

California High-Speed Rail Project



Design-Build Contract for Construction Package 2-3

Agreement No.
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SITE SPECIFIC HEALTH AND SAFETY PLAN

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CALIFORNIA HIGH SPEED RAIL



Site Specific Health and Safety Plan



A Joint Venture
Revision Date: May 2024

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REVISIONS INDEX

| Date | Revised Sections | Rev Number |
|--------------------|---|------------|
| 2/26/17- 8/8/17 | 1.2: Insertion of Segment managers, Construction managers and Superintendent's roles 2.0: was replaced with a new, revised JHA policy. 3.1: More detailed and concise badging procedures and visitor requirements. 3.3: Added new hire green hard hat to be worn 90 days. 4.5: Internal DFJV Report Timing was re-worded. 5.0: Reference to EAP Coordination Committee was removed. 6.3: Requirements for construction scrap and debris containment was revised. Evaluation of construction areas using Threat Vulnerability Assessment was added. 6.3.2: Waste containers for aerial lifts and scissor lifts was removed. 7.5, 7.6, and 7.7: was removed from the document. 8.1: Red hard hats for emergency action plan were removed. 9.7: Replaced spill response plan with current response plan being used. 9.8: Added reference to California Prop 65. 10.2: Fire Reporting and Alarms section was completed. 13.3: Sharing confined spaces with CHSRA employees was removed. 14.2: Added, "potential hazards related to rigging operations will be noted on JHA and DRA." 15.1: Crane operation during specified wind speeds was revised. 15.10: Swing radius clearance was refined. 16.1: Who is responsible for mobile equipment inspections was determined. 16.5: Specified flagger/signalers work plans will be in JHA and DRA. 17.3: Traffic Safety Cone heights were revised to reflect OSHA standards. 28: Employee Recognition Program added. 29: Demolition plans added. | 3 |
| 11/2018 | 1.1. DFJV Safety personnel updated. 14. Rigging Policy updated. 15. Crane policy updated. 18. JHA updated. 20. Scaffolding inspection procedures updated. 22. Heat Illness protocol updated. | 4 |

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| 4/1/2019 | <p>1.1 DFJV personnel updated</p> <p>1.2 Add verbiage to include requirements to develop and maintain a safety recognition program.</p> <p>1.2 Add verbiage for construction engineer responsibilities</p> <p>2.7 Hazard Correction Reporting: "Good Catch / Safety Suggestions"</p> <p>3.2 Orientation Refresher Training - Clarified language</p> <p>4.1 Near-Miss - Language clarification to align with OSHA definitions.</p> <p>4.2 Incident Reporting Protocol - Initial reports are to DFJV Safety and Project Management. DFJV to inform CHSRA</p> <p>4.5 Discipline - Align project discipline policies to both Flatiron and Dragados.</p> <p>5.1 Emergency Action Plan – Responsibilities - Minor language change to indicate current practice of posting EAP at jobsite</p> <p>11 Hot Work Permit - HWP to be reevaluated after each shift.</p> <p>12 Control of Hazardous Energies</p> <p>Moved COHE to independent section.</p> <p>Included definitions from 1910.147</p> <p>**** Note all chapter numbers increased by one after chapter 12 as compared to previous revision ****</p> <p>13.3 Electrical Arc Flash – Construction Manager and Safety to determine need for EEW.</p> <p>14.8 Confined Space air monitoring</p> <p>Required per Cal-OSHA</p> <p>Carbon monoxide exposure limit changed to 25ppm as per Cal-OSHA requirements.</p> <p>15.4 Crane – Rigging – utilize qualified riggers</p> <p>16.10 Crane Clearances to overhead wires.</p> <p>Min clearance with load from 15 to 20'.</p> <p>Min Clearance- no load, traveling</p> <p>Voltage on table move from 750V to 600V to align with OSHA requirements.</p> <p>17.4 Loading / unloading</p> <p>Require driver to be one removing straps from load.</p> <p>Require that opposite side of trailer be cleared before using equipment to unload.</p> <p>18.4.2 Flagger - Verbiage update to comply with MUTCD / OSHA requirements.</p> <p>19. Fall Protection</p> <p>Personnel name change –</p> <p>19.5 Personal Fall Arrest Systems (PFASs) Biannual inspection requirement</p> <p>19.10 Fall Protection Rescue Plan</p> <p>Allows rescue plan to be part of DRA as well as JHA to account for local conditions.</p> <p>23 Heat Illness Program</p> <p>Complete re-write to comply with 2015 changes.</p> <p>23.2 Error in numbering from previous version.</p> | 5 |
| 05/11/2021 | <p>1.1 DFJV Personnel updated</p> <p>2.6 Title Modification</p> <p>3.1 Verbiage modification, removal of "native language orientation"</p> <p>3.2 Orientation Refresher Training - Clarified language</p> | 8 |

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| 5/11/2022 | <p>1.0 Removal of language "The design of Construction Package 2-3 schedule is expected to be complete by the end of 2016. The construction of CP 2-3 is expected to be complete by mid-2019."</p> <p>1.1 DFJV Quality Manager personnel name change. Segment Safety Manager name change Utility Coordinator/Permit Manager name change</p> <p>1.2 Removal of language "Shall issue Safety Bulletins."</p> <p>1.2.C Removal of language "Shall pre-plan operations to prevent personal injury and property damage. Construction Plans for new or modified operations are to be prepared, reviewed, and submitted to the Segment Manager prior to the operation's commencement for review." "Shall work with safety department to develop and oversee a safety recognition program to encourage trade/subcontractor participation."</p> <p>1.2.F Removal of language "Shall work with safety department to develop and oversee a safety recognition program to encourage trade/subcontractor participation. " "Shall work with safety department to develop and oversee a safety recognition program to encourage trade/subcontractor participation."</p> <p>2.7 Deleted Text "Safety Suggestion"</p> <p>2.8 Deleted Text "A self-calculating score sheet for numeric scoring." Month replaced with Week.</p> <p>3.2 Annual replaces Orientation</p> <p>3.3 Added language " White Hard Hat with Green Strips that will" "Green Stripes to be removed from" "if approved" replaces "to be received"</p> <p>4.1 Added Language "Unsafe conditions:" "Unsafe behaviors"</p> <p>4.2 Deleted text "Emergency numbers will be posted at office telephones."</p> <p>4.6 Added text "The ISMS notification program will also be used to log safety meetings, incidents, accidents, as required"</p> <p>4.8 Replaced "DUSA Executive Vice President." with "DFJV project Director"</p> <p>5.0 Replaced "and shall be a single document, separate from SSHASPs." with " specific. It shall be at each worksite."</p> <p>5.5 Added text "Earthquake Safety Procedures"</p> <p>8.1 Added text "in good condition" and "with defined heel" Deleted "Gloves or the equivalent shall be used as necessary to protect hands from physical injury." replaced with "Gloves shall be worn at all times while in the work zone by all personal except when by doing so it creates an additional hazard. See Glove Assessment form for application use."</p> <p>19 Added text "As a general rule"</p> <p>25 Added text "Americans with Disabilities Act, (ADA) rules shall be understood and implemented where necessary", "Noise monitoring and appropriate noise reduction measures shall be addressed when working near the public. Noise reduction measures such as scheduling, equipment selection, barriers, etc., shall be implemented if the noise levels become greater than allowable under the regulations of the governing authority having jurisdiction. Site assessments shall take place prior to any work being conducted that may negatively impact the public. Other environmental hazards such as vibration, dust control, run off, track out, etc., must be addressed through the DRA and JHA process as well. If hazards are identified that may have negative impacts or present safety issues to the public they must be adequately addressed before any work commences. Monitoring shall be ongoing and mitigation methods appropriate for the situation. "</p> | |
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| 5/2023 | 1.1DFJV personnel updated. 2.8 Changed one SSI to two per month. 8.8 Delete the word cutting. 14.6 Added in Checklist , entrant log and air monitor log still required. | 10 |
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DFJV Health and Safety Policy Mission Statement

The Dragados USA, Inc. and Flatiron West, Inc. Joint Venture (“DFJV”) is committed to protecting the safety, health of our employees and the general public, working with our construction management and subcontractor partners for the protection of their respective workforces, and protecting the environment. It is therefore expected and requested that each person, of every tier and position, involved in the DFJV project commit to maintaining the values, goals, and objectives outlined within the body of this Manual.

The Mission of the DFJV Management Team, with respect to Health, Safety, and the Environment, is the prevention of injury, illness, environmental impact, and property damage during all construction activities that are conducted at the DFJV jobsite. This Mission will be accomplished through a multi-dimensional approach to the management of safety, including the following:

- Development of strong partnerships between DFJV, CHSRA and subcontractors.
- Implementation of a comprehensive Environmental, Safety and Health Plan for construction activities.
- A defined accountability and responsibility program that fosters safety ownership during construction.
- A structured self-evaluation program for the purpose of monitoring and continuous improvement.
- Development and maintenance of a training and education program specific to construction activities, as well as security needs while on the CP 2-3 project.
- A defined set of company-wide goals and objectives related to the safety and health of the workforce.
- Injury prevention through a focus on activity pre-planning at every level of construction.
- A subcontractor assessment process intended to increase the value of safety management systems.
- Maintenance of strong, open communication lines where all interested parties add value to safety.

This approach, in conjunction with a strong management commitment and maintenance of positive relationships will prove to be an invaluable asset to DFJV, its partners, and its neighbors. Meeting this goal will require steadfast dedication at every level of the construction projects, and begins with this commitment by the management team at the DFJV.



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Vicente Albarola, Project Director
Dragados Plathon Joint Venture

ACRONYMS

| | |
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| A2B | Anti-Two-Blocking |
| AHJ | Authority Having Jurisdiction |
| CAZ | Controlled Access Zone |
| CLI | Crane Level Indicator |
| CN | Crane Notice |
| CPR | Cardiopulmonary Resuscitation |
| CHSRA | California High Speed Rail Authority |
| CHSTS | California High Speed Train System |
| DEP | Department of Environmental Protection |
| DFJV | Dragados USA; Flatiron West, Inc.; Construction Co. (JV) |
| ECPs | Energy Control Procedures |
| EHS | Environmental Health and Safety |
| FOPS | Falling Object Protective System |
| GFCI | Grounding/Ground Fault Circuit Interrupters |
| HCP | Hazard Communication Program |
| HWRP | Hazardous Waste Remediation Plan |
| HWP | Hot Work Permit Job |
| JHA | Hazard Analysis Lower |
| LEL | Explosive Limit Load |
| LID | Indicating Device Load |
| LMI | Moment Indicator |
| LOTO | Lockout/Tagout |
| LPG | Liquefied Petroleum Gas |
| NEC | National Electrical Code |
| NFPA | National Fire Protection Association |
| OSHA | Occupational Safety and Health Administration |
| PAI | Permit Authorizing Individual |
| PE | Professional Engineer |
| PFAS | Personal Fall Arrest System |
| PFD | Personal Flotation Device |
| PPE | Personal Protective Equipment |
| Ppm | Parts per Million |
| PRCS | Permit-required Confined Space |
| ROPS | Rollover Protection Structure |
| SAA | Small Arms Ammunition |
| SAE | Society of Automotive Engineers |
| SDS | Safety Data Sheets |
| SRL | Self-retracting Lifeline |

Health and Safety Plan

1.0 Scope of Work

The California High Speed Rail (CHSR) Construction Package 2-3 (CP 2-3) consists of approximately 65.5-miles across Central Valley California through Fresno, Tulare and Kings Counties, and the cities of Hanford, Corcoran, and Allensworth. From the north, the project extends from Fresno to about 1 mile north of the Kern County line. The alignment crosses Fresno and Kings Counties as it parallels BNSF and SR-43 and then heads southeast along the BNSF alignment. The CP 2-3 HSR alignment then crosses SR-43 near the Kings River Complex and turns southerly to parallel SR-43 near the City of Hanford. Once at Deer Creek the HSR alignment turns south toward Kern County. The CHSR design includes roadway structures, High-Speed Rail Structures, civil embankment, utility relocations and drainage culverts.

Final design and construction will be provided for high-speed rail trackway civil infrastructure. It will be complete in place, up to the top of subgrade, plus an additional protective layer of AC paving for purpose of protecting installed subgrade. Certain structural embedment's will be included to mitigate/minimize future abortive work (i.e., anchor bolts, embeds, grounding and bonding, foundations, etc.). One of the key focuses is the integration of CP2-3 components with future systems components. Some of those components consist of sound walls, access road AC paving, ballast, trackway drainage, systems & OCS, and subsurface infrastructure. Major work elements include construction of at-grade and aerial grade sections of high-speed train alignment.

The CHSR system will connect various regions of the state, create jobs, contribute to economic development, a cleaner environment and preserve agricultural and protected lands. Construction Package 2-3 is the second CHSR package to be released by the CHSR Authority, making it one of the foundations of future CHSR alignments.

1.1 Management Team

- Lead Contractor's PM/Director: Sean Lind
- Lead Contractor's Deputy PM: Dan Cruz
- Lead Contractor's Operations Manager: Alan Badillo
- Lead Contractor's Construction Quality Manager: Robert Lester
- Rail/Roadway Manager: James Heisdorf
- Project Safety and Security Manager: Heather Simmons
- Segment Safety Managers: Mike Storie, Andrew Giurlani, Mike Simpson
- Utility Coordinator/Permit Manager: Tania Zamora-Perez

The organizational chart that identifies all safety management personnel, their roles, authorities, and line reporting relationships is provided in the Project Administration of the Project Management Plan. Resumes of Key Personnel involved in safety management (Lead Contractor's Project Manager/Director, Lead Contractor's Construction Manager and Lead Contractor's Construction Quality Manager) are provided in the Project Administration of the Project Management Plan. The Contractor and Subcontractors shall participate in the preparation of JHA's, DRA's, and coordinate with third parties, such as, emergency responders and adjacent railway operators, when necessary, to ensure an interactive and thorough safety reporting system. This system shall conform to all regulatory requirements, including Federal, State, or Local jurisdictions, as required by the SSMP. This Safety Plan and associated documents shall be kept on site and made available to all employees, authorized visitors, and the Authority upon request. Inspections and audits shall be completed by the Contractor, Subcontract and Authority on a periodic basis.

1.2 Roles and responsibilities

A. Project Safety Manager/Representative:

- Shall be engaged in, abide by, and actively support compliance with Project HASP, SSMP, SSSP, OSHA Standards, and all other federal, state, and local regulations.
- Shall actively participate in the review of subcontractor Safety and Health Plans for compliance with this Manual and the Project HASP.
- Shall assist with the implementation of a Safety and Health Orientation process for all employees assigned to the Project.
- Shall assist subcontractors in pre-planning their operations to mitigate personal injury and property damage. Construction Plans for new or modified operations are to be reviewed prior to the operation's commencement.
- Shall schedule, distribute notification, and co-chair the Crew Safety Meeting, and shall co-chair the Mass Safety Meetings.
- Shall receive all safety-related correspondence and copies of all incident and accident reports.
- Shall notify Subcontractors of a safety noncompliance.
- Shall assist in the investigation of accidents, incidents, and near misses in conjunction with the Foreman, Subcontractor Safety Representative, and Construction Manager and/or Segment Managers.
- Shall assist with the Root Cause Analysis for accidents, incidents, and near misses in conjunction with Segment Managers, Construction Managers and Superintendents.
- Shall conduct, documented safety inspections of the project via the required inspection method.
- Shall attend/participate in each pre-construction safety meeting for Subcontractors

B. Segment Manager:

- Shares the overall responsibility and authority for management of the safety program for assigned employees.
- Shall enforce compliance with Project HASP, SSMP, SSSP, OSHA Standards, and all other federal, state, and local regulations.
- Shall attend the Monthly Project Management Safety Meeting.

- Shall pre-plan operations to prevent personal injury and property damage. Construction Plans for new or modified operations are to be prepared, reviewed, and submitted to the Segment Manager prior to the operation's commencement for review;
-
- Shall investigate all accidents, incidents, and near misses in conjunction with the general contractor Segment Manager and Project Safety Manager, subcontractor Safety Representative.
- Shall chair the Monthly Mass Safety Meeting.

C. Construction Manager:

- Shares the overall responsibility and authority for management of the safety program for assigned employees.
- Shall enforce compliance with Project HASP, SSMP, SSSP, OSHA Standards, and all other federal, state, and local regulations.
 - Shall pre-plan operations to prevent personal injury and property damage. Construction Plans for new or modified operations are to be prepared, reviewed, and submitted to the Segment Manager prior to the operation's commencement for review;
- Shall attend the Monthly Project Management Safety Meeting.
- Shall investigate all accidents, incidents, and near misses in conjunction with the general contractor Segment Manager and Project Safety Manager, and subcontractor Safety Representative.
- Shall attend each Monthly Management Safety Meeting and Monthly Mass Safety Meeting.

D. Superintendents:

- Shares the overall responsibility and authority for management of the safety program for their assigned employees.
- Shall enforce compliance with Project HASP, SSMP, SSSP, OSHA Standards, and all other federal, state, and local regulations.
- Is responsible for coordination of workforces and lower-tier Subcontractors so that a logical, systematic progression of work takes place, as well as Subcontractor orientation.
- Shall require that Employees under his/her command have the adequate training and knowledge to complete the task at hand.
- Is responsible for the coordination of USA locates.
- Is responsible for the completion of the Job Hazard Analysis.
- Shall attend the Monthly Project Management Safety Meeting.
- Shall require each employee's attendance at the project Safety Orientation.
- Shall attend each Monthly Management Safety Meeting and Monthly Mass Safety Meeting.
- Shall review and approve Job Hazard Analysis (JHA) documents to ensure accuracy and maximum mitigation of safety & health risk.

E. Foremen:

- Shares the overall responsibility and authority for management of the safety program for

assigned employees.

- Shall enforce compliance with Project HASP, SSSP, SSMP, OSHA Standards, and all other federal, state, and local regulations.
- Shall attend the Monthly Project Management Safety Meeting.
- Shall perform Weekly Safety Inspections
- Shall require each employee's attendance at the Daily Risk Assessment, (DRA's).
- Shall attend each Crew Safety Meeting and Monthly Mass Safety Meeting.
- Shall draft and review Job Hazard Analysis (JHA) documents to ensure accuracy and maximum mitigation of safety & health risk with engineering, management, and safety department.

F. Subcontractor Safety Representative:

- Shares the overall responsibility and authority for management of the safety program for assigned employees.
- Shall enforce compliance with Project HASP, SSMP, SSSP OSHA Standards, and all other federal, state, and local regulations.
 - Shall pre-plan operations to prevent personal injury and property damage. Construction Plans for new or modified operations are to be prepared, reviewed, and submitted to the DFJV Segment Manager or Construction Manager prior to the operation's commencement for review;
- Shall require that Employees under his/her command have the adequate training and knowledge to complete the task at hand.
- Shall attend the Monthly Management Safety Meeting and Monthly Mass Safety Meeting.
- Shall investigate all accidents, incidents, and near misses in conjunction with the general contractor Segment or Construction Manager and Project Safety Manager, subcontractor Foreman, and union steward.
- Shall train their employees to perform their work in a safe manner and to recognize and correct potential and actual hazards and unsafe acts.
- Shall make a complete safety inspection of their operations with a written report to the Project Safety Manager noting corrective action to identified hazards.

G. Project employees:

- Shall attend the Project Safety Orientation and complete the form prior to beginning work on the project.
- Shall perform their work in a safe manner for prevention of accidents to themselves, fellow Employees, the public, and property of all concerned.
- Shall attend and participate in Daily Risk Assessments, (DRA's)
- Shall attend and participate in weekly toolbox talks.
- Shall alert and notify a Supervisor of hazards and unsafe acts.
- Shall comply with the Project HASP, SSSP, SSMP, OSHA Standards, and all other federal, state, and local regulations.

H. Project Engineers:

- Provide technical support to all levels to ensure maximum mitigation of risk is attained for new processes / tasks.
- Oversee all engineering processes in construction projects and provide subject matter expertise as per requirement and perform regular tests on procedure to ensure compliance to all regulations and evaluate all designs and drawings before implementation.
- Identify and resolve all technical issues in construction process prepare an effective schedule.
- Provide interface with subcontractors, third-party entities to ensure adherence to applicable safety documents and regulations.
- Attend monthly segment mass safety meetings, and other assigned safety meetings as required.

1.3 Safety Communications

Communications regarding safety is intended to be a 360-degree feedback loop. Communication will take place utilizing multiple forms. These meetings shall be documented either in DRA's or on meeting minutes as applicable. These methods include:

- Office – Weekly Safety Meetings
- Craft – Daily Risk Assessment / JHA team meetings
- Craft – Monthly all-hands meeting
- Craft – Monthly craft-level safety committee meetings with Safety Dept.
- Foremen – Monthly Foreman Safety Committee
- Management, Superintendents, Engineering Staff – Quarterly Mass Safety Segment meetings
- Executive Management: Executive Safety Leadership Committee

Effectiveness of these meetings can be measured subjectively in part through injury/incident rates, as well as quantity and quality of suggestions received from employees.

2. Risk Assessment / Job Hazard Analysis

2.1 General

All DFJV projects shall employ the safest work practices possible to ensure company employees remain injury free. DFJV project property, materials and equipment shall be protected from damage and maintained in good condition. Planning is an essential component of safety on the jobsite. All projects shall fully utilize Standard Operating Procedure (SOP) guidelines, create site specific Job hazard Analysis (JHA) plans, and ensure Daily Risk Assessment (DRA) forms are utilized to educate employees and enable them to eliminate or prevent potential hazards.

2.2 JHA/DRA Development

This procedure is designed primarily for managers and supervisors to better facilitate safety planning into project work. Standard Operating Procedures are provided as a guide to develop Site Specific Job Hazard Analyses. The JHA's are used to assist in the creation of Daily Risk Assessments.

2.3 Scope

These risk assessment planning procedures are mandatory. Anytime a new operation begins, a "site specific" Job Hazard Analysis shall be written to aid the development of effective Daily Risk

Assessments.

2.4 Definitions

Daily Risk Assessment (DRA) - a mechanism used by the crew to identify and discuss hazards associated with daily tasks or changes in operation, prior to starting the task. The DRA is to identify daily site-specific hazards, corrective actions, additional tool requirements, and changes in the condition or the process.

Job Hazard Analysis (JHA) - a planning technique for job tasks that identifies hazards before they occur. JHAs focus on the relationship of the worker, the task, the tools, and the work environment. As hazards are identified, steps are taken to eliminate or reduce hazards to an acceptable risk level.

Standard Operation Procedure (SOP) – designed to focus on repetitive operations that occur throughout the company. SOPs are intended to be resources rather than mandatory protocols. SOPs are a set of instructions covering operation features that lend themselves to standardized procedures without loss of efficiency or effectiveness. If an SOP does not exist for an operation, please contact DF safety for development of a new SOP.

2.5 Responsibilities

- Segment Manager/ Construction Manager has full responsibility for establishing the timeline for completing JHAs and for finalizing, implementing, and executing an effective program of personal protection and incident prevention of the job site.
- Construction Managers, Superintendents or Designee are responsible for the day-to-day implementation of the safety and health program by ensuring all operations are properly planned using SOPs, JHAs, and DRAs and for implementation of corrective actions as needed.
- Engineers incorporate safety mechanisms into all temporary works, rigging devices, and review designs to ensure all safety standards and regulations are adequately met.
- Safety Representatives serve as technical advisors to supervision about safety planning, problems, and challenges.
- Foremen are responsible for implementing the SSHASP program for each crew under their supervision.

2.6 Procedures

- Before the operation begins, the superintendent, engineer, and safety representative meet to review the task and write the site-specific JHA.
- If an SOP is not available, proceed to develop the site-specific JHA.
- Master JHA book may be used if the following conditions are completed
 - JHA must be reviewed by project supervision
 - The correct project information and revision date on the JHA
 - Hazards must be evaluated and removed or added according to project conditions

2.6a Site Specific Job Hazard Analysis

- JHAs are written utilizing the SOP as a resource
- The superintendent or designee will work with the engineer and field safety representative to review the SOP and incorporate site-specific activities, additional tasks, hazards, and corrective

measures. If needed, some steps from the SOP may be omitted, to tailor the JHA for the specific task or operation.

