responsible for tours of a technical nature and Bechtel personnel shall be responsible for general orientation tours.

In the event that the site contact person is not available, the individual answering the tour request shall note all of the pertinent information, such as tour size and type. The date and time requested shall be verified against the scheduling calendar and scheduled accordingly.

C. Tour information shall be given to the Site Manager to confirm that other activities will not conflict with the tour as scheduled, and to approve the selected tour guide. The Site Manager shall make the final decision should a conflict of any sort arise regarding a tour.

D. When scheduling, every effort shall be made to combine tours, depending on the size and technical background of each.

E. Authorized personnel within PG&E may schedule and guide their own tours. These tours shall be coordinated with the site contact person in advance.

II. THE TOUR

A. Tours shall always begin at the Visitor Center. Visitors arriving at the I&C Building shall be escorted to the Visitor Center. The Tour Guide must remain with the tour until they vacate the site.

B. At the direction of the Tour Guide, visitors shall move from the Visitor Center to the EMT gate and from there, follow the tour path as designated by the rope. A complete tour includes the EMT field to Entech then East through the US-1 field and exit the IPC gate. A tour may, at the direction of the Tour Guide, turn around and exit the EMT gate. In the rare event individuals specifically request and have valid reason to see the DAS room, consideration and priority must be given to work in progress in the I&C Building.

C. Tours shall be scheduled in the afternoon from 12:30pm to 3:30pm, Monday through Friday. No tours shall be scheduled for weekends and holidays. Only the Site Manager and PG&E Project Manager may make exceptions to this policy.

D. A single tour shall normally be one hour in duration, measured from the time the first member of the tour party arrives until the last member vacates the site.
III. ORIENTATION AND SAFETY

A. The general orientation shall include signing in on the visitors log, handing out published literature, if available, and a brief description of the plant tour.

B. THE LAST ITEM OF DISCUSSION PRIOR TO EMBARKING ON ANY TOUR SHALL BE SAFETY. Also, the yellow and black safety placard shall be read and understood by each member of the tour party. The safety placard is printed in the six most common languages encountered. Specific tour safety requirements are as follows:

- When scheduling a tour, the caller shall be informed of the requirement to wear appropriate foot attire for walking on gravel. Also, that the length of the tour is .65km/.4 miles.

- When scheduling a tour, the caller shall be informed that the participants must understand English well enough to comprehend the safety information, or have an interpreter present, capable of adequately translating the safety information.

- When a tour consists of ten or more people, one additional site person shall be utilized as a tailing or follow-up guide.

- Individuals must stay with the tour group. If an individual does not wish to take the tour, he or she must wait in the Visitor Center.

- Tours will not be conducted on days when it is raining or there is standing water due to safety considerations.

IV. SECURITY

A. No self-guided tours of any kind shall be allowed under any circumstances.

B. No visitors, tour members, or other unauthorized personnel shall be allowed on site after 4:30pm. Only the Site Manager and PG&E Project Manager may grant exception to this policy.
Appendix P

ERGONOMICS
Program Element “P”
ERGONOMICS

While most of the safety hazards at PVUSA are related to construction and the generation of electricity, the R&D nature of the facility requires a significant data processing effort. Data processing at PVUSA is done on personal computers. The research engineer may spend more than 20 hours per week using a video display terminal (VDT). There are two primary health hazards that are attributed to prolonged (>20 hours/week) use of VDT’s: eyestrain and cumulative trauma disorders (CTDs). Eyestrain is the result of focusing on a VDT for long periods of time, with additional contributing factors including improper lighting, glare, and poor screen position. CTDs are conditions that result from microtraumas of tendons, muscles, and nerves. Factors contributing to CTD are excessive repetition, poor posture, prolonged stationary position, and excessive force.

Ergonomics is the study of the physiological interaction of people with their work environment. A comprehensive ergonomics program will address lighting, workstation geometry, and personnel behavior. While no state or federal regulations currently exist, both PG&E and Bechtel Construction have ergonomics programs as part of their Health and Safety departments.

PVUSA has adopted an ergonomics program which follows the guidelines setup by PG&E and Bechtel. Periodic reviews will be conducted of workstation adjustment, work habits, and CTD symptoms. PG&E’s Davis area Health and Safety personnel (Tim Hamilton: 415-973-7407) can be contacted for assistance. In addition, PG&E and Bechtel Health and Safety departments are available to answer specific questions and provide information on the latest policies and regulations:

PG&E Health and Safety: Marica Dunhan 415-973-2300
Bechtel Health and Safety: Eleanor Tape 415-768-1452.

Copies of the PG&E booklet VDT Ergonomics, the Bechtel booklet Preventing Repetitive Strain, as well as other information on ergonomics are filed under the subject Safety at the Davis site.
Appendix Q

BLOOD BORNE PATHOGENS
This procedure applies to all personnel who may reasonably anticipate occupational exposure to blood or other potentially infectious materials as a result of job performance.

Federal OSHA CPL 2-2-44C for 29 CFR 1910

If an employee is trained in first aid and assigned by the employer as responsible for rendering medical assistance as part of the job duties, that employee is covered by the standard.

EXPOSURE CONTROL PLAN

POTENTIAL EXPOSURE EVALUATION

We may reasonably expect potential exposures from the following:

- Blood from lacerations and abrasions
- Body fluids encountered from administering first aid and CPR
- Body fluids encountered during emergency response
- Puncture wounds to workers

The Site Manager will immediately notify the SFRO Safety and Health Services of any situation that results in a potential exposure incident.

EXPOSURE CONTROL METHODS

- The Site Manager shall place in the first aid kit or in a publicized location(s) for personnel administering first aid or otherwise potentially exposed to blood borne pathogens the following materials:
  - Latex or similar gloves for emergency personnel
  - Face shield for protection against blood splatters
  - Mouthpieces for artificial respiration
  - Packing and or containers for body fluid contaminated materials with appropriate warning labels
- Use of the above materials will be based on the potential for exposure to blood borne pathogens. Personnel involved in first aid and rescue procedures shall practice clean procedures.
- Gloves and other personnel protective equipment shall be provided by PVUSA and worn as necessary to prevent cuts abrasions and other similar incidents.
- Bodily secretions, fluids, blood, and tissues shall be cleaned up immediately and any contaminated area cleaned and disinfected. Contaminated materials including those used for cleaning shall be containerized and disposed of.
- The Site Manager shall establish a procedure for disposal of body fluid contaminated materials with a local facility which handles biological wastes. All containers of contaminated wastes shall be labeled with the biohazard label and tagged/labeled to indicate the contents and responsible party.
- Disposable coats, gloves, etc should be obtained to reduce laundering requirements. Clothing that must be laundered because of contamination will be placed in an impervious bag or other appropriate container and labeled with the biohazard label and tagged to indicate the contents and responsible party.
EMPLOYEE PROGRAMS

- Personnel Responsibilities
  - Only employees that have received the company sponsored first aid and
    CPR training may administer first aid to others.
  - Others may administer first aid only to themselves.
  - Personnel are required to use the protective equipment provided.
  - All first aid situations must be reported to the Site Manager. The person
    administering first aid must be indicated on the first aid form. This also
    applies to self administered first aid.

- Universal precautions
  All blood and other potentially infectious materials shall be handled as if
  contaminated by a bloodborne pathogen. Under circumstances in which
  differentiation between body fluid types is difficult or impossible, all body fluids
  shall be considered potentially infectious materials.

- Vaccinations
  Hepatitis B vaccinations will be made available to all employees who encounter
  blood or other potentially infectious materials during the course of their
  employment at PVUSA. If the possibility exists that employees have become
  contaminated they have 24 hours to begin or decline vaccinations. In addition,
  these employees will be offered post-evaluation and follow up at no cost should
  they experience an exposure incident on the job.