- Following the initial operation, and as often as needed, JHAs shall be reviewed by the superintendent, engineer, and safety representative to verify that all vital steps are included, all hazards are identified, and that all corrective measures are implemented.
- Any needed revisions shall be made to the JHA before works starts on the specific operation.
- The foreman will discuss the JHA with the crew before an operation begins and will ask for additional comments for the JHA and make revisions if needed.

2.6b Daily Risk Assessments

- The foreman assigned to the task being completed for the day writes the Daily Risk Assessment using the JHA as reference.

The foreman shall discuss the tasks performed for the day with his crew to determine if any additional hazards and corrective measures are needed.

Step #1: Create Written - Standard Operating Procedures

1. Create SOP to standardize major operation procedures for use in all divisions.
2. Best practice methods for performing operation are the basis for creating SOP.
3. Approved SOPs posted on the Selma Public Server, to be used for reference when creating a Job Hazard Analysis.

Step #2 Create Job Hazard Analysis

1. The JHA is a detailed, step-by-step process for the task, and are written utilizing the SOP as a reference for the operation.
2. The superintendent will work with the engineer and safety representative to review the SOP and incorporate site-specific job activities.
3. JHAs shall be prepared before the operation begins.
4. Completed JHAs shall be reviewed to ensure compliance with all applicable regulations and company policies.
5. After the first operation is completed, the JHA shall be reviewed, to verify that all steps were included, all hazards were identified, and all corrective measures were implemented.

Step #3 - Create Written – Daily Risk Assessment

1. Written Daily Risk Assessments (DRAs) are developed from the Job Hazard Analysis by the foreman who obtains input from the crew regarding the task(s) to be performed for that day.
2. DRAs detail site-specific hazards for the day, incorporate corrective actions, identify additional tools needed to perform the work, and serve as an alert to changes or conditions that may be present in the task process.


| Standard Operating Procedure | | | | |
|---|---------------|---|---|-----------|
| Operation: Curb Inlets / Cleanouts / Minor Structures | | | | |
| | Task/Activity | Hazards | Corrective Measures | Completed |
| 1 | USA - Locates | Encountering live buried or overhead utilities Hazards include electrocution, explosion, exposure to hazardous fumes, etc. | 1 When possible request a site meeting with all utilities. 2 Clearly mark area to be excavated with white paint and company name. 3 Call for locates at least 48 hours before excavating. 4 Provide signage for overhead utilities and maintain the required clearances. 5 After mark out is complete pothole conflicting utilities as necessary. | |
| 2 | Excavation | Competent Person | 1 Must have competent person on site. A competent person must inspect the excavation each day and after a rain or other weather event. | |
| | | Struck by equipment | 1 Communicate with equipment operators and maintain eye contact and use signals as necessary. 2 Make sure that the equipment has a backup alarm. 3 Inspect equipment prior to use to ensure that it is good working order. 4 Do not walk behind, work under, or around equipment to avoid struck-by, falling objects, or pinch points. | |
| | | Cave-ins | 1 Obtain excavation plan prior to start and use approved cut or shoring/trench shields/speed shores as called out. 2 Look for cracks in side walls of excavation, loose soil, or falling items into the excavation. 3 Survey the area for previously disturbed soil or surcharge loads. | |
| | | Confined Space | 1 Evaluate the area in regards to a confined space requirements. 2 Develop a confined space entry and rescue plan and monitor the air if applicable. 3 Ventilate the area if determined to be a confined space. | |
| | | Falls | 1 Use fall protection where applicable (over 6'). 2 Use ladders for access in and out of excavation. 3 Protect the public from excavations in the street with approved plating and/or closure of the area. | |

JHA - JOB HAZARD ANALYSIS - Site Specific



| | | | |
|--------------------------------|---------------------------|-----------------|----------------------------------|
| Date Created: | Type of Work: | Location/Job#: | Contract#: |
| | Minor Structures | | |
| Verify JHA discussed with crew | | | |
| Date Discussed: | Superintendent Signature: | Superintendent: | Engineer: Safety Representative: |
| | | | |

| Activity Description | HAZARDS | Preventative or Correction Actions to be Taken |
|----------------------|---|--|
| USA Locates | <p>A. Encountering live or overhead utilities - possible electrocution</p> <p>B. Hazards include electrocution, explosion, exposure to hazardous vapors, etc.</p> | <p>Contact electrical company/pertinent utilities to shut off power if required to work within clearance zone.</p> <p>Provide signage for overhead utilities and maintain the required clearances.</p> <p>Call for locates 48 hours in advance</p> <p>When possible meet with all pertinent utilities</p> <p>Clearly mark area to be excavated with white paint and company name</p> <p>After mark out is complete pothole conflicting utilities as necessary.</p> |
| Layout | <p>A. Access</p> <p>B. Excavation</p> <p>C. Tripping/Falling</p> <p>D. Shoring</p> <p>E. Work Area</p> | <p>Roped off area, handrails, posted signs; current condition-what other operations are happening near or around you</p> <p>Soil stability - Type B; weather conditions day prior, day of, future; excavate 1:1 - 10 ft deep. INSPECT DAILY</p> <p>Housekeeping; how were conditions left prior to new item; plan to maintain</p> <p>Depth and width of trench; proper spacing of shoring per tab data</p> <p>Work area near structure; PPE; aware of sparks from power tools;</p> |

| DAILY RISK ASSESSMENT | | | | | |
|---|------------------|---|-----------------|--|-------------|
|  | | Superintendent: <u>Joe Superintendent</u> | | Foreman: <u>Bob Foreman</u> | |
| | | Job #: <u>2104</u> | | Date: <u>10/28/2006</u> | |
| | | Operation: <u>Minor Structures</u> | | | |
| | | | | | |
| TASKS | | HAZARDS | | CORRECTIVE MEASURES | |
| 1 <u>Layout</u> | | 1 <u>Access</u> | | 1 <u>Roped off area, installed handrail, posted signs, nearby other operations are notified of activity</u> | |
| 2 | | 2 <u>Excavation</u> | | 2 <u>Soil stability - Type II, weather conditions, yesterday, today and expected in near future, excavate with 1:1 slope to a depth of 1.0 ft. INSPECT DAILY</u> | |
| 3 | | 3 <u>Tripping/Falling</u> | | 3 <u>How were housekeeping conditions left prior to new activity; maintain good housekeeping</u> | |
| 4 | | 4 <u>Shoring</u> | | 4 <u>Depth and width of trench, proper shoring per tab data</u> | |
| 5 | | 5 <u>Work Area</u> | | 5 <u>Work near structure, PPE, be aware of power tools causing sparks, and be aware of rebar</u> | |
| 6 | | 6 <u>Traffic Control</u> | | 6 <u>Protection/visibility from traffic through barrier, cones, etc.</u> | |
| 7 | | 7 | | 7 | |
| 8 | | 8 | | 8 | |
| 9 | | 9 | | 9 | |
| 10 | | 10 | | 10 | |
| ACCESS / EGRESS / PARKING: | | POTENTIAL PINCH POINTS: | | | |
| PREVIOUS DAY NEAR MISS IF YES: | | | | | |
| REQUIRED PROTECTIVE EQUIPMENT <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"><input type="checkbox"/> Abrasive Blast Hood</div> <div style="width: 33%;"><input type="checkbox"/> Cutting Goggles</div> <div style="width: 33%;"><input type="checkbox"/> Gas Monitor</div> <div style="width: 33%;"><input type="checkbox"/> Ladder Climbing Device</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Reflective Vest</div> <div style="width: 33%;"><input type="checkbox"/> Safety Goggles</div> <div style="width: 33%;"><input type="checkbox"/> Water</div> <div style="width: 33%;"><input type="checkbox"/> PPE/other</div> <div style="width: 33%;"><input type="checkbox"/> Beam Walkers</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Face Shield</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Gloves (Specify Type)</div> <div style="width: 33%;"><input type="checkbox"/> Lanyard</div> <div style="width: 33%;"><input type="checkbox"/> Respirators (Type)</div> <div style="width: 33%;"><input type="checkbox"/> Self-Retracting Lifeline</div> <div style="width: 33%;"><input type="checkbox"/> Welding Hood</div> <div style="width: 33%;"><input type="checkbox"/> PPE/other</div> <div style="width: 33%;"><input type="checkbox"/> Chain Saw Chaps</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Fire Extinguishers</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Hard Hats</div> <div style="width: 33%;"><input type="checkbox"/> Life Vest</div> <div style="width: 33%;"><input type="checkbox"/> Rubber Boots</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Stop Paddles</div> <div style="width: 33%;"><input type="checkbox"/> Welding Leathers</div> <div style="width: 33%;"><input type="checkbox"/> PPE/other</div> <div style="width: 33%;"><input type="checkbox"/> Chin Strap</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Full Body Harness</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Hearing Protection</div> <div style="width: 33%;"><input type="checkbox"/> Metatarsal Guards</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Safety Glasses</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Traffic Control Signage</div> <div style="width: 33%;"><input type="checkbox"/> Welding Screens</div> <div style="width: 33%;"><input type="checkbox"/> PPE/other</div> </div> | | | | | |
| HEAT: <input type="checkbox"/> Shade? (80%) <input type="checkbox"/> High Heat Procedures Required? (95°+ plus) <input type="checkbox"/> High Temperature for the day <u>71</u> <input type="checkbox"/> Medical Facility: _____ <input type="checkbox"/> Location to Replenish Water: _____ <input type="checkbox"/> Drink Water Frequently <input type="checkbox"/> Preventative cool-down discussed | | | | | |
| FORMS: <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"><input type="checkbox"/> Hot Work Permit</div> <div style="width: 33%;"><input type="checkbox"/> Pile Driving Checklist</div> <div style="width: 33%;"><input type="checkbox"/> Critical Pick Checklist</div> <div style="width: 33%;"><input type="checkbox"/> Trench & Excavation</div> <div style="width: 33%;"><input type="checkbox"/> Trench & Excavation</div> <div style="width: 33%;"><input type="checkbox"/> Scaffold/Stair</div> <div style="width: 33%;"><input type="checkbox"/> Other: _____</div> <div style="width: 33%;"><input type="checkbox"/> Confined Space Permit</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Traffic Control Inspection</div> <div style="width: 33%;"><input type="checkbox"/> Weekly Inspection</div> <div style="width: 33%;"><input type="checkbox"/> Pre-Construction</div> <div style="width: 33%;"><input type="checkbox"/> Daily Visual Inspection</div> <div style="width: 33%;"><input type="checkbox"/> Tower Inspection</div> <div style="width: 33%;"><input type="checkbox"/> Other: _____</div> <div style="width: 33%;"><input type="checkbox"/> Equipment Inspection</div> <div style="width: 33%;"><input type="checkbox"/> Weekly Inspection</div> <div style="width: 33%;"><input type="checkbox"/> Falsework Lowering</div> <div style="width: 33%;"><input type="checkbox"/> Checklist</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Job Hazard Analysis</div> <div style="width: 33%;"><input type="checkbox"/> Near Miss Report</div> <div style="width: 33%;"><input type="checkbox"/> Other: _____</div> </div> | | | | | |
| CREW SIGNATURES | | | CREW SIGNATURES | | |
| Print: _____ | Signature: _____ | Date: _____ | Print: _____ | Signature: _____ | Date: _____ |
| Print: _____ | Signature: _____ | Date: _____ | Print: _____ | Signature: _____ | Date: _____ |
| Print: _____ | Signature: _____ | Date: _____ | Print: _____ | Signature: _____ | Date: _____ |
| Print: _____ | Signature: _____ | Date: _____ | Print: _____ | Signature: _____ | Date: _____ |
| Print: _____ | Signature: _____ | Date: _____ | Print: _____ | Signature: _____ | Date: _____ |

2.7 Hazard Correction Reporting

Each employee is obligated to alert his/her supervisor about any unsafe conditions or acts witnessed in the workplace without fear of reprisal. This includes reporting any near miss or near hit incidents so that a root cause analysis, and flash or incident alerts can be completed and distributed to all sites for corrective actions, educational and training purposes.

To encourage reporting by all employees, a “Good Catch” / “Near Miss” program will be utilized. Employees of the DFJV or its subcontractors can submit unsafe acts, conditions, or near-miss incidents via voice, electronically or submitted via anonymous notes in boxes located at segment offices.

Specific incident reporting and investigative procedures are detailed in the Incident Response, Reporting & Investigation section of the DFJV HASP Safety Plan.

2.8 Safety Self Inspections (SSI)

Evaluating job site conditions is a continuous responsibility for superintendents, safety representatives, segment/construction managers, and project director/operations manager to document and correct deficiencies. The SSI form contains:

- Twenty compliance category listings to be measured,
- Corrective measure description area with assignment and due date fields, and

SSI written documentation copies shall be forwarded to Project Safety Manager for the master tracking file. Audit participation is also recorded on supervisor tracking sheets by position.

The frequency schedule for conducting safety self-assessment audits listed below shall be followed:

- Superintendents – Complete at least two documented SSI audits per month.
- Segment Safety Manager – Complete at least one documented SSI audit per week.
- Project Engineer – Complete at least two SSI audits per month
- Segment/Construction Managers – Conduct at least two SSI audits per month with one being completed with the project safety representative.
- Project Director/Operations Managers – Schedule and complete at least two SSI audits per quarter with the project safety representative.
- Project Safety Managers – Schedule and complete at least four documented SSI audits per month.

DFJV Jobsite Inspection Checklist

The following is to be used as a guide by DFJV personnel to perform periodic safety inspections.



Project: California High Speed Rail

Date: _____

Job#: CP 2-3 (13-57)

Inspection By: _____

Position: _____

Mark each item C = Compliant, N = Noncompliant, or NA = Not Applicable

| 1 Postings / Notices / Bulletins | | | | 6 Fire Protection | | | | 11 Fall Protection | | | |
|---|---|---|----|--|---|---|----|---|---|---|----|
| | C | N | NA | | C | N | NA | | C | N | NA |
| 1 Required EEO, state, federal and/or local agency postings | | | | 1 Hot Work Permits completed | | | | 1 Full Body harnesses and lanyards worn properly and as req'd | | | |
| 2 Emergency Action Plan Posted | | | | 2 Fire extinguishers properly located and accessible throughout job site | | | | 2 Lanyards are adequately secured to suitable anchorage | | | |
| 3 Evacuation Plan, including muster points to account for employees | | | | 3 Fire Extinguishers fully charged & inspected monthly/annually | | | | 3 Perimeter guarding/Handrails in place where required | | | |
| 4 Spill Response Plan in place and posted | | | | 7 Welding and Cutting | C | N | NA | 4 Static lines installed and capable of supporting 5,000 lbs. of force per user | | | |
| 5 Notice to employees on where to find Safety Data Sheets | | | | 1 Welding Leads & Cutting Torch hoses maintained in good working order | | | | 5 Fall protection equipment is used for fall protection ONLY | | | |
| 6 Signs indicating First Aid Station or First Aid Kit locations posted | | | | 2 Combustibles moved a safe distance away from hot work operations | | | | 6 Fall protection inspected and maintained in a safe-for-use condition | | | |
| 7 No Trespassing Signs posted at entry points to the job site | | | | 3 Flash arrestors installed on all cutting torch setups | | | | 7 Retrieval plan complete and communicated | | | |
| 2 Safety Meetings / Planning | C | N | NA | 4 Oxygen, Acetylene & Combustibles separated by 20' or 30 min fire rated wall installed / stored | | | | 12 Scaffolds | C | N | NA |
| 1 JHA has been completed for the observed tasks | | | | 5 Regulator gauges properly attached and maintained | | | | 1 Work Platforms fully decked between front uprights & guardrail | | | |
| 2 Weekly Toolbox Talk completed | | | | 8 Tools and Equipment | C | N | NA | 2 Scaffold grade planking utilized | | | |
| 3 DRA is complete and reviews safe production of the day's tasks | | | | 1 Tools are maintained in a safe condition | | | | 3 Planks extend no less than 6" , and no more than 12" over bearing rail | | | |
| 4 Crew is familiar with the DRA and the hazards of the work (must ask crew members) | | | | 2 Tools are properly carried and stored | | | | 4 Ladder access with landing at 35' intervals as a minimum | | | |
| 5 Stretch & Flex has been performed | | | | 3 Pneumatic / hydraulic hose connections properly secured | | | | 5 Scaffolds maintain a minimum of 15' from uninsulated electrical lines | | | |
| 3 Training | | N | NA | 4 Proper tools used for the job performed | | | | 6 Scaffold Stairways provided with landings at 12' intervals | | | |
| 1 All employees have had required DFJV orientation | | | | 5 All tools are properly guarded | | | | 7 Daily inspections conducted by competent person | | | |
| 2 Employees have been trained for the assigned tasks | | | | 9 Electrical Safety | | N | NA | 13 Ladders, Stairways and Access | C | N | NA |
| 3 Current 1st aid/CPR trained personnel on site | | | | 1 Cords to power tools inspected prior to each use | | | | 1 Ladder access clear and unobstructed | | | |
| 4 Supervisors have been through supervisor safety training | | | | 2 No tape on any cords - Tools or Extension Cords | | | | 2 Ladders positioned at 4:1 ratio - (4 feet high to 1 foot out from wall) | | | |
| 5 Subcontractor DFJV orientation completed | | | | 3 Ground Pins in place when required | | | | 3 Ladders extend 3 feet higher than landing point | | | |
| 4 HazCom / Materials | C | N | NA | 4 Ground Fault Circuit Interruptors (GFCI) utilized with power tools | | | | 4 Employees utilizing hoist to raise or lower materials (leaving hands free) | | | |
| 1 Safety Data Sheets available for all Hazardous Mat'l used on site | | | | 5 Cords protected against vehicular or pedestrian traffic damage | | | | 5 Employees ascending/descending using three points of contact at all times | | | |
| 2 Hazardous mat'l list up-dated and current | | | | 6 Cords maintained "out of water" to prevent possible shock hazard | | | | 6 All "Job Made" ladders constructed according to specific requirements | | | |
| 3 Materials/Containers properly labeled - Contents and Hazard Rating | | | | 10 Personal Protective Equipment | | N | NA | 7 Ladders tied off/secured properly | | | |
| 4 Hazardous materials are properly stored | | | | 1 Hard hats worn and maintained as required | | | | 8 Safe and proper access to work area | | | |
| 5 Employees aware of Right of Know (must ask crew members) | | | | 2 High visible/reflective apparel worn as required | | | | 9 Step ladders used properly - full extend - no use of top two steps | | | |
| 5 Housekeeping | C | N | NA | 3 Hearing protection worn as required | | | | 10 Stair handrails no less than 36" high from tread to top of stair rail | | | |
| 1 Project work areas are clean and free of excess trash, debris | | | | 4 Eye protection required and worn in a proper manner | | | | 11 Stairs having 4 or more risers or more than 30" in height, have handrails | | | |
| 2 Walkways and passageways clear | | | | 5 Proper foot protection worn for job performed | | | | 14 Excavations | C | N | NA |
| 3 Electrical Panels clear of debris/materials to allow full access | | | | 6 Face shield or goggles worn as required | | | | 1 Sloped and shored properly | | | |
| 4 Fire Extinguishers clear of debris/materials to allow full access | | | | 7 Gloves worn when employee is exposed to potential hand hazards | | | | 2 Utilities notified prior to opening excavations | | | |
| 5 Material or equipment properly stored | | | | 8 Proper Cutting Goggles used during cutting operations (#3 Shade Min) | | | | 3 Competent Person designated as required by OSHA for excavations | | | |
| 6 Electrical cords, hoses, welding leads positioned to prevent trip hazards | | | | 9 Respiratory Protection worn and cared for as required | | | | 4 Access and egress provided within 25 ft. of employee(s) | | | |
| 7 Scrap material free of protruding nails or other puncture hazards | | | | 10 Other: Paper cups available/provided at all water coolers as req'd | | | | 5 Daily inspections conducted | | | |
| 8 Trash receptacles are provided for work areas and water kegs | | | | 11 Adequate number of sanitary facilities provided & maintained as req'd | | | | 6 All excavations 20 ft. or greater are PE engineered & stamped | | | |
| 9 Barricades, and/or rebar caps installed and maintained | | | | | | | | 7 Cofferdams have a minimum of 2 access and egress points | | | |

3. Site Orientation

3.1 General

All employees, (**DFJV and Subcontractors**), working on the DFJV California High Speed Rail CP 2-3 shall be provided with a Site Safety/Security Orientation session conducted prior to the start of their work shift on their first day of employment. Employees who work on the project site but who do not enter the work areas, such as but not limited to Administrative Assistants, Timekeepers, or other support personnel shall be provided with an orientation session applicable to their job and/or visit. A background screening will take place prior to orientation for all potential employees. In addition, an oral drug test and/or urinalysis screening will be required by all potential employees prior to their arrival for orientation on the DFJV project. Upon successful completion of the background screening, urinalysis, and orientation, an access/ security badge will be issued.

An exception will be made for utility personnel regulated by the California Public Utilities Commission (CPUC) that have an executed agreement with the DFJV or the HSRA. An abbreviated Site Safety/Security Orientation will be available for their employees to attend. Badging and screening will not be required as CPUC regulations meet or exceed project safety and security requirements. They shall display their company badge while on the HSRA ROW.

DFJV shall ensure that they complete an Orientation Checklist and obtain all necessary information. The Checklist shall be signed by an Authorized Representative of DFJV and shall be filed prior to the start of work.

Orientation may be provided to employees in advance of their first day of employment on the project. No more than thirty (30) calendar days shall elapse between the orientation session and the first day of employment on the DFJV CP 2-3 project. The employee will not be issued a badge until the week of their first day of work (Mon-Fri).

Employees who are away from the project for 180 consecutive calendar days shall be required to repeat the orientation training.

All visitors that intend to do any work at a project job site must take part in the Environmental Health & Safety (EHS) Site Orientation and the Workers Environmental Awareness Program (WEAP). No orientation will be required for visitors to the HUB Office only. No orientation will be required for construction job site assessment visits (pre and post bid). All visitors must be signed in and will be issued a daily visitor's badge. All visitors must be escorted while on job sites by a fully badged representative, whether this be an Authority, DFJV or subcontractor employee. Any visitors that refuse an escort on a project job site shall be considered an employee or subcontractor and will be subject to the additional screening measures described above.

DFJV shall be responsible for providing an orientation session, or ensuring that an appropriate orientation session is provided, to their employees.

Elements of the orientation training shall be repeated when the employer has reason to believe that any affected employee who has already been orientated does not demonstrate understanding of the EHS requirements presented in the orientation session.

3.2 Annual Refresher

Worker Environmental Awareness Program (WEAP) shall have annual training. Additional training on safety topics will be provided based on HASP changes or remedial on an as-needed basis and

applicable to the employee's job.

3.3 Equipment and Supplies

Emergency Action Plan contact, and the appropriate hard hat decals will be provided to Orientation trainees at the conclusion of the orientation.

DFJV Employees will be issued the required PPE to include a White Hard Hat with Green stripes that will to be worn for 90 days at the conclusion of the orientation for the activity that they are assigned. Additional training in activity specific risks and hazards and the appropriate compliance requirements will be given by the field supervision prior to the employee starting work. At the conclusion of the 90 days, a review of the employee's performance will be given with the potential for Green Stripes to be removed from white hard hat if approved. .