If an employee wishes to decline the vaccination they must sign the "Declination
Form" and the signed form placed in their medical records, a copy to SFRO Safety
and Health Services, and a copy to the employee.

If at any time in the future an employee decides they want to receive the
vaccination it will be provided at no cost to the employee by a licensed physician.

- Hepatitis B Vaccination
  The vaccination is a series of three injections. The second injection is given one
  month from the initial injection. The final dose is given six months from the initial
dose. At this time a routine booster dose is not recommended, but will be made
available to the employee at no cost.

- Post-Exposure Evaluation and Follow Up
  NOTE: An exposure incident is a specific eye, mouth, other mucus membrane,
  non-intact skin, or parenteral contact with blood or other potentially infectious
  materials that results from the performance of an employee's duties.

  - The Site Manager shall ensure that immediately following the report of an
    exposure incident the employee shall be scheduled for a confidential medical
    evaluation. The evaluation shall include:
    a. Documenting the exposure route(s) and circumstances under which
       the exposure happened,
    b. Identifying and testing the source individual (If the source individual
       declines to be tested this shall be documented in the exposed
       employees medical file and a copy of the memo sent to the SFRO
       Safety and Health Services. The source individual test result must be
       provided to the exposed employee.),
    c. Collecting and testing the employees blood for HBV and HIV
       serological status if permission is obtained,
    d. Post exposure prophylaxis as medically indicated
• The Site Manager shall insure that the health care professional providing the HBV vaccination is provided a copy of the Title 8 CCR 5193 requirements
• The Site Manager shall insure that the health care professional evaluating the employee after an exposure incident is provided the following information:
  a. A copy of the Title 8 CCR 5193 requirements,
  b. A description of the employee's duties as they relate to the exposure incident,
  c. Documentation of the routes of exposure and exposure circumstances,
  d. Source individuals test results, if available, and
  e. All medical records relevant to the appropriate treatment.

• The Site Manager shall obtain and provide the employee with a copy of the evaluating health care professional's written opinion within fifteen days of the completion of the evaluation. The written opinion shall be limited to the following information:
  a. Employee has been informed of the results of the evaluation,
  b. Employee has been told about any medical conditions resulting from the exposure to blood or other potentially infectious materials which may require further evaluation or treatment.

NOTE: All other findings shall remain confidential and shall not be included in the written report.

WARNING LABELS

Warning labels shall be affixed by the generator to all containers of regulated waste.

INFORMATION AND TRAINING

Initially upon assignment as a designated first aid person and at least annually thereafter, personnel will be provided training by the Site Manager or Safety and Health Services representative and shall include the following:

• A copy of Title 8 CCR 5193 and an explanation of the contents,
• An explanation of the epidemiology and symptoms of blood borne diseases,
• Modes of transmission,
• Review the exposure control plan and tell where a copy is located
• Methods of recognizing tasks and other activities that may involve exposure to blood or body fluids,
• Explanation of use and limitations of the methods to reduce the potential for exposure (PPE, engineering controls, and work practices)
• Discuss the types, use, location, limitations of, and disposal of personal protective equipment
• Proper selection of PPE,
• Hepatitis B vaccination pros/cons and that it is offered free of charge.
• Appropriate emergency actions and who to contact.
• Detail the procedure to follow after an exposure incident (Reporting, medical follow up, accident investigation, paper trail, cleanup techniques, laundering clothes, disposal methods, etc).
• The required post exposure evaluation and medical follow up.
• Signs, tags, and labels,
• Additional training if conditions change and
• Questions and answers

RECORDKEEPING
RECORDKEEPING

The training records which shall contain the attender names, date of attendance, contents and instructors name. These records will be kept for 30 years from the date of attendance.

Medical records shall be maintained for the duration of employment plus 30 years.

When the job terminates the records shall be archived in accordance with instructions from the SFRO Safety and Health Services Office.