3.4 Required Subject Matter to be Instructed

Subject matter of the orientation session to be reviewed shall include but not limited to:

- EHS Project Management
- Project Site Specific Health and Safety Plan
- Review of the SSHASP
- Location
- Company Rules
- Job Hazard Analysis
- Purpose
- Use
- Location
- Hazard Communication
- Location of SDSs,
- Labeling system used
- Contact person for information
- Fall Protection
- Project rule regarding fall prevention/protection systems
- Guardrail system construction and use
- Hole covers
- Personal Fall Arrest Systems
- Emergency Procedures
- Evacuation plan
- Alarm System
- Muster / Rally Points and alternative muster / rally points
- Location of first aid equipment/eyewash and drench shower
- Personal Protective Equipment (PPE) Requirements

- DFJV's minimum PPE requirements
- Confined Spaces
- Definition
- Location
- Hazards
- Confined space permit system
- Excavation
- Requirements for protective systems
- Positive location of Utilities
- Placement of materials
- Access and egress requirements
- Control of Hazardous Energy (Lockout/Tagout)
- Purpose
- Energy sources
- Lockout requirements
- Lock or tag removal
- Electrical
- Working near energized conductors
- Lock Out/Tag Out
- GFCI requirements
- Guards and covers
- Cords and plugs
- Arc Flash
- Scaffolding
- Tagging system
- Fall protection
- Falling object protection
- Hot Work
- Definition
- Permit system
- Fire Watch
- Precautions
- Ladders and Stairways
- Ladder and stairway requirements

- Ladder type and set-up
- Use of fixed ladders
- Fire Prevention
- No smoking requirement
- Handling and storage of flammable and combustible liquids
- Compressed gas cylinder use and storage
- Housekeeping and Sanitary Requirements
- Heat Illness Prevention Program Prevention
 - Recognition
 - Response
- Railroad requirements
- Solid Waste Management
 - Reduce
 - Reuse
 - Recycle
- Storm Water Management
 - Purpose
 - Control measures
 - Incident Reporting
- Requirements for attending environmental health and safety (i.e., toolbox talks)
- Valley Fever
 - Definition
 - Control measures
 - Training

3.5 Documentation

Orientation sessions shall be documented, and documentation shall be available on the project for review by DFJV. The documentation shall include but not limited to:

- Consultants or Subcontractors name.
- DFJV contract number and project name.
- Date of orientation.
- Instructors or trainers name and signature.
- Subject matter presented (outline of orientation content shall be attached).

4. Incident and Near Miss Reporting and Investigation

4.1 Near Misses and Incidents

For the purposes of this standard, a near miss shall be defined as an unplanned event that did not result in injury, illness, or damage – but had the potential to do so.

This includes things such as:

Unsafe conditions:

Unsafe behaviors:

- Events where injury could have occurred but did not.
- Events where property damage could have resulted but did not.
- Events where a safety barrier is challenged; and
- Events where potential environmental damage could result.

An incident is an unplanned event in which a person or persons are injured, made ill, or property and/or equipment is damaged, the environment is harmed, or an environmental release occurs.

For purpose of determining an incident or near miss, work-relatedness shall not be considered. All occurrences on CHSTS meeting the definition of near miss or incident shall be reported; this includes workplace violence.

All incidents and near misses are required to be reported.

4.2 Reporting Procedures

It is imperative that we ensure that near misses and incidents are reported from all personnel.

Following an incident, immediate precautions must be taken to provide care for the injured individual, mitigate the impact of an environmental release, or secure potentially damaged property.

DFJV Safety Manager and DFJV Project Management must be immediately notified, as soon as it is safe to do so, of all incidents as described in 4.1. The DFJV safety team and DFJV project management shall inform the CHSRA in accordance with contractual obligations.

4.3 Investigation Procedures

An investigation shall be performed for all work-related incidents and near misses. Investigations shall commence immediately following an incident.

4.4 Incident Investigation

For motor vehicle, motorized equipment, or crane serious or significant incidents, DFJV is required to immediately screen the driver(s) or operator(s) for drugs and alcohol. All accidents, serious incidents, and injuries shall require post-accident drug screening. Where suspected as a potential cause to an incident, cell phones shall be inspected for activity during the time of the incident. Results shall be considered as part of the incident investigation.

Reports of all work-related incidents or near misses shall be provided by DFJV. Investigations shall identify the following:

- Contributing Factors
- Root Causes
- Corrective and Preventative Actions
- Effective Solutions and Lessons Learned

For serious or significant incidents, an investigation team is required. Members shall be identified as set forth in the Tables of Immediate and System Causes Used to Determine Contributing and Root Causes of Near Misses and Incidents (Appendix A).

Areas where serious or significant incidents have occurred shall be immediately secured and rendered safe to avoid further incident. Once the affected area has been secured, it shall not be disturbed until the investigation has concluded to provide for an accurate representation of the events contributing to the incident.

The investigation shall identify contributing factor(s) and root cause(s). Contributing factors include events, conditions, tools, equipment, and/or actions that were partially responsible for the event. A root cause is defined as the ultimate direct cause(s) of the event.

Corrective actions shall address both the contributing and root cause(s). One corrective action may address multiple contributing and root causes.

4.5 Internal DFJV Report Timing

- Near miss Preliminary notifications shall be presented within 60 minutes to the DFJV. Preliminary report to follow within two business days after the event.
- Preliminary investigation reports for first aid or recordable injuries should be presented within one business day of incident date and shall contain facts known at the present time.
- Within 5 business days, all follow up information and “root cause” analysis reports shall be distributed to safety and appropriate parties.

4.6 Record Keeping and Documentation

All accidents, work-related injuries, illnesses, and property loss shall be documented and stored for the appropriate time. Records shall be made available upon request. Recording tools such as The First- Aid Log, the OSHA 300 log, and annual OSHA 301 log will be utilized. The ISMS notification program will also be used to log safety meetings, incidents, accidents, as required

4.7 Discipline/Accountability Plan

The Accountability Plan shall include disciplinary procedures to be utilized where compliance by a Subcontractor or Employee is not met. The following program elements shall be applied, at a minimum:

- The following represents the general procedure for discipline as it applies to this project. The DFJV unconditionally supports all Federal and State safety regulations and maintains full compliance. If any employee is responsible for a violation of the Construction Safety Orders or the Safety Policy of the DFJV that employee shall be disciplined as follows:
- 1st Violation - A verbal reprimand from management and retraining of the employee. After review, employees with repeat violations will be disciplined at the discretion of management. The verbal reprimand will be documented by management and filed with Human Resources.
- 2nd Violation - A written reprimand and warning shall be issued to the employee. A suspension of up to one (1) week without pay if within one (1) year of the date of occurrence of the first violation. The written reprimand and warning shall be documented by management and filed with Human Resources.
- 3rd Violation - A minimum one (1) week suspension without pay or possible termination of employment if within one (1) year of the date of occurrence of the second violation. The disciplinary action will be documented by management and filed with Human Resources.

Dependent upon the seriousness of violation, management reserves the right to increase the

disciplinary action at any level of offense.

4.8 Subcontractor Non-Compliance:

The first offense shall require DFJV to issue a written warning to the Subcontractor, noting the infraction and recommended corrective actions.

The second offense shall require DFJV Project Management to meet with the Subcontractor Management and define and document corrective actions going forward.

The third offense shall require DFJV Project Management shall meet with the Contractor's management. The third offense may also include dismissal of the Subcontractor from the project. All potential dismissals shall be reported to the DFJV project Director..

5. Emergency Action Plans

5.0 Emergency Action Plan Requirements

Project staff shall initially write and review the project EAP.

The Project EAP shall be updated as necessary to incorporate any changes in construction activities that could affect the execution of the EAP in the event of an emergency.

The EAP shall be specific to a project/site specific. It shall be at each worksite.

All Subcontractors working on the project shall agree and sign on to the project EAP. Where differences between Subcontractors are incorporated, they shall be documented in the EAP.

For activities that are limited in scope and duration, and the hazard assessment (see Hazard and Incident Assessment) indicates all planned work is adequately addressed by the existing facility EAP, DFJV may indicate that the existing EAP is adequate and will be complied with and serve as the activity

EAPs must, at a minimum, include the following items:

- Roles & Responsibilities
- Site Communication Methods
- Sirens, Alarms and Signaling Devices
- Program Review and Updating
- Hazard and Incident Assessment
- Evacuation Procedures and Accountability
- Muster Points
- Response Resource Evaluation
- Access Issues and control
- Drills and Exercises
- Training

5.1 Roles and Responsibilities

All personnel shall have a responsibility to understand and notify appropriate personnel when an emergency is discovered or observed.

DFJV shall maintain a system of employee sign-in, timecard, or some other method of maintaining a list of personnel presents at the site, which can be used for accounting during an evacuation.

DFJV shall inform all visitors of alarms signals, muster points, checking-in responsibilities, and all other necessary elements of the project EAP as soon as those visitors are allowed on site. EAP information is to be posted at the entrance or muster point of each site location.

DFJV shall be responsible to account for visitors during evacuations and shall maintain a visitor log that includes sign-in and sign-out, which shall be utilized for purposes of checking in visitors in case of an emergency.

Following any evacuation, DFJV shall immediately report the status of employee accountability, which includes following EAP drill activities.

DFJV shall be responsible for providing an individual(s) to participate in the EAP development. DFJV is responsible for incorporating the risks and needs of their subcontractors within the EAP development.

DFJV shall identify at least one individual as their EAP coordinator to participate in emergency response activities when necessary.

DFJV may not release staff until all personnel are checked in.

DFJV designee shall be responsible for maintaining a log of personnel onsite. This log shall be made available to DFJV for purposes of employee accountability identification.

DFJV designee shall be responsible for providing initial directions to all emergency resources upon arrival at the site.

DFJV designee shall remain at their post, where possible, and maintain the security of the site. During an incident, no personnel shall be allowed to enter the area of incident unless part of the emergency response activities.

5.2 Emergency Communication Methods

DFJV must have a means of communication to all personnel. The primary method of communication to all personnel will be through cell phones and two-way radios (flaggers).

5.3 Non-Verbal Emergency Communications

DFJV must have a means of emergency communication to all personnel. The primary method of communication to all personnel will be through cell phones.

| <u>Non-Verbal Emergency Communications</u> | |
|--|---------------------------|
| <u>Signal</u> | <u>Meaning</u> |
| One long blast on (air horn) | Evacuate Area |
| Two long blast on (air horn) | All Clear |
| Hands on top of head | I am OK |
| Strongly wave arm(s) over head | HELP (Assistance NEEDED) |
| Cross arms in front of head, fists closed | Stop/stay away |
| Hand clutching throat | Out of air/cannot breathe |
| Grip partner's wrist or waist | Leave Area Immediately |
| Point one arm in direction of evacuation, make large circling motion with other arm in direction of evacuation | Evacuate Area |

5.4 Program Review and Update

EAPs shall be reviewed at least annually and updated to reflect any changes due to construction activities that may affect the plan. Records of the annual review will be maintained on the DFJV project.

5.5 Hazard and Incident Assessment

EAPs shall, at a minimum, include the following sections for handling the following types of incidents:

- Severe weather conditions
- Fires and/or explosions
- Acts of violence
- Chemical and petroleum releases
- Power outages
- Medical emergencies
- Earthquake Safety Procedures

As part of the EAP's development, potential hazards and risks of the planned work, nature of the site, or due to the surrounding areas/properties shall be considered and incorporated into the EAP. This must include all major or serious risks that have the potential to impact the project.

All necessary resources shall be identified as to source, availability, and potential for redundancy. This shall include where local resources/responders will be utilized.

Where local resources are intended to be utilized, all efforts shall be made to familiarize those resources with the nature, locations, and hazards of the project. Additionally, local resources must be evaluated to ensure they meet the necessary requirements to perform the work.

Local resources must be evaluated as to availability and time required for response.

Where local resources are inadequate for the hazards/risks identified during the above evaluation, the project must obtain and provide any additional resources necessary to meet the identified needs.

Where local resources are limited a means of communication shall be established to ensure that the project is aware when those resources become unavailable.

Note: During periods of unavailability no work may be conducted that will expose workers to those hazards requiring those response resources.

5.6 Muster Points

Muster points must be evaluated and selected based upon their ability to accommodate the number of personnel on site and location.

At least two distinct muster points (i.e., a primary and a secondary) per Segment external to the site must be identified wherever possible.

- Locations of primary and secondary muster points should be selected to allow personnel to take alternative routes or exits from the site, where possible.
- Muster points may be utilized/shared where they meet the criteria herein and the facility agrees with the sharing.

Muster points must be re-evaluated as part of the EAP's annual review or anytime access to a muster point becomes impeded.

Muster points should be free of traffic and responding emergency vehicles.

Muster points should be readily accessible and not locked, secured, blocked, or otherwise made inaccessible.

Muster points should be clearly marked on all site maps and all personnel made aware of locations. Muster points should have signage or other means of visible identification.

Where a muster point becomes inaccessible or unavailable it must be replaced with a temporary muster point until the primary is returned to service.

Temporary muster points must meet all requirements herein.

5.7 Response Resource Evaluation

Response resources are required based upon the hazard assessment conducted in development of the EAP.

All response resources must be evaluated and selected based upon their ability to respond and be adequate for the potential types of responses required. On-site crews shall have at least one member trained in first aid/CPR. Additionally, all Foremen, Superintendents, and Segment Managers shall be trained in first aid/CPR.

Evaluation of hospitals, medical centers, or other medical facilities must include location, accessibility, availability, and ability to handle the potential types of injuries. The current list of local medical clinics and hospitals shall be posted in all job trailers.

Specialized rescue equipment and personnel (i.e., confined space, tunneling, etc.) shall be evaluated based upon location, ability to respond, amount or size of crews/equipment available, and any other applicable OSHA or best management practice requirements.

5.8 Access and Control

DFJV shall maintain a system of employee sign-in or some other method of maintaining a list of personnel presents at the site, which can be used for accounting during an evacuation. Temporary or other access points must be secured upon the departure of security personnel.

Visitors shall be directed to DFJV foreman if they are visiting. All workers must pass through orientation prior to being allowed on site. Access/Security badges shall be issued at the completion of the orientation.

A means of communication shall be established to allow DFJV to be notified of visitor arrivals.

EAPs shall identify where and whether site visitors must be escorted in some or all areas of the DFJV Project.

Where access points are temporary or not always open, EAPs shall incorporate routes of travel and muster points which are not impacted by the potential closure of the access point unless a localized means of opening the access point is provided.

Access points shall be marked and adequately lit to allow identification and entry by emergency responders.

Where the main access point is removed from service signage shall be provided indicating the new access point and this information shall be provided to local emergency responders prior to establishment.

5.9 Drills and Exercises

Drills and exercises shall be designed to randomly test various sections of the site's EAP. This must include those hazards and incidents as identified during the risk assessment.

A drill/exercise shall be conducted annually for each work shift (i.e., if two shifts per day are worked then each shift would have a total of two drills).

Records of the drills/exercises shall be maintained on site and available for review. Local emergency services shall be invited in drills.

5.10 Training

All project personnel shall receive initial training on the requirements of the EAP and Personnel shall also receive training upon updating of the EAP. This training shall occur as part of the employee's EHS orientation to the project or otherwise provided before employee commencement of work upon the site.

As part of Employee EHS Orientation, all personnel shall be provided:

- Correct site name and address.
- Phone number for emergency services.
- Phone number for plant operations (i.e., watch engineer, plant chief, etc.).
- Location and methods of utilizing facility phones (where present).
- Notification procedures in case of an incident/emergency; and,
- Badging procedures and access to the jobsite.
- Communication limitations (i.e., cell dead zones, etc.)

Site visitors shall receive an orientation which includes basic EAP information such as alarm signals, muster points, and evacuation routes. This information shall be provided also in written form as part of visitor's PPE and may be in the form of card or be posted at the site sign-in area. The visitors will then be issued a Visitors Badge that shall be worn while on the job site.

Records of all training shall be maintained on site.

6. Housekeeping

6.1 Application

Maintaining excellent housekeeping on the projects is essential to reducing trip hazards, fire loading of building, maintaining emergency access/egress in and out of the work area, etc. Therefore, all subcontractors and consultants will be responsible for daily cleanup of all forms, packing material, scrap lumber, scrap metal, miscellaneous scrap material, boxes, pallets, and any other debris from work areas, passageways, walkways, stairways, in and around the building, project site, etc.

6.2 Inspections

Daily housekeeping inspections shall be made by Competent Person to confirm the following:

- Trip hazards and hazards caused by tools and equipment have been eliminated.
- Incoming materials are secured to prevent tipping or rolling.
- Trash is secured in covered containers.
- Litter is picked up.
- Scrap lumber with protruding nails, pipe, sawdust, snow, and all other debris have been cleared from work areas, passageways, stairs, and in and around buildings and other structures.
- All work areas are clean and secure at the end of each work shift.

6.3 Storage Requirements

In maintaining housekeeping standards on the DFJV Project; DFJV, Consultants, and Subcontractors shall implement procedures to ensure a high standard of housekeeping. Housekeeping practice shall include the following:

- Construction scrap and debris shall be contained in a neat and orderly manner and will be removed at the end of the day or during daily construction, alterations, and repairs. Safe means shall be provided to facilitate such removal. At no time shall debris be allowed to accumulate into an unforeseen hazard. Each subcontractor is solely responsible for the daily cleanup of their immediate work areas.
- Rolling carts containers or other means of collecting scrap material/trash will be provided at all workstations (e.g.: cutting metal/wood studs, pipes, etc.) for the collection of material debris.
- All extension cords, cables, and hoses will be properly hung off the ground, where possible, to minimize potentials for damage or employee contact. If suspension of the extension cords, cables and hoses is not feasible, then the extension cords, cables, and hoses will be picked up and put away after use / end of the day or other effective means shall be used to prevent the tripping hazard and potential for damage. Exceptions to this are extension cords for battery recharging in lifts and other equipment.
- When fluid is used for the cutting, threading of pipe or conduit a drip pan, lined containment box, or absorbent pads shall be placed under the operations to collect/absorb fluids.
- All vertical or upturned protruding reinforcing steel, electrical conduit, water pipes, etc., which constitute an impalement hazard, shall be protected to eliminate the hazard of impalement. Mushroom caps do not constitute impalement prevention.
- Wire mesh or reinforcing bars extending beyond a section of slab in place shall be bent down and secured to eliminate a tripping hazard. Otherwise, personnel shall be prohibited from walking over the area.
- Concrete washout containers shall be used to contain concrete waste and chute rinse water. The container shall be watertight. As necessary the container shall be equipped with a ramp. Below grade pits are to be utilized as a last resort on the DFJV Project. The CASQA Guidelines (WM-8) will be followed.
- Shanties, gang trailers and break areas will be continually policed by their occupants to prevent accumulation of combustibles such as lunch wrappers and newspapers in and around their shanties.
- In buildings or other structures dust shall be suppressed with wetting agents or sweeping compounds. Dry sweeping should be kept to a minimum within buildings. Where vacuum cleaning is used the vacuum shall be equipped with a filter to prevent the re-suspension of dust particles. A vacuum with High Efficiency Particulate Air (HEPA) filters shall be used for vacuuming hazardous dust (e.g., silica, lead) or as required by DFJV.
- Consultants and subcontractors utilizing low tier subcontractors for specific work (e.g., concrete core cutting, concrete pumping, etc.) will be responsible for maintaining housekeeping requirements by picking up and properly disposing of debris (e.g., concrete cores, pallets, buckets, etc.) or having their low tier subcontractor responsible for picking up and properly disposing of debris.
- Storage areas and tool rooms must be kept free from the accumulation of material and debris that may cause tripping, fire, explosion, or harboring of rodents and other pest hazards.
- During construction, alteration, or repairs, form and scrap lumber with protruding nails, and all other debris, shall be kept cleared from work areas, passageways, and stairs, in and around buildings or other structures.
- Workers working with lumber with protruding nails/screws will either bend the nails/screws

over or remove the nails/screws before stacking in a pile or properly disposing in a waste/recycle bin.

- When evaluating the construction areas, a Threat Vulnerability assessment and Site-Specific Hazard Analysis will be completed. If warranted in residential communities, a visual barrier, solid or screened mesh, maybe used to prevent the public's visibility into the work areas.

6.3.1 Material Storage

- Material shall be stored off the ground whenever possible including tools and small materials that can become a tripping hazard. Stored material may be stored on pallets, rolling carts, rolling racks, etc. so material can be moved as warranted. If pallets are utilized for movement of stored materials, subcontractor must have on site a pallet jack or other acceptable means of movement.
- Material stored inside buildings shall not be placed within 6' of any hoist way or interior floor opening or within 10' of any exterior wall, which does not extend above the stored material.
- OM packing crates and building material will be disposed of by workers in appropriate refuse containers after removing. Banding left on the floor or ground at any time is prohibited. Pipes, tubing, conduit, etc. stored on rolling racks will be flagged with high visibility flagging to avoid workers from walking into stored material. Material too short for storage on rolling racks will be stored in a mobile crate / cart.
- Temporary storage of material shall be neat, orderly, and out of walkways, stairways, fire escapes, etc. Materials shall not be haphazardly piled or strewn about in any work area.
- Material should be always secured down to avoid being airborne in the event of high winds and stored off the ground on pallets, 3 x 4 or 4 x 4 timbers. Material shall be stored at least 6' away from leading edge to prevent displacement.
- Material subject to water damage must be protected from the weather or other sources of water by covering with tarps or removing from area.
- Hoisting of material in 55-gallon drums with torched out handle holes for rigging straps or cables is prohibited. If 55-gallon drums are to be utilized for moving material, they must be secured in a drum cradle.

6.3.2 Debris Containers

- Bulk containers such as dumpsters, roll-off boxes etc. of sufficient size shall be provided for the collection and separation of construction debris, trash, and recyclables. Non-bulk containers used for garbage and other oily, flammable, contaminated or hazardous wastes, such as caustics, acids, harmful dusts, etc. shall be equipped with covers. Garbage and other waste shall be disposed of at frequent and regular intervals.
- All debris in waste/recyclable containers must be maintained below the top lip of the container.
- An adequate number of waste containers must be available throughout the job site to accommodate the disposal of garbage in all areas of the site. These containers must be brought to central disposal area and emptied on an as need basis.
- An adequate number of waste and recyclable receptacles will be provided in the break area for food scraps and litter. The waste receptacles will have a tight-fitting cover and emptied at least daily.
- Dumpsters, roll-off containers, and other containers occupying public areas shall be secured to prevent unauthorized dumping or salvaging. When not in use the container shall be

covered to prevent the harboring of rodents and other pest hazards. Permits shall be obtained for storage of containers on the public right away.

- Where there is no agreement between subcontractors for the sharing of debris/refuge and recyclable containers each subcontractor shall post a sign indicating that the container is only for their material.
- Areas around dumpsters and roll-off boxes shall be cleaned to ensure no tripping or other hazards are present around the container.
- As necessary, stairway or ramps with a platform shall be provided for safe access to dumpster and roll-off containers. The stairway, ramp and platform shall be adequately guarded to prevent persons from falling off the walkway or into the container.
- Under no circumstances shall subcontractors allow trash and garbage to pile up outside of containers in their work area(s) and storage areas, or outside of bulk storage containers in the central disposal area.

6.3.3 Walking Surfaces

Every work area shall be maintained, so far as practicable, in a dry condition. Where wet processes are used, drainage shall be maintained and platforms, mats, or other dry standing places shall be provided, where practicable, or appropriate waterproof footwear shall be provided.

7. Sanitation

7.1 Biological Hazards

- Employees should routinely wash their hands when working at locations identified with having Biological Hazards (i.e., sewer line break)
- Employees shall wash their hands with clean water and soap before eating, smoking, or encountering their mouth. Gloves should always be worn any time an employee's hands are chapped, burned, or they have a rash or cut.
- Employees should not touch their noses, mouths, eyes, or ears with their hands unless they have been washed.
- Fingernails should be kept short to minimize accumulation of bacteria.
- Soiled gloves, jackets, boots, and hard hats should be left outside eating areas prior to entry.
- Protective clothing (i.e., coveralls, boots, gloves, and face shields) shall be worn as necessary while completing work in which there is a chance of being splashed or meeting wastewater/sewage.

7.2 Toilet Facilities

- Where permanent toilet facilities are not available, DFJV shall provide temporary toilet facilities.
- DFJV shall provide and maintain toilet facilities for their employees unless arrangements have been made for a single subcontractor to provide and maintain toilet facilities on the DFJV Project.
- The employer shall decide to have the facilities pumped and cleaned frequently, based on usage.
- Where temporary toilet facilities are in close proximity to a reservoir or other body of water, the units must be secured and protected to prevent any potential discharge into the water

body.

The minimum number of toilets for each gender shall be provided in accordance with the following table:

MINIMUM NUMBER OF TOILETS PROVIDED

| Number of Employees | Minimum Number of Toilets |
|----------------------------------|---|
| <i>If serviced once per week</i> | |
| 1-10 | 1 |
| 11-20 | 2 |
| 21-30 | 3 |
| 31-40 | 4 |
| Over 40 | 1 additional facility for each <u>10</u> additional employees |

| Number of Employees | Minimum Number of Toilets |
|--|--|
| <i>If serviced more than once per week</i> | |
| 1-15 | 1 |
| 16-35 | 2 |
| 36-55 | 3 |
| 56-75 | 4 |
| 76-95 | 5 |
| Over 95 | 1 additional facility for each 20 additional employees |

- Toilets for male employees shall be equipped with a toilet seat cover, toilet seat, and urinal; for female employees, they shall be equipped with a toilet seat cover and toilet seat. The toilet facility shall be constructed to protect employees from the weather, vehicle traffic, and falling objects and shall be equipped with a self-closing door that can be locked from the inside. Toilet facilities will be marked by gender, when applicable.
- Hand washing facilities such as a portable sink, or hand sanitizer, will be provided at toilet facilities. Where hand washing facilities are provided, they will be maintained in sanitary condition and provided with water, soap, and means of drying.
- Toilet paper with a holder shall be provided for every toilet. An adequate supply of toilet paper shall always be maintained. When toilet facilities are used at night, they shall be adequately illuminated.
- It shall be the responsibility of DFJV to ensure that all toilet facilities are maintained in a clean and sanitary condition. DFJV shall also ensure ready access to the toilet facilities by the required servicing equipment.
- If employees are working in temporary field conditions, mobile crews, or normally unattended work locations, at least one toilet facility shall be provided, unless transportation to a nearby toilet facility is readily available.

7.3 Drinking Water

- DFJV and their subcontractors shall provide an adequate supply of drinking water for their employees. Cool drinking water shall be provided during hot weather, (1 qt. per person per hour).

- Potable drinking water dispensers shall be designed, constructed, and serviced to ensure sanitary conditions. Potable drinking water dispensers shall be capable of being closed and shall have a tap.
- Any container used to distribute drinking water shall be clearly marked “DRINKING WATER” and may not be used for other purpose. Potable drinking water dispensers shall be cleaned and sanitized at least weekly.
- Use of a common cup (a cup shared by more than one employee) and other common utensils is prohibited. Employees shall use cups when drinking from portable water coolers/containers. Unused disposable cups shall be kept in sanitary containers and a waste receptacle shall be provided for used cups.
- Outlets dispensing non-potable water shall be conspicuously posted “CAUTION - WATER UNSAFE FOR DRINKING, WASHING, OR COOKING” or “NON-POTABLE H2O”. There shall not be any cross connection, open or potential, between a system furnishing potable water and a system furnishing non-potable water.

7.4 Washing Facilities

- Washing facilities shall be provided at toilet facilities and as needed to maintain healthful and sanitary conditions.
- Each washing facility shall be maintained in a sanitary condition and provided with water (either hot and cold running water or tepid running water), soap, and individual means of drying. If it is not practical to provide running water, **hand sanitizers may be used instead.**

If the work tasks require it, see below:

- Washing facilities for employees engaged in the application of paints, coatings, or other operations where contaminants may be harmful shall be at or near the work area and shall be equipped to enable employees to remove such substances.
- Whenever showers are required by a particular standard, the showers shall be provided in accordance with the following:
 - One shower shall be provided for every six employees (or fraction thereof) of each sex, who are required to shower during the same shift.
 - Shower facilities shall be equipped with hot and cold water, heaters, ventilation, lights, privacy curtains, and doors that can be locked from the inside, and.
 - Body soap or other appropriate cleansing agents shall be provided and convenient to the showers.
 - Shower areas shall be maintained in a clean and sanitary condition.
 - Uncontaminated means of drying shall be provided. Towels shall either be laundered, where allowed, or disposed of after each use. A receptacle shall be available for used towels.

7.4 Changing Rooms (as required)

- Whenever employees are required by a particular standard to wear protective apparel, changing rooms shall be equipped with separate storage facilities for both street clothes and protective apparel.
- Where lockers are provided for street clothes, they shall be equipped with a hasp that can be locked.

- Prior to entering the clean side of the changing room, protective clothing shall be removed and disposed of in a secured receptacle.

8. Personal Protective Equipment

8.1 General

For the DFJV Project, the minimum PPE requirements are detailed below:

- A shirt or T-shirt with 4" min. sleeves and long pants shall be worn by project employees at all times.
- Tank tops and sleeveless shirts are not permitted.
- A hard hat shall be worn in all construction and operational areas.
 - The brim of the hard hat shall be worn in the forward position.
 - Hard hats shall not be painted, and only authorized decals are permitted on them.
- Footwear meeting the ANSI or ASTM standards shall be worn by all employees in all construction and operational areas.
- Sturdy work boots in good condition with substantial soles, preferably safety toed, is required for proper foot protection. Additional foot protection such as rubber boots or steel-toed protectors may be required where there is exposure to special hazards, e.g., falling or rolling objects or objects piercing the sole. Footwear shall provide ankle support where uneven site conditions exist. When working on BNSF property, lace up safety toed boots with defined heel are required.
- Add-on type devices, such as strap-on foot, toe, or metatarsal guards, shall not be used as a substitute for protective toed footwear.
- Protective eyewear with side protection shall be worn in all construction and operational areas.
- Protective eyewear shall be worn under all full-face shields and welding shields. Special eye and face protection shall be used as required by the anticipated hazard (e.g., chipping, welding, cutting, chemical handling or transfer).
- Employees whose vision requires the use of prescription (Rx) lenses shall wear either protective prescription (Rx) eyewear with side shields, or protective devices designed to be worn over regular prescription (Rx) eyewear.

Gloves shall be worn at all times while in the work zone by all personal except when by doing so it creates an additional hazard. See Glove Assessment form for application use.

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- A Class III Orange high visibility vest, jacket or shirt shall be worn in all construction and DFJV operational areas.
- When employees provide their own safety equipment or PPE, subcontractors shall be responsible for ensuring the adequacy of that PPE.
- An employee's corporate affiliation should be readily identifiable by labeling on either their hard hat or vest.

The above are minimum requirements; DFJV and subcontractors shall utilize the job hazard analysis process to identify when additional PPE is required. Deviations from the minimum PPE requirements shall be performed through the JHA/variance process.

8.2 Job Hazard Analysis

- DFJV and subcontractors shall identify and determine the proper PPE required for each task through a job hazard analysis.
- Job hazard analyses shall ensure that PPE is correctly identified, and that implementation is consistent with workplace conditions.
- DFJV may make reasonable efforts to accommodate employees with religious beliefs that may conflict with determined PPE requirements. However, when reasonable efforts to accommodate employees', religious beliefs do not provide the necessary safe working environment (without PPE), then the employee must use the appropriate PPE, or the employee will not be allowed to work in the area where the hazard requiring protection exists.

8.3 Inspection

- PPE shall be tested, inspected, and maintained in a serviceable and sanitary condition as recommended by the manufacturer.
- Defective or damaged PPE shall not be used. It shall be tagged as out of service and/or immediately removed from the work area to prevent use.
- Previously used PPE must be cleaned, disinfected, inspected, and repaired as necessary before being issued to another employee.

8.4 Selection and Criteria

PPE shall be selected based on the hazards or potential hazards to which employees may be exposed. As required by OSHA standards, PPE shall be compliant with national consensus standards (ANSI, ASTM, and NFPA) or certified by a government agency (NIOSH), as detailed in the following table:

REQUIRED PPE COMPLIANCE STANDARDS

| PPE | STANDARD |
|--------------|--|
| Hard hat | ANSI /ISEA Z89.1 Type I or Type II, Class G (general - low voltage electrical protection) or Class E (electrical –high voltage electrical protection) headgear. |
| Eye and Face | ANSI Z87.1 Daily eyewear does not meet this requirement even with attached side shield. Over the glasses (OTG) or prescription protective eyewear is required. |
| Foot | ASTM F2412-18a – Standard Test Methods for Foot Protection ASTM F2413 – Standard Specification for Performance Requirements for Foot Protection (puncture resistant, dielectric chain saw cut resistant etc....), electric hazard by stepping on live wire (EH), puncture resistant footwear devices (PR), chainsaw cut resistant (CS). |

| | |
|-------------------------|--|
| Hand | <p>ANSI/ISEA, 105 – Hand Protection Selection Criteria</p> <p>Defines five levels of cut resistance with level 1 being the least and level 5 being the most cut-resistant gloves. Moderate/standard protection: Level 1 to 2; recommended for continuous use in situations where the objects handled are only mildly abrasive, i.e., using a safety knife or handling untrimmed sheet metal. Heavy duty/high- performance protection: Level 3 to 5; coated or multi-layered to improve their resistance to frequent contact with sharp or abrasive objects.</p> |
| High-Visibility Apparel | <p>ANSI/ISEA-07</p> <p>Class 3 – General use – speed under 45 mph.</p> <p>Class 3 – night operations – limited visibility – speed over 45 mph.</p> |
| Chainsaw Chaps | <p>ASTM Standard F189</p> <p>Protective leg chaps shall be worn by employees operating chainsaws.</p> <p>Protective leg chaps must meet the specifications in ASTM Standard F189.</p> |

8.5 Chemical Resistant PPE

- Chemical-resistant PPE shall be selected based on the information provided on the material safety data sheet (SDS) or prescribed by a specific OSHA standard.
- When the information on a SDS does not specify the type of material the chemical- resistant garments or glove is made of, DFJV shall consult the manufacturer of the chemical- resistant garments or a Certified Industrial Hygienist or Certified Safety Professional to determine the correct type to protect the employee from the exposure.
- Chemical-resistant PPE shall be selected according to the anticipated hazard and the data on breakthrough time, permeation rate, and degradation provided by the manufacturer.
- Employees shall inspect chemical-resistant PPE prior to use and during use in accordance with the manufacturer’s instructions. When the PPE fails while in use, the employee shall immediately leave the area and notify their supervisor of the incident.
- DFJV shall establish procedures for decontamination of PPE or provide disposable chemical-resistant or other PPE that may be used in a potentially hazardous environment.
- When used in a hazardous or potentially hazardous environment, specialized protective equipment (e.g., harnesses and lanyards) shall be chemical resistant.

8.6 Personal Flotation Devices (PFDs)

- U.S. Coast Guard (USCG) approved PFDs (Type I, II, III, or a type V labeled work vests) are required:
- Whenever there is a drowning hazard; and on structures or equipment extending over or next to water, except where guardrails, personal fall protection, or safety nets are provided for employees.

- PFDs are required on barges, small boats, or other watercraft/floating vessel unless employees are in an enclosed cabin or cockpit.
- PFDs shall be of a highly visible orange/reddish color with reflective material attached to the front and back sides.
- PFDs shall be equipped with a USCG approved, automatically activated light and whistle, when working at night, unless adequate lighting is provided for the work zone.

8.7 Requirements for Fire-Resistant Clothing

- Employees and sub-contractors must wear fire-resistant clothing when performing tasks that may expose them to the hazards of flame or electric arc.
- In situations where employees are required to wear FR clothing, all layers of clothing, including undergarments, underneath the FR clothing must be either FR or 100% natural fiber (wool, cotton, silk, etc.).
- Employees are prohibited from wearing clothing containing polyester, nylon, rayon, and acetate, alone or in blends, when performing tasks that may expose them to flash fire or explosion resulting from the hazards of the work. This may include welding, potential for electric arc, etc.

8.8 PPE for Welding and Burning

Employees exposed to the hazards created by welding, or brazing operations, including assistants and fireguards, must wear FRC garments (i.e., leather jacket). Employees performing welding or cutting activities may also need to don the following equipment:

- Fire-resistant gauntlet gloves.
- Fire-resistant coveralls.
- Fire-resistant aprons or leather vests, jackets, leggings, sleeves, and spats worn over the fire-resistant coveralls when additional protection against sparks and radiant energy is needed.
- 100% natural fiber undergarments.
- A flame-retardant skullcap with ear covers for overhead work.

8.9 Hearing Protection

Hearing protection shall be made available to employees when the noise level exceeds 85 decibels (dBA).

8.10 Respiratory Protection

- Only National Institute for Occupational Safety and Health (NIOSH) approved respirators, cartridges, filters, and other components shall be used.
- In accordance with CCR Title 8 section 5144, DFJV shall have a written respiratory program.
- All employees shall be medically cleared and fit tested for the make, model and type of respirator worn.

8.11 Fall Protection

- Where walking or working surfaces are 6 feet or more above a lower level, a fall prevention/protection method (i.e., guardrail or personal fall arrest system (PFAS)) shall be used by employees exposed to fall hazards, in accordance with DFJV's EHS Fall Protection Standard.

- PFASs are not required when the fall hazard is mitigated by a guardrail system, safety net, or equivalent means to prevent a person from falling.
- PFASs and components shall be ANSI/ASSE Z359.1 and A10.32 compliant.

8.12 Training

Employees required to use PPE shall be trained on the limitations of PPE, proper use (don, doff and adjust), and maintenance. Employees shall receive hazard awareness training that will identify the reason for using PPE and the consequences of not using it.

Retraining is required when DFJV has reason to believe that any affected employee who has already been trained does not have the understanding or competency to use PPE. Circumstances where retraining is required include, but are not limited to, situations where:

- Changes in the workplace render previous training obsolete.
- Changes in the types of PPE to be used render previous training obsolete; or
- Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

9. Hazard Communication

9.1 Training

Employees shall be provided with information and training on hazardous substances used in their work area at the time of their initial assignment, and whenever a new physical or health hazard is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and safety data sheets (SDSs). At a minimum, training must include the following:

- Requirements of OSHA's Hazard Communication Standard, as found in CCR Title 8 section 5194.
- The location of hazardous substances present in the work area.
- The physical and health hazards of the substances in the work area.
- Methods and observations that may be used to detect the presence or release of a hazardous substance in the work area.
- Measures employees can take to protect themselves from these hazards.
- Availability/location of SDSs and DFJV's written Hazard Communication Program (HCP); and the labeling system in use in the work area.

DFJV shall be responsible for informing their employees of any physical or chemical hazards associated with non-routine tasks. DFJV is also responsible for providing employees with the proper personal protective equipment (PPE) needed to safely perform the task.

9.2 Written Hazard Communication Program

Each subcontractor shall have a written HCP that meets the requirements of Cal/OSHA standard), CCR Title 8 section 5194. The written HCP shall be maintained on the DFJV Project and available to personnel for review. The written HCP shall address the following information:

- Name of the person responsible for implementing and maintaining the program.
- Inventory of hazardous substances including quantities and location where inventoried

substance will be stored.

- Methods for ensuring proper labeling of containers.
- Methods for obtaining and maintaining SDSs.
- Procedures to ensure employees are trained initially, and periodically when use of hazardous substances is altered or modified; and
- Methods used to inform employees of the hazards of non-routine tasks, and the hazards associated with substances contained or stored their work areas.

9.3 Multi-employer Workplaces

Subcontractors who produce, use, or store hazardous substances to which employees of other subcontractors may be exposed shall additionally ensure that the HCPs developed and implemented include the following:

- The methods used to provide the other subcontractors on-site access to SDSs for each hazardous substance to which the other subcontractors' employees may be exposed.
- Methods that will be used to inform the other subcontractors of any precautionary measures necessary to protect employees during normal operating conditions and in foreseeable emergencies; and
- Methods the subcontractor will use to inform the other subcontractors of the labeling system.

9.4 Hazardous Substance Inventory

Each subcontractor is responsible for conducting a hazardous substance inventory to determine the hazardous substances present in their work area. The inventory shall be initiated at the start of the project and updated, as necessary. Each product or substance identified on the inventory form must have an SDS. Hazardous substance inventories shall be compiled by DFJV monthly.

As a minimum, the inventory shall include:

- Product name.
- Quantities (gallons, pounds); and
- Locations of used or stored substances, a map showing storage locations.

9.5 Safety Data Sheets

- DFJV shall maintain copies of the required SDSs for each hazardous substance at our project and shall ensure that they are readily available to employees upon request. (Electronic access and other alternatives to maintaining paper copies of the SDSs are permitted if there are no barriers to immediate employee access).
- SDSs for hazardous substances shall be maintained at the DFJV jobsite for the duration of the project and shall be periodically updated as new SDSs are received.
- DFJV shall maintain copies of SDSs received with incoming shipments of the hazardous substances, shall obtain an SDS as soon as possible for hazardous substances received without an SDS, and shall ensure that the SDSs are readily available to employees at the segment office in a conspicuous location.
- SDSs shall be maintained and stored in a location that can be easily accessed by emergency responders.

- Subcontractor copies of SDSs shall be provided to DFJV once a new hazardous substance has been brought onto the project.

9.6 Labels

- Containers labeled by their suppliers do not require relabeling unless the label becomes illegible.
- Each container of hazardous substances at the DFJV Project must be labeled, tagged, or marked with the identity of the hazardous substance and the appropriate hazard warnings (or words, pictures, symbols, or a combination thereof), to provide employees with specific information regarding the physical and health hazards of the hazardous substances.
- When a material is transferred to another container that container shall be labeled in accordance with DFJV's labeling scheme.
- Where a permanent tank, vat, vessel, or other container is filled with a hazardous substance, it shall be immediately labeled.

9.7 Spill Response (Minor Spill)

Contain the spill

- Stop the source of the spill if safe to do so and notify your supervisor.
- Berm around the spill if necessary.
- Use absorbent material to prevent spreading of spill area.

Recover spilled material

- Sweep up spilled dry material immediately. Do not wash or bury spilled materials.
- Recover liquid spills on dirt areas by digging up and properly disposing of contaminated soil.

Clean the contaminated materials and/or dispose of contaminated materials

- Used clean up rags will be sent to a certified industrial laundry or dry cleaner or disposed of properly.
- Contaminated material shall be disposed of in proper waste containers.
- Toxic wastes will not be disposed of in dumpsters designated for construction debris.
- Small non-hazardous spill residues and material will be placed inside a sealed container and disposed of properly.
- Labels will be examined for proper waste disposal instructions.
- The spill area will be inspected periodically until it can be satisfactorily known that the spill material has been completely removed from the site.

9.8 Significant/Hazardous Spills

- Only qualified staff shall clean up hazardous spillage.
- Notify the Project Manager immediately, Project Managers will initiate additional notifications and written reports.
- Notify local emergency response (911)
- Notify the Governor's Office of Emergency Services Warning Center.

- Notify National Response Center if necessary
- Contact Hazardous Materials Team
- For significant spills, construction personnel are not to clean up until various agencies have granted permission to do so.

9.9 California Prop 65

In 1986, California voters approved an initiative to address their growing concerns about exposure to toxic chemicals. That initiative became the Safe Drinking Water and Toxic Enforcement Act of 1986, better known by its original name of Proposition 65. Proposition 65 requires the State to publish a list of chemicals known to cause cancer or birth defects or other reproductive harm. This list must be updated at least once a year.

9.10 Non-Routine Tasks

When non-routine tasks are performed, a job hazard analysis (JHA) shall be prepared to identify the hazards involved in the tasks and the measure employees must take to protect themselves from the hazards. The JHA is to be reviewed with the crew and the SDSs shall be made available.

10. Fire Protection

10.1 General Precautions against Fire

- Flammable liquids with a flash point below 100°F shall not be used for cleaning purposes without DFJV acceptance.
- A hot work permit is required for any work involving burning, welding, heating, or spark producing tools that are capable of initiating fires. Hot work shall be in compliance with DFJV's EHS Standard for Hot Work.
- Combustible waste within buildings shall be stored in appropriate noncombustible containers or areas designated for the storage of that waste type. Otherwise, combustible waste may not be accumulated within buildings and shall be removed from buildings as the work progresses but in no case later than the end of the work shift.
- Igniting or maintaining an open fire at the DFJV Project is prohibited.
- Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a container designed for such use.
- DFJV sheds and offices located within 30 feet of new construction or existing buildings shall be protected with portable fire extinguishing equipment, suitable for the potential fire hazard involved.
- Equipment powered by internal combustion engines shall be positioned to direct exhaust away from combustible materials.
- Temporary structures (i.e., shanties), when located within another building or structure, shall either be constructed of noncombustible materials, or of combustible materials having a fire resistance of no less than 1 hour.
- Adequate clearance shall be maintained around lights and heating units to prevent ignition of combustible materials.
- All electrical equipment and installations in hazardous (classified) locations shall be in accordance with the National Electrical Code (NEC) for hazardous (classified) locations.
- Smoking is allowed in designated smoking areas only.

10.2 Fire Reporting and Alarms

The EAP shall be initiated in case of fire. Each site shall have a site-specific plan. The On-Site Emergency Response Worksheet shall be posted, and the location of the EAP and the Worksheet shall be presented to all employees and visitors during the orientation process.

10.3 Means of Egress and Elevators

- Adequate means of egress shall be maintained during construction, alteration, and demolition.
- Exits shall be marked by a readily visible sign.
- Exits and exit discharge points shall be free of all obstructions or impediments.
- Fire walls and exit stairways, if required for the completed buildings, shall be given construction priority. Fire doors, with automatic closing devices, shall be hung on openings as soon as practicable
- Fire doors shall not be blocked or wedged open and must always remain closed.
- Material shall not be stored within 36 inches of a fire door opening.
- All trailers, shanties, and personnel sheds are to be equipped with a fire extinguisher and smoke detectors.
- Elevators shall not be used in the event of a fire.

10.4 Water Supply for Fire Protection, Standpipes, and Sprinkler Systems

- Fire lanes providing access to all areas shall be established and kept free from obstructions.
- Vehicles, equipment, materials, and supplies shall not impede access to fire hydrants or other firefighting equipment. Existing fire lanes will not be blocked except where replacement lanes are first established and accepted.
- A water supply or other acceptable means of fire protection, either temporary or permanent shall be made available prior to hazardous or combustible materials arriving at the site.
- Any water source intended for firefighting operations, including standpipe outlets, street hydrants, and yard hydrants, shall not be used for construction, alteration, or demolition purposes, unless accepted by DFJV.
- Permanent (fixed) extinguishing equipment and a water supply for fire protection shall be installed in an operable condition as soon as practicable.
- During demolition or alterations, existing automatic sprinkler systems shall be maintained in service if reasonable.
- Clearance of at least 18 inches shall be maintained between the top level of the stored material and the sprinkler deflectors.
- DFJV shall be given at least 24-hour advance notice prior to impairment of sprinkler systems, standpipes, or other fire protection devices.

10.5 Housekeeping and Storage

- Combustible materials shall be piled with regards to the stability of piles and in no case higher than 20 feet.
- Storage areas shall be kept free from accumulation of unnecessary combustible materials.
- Weeds and grass shall be cut down and a regular procedure provided for periodic

maintenance.

- No combustible materials shall be stored outdoors within 10 feet of a building or structure.
- Piling methods shall be solid wherever possible, and in orderly and regular piles.
- Incompatible materials, which may create a fire hazard, shall be separated by at least 20 feet or be segregated by a barrier having a fire resistance of at least 1 hour.
- Incidental spills of flammable or combustible materials shall be immediately reported and remediated.

10.6 Portable Fire Extinguishers

- Buildings or structures under construction, alteration, or demolition shall be provided with at least one approved portable fire extinguisher (not rated less than 2A) as follows:
 - At each stairway on all floor levels, where combustible materials are being stored or combustible waste is being generated.
 - At the entrance, not to exceed 75 feet of each storage and construction shed.
 - Where flammable and combustible liquids are stored, handled, and used; and
 - Where hazardous and nonhazardous wastes are stored.
 - At least one in each trailer, shanty, and employee shed.
- Access to all available firefighting equipment shall always be maintained.
- All firefighting equipment shall be periodically inspected and maintained in operating condition.
- Defective equipment shall be immediately replaced.
- Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet.
- A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of wherever more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used (not including integral fuel tanks of motor vehicles).
- Portable fire extinguishers shall be inspected monthly and serviced annually.