MEDICAL RECORD CONFIDENTIALITY

All employee medical records shall be kept confidential. The contents will not be disclosed or reported to any person within or outside the workplace without the employee's express written consent, except as required by law or regulation.
HEPATITIS B VACCINATION CONSENT FORM

NAME: ___________________________ DEPT: ___________________________

I have been informed of the benefits and risks of the Hepatitis B Vaccine. I understand these benefits and risks and have had the opportunity to ask questions.

I realize that:

1. If I receive the vaccine, I have a 90-95% chance of developing antibodies to the Hepatitis B surface antigen and therefore immunity to the Hepatitis B virus.

2. The duration of immunity is uncertain at this time, and I may have low or undetectable antibody levels 7 years after the vaccination series. A booster may be needed at that time.

3. The vaccine only protects against the Hepatitis B virus and does not confer immunity against the Hepatitis A or non A/non B agents.

☐ I agree to receive the Recombivax HB Vaccine.

______________________________                ________________
Employee Signature                                      Date

ADMINISTERED RECOMBIVAX HB VACCINE 1 cc L.M. per dose

Date vaccinated       Lot #       Location       Occupational Health Nurse

(1)______________________________                ________________

(2)______________________________                ________________

(3)______________________________                ________________

Manufactured by: Merck, Sharp & Dohme

Declination of Hepatitis B Vaccination

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B Virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine at no charge to me. However, I decline Hepatitis B vaccination at this time. I understand that by declining this vaccine I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious material and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

______________________________                ________________
Employee Signature                                      Date
Personnel working on the site may be subject to biological hazards while performing activities

I. RATTLESNAKES

A potential biological hazard is the Western Diamondback rattlesnake. This reptile is usually dormant during the winter months in cooler climes. Its roaming activity is primarily nocturnal and it tends to seek heat at night when temperatures are lower and seek cooler shady refuge during the hot daylight periods. Care must be taken turning over objects providing potential refuge or when reaching or stepping in locations where full visual inspection is not possible. In general, this species is non-aggressive and will retreat from predators, including humans, rather than attack. An attack or strike usually occurs when it is surprised, stepped on, or cornered.

The rattlesnake injects venom through two sharp tissue protrusions or fangs extending from the roof of the mouth. The trait that distinguishes a rattlesnake bite from those of the regions numerous non- poisonous snakes is a characteristic pair of puncture marks instead of a mouth shaped bite. The venom, if injected, mixes in the circulatory system causing coagulation and destruction of blood proteins and may lead to death if untreated. The victim will typically experience intense burning and pain radiating away from the bite location.

First aid should be administered immediately; do not attempt to orally suck out the venom. This involves removing the victim from danger, applying ice or cold pack to the bite area, sending for medical help or transport to a medical facility, and keeping the victim calm and immobile.

II. TICKS

Lyme disease is a spirochete-type bacterial infection which is transmitted to humans and some animals by two tick species. The deer tick is the more prevalent. The female is 1/4 inch long and is black and red in color. Spotted fever is also transmitted by ticks. Ticks are found in wooded and brush areas. When walking in these areas, each employee should periodically check him/herself and their co-workers for the presence of ticks or other insects that can cause vector borne diseases and illnesses.

III. OTHER INSECTS, SPIDERS, AND SCorpIONS

Bees, wasps, yellow jackets, black widow or brown recluse spiders, and scorpions may present a hazard on this site particularly to those sensitized to their bite or sting. Prior to initial assignment, personnel with known allergic responses to insect stings will be identified and supervisors made aware of this. The Site Manager will confirm that treatment is accessible and notify the medical service suppliers of the affected individuals presence.