10.7 Portable Fueled Space Heaters (If Applicable)

- Portable fueled space heaters shall not be used for purposes of human comfort or any other purpose other than construction-related curing and drying or utilizing a flammable liquid as a fuel.
- Portable fueled space heaters shall be shut down and deemed cool to the touch before refueling.
- Portable fueled space heaters shall be fixed in place and protected from overturning, movement, or damage.
- Heaters used in the vicinity of combustible tarpaulins, canvases, or similar coverings shall be located at least 10 feet from the coverings. The coverings shall be securely fastened to prevent ignition or upsetting of the heater due to wind action on the covering or other material.

10.8 Flammable and Combustible Liquids

- All sources of ignition shall be removed in areas where flammable and combustible liquids are stored and handled.
- Adequate ventilation shall be provided for operations involving the application of materials containing flammable solvents.
- Flammable and combustible liquid storage areas shall be maintained clear of vegetation and combustible waste.
- Flammable and combustible liquids shall not be stored in areas used for exits, stairways, or safe passage of employees.
- Flammable and combustible liquids shall be kept in approved safety containers except for bulk shipments. Only Type I or Type II safety containers shall be used. All safety containers shall be equipped with a dispensing funnel or hose, and each container shall be clearly labeled.
- Leaking containers shall be immediately repaired or taken out of service.
- Drums containing flammable liquids of a flash point of 100 °F or below, shall be grounded when in use. Each drum shall be equipped with a self-closing faucet and a bung vent. Appropriate controls shall be positioned below each drum faucet to catch drips.
- Containers of flammable liquids shall be grounded and be provided with a bonding wire for interconnecting between containers during material transfer.
- Provide secondary containment for all flammable and combustible liquids in closed containers greater than 5 gallons; all open containers require secondary containment (with capacity to contain 110% of largest container.)
- The indoor storage of flammable and combustible liquids shall be limited to 25 gallons outside of an approved flammable storage cabinet within any single room. All liquids must be in approved containers.
- No more than 60 gallons of flammable or 120 gallons of combustible liquids shall be stored in any one storage cabinet. No more than three such cabinets may be in a single storage area.
- Flammable and combustible materials shall be stored a minimum of 20 feet away from buildings and structures. The storage area shall be graded in a manner to direct possible spills away from buildings or other exposures or shall be surrounded by a curb or earth dike at least 12 inches high. One portable fire extinguisher having a rating of not less than 20-B shall be located within 25 feet of the storage area. (Article 36, Section 1933c.)
- A minimum 4-foot-wide aisle shall be provided between adjacent rack sections and any adjacent storage of liquids.

10.9 Flammable Gases and Oxygen

- Flammable gases and oxygen shall be stored in an outdoor location, in a secured cage protected from contact with the ground, ice, snow, water, salt, corrosion, and high-temperature sunlight.
- Compressed gas cylinders shall be protected from high traffic areas and areas where activities could damage the cylinders.
- Cylinders shall be stored away from doorways, aisles, elevators, and stairs, in clearly identified, dry, well-ventilated storage areas.

- Liquefied petroleum gas (LPG) gas shall be stored and filled at a minimum distance of 50 feet from the nearest building.
- Oxygen cylinders in storage shall be separated from flammable liquids, gases, and combustible materials (e.g., oil and grease) by a minimum distance of 20 feet or a noncombustible barrier at least 5 feet high having a fire resistance rating of at least one-half hour.
- Storage cylinders must be segregated into full or empty groups in racks or at locations for each category and shall be labeled “full,” “in use,” or “empty.”
- Compressed gas cylinders shall be stored with protective caps in place except when the containers are in use or are being serviced or filled.
- All cylinders, whether full or empty, must comply with National Fire Protection Association (NFPA), or Department of Transportation (DOT) labeling requirements and OSHA Hazard Communication requirements. Contents of cylinders shall be readily identifiable. An SDS must be available for all gases and gas mixtures.
- Flammable compressed gas cylinders used inside buildings must be stored at least 20 feet from flammable and combustible liquids and easily ignited materials such as wood, paper, oil, and grease.
- Flammable gas cylinders, whether full or empty, must not be located near an exit or at any location that could block an exit.
- Signs shall be conspicuously posted in areas where flammable compressed gases are stored and shall identify the substances and appropriate precautions (e.g., ACETYLENE- FLAMMABLE GAS - NO SMOKING - NO OPEN FLAMES).
- Cylinders containing flammable gases such as acetylene must not be stored in close proximity to open flames, areas where electrical sparks are generated, or where other sources of ignition may be present.
- Compressed gas containers shall be secured to prevent movement from contact, vibration, or seismic activity, utilizing one or more of the following methods:
- Securing containers to a fixed object with one or more noncombustible restraints. Containers shall not be secured to plumbing systems or electrical conduits.
- Securing containers on a cart or other mobile device designed for the movement of compressed gas containers; and
- Securing of containers to or within a rack, framework, cabinet or similar assembly designed for such use, except when the containers are in the process of examination, filling, transport, or servicing.
- Compressed gas containers shall not be placed near elevators, unprotected platform ledges, or other areas where the container could drop a distance exceeding one-half the height of the container.
- Compressed gas containers shall not be placed in areas where they are exposed to damage from falling objects.
- Compressed gas containers and systems shall not be located where they could become part of an electrical circuit. Compressed gas containers and systems shall not be used for electrical grounding.
- Compressed gas containers, except those designed for use in a horizontal position, and all

compressed gas containers containing non-liquefied gases, shall be stored in an upright position with the valve end up.

- Containers shall be moved using an approved method. Where containers are moved by hand cart, hand truck, or other mobile device, such carts, trucks, or devices shall be designed for the secure movement of containers.

10.10 Small Arms Ammunition (SAA) for Powder-Actuated Tools

- The main store of SAA shall be kept in a locked metal box.
- The SAA storage box shall be kept away from heat and shall not be stored in the same storage area or storage facility containing compressed gases or flammable liquids.
- The storage area or storage facility in which the SAA box is stored shall be identified by a permanent sign including the words "DANGER-SMALL ARMS AMMUNITION" in white letters on a red background.
- Powder-actuated tools shall not be used in a hazardous atmosphere.
- At least one portable fire extinguisher having a minimum 2A rating shall be provided in the area where SAA is stored.

11. Hot Work

General

- Processes that generate sparks or a significant heat source are considered Hot Work. Any potentially spark-producing activity performed in a hazardous (classified) location shall also be considered hot work.
- A job hazard analysis (JHA) shall be performed prior to the start of hot work in a hazardous (classified) location.
- All hot work shall be performed in accordance with a hot work permit (HWP), unless work is being performed in an area specifically designated for hot work.
- Areas shall be temporarily or permanently designated for hot work by DFJV.

11.1 Hot Work Permit

- When work is performed in areas not under the sole and exclusive control of DFJV, all subcontractors shall coordinate and notify DFJV of such hot work activity.
- The HWP shall be valid for a period not to exceed one shift.
- HWPs may be revalidated each day, not to exceed 7 days total.
- After each shift, the permitted area must be inspected by a PAI to confirm the existing controls and conditions of the HWP are acceptable for continued hot work. The permit may be revalidated for another work shift by the PAI.
- If HWP daily revalidation is not acceptable, the PAI must stop work and document the deficiencies in the "Comments" column of the HWP. Work cannot resume until all deficiencies are corrected. Once deficiencies are corrected, the PAI shall re-inspect the area, verify that it meets HWP requirements, and sign the revalidation line on the HWP.

11.2 Hot Work Permit Authorizing Individuals

Foremen / Supervisor is to evaluate the conditions and the hot work permit prior to authorizing and starting the hot work.

11.5 Employees Performing Hot Work

Employees performing hot work shall be required to:

- Review and understand HWP requirements and obtain HWP authorization from the PAI before starting hot work operations.
- Sign the acknowledgment section of the HWP.
- Use all required personal protective equipment (PPE), welding screens and shields, and necessary ventilation.
- Use all required personal protective equipment (PPE), welding screens and shields, and necessary ventilation.
- Cease all hot work operations if an unsafe condition develops and immediately notify the PAI for reassessment of the work area.
- Ensure the approved HWP is posted at the work location for the duration of the hot work operation.

11.6 Fire Watch

- A fire watch shall be required for all hot work operations not performed in areas either permanently or temporarily designated for hot work.
- The fire watch shall be positioned to watch for fires in all exposed areas, including those above, below, and adjacent to potential ignition sources. This may require the use of more than a single fire watch.
- Fire watch employees shall serve no duty other than the fire watch during hot work operations.
- The fire watch shall be responsible for the following:
 - Being familiar with and trained in the use of fire extinguishing equipment.
 - Ensuring the provided fire extinguishing equipment is adequate to control the fire hazards of the hot work.
 - Being familiar with all potential fire hazards that may be present in the hot work area.
 - Reviewing the specific requirements outlined in the HWP and verifying it is approved and revalidated daily by the PAI.
 - Extinguishing, or attempting to extinguish, all incipient-level fires.
 - Stopping hot work if unsafe conditions develop.
 - Maintaining constant observation of hot work activities and adjacent areas to detect the presence of fire or to detect the possibility of ignition sources encountering fuel sources.
 - Being knowledgeable about DFJV policies and procedures regarding the use of firefighting equipment (e.g., fire extinguishers and hoses).
 - Reporting emergencies.
- The fire watch shall remain in the exposed area throughout the course of hot work and for a period of 30 minutes following the conclusion of hot work. This shall include employee rest and break periods.

- The fire watch must inspect the hot work area and, if there are no signs of smoldering or fire, sign, and date the HWP to close it out.
- When the work is completed, the fire watch will remove the HWP from the work area and return it to the PAI who issued it.

11.7 Hot Work Precaution

- Hot work equipment shall be inspected and considered in satisfactory operating condition prior to use.
- Combustible materials and flammable liquids within 35 feet of the hot work area must be removed, and oily deposits within a 35-foot radius of the hot work area must be cleaned and/or removed.
- Combustible materials which cannot be removed must be covered or shielded with fire resistant covers, guards, or curtains. The edges of covers shall be tight to prevent the entrance of sparks. The materials shall also be wet down, if necessary, for protection from the hazard.
- Openings in walls, floors, ducts, or other concealed spaces within 35 feet of the hot work area must be covered to prevent the passage of sparks or slag to adjacent areas.
- Special precautions shall be taken to prevent unwanted activation of automatic fire detection or suppression systems due to hot work. All appropriate parties (i.e., DFJV, local fire department, etc.) shall be notified of any deactivation of a fire detection or suppression system.
- If taken offline, fire protection systems shall be brought back online immediately following completion of hot work.
- Continuous air monitoring shall be performed when there is a possibility of combustible atmospheres within a 35-foot radius of hot work or whenever hot work is performed within a confined space.
- Portable fire extinguishing equipment shall be immediately available for use by the fire watch at the hot work area.
- Portable equipment must include an ABC dry chemical fire extinguisher with a minimum rating of 2A:20-BC.
- More than one fire watch shall be required if combustible materials that could be ignited by the hot work cannot be directly observed by the initial fire watch.
- The PAI shall return the original HWP to DFJV for recordkeeping purposes. Copies of HWPs shall be maintained at the DFJV Project for a minimum of 30 days.

11.8 Welding and Cutting

- Employees using welding and cutting equipment shall be trained in the safe operation of their equipment, safe welding/cutting practices, and welding/cutting respiratory and fire protection equipment.
- All welding and cutting equipment shall be inspected prior to each use to ensure all required safety devices and ancillary equipment are in place and properly functioning.
- Defective equipment shall be removed from service, replaced, or repaired, and re-inspected before being placed back into service.
- Cables, hoses, and other equipment shall be kept clear of passageways, ladders, and

stairways.

- A JHA shall be prepared specifically for the performance of welding, cutting, or heating when performed in a hazardous (classified) location.
- Arc welding and cutting operations shall be shielded by noncombustible or flame-resistant screens to protect employees from the direct rays of the arc, sparks, molten metal, spatter, and chipped slag.
- Work areas shall be free of the following hazards prior to commencement of welding or cutting proximate combustible materials, the presence or possible generation of potentially explosive atmospheres (flammable gases, vapors, liquids, or dusts); and the presence or nature of an oxygen-enriched atmosphere.
- Before welding, cutting, or heating any material covered by a preservative coating with unknown flammability, a test shall be made to determine flammability. As necessary, the surface shall be stripped for a distance of at least 4 inches from the area of heat application.
- Employees performing welding or torch cutting operations shall wear the necessary PPE to prevent exposure to ultraviolet rays, flashes, sparks, molten metal, or other hazards, in accordance with DFJV's standard for PPE.
- All welding, cutting, and heating operations shall be ventilated (natural or mechanical) to ensure concentrations of airborne contaminants are within acceptable limits.

11.9 Gas Welding and Cutting

- Fuel gas hoses and oxygen hoses shall be readily distinguishable from each other.
- A reverse flow check valve, flashback arrestor, or combination reverse flow/arrestor shall be installed between the torch and regulator for each gas.
- Stored oxygen cylinders shall be separated from flammable liquids, gases, and combustible materials (e.g., oil and grease) by a minimum distance of 20 feet or by a non-combustible barrier at least 5 feet high having a fire resistance rating of at least one-half hour.
- Damaged hoses and hose connectors, or hoses and hose connectors in questionable condition, shall not be used.
- Clogged torch tip openings shall be cleaned with suitable cleaning wires, drills, or other devices designed for such purposes.
- Torches shall be lighted by friction lighters or other approved devices, not by matches or from hot work.
- Torch valves shall be closed, and the gas supply shut off whenever work is suspended.
- Torches and hoses shall be removed from confined spaces whenever work is suspended in non-emergency conditions.

11.10 Arc Welding and Cutting

- All current carrying parts through the portion of the holder gripped by the welder or cutter, and the outer surfaces of the jaws of the holder, shall be fully insulated against the maximum voltage encountered to ground.
- Cables shall be in good condition and completely insulated, flexible, and capable of handling the maximum current requirements of the work in progress. Cables in need of repair shall not be used.
- Piping containing gases, flammable liquids, or conduits carrying electrical conductors shall not

be used for a ground return circuit.

- Welding supply cables shall not be placed near power supply cables.
- Electrodes shall be removed, or equipment shall be shut down when the leads are unattended.

12 Control of Hazardous Energies (COHE) / LOTO

12.1 Definitions

Definitions applicable to this section.

Affected employee. An employee whose job requires him/her to operate or use a machine or equipment on which servicing, or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

Authorized employee. A person, who locks out or tags out machines or equipment to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

Capable of being locked out. An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Energized. Connected to an energy source or containing residual or stored energy.

Energy isolating device. A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

Energy source. Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Hot tap. A procedure used in the repair, maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Lockout. The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device. A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

Normal production operations. The utilization of a machine or equipment to perform its intended production function.

Servicing and/or maintenance. Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments

or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

Setting up. Any work performed to prepare a machine or equipment to perform its normal production operation.

Tagout. The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout device. A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

12.2 Procedures

- Systems with energy-isolating devices that are capable of being locked out shall be locked out.
- Solely using tags as a form of hazardous energy control shall be subject to DFJV approval.
- LOTO shall only be performed by authorized employees in accordance with CCR Title 8 Subchapter 5, (Electrical Safety Orders).
- Affected employees shall be notified before and upon completion of the application and removal of locks or tags.
- ECPs shall be prepared by Competent Persons.
- Prior to de-energization and DFJV acceptance of equipment, it shall be determined whether ECPs already exist.
- Hazardous energy sources shall be considered energized until the sources of energy are removed, locked out, and verified as being de-energized.
- Locks and tags must be capable of withstanding the environment to which they are exposed, for the expected duration of exposure.
- Locks and tags shall identify the individual applying the device.
- Locks and/or tags must identify the Subcontractor of the individual employee applying the lock.
- Locks may be color-coded or tagged to identify the Subcontractor. Color-coding shall comply with all DFJV specific programs and shall be coordinated between all subcontractors on site.
- Administrative locks may be used to prevent operation of equipment prior to acceptance or release. Administrative locks may not be used for the control of hazardous energy. Administrative locks must be clearly identifiable by color and/or tagging. Administrative locks may be group/master keyed and/or have supervisory/administrator keys.
- Authorized employees shall ensure that all energy-isolating devices needed to control energy to or within the system are identified and that the system is shut down, isolated, blocked and secured.
- Following the application of locks or tags to energy-isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, discharged, or otherwise rendered safe.

- Prior to the removal of locks or tags, the work area shall be inspected to ensure that all non-essential items (e.g., tools and materials) have been removed from the system, the system components are operationally intact, and all employees have been safely positioned or removed from the area.
- All affected employees shall be notified that the locks or tags are about to be removed.
- When part of a group LOTO, each authorized employee shall affix a personal lockout or tagout device to the group lockout device, group lockbox, or comparable mechanism when he or she begins work and shall remove those devices when he or she stops working on the electrical circuit conductor or equipment being serviced or maintained.
- DFJV shall be notified prior to the removal of a lock or tag any time an individual is not available to remove the lock or tag that he or she applied.
- An affected employee is one whose job requires him or her to work in an area in which such servicing or maintenance is being performed. An affected employee becomes an authorized employee when that individual's duties include performing servicing or maintenance of equipment being de-energized. Affected employees shall receive training in the following:
 - The prohibition relating to attempts to restart or re-energize machines, equipment, or circuits that are locked or tagged out.
 - Basic electrical hazards and precautions required to avoid injury at construction sites.

13. Electrical Systems

(In accordance with CCR Title 8 Subchapter 5, Electrical Safety orders)

13.1 Overhead/Underground Clearances

- Signal or flag employees must guide cranes, cherry pickers, high lifts, and other equipment in transit near exposed energized lines or parts at all times.
- All underground utilities/lines shall be located and protected from damage or displacement.
- Work activity adjacent to overhead and underground lines shall not be initiated until a survey has been made to ascertain the safe clearance from energized lines.
- Overhead utility lines shall be considered energized unless the person owning such line, or operating officials of the electrical utility supplying the line, certifies that it is not energized, and it has been visibly grounded and tested.
- Work activity that could affect or be affected by overhead or underground lines shall not be initiated until coordinated with the appropriate utility officials.
- Where overhead lines cross the DFJV Project or access roads, signs shall be posted to indicate the presence of overhead lines.

13.2 Guarding Live Equipment

Live parts of wiring or equipment shall be guarded to protect against contact by employees or objects. Areas where high voltage equipment is located shall be identified, secured, and protected against unauthorized contact. Enclosure gates or doors shall swing outward and provide clearance from energized equipment.

13.3 Temporary Wiring, Panels, and Lighting

Temporary wiring shall be removed immediately upon completion of construction or completion of the purpose for which the wiring was installed. Where temporary wiring is configured so that cabinets or equipment enclosures cannot be closed, they shall be protected against accidental contact.

13.4 Grounding/Ground Fault Circuit Interrupters (GFCIs)

- The use of an assured grounding program at the DFJV Project is prohibited as the sole means of grounding protection.
- Receptacle outlets that provide temporary electrical power during construction, remodeling, maintenance, repair, or demolition shall have GFCI protection for employees.
- GFCI protection shall be provided on all circuits serving portable electric hand tools or semi-portable electric power tools (i.e., block/brick saws, table saws, air compressors, welding machines, and drill presses).
- All circuits shall be adequately grounded.

13.5 Overcurrent Protection

- All circuits shall be protected against overload.
- Overcurrent protection shall be based on the current-carrying capacity of the supplied conductors and the power load being used.
- Overcurrent protection devices shall be readily accessible, clearly labeled, and protected against physical damage.
- Overcurrent protection devices shall be located or shielded so that their operation will not expose employees to injury due to arcing or the sudden movement of parts.
- Circuit breakers shall clearly indicate whether they are in the open (de-energized/off) or closed (energized/open) position.

13.6 Disconnects and Switches

- Disconnecting means shall be located or shielded so that employees will not be injured when a disconnect is being performed.
- Enclosures for disconnecting means shall be securely fastened to the surface and fitted with covers.
- Switches, fuses, and automatic circuit breakers shall be marked, labeled, or arranged for ready identification of the circuits or equipment they supply.
- Switches, circuit breakers, fuse panels, and motor controllers located outdoors or in wet locations shall be in weatherproof enclosures or cabinets.

13.7 Cords, Cables and Electrical Wire

- Extension cords shall be inspected by the user prior to use.
- Extension cord sets shall contain the number of conductors required for the service, plus an equipment ground wire.
- Extension cords shall be heavy usage type.
- Extension cord and electric wire passing through work areas shall be protected from damage and clearly marked. All cords and wires placed on walking and working surfaces shall be

provided with a protective covering or ramp to prevent personnel and equipment from contacting or damaging the cord or wire

- Extension cords or cables shall be supported in place at intervals that ensure they will be protected from physical damage. To prevent damage, support shall be from cable ties, straps, or similarly installed equipment. Extension cords or cables shall not be hung from nails or suspended by bare wire.

13.8 Electric Tools

Before each day's use, electric tools shall be inspected for improper grounding, cracked housings, damaged cords, non-standardized connectors, and any other electrical problems. Damaged tools and cords shall be removed from service immediately. Only Qualified Persons shall make repairs, including inspections for continuity and grounding.

13.9 Hazardous (Classified) Locations

Performance of hot work in hazardous (classified) locations requires a written job hazard analysis (JHA). All equipment, wiring methods, and installations of equipment in hazardous (classified) locations shall be listed for the hazardous (classified) location in which the equipment is being used.

13.10 Arc Flash

13.10.1 Electrical Safety Work Practices

- Working on live energized electrical equipment is prohibited unless the Construction Manager and Project Safety & Security Manager have determined that energy isolation is infeasible to accomplish the necessary work task. This is to be documented.
- Only Qualified Persons shall perform tasks such as testing, troubleshooting, and voltage measuring within the limited approach boundary of energized electrical conductors or circuit parts operating at 50 volts or greater than 50 volts is infeasible, the Qualified Person shall prepare a JHA and conduct a pre-job briefing
- The JHA for working on live energized electrical equipment shall identify the work practices to be implemented, safe working distances, required personal protective equipment (PPE), and evidence of completion of a pre-job briefing.

13.10.2 Minimum Voltage Boundary-Arc Flash Analysis

Whenever it is necessary to work on energized electrical equipment greater than 50 volts, the flash protection boundaries, approach distances, hazard/risk categories, and PPE requirements shall be identified in accordance with the tables provided in National Fire Protection Association (NFPA) 70E, unless an arc flash hazard analysis specific to the equipment being worked on has been performed.

13.10.3 Personal Protective Equipment (PPE) and Tools

- Arc flash protection shall be provided for any person who enters the flash protection boundary.
- PPE requirements for specific hazard risk classifications shall be in compliance with NFPA 70E.
- Synthetic clothing such as acetate, nylon, polyester, and rayon, either alone or in blends with cotton, may not be worn while in the flash protection zone except for cotton or man-made clothing designed for exposure to an electrical flash (i.e., FR cotton or Nomex).
- PPE shall be properly worn.

- Long sleeves must be rolled down and buttoned, shorts are prohibited, and trousers shall extend the full length of the leg.
- Garments with exposed metallic fasteners shall not be worn.
- Garments, including full body safety harnesses, worn over arc flash rated protective clothing must be rated for such use.

13.10.4 Labeling and Signage

Arc flash signage and labeling must be placed on electrical energized equipment. Switchboards or panel boards likely to be accessed with covers on are required to have labels warning of potential electrical arc flash hazards and required PPE.

13.10.5 Training

Workers exposed to electrical hazards must be trained to the level to which they may be exposed.

13.10.6 Training Documentation

DFJV shall maintain training documentation at the Project site. The training documentation shall identify each employee and his or her level of training (i.e., Qualified Person, authorized employee). For electrical activities, qualified persons must have verifiable credentials consisting of national, state, and/or local certifications or licenses of a master or journeyman electrician.

14. Confined Spaces

14.1 Identification, Evaluation, and Classification of Confined Spaces

A confined space is any space that meets **all three** of the following:

1. Is large enough and configured for an employee to bodily enter; and
 2. Has limited or restricted means for entry or exit; and
 3. Is not designed for continuous human occupancy.
- A PRCS is a confined space that has one or more of the following characteristics:
 - Contains or has the potential to contain a hazardous atmosphere; or
 - Contains a material that has the potential for engulfing an entrant; or
 - Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers into a smaller cross section; or
 - Contains any other recognized or potentially serious safety or health hazard.
 - A Competent Person shall identify and classify confined spaces at the DFJV Project based on the above definition.

14.2 Labeling Confined Spaces

All Permit Required Confined Spaces (PRCS) shall be labeled with the following:

DANGER
PERMIT-REQUIRED CONFINED SPACE
DO NOT ENTER

14.3 Confined Space Entry Program

DFJV and each subcontractor requiring workers to enter a confined space shall submit a confined space entry program to be reviewed and accepted by DFJV Safety Manager as part of their Health and Safety Plan (HASP). The confined space entry program shall be in compliance with CCR Title 8 section 5156.

- When multiple subcontractors are sharing a confined space, they must coordinate rescue services and equipment.
- Subcontractors sharing the same confined space that is not controlled by DFJV shall perform one of the following:
- Each Subcontractor shall enter under their own confined space entry program; or
- Each Subcontractor shall agree to follow a single confined space entry program. If this option is chosen, it shall be accepted by DFJV prior to entry into the confined space.

14.4 Notifications

Subcontractors who initially identify a confined space shall communicate the location of the confined space to DFJV. DFJV shall inform other Subcontractors of the location of the confined space.

14.5 Reclassification of Confined Spaces

Spaces under the sole and exclusive control of DFJV may be reclassified with agreement between DFJV and Subcontractors. Confined spaces not under direct control of the DFJV must coordinate with the space owner.

14.6 Non-Permit Required Confined Space Entry

- Entries into non-permit required confined spaces shall not require a permit or an attendant, a check list, entrant log and air monitor reading log is still required.
- No work activities taking place in or around a non-permit required confined space shall create any hazards necessitating the reclassification of the space to a PRCS.
- Air monitoring is required for non-permit required confined spaces where mechanical ventilation is not in use (i.e., naturally ventilated confined spaces).

14.7 Permit-Required Confined Space (PRCS) Entry

Specific energy control procedures (ECPs) shall be developed and implemented, as necessary, to render machines or equipment to a zero-energy state in accordance with DFJV's Electrical Systems and Control of Hazardous Energy (Lockout/Tagout) Standard.

The entry supervisor shall perform the following prior to entry:

- Ensure the current conditions within the PRCS are consistent with those previously identified and evaluated.
- Review and evaluate the work to be performed to determine whether a new hazard could be created, or an existing hazard magnified, and to identify appropriate control measures.
- Ensure the attendant and entrant(s) have received requisite training on assigned duties.
- Make all necessary pre-entry notifications of rescue services.
- Notify other workers and supervisors in the area that an entry shall take place.

The entry team (entry supervisor, attendant, and entrants) shall perform the following:

- Complete and review the entry permit.
- Implement controls capable of being accomplished prior to opening space.
- Perform and document initial air monitoring before entry to ensure the presence of safe atmospheric conditions.
- Post the signed entry permit near the confined space entrance.
- Ensure the attendant is stationed outside of the space and a system is in place to ensure communication with entrants.
- If non-entry rescue equipment is used, the entrant will connect to the non-entry rescue system prior to entry.
- A competent person will monitor conditions, as necessary, to determine if acceptable entry conditions are being maintained.
- Implement any additional controls identified on the permit and required prior to entry into the space.
- Immediately evacuate the space if hazards arise inside or outside the space that may endanger entrants.
- If a space is evacuated, no re-entry will be made until air monitoring readings are determined to be within an acceptable range and all other hazards are adequately controlled, as confirmed by the entry supervisor.
- If permit conditions change for re-entry, a new permit must be completed.
- The entry permit will be cancelled on site by the entry supervisor when work is complete, or any time previously unidentified hazardous conditions develop.
- Any issues causing cancellation of an entry permit shall be documented on the permit.
- Copies of completed permits are to be maintained at the Project Office and shall be made available to CHSRA if requested.

14.8 Air Monitoring

- Prior to entry into a confined space, and continuously thereafter, the atmosphere in the confined space shall be monitored for: oxygen content, flammable gases/vapors, and toxic gases and vapors such as but not limited to carbon monoxide and hydrogen sulfide.
- At least one entrant will be required to use a multiple gas monitor.
- The results shall be recorded on the entry permit and made available to all prior to entry or re-entry.
- Spaces shall not be entered or if entered shall be immediately evacuated if exposure limits are exceeded or direct-reading equipment alarms sound. The following are minimum air monitoring requirements and exposure limits:

| Air Monitor Alarm Limits | |
|--------------------------|-------------------|
| Parameter | Exposure Limit |
| Oxygen | At or Below 19.5% |
| | At or Above 23.5% |

| | |
|-----------------------|--|
| Lower Explosive Limit | At or Above 10% |
| Hydrogen Sulfide | At or Above 10 parts per million (ppm) |
| Carbon Monoxide | At or Above 25 ppm |

- Air monitoring equipment must be regularly calibrated, inspected, and maintained per the manufacturer's instruction.
- A bump test (function check) of the air monitoring equipment shall be made prior to each day's use. If an instrument fails a bump test (function check), it shall not be used. Entry into a confined space shall not be performed until a functional air monitor is obtained.
- Air monitoring locations shall be selected based on the size and configuration of the space, location of potential contaminant sources, and the characteristics of potential contaminants.

14.9 Ventilation

When forced air ventilation is used to control atmospheric hazards or help maintain employee comfort, the following considerations will be taken:

- Air supply shall be taken from a clean source and shall not increase the hazards in the space; and
- Air exhausted from the confined space must be directed so that it does not impact the attendant or other employees working in the area.

14.10 Communication

- Entrants shall be provided the ability to always communicate with the entry supervisor either through verbal communication, hand signals, warning horns or signals, or other methods.
- The entry supervisor must verify that entrants and attendants have coordinated signals to prevent confusion that could cause a delay in egress from the space, or other emergency action.
- The entry supervisor shall verify that communication between the attendant and rescue services are adequate and timely based on the specific rescue provisions established for the entry.
- The attendant shall not have to leave an occupied space unattended to make emergency communications.

14.11 Emergency Procedures

- The entry supervisor is responsible for ensuring that location-specific emergency procedures have been established and communicated to all entrants and attendants prior to anyone entering a PRCS.
- If the emergency procedure for an entry cannot be properly implemented, the entry shall be postponed and permit cancelled until all issues have been addressed.
- Non-entry rescue shall be utilized where possible.
- Prior to entry, the need for summoning external emergency rescue services shall be evaluated.
- The use of local emergency rescue services shall be evaluated in accordance with CCR Title 8 section 5156.

- Prior to entry, the locations, and conditions of confined spaces where entries are to occur shall be coordinated with the external emergency rescue services to be summoned in the event of an emergency.
- Where local emergency rescue services are not available or qualified, DFJV shall be responsible for ensuring Qualified Personnel are available to facilitate an entry rescue.
- The entry supervisor is responsible for ensuring that non-entry rescue equipment is adequate to carry the weight of those authorized to enter the PRCS.
- Confined space entrants who have evacuated from the PRCS shall not re-enter the space until the cause of the evacuation is identified, the condition is abated, and re- entry is authorized by the entry supervisor.

14.11.1 Non-Entry Rescue

When initiating a non-entry rescue, the following shall occur:

- Rescue or other emergency services and additional on-site assistance shall be summoned.
- The entrant's body harness shall be attached to the retrieval system and the entrant shall be positioned to prevent being entangled with or struck by pipes, machinery, or equipment.
- If the entrant has sustained an injury that may be aggravated by non-entry removal and conditions are not immediately dangerous to life and health, employees trained in emergency rescue procedures may initiate a rescue while awaiting professional emergency personnel to arrive.

14.11.2 Evacuation

Confined space entrants are required to immediately evacuate a confined space whenever:

- An order to evacuate is given by the attendant, supervisor, or other entrants.
- An air monitoring alarm or evacuation alarm sounds.
- An unusual or prohibited condition is detected.
- An entrant experiences behavioral effects of hazards exposure.
- Communications are compromised.
- A situation is detected outside the space that could endanger the entrant.
- The attendant cannot effectively and safely perform all his or her duties.
- Any other situation arises that may compromise the safety of the entrant.

14.12 Responsibilities

14.12.1 Entry Supervisors

Entry supervisors shall be responsible for the following:

- Verifying that acceptable entry conditions exist prior to a PRCS entry.
- Knowing the hazards that may be faced during entry, including information on the modes, signs, symptoms, and consequences of exposure.
- Verifying that all tests have been conducted and that all procedures and equipment specified by the confined space entry permit are in place before signing the permit and allowing entry to begin.
- Terminating the entry and canceling the permit when required.

- Verifying that rescue services or on-site teams are available and that the means for summoning them are operable.
- Being familiar with emergency procedures and non-entry rescue equipment.
- Removing unauthorized individuals who enter or who attempt to enter the PRCS during entry operations.
- Ensuring that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.
- Ensuring that the entry permit is properly completed and filed after entry is complete.

Entry supervisors may serve as an attendant, as long as they are trained and equipped as required by this procedure for each role they fill. The duties of the entry supervisor may be passed from one entry supervisor to another during an entry operation.

14.12.2 Attendants

Attendants shall be responsible for the following:

- Knowing the hazards that may be faced during entry, including information on the modes, signs, symptoms, and consequences of the exposure.
- Being aware of and observing entrants for possible behavioral effects of hazard exposure.
- Being in continuous communication with and maintaining an accurate count and identification of authorized entrants present.
- Ensuring that air monitoring results are recorded on the entry permit.
- Remaining outside the PRCS during entry operations until relieved by another attendant and performing no additional duties that might interfere with monitoring and protecting the authorized entrants.
- Monitoring activities inside and outside the space to determine whether it is safe for entrants to remain in the PRCS, and ordering entrants to evacuate the space immediately under any of the following conditions:
 - A prohibited condition is detected.
 - Behavioral effects of hazard exposure are detected in an entrant.
 - Communication is compromised.
 - There is a situation outside the space that could endanger the entrant, or
 - The attendant cannot effectively and safely perform all his duties.
- Taking the following actions when unauthorized persons approach or enter a PRCS while entry is underway:
 - Warning the unauthorized persons that they must stay away from the PRCS; and
 - Advising the unauthorized persons that they must exit immediately if they have entered the PRCS; and
 - Informing all entrants that the entry is cancelled following the unauthorized entry of an individual into the PRCS; and
 - Informing the entry supervisor if unauthorized persons do not cooperate or have entered the PRCS.
- Summoning rescue and other emergency services as soon as it is determined that entrants

may need assistance to escape from PRCS hazards.

- Performing non-entry rescues, if needed, using available equipment such as a tripod retrieval system (Note: attendant entry is prohibited).

14.12.3 Entrants

Entrants shall be responsible for the following:

- Knowing the hazards that may be faced during entry, including information on the modes, signs, symptoms, and consequences of the exposure.
- Properly using equipment per the manufacturer's specifications and training.
- Being in continuous communication with the attendant to enable the attendant to monitor entrant status and, when necessary, to alert entrants of the need to evacuate the space.
- Alerting the attendant whenever:
 - Any warning sign or symptom of exposure to a dangerous situation is recognized; or
 - A prohibited condition is detected.
 - Exiting from the PRCS as quickly as possible whenever:
 - An evacuation alarm is activated or an order to evacuate is given by another entrant, the attendant, or the entry supervisor.
 - Any warning sign or symptom of exposure to a dangerous situation is recognized; or
 - A prohibited condition is detected.

14.13 Training

All employees must be trained in confined spaces to ensure they are competent to fulfill their responsibilities related to confined space entry. Training will be provided as follows:

- Awareness level training shall be provided to all employees who may come in contact with confined spaces but are not expected to enter them. Employees shall be trained to possess the ability to recognize the presence of a confined space and be instructed not to enter them.
- Awareness level training shall be part of an individual's EHS site orientation or refresher training if site conditions change.
- All confined space training documentation shall identify the extent of employee training (e.g., awareness, entrant, attendant, entry supervisor, etc.).
- Documentation of all confined space training shall be maintained at the site.

14.13.1 Entrants and Attendants

Workers authorized to fulfill the duties of an entrant or attendant shall be trained in the following:

- Hazards of confined space entry.
- Proper use of confined space equipment (e.g., air monitoring equipment, ventilation, PPE, non-entry rescue, etc.); and
- Emergency rescue procedures.

14.13.2 Entry Supervisors

Workers authorized to fulfill the duties of an entry supervisor shall be trained in the following:

- Proper assessment of hazards.
- Planning and supervising entry into confined spaces, including completion of an entry permit.
- Verification of permit conditions.
- Termination and permit close-out procedures; and
- All duties of an entrant and attendant.

Training will emphasize understanding and application of regulations, hazard recognition and control.

14.13.3 Confined Space Rescue

Self-rescue or non- entry rescue will be the first methods used for confined space rescues. Equipment such as tripods, winches, full body harnesses shall be available and employed to help the entrant when needed. If an entry rescue is required local responders or private rescue teams shall be used.

14.13.4 Additional and Refresher Training

Additional or refresher training is required whenever:

- There is a change in assigned duties.
- There is a change in PRCS operations that presents a hazard about which an employee has not been previously trained; and
- Whenever there is reason to believe there are deviations from the accepted program or inadequacies in the employee's knowledge.

15. Rigging

- Rigging operations shall be performed under the supervision of a Qualified Rigger (Competent Person).
- A JHA and pre-lift meeting shall be held prior to the initial lift and as necessary when there is a change in conditions or personnel.
- The use and maintenance of rigging equipment shall be in accordance with recommendations of the rigging manufacturer and the equipment manufacturer. Rigging equipment shall not be loaded more than its recommended safe working load limits.
- The weight dimensions and center of gravity of the load shall be known prior to rigging the load.
- Rigging hardware shall not be loaded in excess of the rated capacity.
- All manufacturer-installed lift points shall be inspected and evaluated by a Qualified Rigger or Competent Person before use for cracks, deformation, excessive wear, or damage. When questions arise regarding the use of manufacturer-installed lift points, the equipment manufacturer or professional engineer shall be consulted.
- Before an object is to be moved or lifted an inspection shall be made by a Qualified Rigger or Competent person to determine if the object is free from its mounting surface.
- "Below the hook" rigging equipment shall be inspected as specified by the manufacturer, by a Qualified Rigger (Competent Person), and before each use to ensure that it is safe.
- Defective rigging equipment (hooks, shackles, rings, pad eyes, slings etc.) shall be removed

from service and shall be tagged “DO NOT USE and DO NOT REPAIR” or destroyed to prevent use.

- When hoisting loads, a positive latching device shall be used to secure the load and rigging (e.g., self-closing safety latches, hook with a spring-loaded gate, alloy anchor type shackle with a bolt, nut and retaining pin, etc.).
- Wire rope clips attached with U-bolts shall have the U-bolts on the unloaded (dead) or short end of the rope. Rigging using wire rope clips may NOT be used for hoisting personnel.
- Eyes in wire rope bridles, slings, or bull wires shall not be formed by wire rope clips or knots.
- Slings shall be selected based on the type of load, hitches and environmental factors.
- The use of any sling at an angle lower than 30° is prohibited unless specified by the manufacturer. Sling angles should be greater than 45° whenever possible.
- Slings shall not be loaded in excess of the rated capacity. Consideration shall be given to angle of lift ((sling-to-load angle) which may affect the lifting capacity. Diameters of pins and edges also may affect the capacity of the lifting sling.
- Slings shall not be shortened or lengthened by knotting or other methods not approved by the sling manufacture.
- Slings shall be protected from cutting and edges. All protrusions and abrasive surfaces will be kept from contact with the sling. Where unavoidable situations develop, padding shall be placed between the sling and the load.
- Prior to moving the load, a Qualified Rigger (Competent Person) shall inspect the rigging method to ensure that the load can be safely raised, lowered or otherwise moved.
- Personnel shall keep all body parts away from the sling and the load and from between the sling and any attachment to lifting devices such as hooks.
- When lifting and lowering loads the rigging hardware shall not be jerked, bounced or shock loaded. Slack shall be removed by slowly applying the load to the rigging.
- Tag lines shall be used to control all it creates an additional hazard.
- Slings shall not be pulled from under loads when the load is resting on the sling.
- When not loaded, below the hook rigging shall be secured or controlled to prevent the rigging from swinging and from snagging on objects.
- Rigging equipment, when not in use, shall be properly stored and maintained in a safe condition.

15.1 Rigging Hardware Requirements

All below the hook rigging devices and hardware shall be selected and based on the following criteria:

- The weight, height, width, and length of the load to be lifted
- Environment or conditions in which the rigging device and hardware will be used.
- Certification by the manufacturer that the rigging device was load tested at minimum of twice the rated capacity.
- The working load limit (WLL) of the rigging device or hardware at various angles.
- Job-fabricated rigging hardware or specialized hardware must be designed, engineered, and

certified by an engineer qualified in this field, and tested at 125% the rated load capacity. Testing must conform to American National Standards Institute (ANSI) B30.26 for rigging hardware.

- All rigging devices and hardware shall be permanently marked. The markings shall be legible during the life of the appliance.
- Wire rope slings shall be marked with the manufacturer's name or trademark, rated load capacity and diameter and size.
- Certified chains (grade 8 or better) specifically designed for rigging, are permitted only upon the written approval of the Project Director, Deputy Project Director, or Operations Manager (due to inspection and documentation requirements).
- Web slings shall be permanently marked to show manufacturer's name or trademark, manufacturer's code or stock number, rated loads for three hitches and the type of synthetic web material.
- Polyester round slings shall be permanently marked to show name or trademark of manufacturer, manufacturer's code or stock number, rate loads for the three hitches, and polyester core material.
- Nylon slings, when wet, need to be derated by 15%.
- Hooks, rings, shackles, shackle pins, links, or other rigging hardware shall be marked or stamped by the manufacturer to show the name or trademark of manufacturer and grade, material type or load rating.
- Each turnbuckle, eye nut and eyebolt shall be marked with name or trademark of the manufacturer, size or rated load and grade (for alloy eyebolts). In addition, each swivel hoist ring must also be marked to show torque value. Markings shall remain legible while in use.
- Spreader bar beams or other below hook lifting devices shall be permanently marked with the manufacturer's name, address, serial number, lifter weight and rated load.

15.2 Hoisting and Rigging Plan

All potential hazards related to rigging operations need to be clearly identified on the Job Hazard Analysis and Daily Risk Assessments that are developed for each work phase of the project. The hoisting and rigging plan shall be reviewed and approved by the Qualified Rigger (Competent Person).

Critical Lifts (as defined by DFJV's Cranes and Hoisting Equipment Standard) require individual lift plans. A Qualified Person shall prepare and submit a lift plan for all critical lifts to DFJV for acceptance.

The lift plan shall require a rigging sketch or photographs that include information needed to calculate the forces on the rigging gear used in the lifting activity.

At a minimum, the hoisting and rigging plan shall include:

- Preparer's name and date:
- Description of the load (weight, center of gravity, vertical and horizontal dimensions, lift points). Information shall be entered on a photograph or drawing.
- The crane set-up worksheet will be utilized to determine underground utilities and protective measures. How the item will be rigged (e.g., lifting fixture, spreader bar, basket, multi-leg bridle, etc.) and add it to the sketch or photo (if not already shown) in the approximate position of where it will be used.

- How the item to be lifted will be attached to the lifting device or crane hook.
- Show how the lifting device attaches to the crane including slings or other hardware used.
- Calculation of the total weight of the load (item plus all rigging gear) and enter on the sketch or photo. Ensure that it does not exceed the rating of the crane or hoist.
- Designate the specific rating or minimum rating for all rigging gear and hardware. Calculate the sling loads and enter the information for each sling/leg on the sketch. The sketch should include all the information necessary to perform these calculations as well as the calculations themselves.
- It is preferred that eyebolts be used only for vertical lifts. If eyebolts are used for angular lifts, calculate the load angle factors and minimum size and rating required for the eyebolts. Also, indicate that eyebolts must be shouldered on the sketch.
- If activities include rolling, turning, or flipping a load, the direction of the rolling activities and
- The orientation of the choker hitches must be shown. When a come along or chain fall will be used to assist in the roll, they must be included in the sketch and include information on the forces applied to them. Identify on the lift plan that two persons will be required to perform the rolling activity.

15.3 Multiple Lift Rigging (MLR)

A hoisting and rigging plan are required for multiple lift rigging.

15.4 Training and Qualifications

It is the responsibility of supervision / project management to ensure that all employees performing rigging operations have the appropriate training and have been deemed qualified and become familiar with the rigging procedures and requirements.

A Qualified Rigger may perform the following:

- Inspect rigging before use
- Identify and attach rigging with basic knowledge of hitch configurations, capacities, and basic knots
- Recognize associated hazards
- Signal operations
- Use of various types of rigging equipment and basic hitches and their applications
- Estimate load weight and center of gravity
- Identify lift points
- Determine and select rigging based on loading
- Perform pre-use inspection of rigging and lift points
- Identify and attach rigging with knowledge of hitch configurations and load angle factors, rigging capacities, and load integrity
- Understand load dynamics and associated hazards

A pre-lift meeting shall be conducted prior to the initial lift by the Qualified Rigger or Competent Person and shall include the crane/hoist operator. A JHA and pre-lift meeting shall be conducted as necessary to clarify process and changing conditions.

16. Mobile Cranes and Hoisting Equipment

16.1 General Rules for Safe Operation

Before a crane is placed into service, it shall be inspected and tested by a Competent Person and certified to be in safe operating condition. Cranes shall only be operated by individuals qualified through the training and/or licensing requirements described herein.

- Crane operators shall read and fully understand the manufacturer's requirements for safe operation of the equipment being used.
- A job hazard analysis (JHA) shall be prepared by a Qualified Person whenever a crane is assembled or disassembled at the DFJV Project.
- Prior to any lift, cranes shall be positioned on a firm, stable, and level surface.
- During assembly/disassembly, pins shall not be unlocked or removed unless sections are blocked and secured (stable).
- Before making lifts, crane operators shall extend outriggers as necessary and barricade.
- Cranes shall not be operated above wind speeds greater than the crane manufacturer's recommendations. At sustained wind speeds of 25 miles per hour, lifting capacities shall be reduced per the manufacturer's specifications for wind speeds and lifting capacities and reductions shall be implemented.
- All rigging equipment shall be inspected prior to use. Hoist lines shall not be wrapped around loads.
- All lifts shall be in accordance with the crane's capacity charts.
- Loads shall not be moved directly above personnel. Air horns may be used to alert personnel working in the areas where loads are being lifted.
- Hoisting of personnel on suspended platforms is not permitted unless a Qualified Person has determined other means of accessing the work area is infeasible, and DFJV has accepted the operation.
- Cabs and areas surrounding cranes shall be maintained in an orderly condition.
- When cranes travel through the DFJV Project site, may be require flaggers or signal persons to direct them.
- Taglines shall be used to control loads, unless determined by a Qualified Rigger that it creates an additional hazard.
- Load weights shall be determined before lifting. If load weight cannot be determined, the load shall not be lifted.
- The crane cab shall not be left unattended while the engine is running, or a load is suspended.
- When a local storm warning has been issued, a Competent Person shall determine whether it is necessary to implement manufacturer recommendations for securing the equipment.
- When lightning is observed, all crane and hoisting equipment operations shall cease, and booms shall be lowered to 30 degrees or less.
- For night-time operations, adequate lighting to illuminate the working areas, while not interfering with the operator's vision, shall be provided.