In all cases, a victim suspected of being bitten by a black widow or brown recluse spider must be immediately transported to the emergency medical facility.
Appendix S

HEAT STRESS
Heat stress is a condition that may cause physiologic harm to personnel at the PVUSA site. Heat stress is the accumulation of the body's burden of heat leading to an extremely dangerous rise in body core temperature. Over exposure to heat is preventable! All personnel working at the facility may be subject to heat stress, regardless of task assignment. The use of impermeable personal protective clothing, such as in first responder response or maintenance work, increases the risk of heat loading. The signs, symptoms, and preventive measures associated with heat stress are as follows:

**Heat Rash**  Heat Rash is caused by continuous exposure to heat and humidity and is aggravated by chafing clothes. This condition decreases the body's ability to tolerate heat and may increase penetration of chemicals through the skin.

- **Symptoms:** Mild red rash, especially in body areas that come in contact with protective clothing/gear.
- **Treatment:** Decrease the time in protective gear and use powder to absorb moisture and decrease chafing.

**Heat Cramps**  Heat Cramps are caused by inadequate liquid intake while performing work in a hot environment. Heat cramps are often the first sign of a condition that may lead to heat stroke.

- **Symptoms:** Acute, painful spasms of voluntary muscles (abdomen and extremities).
- **Treatment:** Remove victim to a cool area and loosen clothing. Have patient drink 1 to 2 cups of water immediately, and every 20 minutes thereafter until symptoms subside.

**Heat Exhaustion**  Heat Exhaustion is a state of very definite weakness or exhaustion caused by loss of fluids from the body. This condition is much less dangerous than heat stroke but still must be treated.

- **Symptoms:** Pale, clammy, moist skin, profuse perspiration (not always exhibited), and extreme weakness. The body temperature is normal, pulse is weak and rapid, and the breathing may be shallow. The person may have a headache, vomit, and/or be dizzy.
- **Treatment:** Remove the person to a cool place, loosen clothing, place in a head low position, and allow to rest. Consult a physician, especially in severe cases. Have the patient drink 1 to 2 cups of water immediately, and every 20 minutes thereafter until symptoms subside (cool not cold water should not be given while the person is prone).

**Heat Stroke**  Heat Stroke is an acute and dangerous reaction to heat stress caused by failure of the heat regulating mechanisms in the body (primarily the temperature control system that causes perspiration). The body temperature increases to the level that brain damage and death may occur if the person is not cooled rapidly.

- **Symptoms:** Red, hot, dry skin, although the person may have been perspiring earlier; nausea; dizziness; confusion; extremely high body temperature; rapid pulse and breathing; unconsciousness; or coma.
- **Treatment:** Have someone call for medical assistance and cool the victim quickly. If the body temperature is not brought down fast, permanent brain damage or death may occur. Soak the victim in cool water, sponge the body, or pour water over the body to...
reduce the body temperature to a safe level (102°F). Monitor the victim until help arrives. Do not administer coffee, tea, or alcoholic beverages.

Proper training and preventive measures will help avert serious illness and loss of work productivity. Preventing heat stress is particularly important because once someone has experienced heat stroke or heat exhaustion that person may be predisposed to additional heat stress trauma. To avoid these stresses, a combination of the following preventive measures shall be taken as determined necessary:

- **Adjust work schedules:**
  - Modify work/rest schedules according to monitoring requirements.
  - Mandate work slowdowns as needed; and
  - Perform work during cooler hours of the day if possible, or at night if adequate lighting can be provided.

- **Rotate personnel:**
  - Alternate job functions to minimize stress or overexertion at one task; and
  - Assign additional personnel to work teams.

- **Provide shelter to protect personnel during rest periods.**

- **Maintain worker's body fluid at normal levels.**

Maintaining normal body fluid levels is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost through sweat. The normal thirst mechanism is not sensitive enough to ensure that water intake is adequate to replace fluid lost by sweating. When heavy sweating occurs, encourage personnel to drink more water. A combination of the following will be used to ensure adequate fluid replenishment:

- **Maintain drinking water temperature at approximately 50° to 60°;**

- **Provide small disposable cups that hold about 4 ounces each;**

- **Have workers drink about 16 ounces of fluid before beginning work;**

- **Train workers to recognize and treat heat stress. As part of the training, identify the signs and symptoms of heat stress.**