16.2 Operator Training and Qualifications

Operators shall be qualified and certified in accordance with CCR Title 8 section 1618.1

Documentation of a crane operator's training, certifications, and licenses (when required) shall be provided to DFJV before equipment is operated. This documentation shall always also be maintained within the crane's cab and available for review.

16.3 Lift Plans

A lift that meets one or more of the following criteria shall be considered a critical lift:

- Lifts made when the load weight is 75% of the rated capacity of the crane load chart or more.
- Lifts that require more than one crane.
- Lifts involving equipment that is critical to operations, schedule, or budget.
- Lifts that may require unusual rigging.
- Any lift involving a crane and a trailing piece of equipment (e.g., excavator, forklift, etc.) positively attached to the load.
- Any lift which involves unusual procedures.
- Any lift using special crane boom (non-Original Equipment Manufacturer) attachments.
- Any lift by a rough terrain crane lifting or carrying a load on rubber; and
- Lifts the operator believes to be critical.
- Any lifts in excess of 50 tons

Critical lifts require individual lift plans. For all critical lifts, a Qualified Person shall prepare and submit a lift plan to DFJV for acceptance.

16.4 Crane Location Requirements

The determination of allowable crane locations shall reflect concerns for public exposure, adjacent structures, employee and public travel paths, underground structures, previously excavated areas, overhead obstructions, and all other factors which impact safe crane and rigging operations.

16.5 Inspections of Cranes and Hoisting Equipment

- Pre-shift visual inspections of crane equipment shall be made, and any identified deficiencies shall be corrected and documented.
- A documented inspection of all crane and hoisting equipment shall be performed by a Qualified Person following any repair or adjustment that relates to the safe operation of the equipment.
- A documented inspection of all crane and hoisting equipment shall be performed by a Qualified Person following assembly of the equipment.
- The ground conditions around the equipment shall be inspected by a Qualified Person for proper support, including the ground settling under and around outriggers/stabilizers and supporting foundations, ground water accumulation, or similar conditions.
- Monthly inspections of cranes and hoisting equipment shall be performed in accordance with OSHA standard 1926.1412(e).
- A comprehensive annual inspection shall be performed by a Qualified Person on all cranes

and hoisting equipment, in accordance with OSHA standard 1926.1412(f).

- Documentation of all inspections shall be maintained at the project site and made available to DFJV upon request.

16.6 Load Charts, Safety Devices, and Operational Aids

- A durable rating chart with legible letters and figures shall be provided with each crane and attached in a location accessible to the operator while at the controls. This document may be in electronic format.
- Load charts shall accurately supply the allowable lift capacity for the current configuration of the crane (booms, jibs, and other components that may be employed).
- All load attaching devices, including the lines, hooks, and blocks shall be included as part of the load being lifted.
- The crane operator as well as all supervisory personnel associated with rigging and lifting operations must be familiar any notes and warnings associated with the load chart.

16.7 Safety Devices and Procedures

At a minimum, cranes shall be equipped with the followingsafety devices:

- A load indicating device (LID), which indicates the load on the main lifting line. This indicated load, when appropriately modified for parts of line and friction effects, indicates the weight of the lift. If this value exceeds the allowable lift, the device shall provide a warning and may inhibit operation.
- A load moment indicator (LMI), which senses both the load and the boom angle, and by correlating the boom angle with the allowable lift at that angle, provides a warning and may inhibit operation.
- A crane level indicator (CLI), which determines whether the crane is level and will not allow the crane to operate either the boom or load line until the CLI indicates the crane is level and stable.
- Boom and jib stop.
- Locks on all equipment with foot pedals.
- Hydraulic outrigger jacks with an integral holding device (check valve).
- Safety devices in proper operation and verified by the operator or a Competent Person before crane operation commences.

These devices shall be specific for the configuration of the crane. Such devices cannot detect a change from single to multiple part rigging or the presence of a jib on the crane boom. If the safety devices stop properly working during operations, all operations shall cease. Operations shall not resume until the safety devices are working and verified by the operator and the Competent Person.

16.8 Operational Aids

At a minimum, prior to all operations, cranes shall be equipped with the following operational aids in proper working order, as verified by the crane operator or a Competent Person:

- A boom hoist limiting device.
- A luffing jib limiting device; and
- An anti-two blocking device (A2B) to disengage the function that is causing the two blocking

or an A2B damage prevention feature, which shall be tested and certified functional by a Competent Person prior to crane operation.

16.9 Outriggers

Any time outriggers are required, they shall be extended or deployed per the crane manufacturer's guidelines.

- Each crane shall be equipped with blocking that shall be used under the outrigger pads during the lift. Every effort shall be made to install the outriggers on level ground.
- When used, outrigger floats shall be securely attached to the outriggers.
- Blocking under outrigger floats shall meet the following requirements:
 - Sufficient strength to prevent crushing, bending, or shear failure.
 - Sufficient thickness, width, and length to completely support the float, transmit the load to the supporting surface, and prevent shifting, toppling, or excessive settlement under the load.
 - Use of blocking only under the outer bearing surface of the extended outrigger beam floats.
 - If more than a single layer of blocking is required, the layers shall be constructed at 90 degrees to each other.
- The selection and placement of the blocking shall be the responsibility of the operator and/or the Competent Person.
- When partially extended outriggers are used, the following requirements shall be met:
 - Crane operation with partially extended outriggers shall only be undertaken if overseen by a Qualified Person.
 - Outriggers shall be set at equal positions that correspond to the load/capacity charts supplied by the manufacturer for those positions. Only the load charts corresponding to the outrigger positions shall be used for operation.
 - When outriggers must be set at unequal positions that correspond to the load/capacity charts, the positions shall correspond to the individual quadrants of operation. The manufacturer or Qualified Person shall be consulted to determine if capacity reductions, special operating procedures, or limitations are required.
- Unless the manufacturer has specified an on-rubber rating, mobile cranes shall not pick or swing loads over the side of the crane unless the outriggers are down and fully extended.
- When rough terrain cranes are used for pick and carry operations, the boom shall be centered over the front of the crane, the mechanical swing lock shall be engaged, and the load shall be restrained from swinging.

16.10 Clearances

- All overhead power lines are to be considered energized until confirmed by the utility owner/operator as de-energized and visibly grounded at the DFJV Project or where insulating barriers, not part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines.
- If the power line cannot be de-energized and grounded as confirmed by the utility owner/operator, the minimum required clearance for normal line voltage in operation near high-voltage power lines with a load, and operation in transit and with no load and boom or mast lowered, shall be in accordance with Tables I and II below.

- Cranes required to operate within the minimum required clearances are considered critical lifts and require planning as detailed above.
- Cranes must be properly grounded when the potential for contact exists.
- This includes any part of the crane and load line, including rigging and lifting accessories, while operating up to the crane's maximum working radius.

MINIMUM CLEARANCE FOR NORMAL VOLTAGE IN OPERATION NEAR HIGH-VOLTAGE POWER LINES DURING A LIFT WITH LOAD

| Voltage (Nominal, kV, Alternating Current, Phase-to-Phase) | Minimum Required Clearance |
|---|-----------------------------------|
| Up to 50 | 10 |
| Over 50 to 175 | 15 |
| Over 175 to 350 | 20 |
| Over 350 to 550 | 27 |
| Over 550 to 1000 | 45 |

MINIMUM CLEARANCE DISTANCES WHILE TRAVELING WITH NO LOAD AND BOOM OR MAST LOWERED

| Voltage (Nominal, kV, Alternating Current) | Minimum Required Clearance Distance |
|---|--|
| Up to 600 Volts | 4 feet |
| Over 0.6 - 50 | 6 feet |
| Over 50 – 345 | 10 feet |
| Over 345 – 750 | 16 feet |
| Over 750 – 1,000 | 20 feet |
| Over 1,000 | Verify with utility owner/operator |

- Adequate clearance shall be maintained between moving and rotating structures of the crane, and between hoisting equipment and fixed objects, to allow the safe passage of employees. The minimum adequate clearance is 24 inches.
- When the rotating superstructure of the crane is less than 7 feet from the ground, accessible areas within the swing radius shall be barricaded to prevent an employee from being struck or crushed by the crane and hoisting equipment.
- The use of a temporary guardrail system is adequate; warning or caution tape shall not be used.

16.11 Signal persons

- Only one signal person shall be assigned to each crane operator.
- At all times, signal persons shall remain within full view or radio contact of the operator to

whom they are assigned. If contact cannot be maintained at all times, the operator shall cease operation of the crane until communication is restored.

- Signal persons shall be trained and qualified in accordance with CCR Title 8 section 1618.2.
- Air horns may be utilized to warn others in the area of traveling loads and to prevent
- Unauthorized entry into the crane's operating radius.

16.12 Transportation, Assembly, and Disassembly

- Mobile cranes shall require a movement work plan, including appropriate travel routes with considerations for width, height, and gross vehicle weight limitations.
- A spotter may be used when a crane is being moved to a different area to minimize impact to equipment, buildings, and vehicles.
- Transportation precautions shall be employed, including proper tie-downs, to prevent load shifting during transit and damage to sensitive components from travel vibrations.
- Before assembling or disassembling equipment, the Subcontractor must determine if any part of the equipment, load line, or load (including rigging and lifting accessories) could get within 20 feet of a power line.
- Before crane erection begins, the crane shall be carefully inspected by a Qualified Person for any damage that could affect its safe operation. The erection/dismantling of all cranes shall be supervised by a Qualified Person.
- Employees responsible for assembling cranes shall be specifically trained and have a copy of the crane manufacturer's procedures or a JHA specific to the operation.
- All bolted and pinned connections shall be checked to ensure that fasteners and keepers meet the manufacturer's requirements and have been correctly installed.
- When removing pins or bolts from a boom, employees shall stay out from under the boom.
- Sections shall be blocked or otherwise secured to prevent them from falling.

17. Mobile Equipment

The scope of this standard includes, but is not limited to passenger vehicles, pickup and dump trucks, all-terrain vehicles, golf carts, materials handling and delivery vehicles, earthmoving equipment (scrapers, loaders, crawlers or wheel tractors, bulldozers, off-highway trucks, backhoes and similar equipment).

17.1 Maintenance and Inspections

- Initial inspection done by foremen level management or higher. Daily inspections will follow by qualified operator. All inspection reports will be filed at construction office.
- Mobile equipment shall be inspected and tested by a Competent Person. Documentation shall be maintained of all Competent Persons to include their qualifications and training
- Inspections and tests shall be performed in accordance with the manufacturer's recommendations and documentation shall be maintained.
- Inspections shall be performed and documented prior to each day use to determine that the brakes and operating systems are in proper working order, that all required safety devices are in place and functional, and that the system shows no signs of leakage.
- Mobile equipment failing inspection shall be repaired before use, or tagged out of service by

the Competent Person

- Mobile equipment shall be re-inspected and tested prior to being returned to service
- Mobile equipment shall be shut down and positive means taken to prevent operation while repairs or maintenance is being performed
- Mobile equipment shall be shut down before and during fueling operations
- Mobile equipment shall not be left idling for long periods of non-use during construction activities
- No modifications or additions which will affect the capacity, or the safe operation of mobile equipment shall be made without the manufacturer's approval

17.2 Safe Operation of Mobile Equipment

- Mobile equipment shall only be operated by Qualified Personnel.
- Personnel shall strictly abide by the recommended safe operating speed of motor vehicles and motorized equipment and the posted speed limit signs whichever is more restrictive.
- Climbing on or off mobile equipment while in motion is strictly prohibited.
- Personnel shall be knowledgeable of all road conditions and structures to assure that clearances and load capacities are safe for passage and operating of mobile equipment.
- No personal clothing, water jugs or lunch boxes shall be stored on or in mobile equipment.
- The operators' personal effects are permitted and must be secured in the cab at all times.
- Personal stereo headsets, texting or cell phone use is not permitted when operating mobile equipment.
- Mobile equipment shall be properly secured, blocked, or chocked while not in operation and the parking brake shall be set.
- Mobile equipment shall not be parked and left unattended on grades/slopes or poor road conditions that may cause the vehicle to move, rollover, or strike people, property, or other equipment.
- Mobile equipment shall be equipped with seat belts and occupant restraining devices that are required by the manufacturer and specified to be worn during vehicle operation in accordance with the manufacturer's requirements for the safe operation of the vehicle.
- Seat belts and all occupant restraining devices that are required by the manufacturer shall be inspected and worn by personnel while vehicle is in operation.
- Personnel are not permitted to ride on vehicles unless additional seat belts and Rollover Protection Structure (ROPS) or Falling Object Protective System (FOPS) are designed and provided in accordance with the manufacturer's specifications.
- Pushing/pulling of mobile equipment not designed or in accordance with the manufacturer's specifications is strictly prohibited.
- No personnel shall be permitted to ride with arms or legs outside of vehicle body, in a standing position on the body, on running boards, seated on side fenders, cabs, shields, rear and bed of vehicle or on the load.
- Personnel shall not be transported in the bed of a pick-up truck, dump truck or stake truck.
- Drivers of vehicle shall leave the cab of the vehicle while it is being loaded when exposed to

the danger from suspended loads or overhead leading equipment unless the cab is adequately protected.

- Personnel shall not operate mobile equipment in reverse unless it is equipped with a reverse signal alarm, warning device, or a flagger/signal person when there is a danger of the operator striking employees, other vehicles, or structures.
- High-lift industrial trucks shall be equipped with overhead guards to protect the operator.
- No personnel shall be raised to any elevation by an industrial lift truck.
- No personnel platforms designed for use with a high-lift industrial truck shall be permitted during any construction activity on the site unless approved by DFJV.

17.3 Guarding and Safety Devices

Mobile equipment shall be equipped with Falling Overhead Protection Systems (FOPS) when exposed to falling or flying objects. FOPS equipment shall be certified by either manufacturer or a Professional Engineer.

Mobile equipment to include the following shall also be equipped with ROPS designed by the manufacturer to include but not limited to:

- Crawler and rubber-tire tractors including dozers, push and pull tractors, winch tractors, and mowers.
- Off-highway self-propelled pneumatic-tire earth movers such as trucks, pans, scrapers, bottom dumps.
- Motor graders.
- Water tank trucks having a tank less than the cab; and,
- Other self-propelled construction equipment such as front-end loaders, backhoes, rollers and compactors.

Mobile equipment left unattended at night next to a highway or active construction site shall have lights or reflectors to identify the location of the equipment.

Mobile equipment shall be equipped with windshield wipers, defogging/defrosting equipment and, mirrors to be able to observe personnel on all sides, back, and front of the vehicle in accordance with the manufacturer's requirements and shall be in working order.

Vehicles with dump bodies shall be equipped with positive support, permanently attached and capable of being locked in a position to prevent lowering of the body while maintenance or inspection work is being done.

Vehicles transporting material, soil, equipment, etc. shall be secured and/or covered to prevent displacement.

Vehicles shall be equipped with required lighting to illuminate the working area and emergency rotating/strobe lighting as required by the applicable laws and regulations for both on and off-road use.

Mobile Equipment shall be equipped with ROPS and at least one multipurpose fire extinguisher. Approved reflective triangles and mud flaps may be required when travelling over public and county roads.

17.4 Loading and Unloading

- Work areas shall be arranged as to prevent unnecessary backing of vehicles.
- Loads shall be properly secured to prevent displacement while transporting equipment and material to the DFJV Project and while on-site awaiting loading and unloading.
- The driver should be the one to remove straps on material taking care to observe load that may shift when tension is released.
- Vehicles being loaded or unloaded by means of a forklift or manually shall be secured from movement by wheel chocks or other positive means.
- Operators are not permitted to remain in the vehicle during loading and unloading operations unless the equipment is designed to allow the operator to operate the controls on the vehicle as specified by the manufacturer.
- Area opposite of the equipment unloading must be clear before proceeding in case of load displacement.
- No vehicle shall be loaded beyond its safe working capacity.
- Mobile equipment shall be loaded and unloaded in areas protected from passing traffic, pedestrians, and overhead hazards.
- Operators that load or unload material and equipment shall be qualified and/or competent in all loading and unloading procedures and rigging required to handle all material and equipment.
- Vehicles transporting hazardous materials and/or compressed gas cylinders in excess of 1001 pounds shall be properly placarded and the operator of the vehicle licensed to transport, deliver, load and unload the hazardous material.

17.5 Flaggers/Signalers

All construction activities outside the property limits shall comply with all Federal, State and local traffic control laws and regulations requiring the use of flaggers/signalers.

All work plans identifying the need for flaggers/signalers shall utilize the JHA and DRA to identify exposure to pedestrian and vehicle movements to prevent impact on workers, property and the environment in accordance with the sites traffic control plan and DFJV's health and safety plan.

Flaggers/Signalers shall wear high visibility clothing (ANSI Class 3 garment) and PPE based on the field conditions and traffic flow and be competent in the requirements of proper flagger/signaler techniques.

Flaggers must be trained/certified in accordance with California Manual of Uniform Traffic Control Devices (CA-MUTCD) Chapter 6E.01.

17.6 Vehicle Traffic Control Planning

Vehicle routes shall be identified and marked to permit all employees and vehicles to safely enter and exit the work area.

All work areas shall adhere to the project site speed limit requirements.

All work areas both on and off the DFJV Project property shall be surveyed prior to the commencement of construction activities to identify all aboveground utilities and all other structures that may be encountered, and measures taken to protect the vehicle from contacting the utility or

structure.

Clearances of overhead utility lines shall be maintaining in accordance with DFJV's 'Electrical Systems and Control of Hazardous Energy Standard (Lockout/Tagout) Standard to include electrical, telephone, cable and other lines during vehicle operations and these lines are to be protected in accordance with the regulations in the event there is contact.

Separating traffic from work activities using temporary traffic barriers, shadow vehicles with truck mounted attenuators or similar devices shall be required to include but limited to:

- Traffic speed and volume
- Distance between workers and traffic
- Duration and type of work operations
- Physical hazards present in the work zone
- Alignment of traffic lanes through the work zone

17.7 Training

All workers operating, inspecting and maintaining Mobile Equipment shall be trained and qualified. Workers shall be trained but not limited to the following:

- Applicable Federal, State and Local licensing requirements
- Manufacturers and company maintenance and inspection requirements prior to and during use
- Safe operating procedures
- Use of required equipment designed to protect workers and others while equipment is in parked or in operation to include seat belts, backup alarms, barrier protection during operation, etc.
- Material handling and equipment requirements to include proper rigging and lifting techniques during operating Intended use and limitations and site-specific requirements contained in the HASP for the project.
- Hands-on training and practical demonstrations.
- Specific requirements for the operation of an industrial forklift, certification and retraining.

Overview of OSHA's motor vehicle and mobile equipment requirements and all applicable state, local, DFJV policies and procedures.

18. Work Zone Traffic Control

As a minimum, Temporary Traffic Control (TTC) shall be established in accordance with the requirements of the California Department of Transportation (DOT) guidelines and supplements to the manual or Chapter 6 of the California Manual on Uniform Traffic Control Devices (CA- MUTCD).

All traffic control devices used for construction, maintenance, utility, or incident management operations on a street, highway, or private road open to public travel shall comply with the applicable provisions of CA-MUTCD as found in Chapter 6F. Improvised traffic control devices (signage, barricades etc.) not meeting the above requirement are not permitted.

The requested permit must be appropriate for the type of work that is planned. Permits must be kept at the work site, or designated field headquarters and must be made available for inspection.

All Street Work permit holders shall comply with the most recent version of the California Manual on Uniform Traffic Control Devices for Streets and Highways (CA-MUTCD) and DOT with supplements.

18.1 Work Zone Duration

Work duration is a major factor in determining the number and types of devices used in TTC zones. The duration of a TTC zone is defined relative to the length of time a work operation occupies a spot location.

18.1.1 Mobile Work Zones

Mobile work zones provide the lowest level of traffic control and safety and shall only be used where the work at any specific location will be completed within 15 minutes. There may be cases where site specific conditions justify longer duration use of mobile work zones to minimize the exposure of traffic and the workers to each other. In such cases, an exception may be accepted by DFJV after consideration of relevant factors such as speeds, sight distance, staging of the work, degree of obstruction to traffic, traffic volumes, and the relative severity and duration of exposure to workers and traffic.

18.1.2 Short Duration

Short duration work occupies a location for up to 1 hour. Due to the short work time, simplified traffic control set-ups are allowed, to reduce the hazards of traffic exposure to workers. Careful consideration of traffic and roadway conditions must be given to each work zone prior to selecting the most appropriate traffic control set-up. Shoulder work and low speed, low volume lane work may only require a single warning sign, cones, and a flagger, while a high speed; high volume road would require a more detailed lane closure utilizing more safety control devices such as a barrier vehicle, signs, channelizing devices and a flashing arrow panel.

18.1.3 Short-Term Stationary

Short-term stationary work occupies a location for more than 1 hour within a single daylight period.

18.1.4 Intermediate-Term Stationary

Intermediate-term stationary work occupies a location more than one daylight period up to 3 consecutive days, or night-time work lasting more than 1 hour. Typically, the work area is occupied by excavations, materials, and/or equipment at times when workers are not present.

18.1.5 Long-Term Stationary

Long-term stationary work occupies a location for more than 3 consecutive days. Typically, the work area is occupied by excavations, materials, and/or equipment at times when workers are not present. Extra care should be taken when scheduling work at night. Lighting of the work area and/or flagging stations is required. In addition to retro-reflective signs & channelizing devices, light dimming arrow panels, additional lights on work equipment.

18.2 Traffic Control Plan

A Traffic Control Plan (TCP) describing TTC measures to be used for facilitating road users through a work zone shall be developed by a person knowledgeable (trained and/or certified) about the principles of temporary traffic control and work activities such as a trained traffic control supervisor

or Professional Engineer.

The person must be familiar with the requirements of CA-MUTCD applicable state and local requirements. The degree of detail in the TCP depends on the traffic volume, speed, work duration, location of the work in relationship to the road and the type of work being performed. The TCP shall be incorporated into DFJV's Health and Safety Plan (SSHASP) and the Job Hazard Analysis performed for the work to be performed. If the TCP is for work being conducted within Railway Right of Way, or at established Railway Crossings, this work needs to be coordinated with the Railway under the established agreements and must comply with all FRA rules.

- Prior to the beginning of work operations, evaluate all aspects of the work area, including sight distance, traffic speed, volume, road approaches, work duration, and the type of work activity, before determining the appropriate traffic controls.
- Working on or along the highway can present a potentially hazardous work environment.
- Consider the risk to workers when developing the traffic control plans.
- The proper control of traffic is necessary to ensure the safety of workers and public to minimize adverse traffic impacts associated with the construction in terms of delays and congestion, noise and other environmental impacts, while providing good access to the worksite.

The TCP shall be completed for all road construction, utility work, maintenance operations (including minor maintenance and utility projects) prior to occupying the TTC zone. Planning for all road users (school buses, bicyclists, and emergency responders) should be included in the process.

Where existing pedestrian routes are blocked or detoured, information shall be provided about alternative routes that are usable by pedestrians with disabilities, particularly those who have visual disabilities. Access to temporary bus stops, travel across intersections with accessible pedestrian signals, and other routing issues shall be considered where temporary pedestrian routes are channelized. Barriers and channelizing devices that are detectable by people with visual disabilities shall be provided.

Where projects overlap coordination shall be made to ensure that that duplicate signing is not used and to check compatibility of traffic control between adjacent or overlapping projects.

18.3 Operational Practices

After the traffic control plan is implemented, the Traffic Control Supervisor should drive through the work area, at the anticipated speed of motorists to determine the effectiveness of the plan and adjust as appropriate. Additional reviews throughout the work shift shall be made to ensure that traffic control devices remain in place. It is important for work occurring during nighttime hours that the devices are reviewed to ensure proper visibility.

Whenever temporary traffic control zone extends more than 2 miles from the first advance warning sign, the devices shall be moved forward in order to maintain appropriate advance warning to drivers, especially in urban areas with multiple interchange ramps.

DFJV shall contact the appropriate Authorities Having Jurisdiction (AHJ) prior to starting work and after completion when appropriate, based on region policies to notify them of your work operation status.

Also coordinate with the region public information officer (PIO) for public notification and to be included in the weekly region construction activity report.

All road closures or detours shall be coordinated with local authorities.

When setting up traffic control local law enforcement should be contacted to provide a patrol vehicle if they have the manpower available. A request for a law enforcement detail should be made for nighttime lane closures on high volume/high speed freeways or road closures and other critical work zone traffic situations.

Flaggers and workers within the work zone shall wear high visibility outer garments with retro-reflective material. When exposed to nighttime work, high visibility, and reflective stickers will be provided for hard hats worn by flaggers and workers exposed to traffic. High visibility garments shall be compliant with ANSI/ISEA standards for Class 3 garments.

Flagger stations shall be established in accordance with section 6E.08 of CA-MUTCD or applicable section of the DOT Index guidelines with supplements. At night flagger stations shall be illuminated.

All personal equipment and traffic control devices must be kept clean to provide protection for the crew through better visibility to the motorist. The condition of signs and traffic control devices shall be "acceptable or marginal" as defined in the book Quality Guidelines for Temporary Traffic Control Devices. A sign or traffic control device determined to be "not acceptable" shall be replaced as soon as possible.

Signs that are no longer retro-reflective (visible and legible at night) or are in poor condition are to be replaced. All standard temporary warning signs will follow the standards provided in the MUTCD.

Signs that will be in place at one location continuously for longer than three days must be in a stand or post mounted.

Where it is necessary to add weight to signs for stability, sandbags or other ballast may be used, but the height to the top of the ballast must not be more than 4 inches above the roadway surface and must not interfere with the breakaway features of the device.

Traffic safety cones, for short duration or low speed, must be a minimum of 18 inches high. Safety cones used for high speed, will be a minimum of 28 inches high and equipped with retroreflective material. Traffic safety drums must be 36 inches tall and are recommended for use in the tapers on high-speed roadways due to their greater visibility and imposing size

Flaggers should be employed only when all other methods of traffic control are inadequate to direct, or control, traffic.

The placement of a flagger at the center of an intersection to control traffic is not allowed. The only person allowed to legally control traffic from the center of an intersection is a uniformed police officer.

Only STOP/SLOW or STOP/STOP paddles shall be used by flaggers. In an emergency only, a red flag may be used. Where the distance between two flaggers is more than 500 feet apart additional measures may need to be implemented. When they cannot see each other or there is an obstruction, the flaggers shall be provided with two-way radios.

All work trucks and other vehicles shall be equipped with two yellow revolving beacons (pickups have one beacon). Warning beacons will be in operation whenever vehicles and equipment are operating in or near traffic and turned off when parked out of traffic or traveling at normal highway speeds.

Work in the roadway may require two or more days to complete. It is therefore important that the work site be left in safe condition overnight. The site supervisor shall be responsible for making sure that adequate signs and channeling devices are in place to alert drivers and pedestrians to any changes in the roadway. All devices shall be retro-reflective to ensure good visibility at night. The site supervisor shall inspect the work zone at the end of the shift to make sure it is in good condition.

All equipment left unattended at night, adjacent to a highway in normal use or adjacent to

construction areas where work is in progress, shall have lights or reflectors, or barricades equipped with lights or reflectors, to identify the location of the equipment.

18.3.1 Pedestrians

All pre-existing Americans with Disabilities Act (ADA) compliant pedestrian facilities within the work zone must continue to comply with ADA requirements for access during work operations. Consider the following when addressing pedestrian issues within and around work zones:

- Accessibility through the work area for pedestrians must be accounted for prior to starting work operation if temporary pedestrian ramps are necessary at the work location.
- Pedestrians should not be led into conflicts with work site vehicles, equipment, and operations.
- Pedestrians shall be provided with a safe, convenient path that replicates as nearly as practical
- The most desirable characteristics of the existing sidewalks or a footpath. Pedestrians generally will not go out of their way. Make alternate pathways reasonable.
- Placements of sidewalk closure signs are required in advance of the closure point for pedestrians to adjust their route. It must be recognized that pedestrians are reluctant to retrace their steps to a prior intersection for a crossing.

18.3.2 Bicycles

Bicycles have a legal right of access to most highway facilities and provisions for their safe conduct through work zones are necessary.

- Provide for and sign an appropriate alternate route when activities close a designated (signed) bicycle path or shoulder bikeway. Where horizontal separation for bicycles and pedestrians existed prior to work, consider separating during work.
- When laying out alternative bicycle paths, make sure no overhead obstructions present a direct hazard to normal bicycle operation.
- Riding surfaces are important for safe bicycle operation. Loose gravel, uneven surfaces, milled pavement, and various asphaltic tack coats endanger the bicyclist. Consider the condition of the surface the bicyclist will be required to use.

18.3.3 Schools

Work zone operations in the vicinity of schools require consideration to ensure that conflicts are kept to a minimum. Issues that should be considered are:

- Student path to and from the school
- Bus movements for loading and unloading students
- Coordination with school administrators and crossing guards
- School hours to minimize impacts

18.4 Training and Qualifications

18.4.1 Traffic Control Supervisor

DFJV shall designate a competent Traffic Control Supervisor who is trained, or certified and knowledgeable of the MUTCD standards. The Traffic Control Supervisor shall make reviews and/or

corrections throughout the work shift. The Traffic Control Supervisor's name shall be included in the TCP and DRA.

18.4.2 Flagger

All construction activities outside the property limits shall comply with all Federal, State, and local traffic control and MUTCDs laws and regulations requiring the use of flaggers/signalers.

All work plans identifying the need for flaggers/signalers shall utilize the JHA and DRA to identify exposure to pedestrian and vehicle movements to prevent impact on workers, property and the environment in accordance with the sites traffic control plan and DFJV's health and safety plan.

Flaggers/Signalers shall wear high visibility clothing (ANSI Class 3 garment) and PPE based on the field conditions and traffic flow and be competent in the requirements of proper flagger/signaler techniques.

Flaggers must be trained/certified in accordance with California Manual of Uniform Traffic Control Devices (CA-MUTCD) Chapter 6E.01.

When requested by DFJV, flaggers shall demonstrate their competency in flagging procedures. Flaggers not competent in flagging procedures to the satisfaction of DFJV shall be retrained or replaced.

18.4.3 Workers

All workers assigned to highway work sites must be trained to recognize the risks associated with working in or adjacent to traffic and the measures to safeguard themselves, coworkers, and the public from those risks.

As a minimum, this training should discuss basic work zone safety rules, protective equipment such as high visibility apparel and hard hats, accident reporting, employee response to dangerous conditions that present an immediate hazard to traffic or workers, and operation of work vehicles and personal vehicles in work zone situations.

Workers with traffic control responsibilities (setup, maintenance, and removal of traffic control devices) in addition to the basic training, workers must be provided with adequate technical training to carry out those skills. This training may be provided at the job site, through union training programs, or through other programs provided by the company.

19. Fall Protection

As a general rule for construction, the fall protection threshold height requirement is 6 feet for all work covered by this standard, except as specified herein or within other DFJV EHS technical standards. The Fall Protection Program Administer has been identified as the applicable Segment Safety Manager and/or the DFJV Safety & Security Manager. The DFJV Safety Managers are the Qualified Persons for this section.

19.1 Controlled Access Zones (CAZs)

The use of a CAZ as fall protection is prohibited on the DFJV Project unless a Qualified Person can demonstrate the use of fall prevention or fall arrest systems is infeasible.

19.2 Guardrail Systems

- Each guardrail system shall have a top rail, mid rail, and a toe board in accordance with CCR Title 8 section 1620.
- The following heights shall be applied to guardrail systems:
- Top rail = 42 inches.
- Mid rail = 21 inches
- Toe board = minimum of 4 inches
- Guardrail systems shall be capable of supporting, without failure, 200 pounds in any outward or downward direction.
- When the 200 pounds is applied in a downward direction, the top edge of the guardrail shall not deflect to a height less than 39 inches.
- Mid-rails, screens, mesh, intermediate vertical members, solid panels, and equivalent structure members shall be capable of withstanding, without failure, a force of at least 150 pounds in any outward or downward direction.
- Guardrail systems shall be surfaced to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.
- When wire rope guardrails are used, they shall be at least 3/8 inch and flagged at intervals of no more than 6 feet.
- When guardrail systems are used around holes used as points of access (e.g., ladder ways), they shall be provided with a gate or be offset so persons cannot walk directly into the hole.
- When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail
- Section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.

19.3 Hole Covers

- A cover shall be provided for any hole greater than 2 inches in its least dimension, on a walking or working surface (e.g., a floor, roof, or other opening).
- Covers shall be capable of supporting, without failure, at least twice the weight of the worker, equipment, and material combined.
- Covers shall be secured when installed and clearly marked with the word “HOLE” or “COVER.”
- When a hole cover is removed to facilitate the transfer of material, a guardrail system shall be provided along all unprotected sides or edges, or workers shall use a personal fall arrest system (PFAS).

19.4 Safety Net Systems (If Applicable)

- Safety net systems shall be in compliance with CCR Title 8 section 1671.
- The use of safety nets as a sole form of fall protection on the DFJV Project is prohibited unless a Qualified Person can demonstrate the use of fall prevention or PFAS is infeasible.
- Copies of safety net load tests shall be maintained at the DFJV Project.

19.5 Personal Fall Arrest Systems (PFASs)

- PFAS shall be ANSI Z359 compliant.

- When PFAS are used as fall protection, only employees who are qualified through training to use such equipment shall be permitted to do so.
- PFAS equipment shall be inspected by the user prior to each use. A Competent Person shall inspect PFAS equipment at least biannually; this inspection shall be documented and maintained at the site.
- Defective or damaged equipment shall be immediately removed from service.
- PFAS equipment shall be used, maintained, and stored in accordance with the manufacturer's instructions and recommendations.
- PFAS equipment consists of a full body harness, connecting means, and an anchorage system.
- Anchorage points must be capable of supporting 5,000 pounds per attached employee.
- PFAS shall be rigged so workers can neither free fall more than 6 feet or contact any lower level or other physical hazard in the path of the fall.
- PFAS shall stop the fall within a maximum deceleration distance of 3.5 feet.
- All lanyards shall be shock absorbing with a locking snap hook.
- A Qualified Person must approve the use of PFAS for employees with a combined body and tool weight exceeding 310 pounds.

19.6 Lifelines

- Horizontal lifelines shall be designed, installed, used, and maintained under the supervision of a Qualified Person as part of a complete PFAS.
- Job-fabricated horizontal lifelines may only be utilized where designed by a licensed Professional Engineer. A supervisor shall monitor the installation, use, and maintenance of the lifelines.
- The design shall include drawings, required clearance, and instructions on proper installation, use procedures, inspection, and maintenance requirements.
- A complete and current copy of the design shall be kept on site as long as the system is in use. The design documents shall be available on site for review.
- Horizontal lifelines shall be designed to support twice the maximum force of a potential fall for each employee attached.
- Vertical lifelines shall have a minimum breaking strength of 5,000 pounds and be protected against cuts and abrasions.
- Only one employee at a time may be tied off to a vertical lifeline unless specifically designed by a licensed Professional Engineer to accommodate additional employees.
- Self-retracting lifelines (SRLs) shall limit the free fall distance to 2 feet and shall be rated to 350 pounds.

19.7 Scaffolds, Aerial Lift Equipment, and Moveable Work Platforms

- Fall protection related to scaffolds shall be in accordance with DFJV's Scaffolding Standard.
- A personal fall arrest system and 100% tie-off are required for all persons using aerial lifts.

19.8 Safety Monitoring Systems

- If a Qualified Person can demonstrate a safety monitoring system is the only feasible fall protection to control the hazards of the task, a job hazard analysis (JHA) specific to the task

being performed shall be prepared. Demonstration through the process of elimination as stated in CCR Title 8 section 1671.1

- The JHA shall identify the Competent Person for fall protection.

19.9 Warning Line Systems

- When warning line systems are utilized, they shall be positioned at least 6 feet away from the leading edge.
- The warning line consists of a barrier of rope, wire, chain, or other suitable material.
- Plastic “CAUTION” or “DANGER” tape cannot be used as a warning line.
- Warning line systems shall be 36 inches high with support stanchions capable of resisting a tipping force of 16 pounds.
- The barrier must be flagged with highly visible material positioned at intervals of no more than 6 feet.

19.10 Rescue Plan and Procedures

- Emergency rescue provisions shall be considered and developed into a rescue plan for all tasks requiring fall protection; the plan shall be provided in the associated Job Hazard Analysis (JHA) / Daily Risk Assessment (DRA).
- The rescue plan must provide prompt rescue of personnel in the event of a fall.
- Employees using PFASs shall utilize the “buddy system,” working with someone within
- Visual/verbal range who will initiate rescue of a fallen employee if required.

19.11 Working Over or Near Water

- Any time work is to take place over or near water, a JHA shall be prepared specific to the hazards of the task being performed. Emergency response and rescue procedures shall be specifically identified as part of the JHA.
- The JHA shall identify the Competent Person for fall protection.
- Personal floatation devices (PFDs) are required for all work over or near water, except when:
 - 100% fall protection is used to prevent the employee from falling into the water: or
 - The horizontal distance of the walking/working surface to the potential fall into water is 6 feet or less.

19.12 Training

Workers exposed to fall hazards requiring the use of fall protection equipment must be in accordance with ANSI Z-359-2 and documented in the monthly inspection. Documentation of training shall be maintained at the DFJV Project and made available for review upon request. Workers shall be trained on the following:

- The nature of fall hazards in the work area.
- The correct procedures for erecting, using, dismantling, maintaining, and storing fall protection equipment.
- The application limits, free fall distance, total fall distance, and clearance requirements of fall protection equipment.
- Rescue equipment and procedures.

- Hands-on training and practical demonstrations; and
- An overview of OSHA's fall protection requirements.

20. Excavation

Excavation work includes stripping and stockpiling of topsoil, sheeting and bracing, excavation over the site, excavation for roads, pipelines and structures, control of water, segregation and stockpiling of excavated material, disposal of unsuitable material and excess excavated material, and trimming, shaping and grading of excavations.

20.1 General

- Prior to the start of excavation operations, a job hazard analysis (JHA) shall be prepared.
- An Excavation Checklist shall be used, and the methods used for soil classification noted accordingly.
- For excavations less than 5 feet, the JHA shall be prepared by a Competent Person.
- For excavations greater than 5 feet, the JHA shall be prepared by a Qualified Person.
- Excavations shall be tested to determine the soil classification.
- All underground utilities shall be identified in accordance with the one call system.
- The location of the utility markings shall be verified by DFJV, at a minimum, by hand/vacuum excavation to a depth of the utilities and to 2 feet on the other side of the markings.
- Where the utility cannot be accurately located through a mark out, DFJV shall hand/vacuum excavate until the utility is located.
- Utilities shall be protected and/or supported and employees shall be safeguarded from utility exposure while the excavation is open.
- A documented daily inspection shall be performed by the Competent Person prior to any work being performed in an excavation.
- Additional inspections shall be performed by the Competent Person after rainstorms and when excavation conditions change.
- All inspections shall be documented, and documentation shall be available for review by DFJV upon request.
- Identified unsafe conditions shall be corrected before employees enter an excavation. Sidewalks, pavements, and other adjacent structures shall be protected and may not be undermined unless a support system is provided and designed by a professional engineer (P.E.).
- Areas surrounding the excavation shall be evaluated by a Competent Person to determine acceptable loading of employees, equipment, spoils, etc.
- Areas that are not capable of supporting potential loadings shall be clearly identified and appropriately demarcated to prevent unsafe loading.
- Precautions shall be taken to prevent surface water from entering an excavation and to provide good drainage of the areas adjacent to an excavation.
- Employees shall not be allowed to work in an excavation where water has accumulated or is accumulating unless precautions are taken to ensure the integrity of the excavation has not been compromised.

- Soils shall be classified and documented by a Competent Person and documentation shall be maintained and available for review by DFJV upon request.

20.2 Protection of employees, Public and Mobile Equipment

- When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs.
- Employees shall stand clear from vehicles being loaded or unloaded to avoid being struck by spillage or falling materials.

20.3 Safe Access and Egress

- Protection shall be provided to prevent employees, vehicles, and equipment from falling into excavations.
- Excavations greater than 48 inches in depth shall be provided ladders, stairs, ramps, or other means of safe entry/egress every 25 feet of lateral travel. Additional access or egress may be required for excavations greater than 20 feet in depth and will be determined by a Competent Person.
- Walkways over excavations shall be provided fall protection when excavations are greater than 6 feet in depth and wider than 30 inches.

20.4 Protective Systems

Protective measures shall be one or a combination of:

- Simple slope at 1.5: 1.
- Sloping or benching, (depending on soil type).
- Shoring or shielding, (Tab Data).
- Engineered or Manufactured Drawings, (P.E. Stamped).
- Excavations shall be protected from cave-ins by a protective system unless the excavation is less than 5 feet in depth and a Competent Person determines there is no potential for cave-in, or the excavation is made entirely in stable rock.
- Protective systems shall be capable of supporting, without failure, all loads placed upon them or reasonably expected to be applied to the system.
- When sheeting is used, it shall extend a minimum of 6 inches above the natural level of the ground.

20.5 Working in Excavations

- Employees shall be protected from potential falling objects (e.g., loose rock, soil).
- Excavated material shall be placed at least 2 feet from the edge of an excavation or shall be retained by protective systems designed to support the weight of the excavated material and prevent the materials from falling into the excavation.
- Atmospheric monitoring shall be performed in excavations greater than 4 feet in depth where there is potential for an oxygen deficiency or hazardous atmosphere. This includes where fossil fuel-powered equipment is utilized within or near an excavation.
- Atmospheric monitoring shall be performed by a Competent Person to measure for oxygen content, lower explosive limit, and toxic vapors and gases (e.g., hydrogen sulfide, carbon

monoxide, and volatile organic compounds).

20.6 Rescue Plan and Procedures

- Appropriate emergency rescue equipment shall be readily available where hazardous atmospheric conditions may exist. This equipment shall be attended when in use.

Employees working within an excavation shall utilize the “buddy system”, working with someone within visual/verbal range who will initiate rescue of the fallen employee if required.

21. Scaffolding

21.1 General

- Scaffolds, platforms, or temporary working platform shall be provided for all work off the ground.
- A job hazard analysis (JHA) shall be prepared for scaffold erection and dismantling activities under the direction of a Qualified Person.
- Scaffolds shall be capable of supporting at least four times the maximum intended load including persons, equipment, tools, materials, etc.
- Scaffolds shall be plumb and level.
- Unstable objects such as barrels, boxes, loose bricks, or concrete blocks shall not be used as supports.
- Scaffolds, except suspended scaffolds, shall bear on base plates upon mudsills or other adequate foundation.
- The ground conditions and foundation of scaffolds shall be inspected to ensure they are capable of supporting the scaffold and all allowable scaffold loading.
- Working levels of platforms shall be fully planked or decked.
- Copies of the plans, drawings, and specifications for all supports, fastenings, connections, and details for any scaffold requiring a permit or design by this standard shall be maintained at the DFJV Project and made available at all times.
- Scaffolds with loads exceeding 75 pounds per square foot (psf) shall be designed by a licensed Professional Engineer (P.E.).
- Scaffold shall, at a minimum, be designed to support 25 psf.
- When the scaffold height exceeds 3 times the maximum scaffold base dimension, the scaffold shall be secured to the structure.
- Scaffolds shall be inspected by a Competent Person prior to use and after any occurrence that could affect the scaffold’s structural integrity.
- Inspections shall be documented and maintained on site.
- All scaffolds shall be tagged by a Competent Person.
- Tags and connecting ties shall be legible, readily visible, and made of materials that will withstand the environment in which they are used. Tags shall be color-coded and indicate the following:

- Green = Scaffold has been inspected and is safe to use
- Yellow = Scaffold is being assembled or disassembled
- Red = Scaffold is not safe to use (except by erectors/dismantlers)
- Ladders or makeshift devices used on top of scaffolds to increase the height are prohibited.
- For all enclosed scaffolds, the wind loading, and effects must be considered and incorporated by a Qualified Person.
- Scaffolds shall be located and protected from equipment movement, vehicle traffic, or other sources of damage.
- Scaffolding components manufactured by different manufactures shall not be intermixed and components of dissimilar metals shall not be used together.

21.2 Scaffold Platform Construction

- When scaffold platforms are more than 2 feet above or below a point of access, portable ladders, hook-on ladders, attachable ladders, stair towers (scaffold stairways/towers), stairway-type ladders (such as ladder stands), ramps, walkways, integral prefabricated scaffold access, or direct access from another scaffold, structure, personnel hoist, or similar surface shall be used.
- Climbing of cross braces is prohibited.
- Where end frames are designed to be used as a ladder, or where bolted-on ladders are used, the maximum height will be limited to 20 feet unless fall protection is used. The following shall apply:
 - The distance between rungs shall not exceed 12 inches and shall be uniform throughout the length of the ladder; and
 - The minimum clear length of the rungs shall be 16 inches.
- Planking shall be secured to prevent loosening, tipping, or displacement and shall be supported to prevent excessive deflection.
- Scaffold platforms shall be provided with full width planking on every work area at a minimum of 20 inches wide.
- Planking shall be constructed using either prefabricated platform decks or scaffold-grade planks, laid tightly side-by-side.
- Gaps between planking members shall be no greater than 1 inch wide.
- Planking shall be laid with edges close together across the entire access surface. There will be no spaces through which employees, equipment, or material could fall.

21.3 Supported Scaffolds

- Supported scaffolds 40 feet or greater shall be reviewed and accepted by DFJV.
- Supported scaffolds between 40 and 75 feet in height shall be designed by a Qualified Person.
- Supported scaffolds greater than 75 feet in height shall be designed by a licensed P.E.

21.4 Suspended Scaffolds

- Each suspension rope, including connecting hardware, shall be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to the rope.

- Anchorage points shall be independent of suspension ropes and inspected by a Competent Person.
- Suspended scaffolds shall be designed by a licensed P.E.
- Prior to use of a suspended scaffold, direct connections shall be evaluated by a Qualified Person who shall confirm that the supporting surfaces are capable of supporting loads by the counter- weights.

21.5 Manually Propelled Mobile Scaffolds (If Applicable)

- Wheels and casters on rolling scaffolds shall have a positive locking device, securely fastened to the scaffold, to prevent accidental movement.
- Casters or wheels shall be locked when a scaffold is occupied.
- Riding on manually propelled mobile scaffolds is prohibited.
- The height of a rolling scaffold, excluding its uppermost guardrails, must not exceed 3 times its smallest base dimension unless it is stabilized by an engineered counterweight system or other equivalent means.
- Before moving a scaffold, all material and equipment shall be secured or removed from the platform.

21.6 Fall and Falling Object Protection

- Prior to scaffold erection and dismantling activities, a Qualified Person shall determine if fall protection is needed.
- Any time individuals, while using the scaffold, are exposed to a fall exposure of 6 feet or greater in height, fall protection shall be provided.
- Guardrail systems used on scaffolding shall be in compliance with CCR Title 8 section 1621.
- Protection from falling objects shall be provided to employees passing under scaffolds in the form of mesh, toe boards, debris nets, or sidewalk sheds.

21.7 Aerial Lifts (Including Scissor Lifts)

- Aerial lifts and devices shall be operated in accordance with the manufacturers specifications and the inspection shall be documented.
- The manufacturer's operating manual for aerial lifts and devices shall be maintained on the vehicle or shall be readily available to personnel.
- Required safety decals, labels, and signs shall be in place and readable.
- Aerial lift and devices shall not be moved when the boom is elevated with employees in the basket unless the equipment is specifically designed for such use.
- Brakes shall be set and outriggers, when used, shall be positioned on pads or a solid surface.
- Lift controls shall be tested each day prior to use to ensure safe working condition.
- Boom and basket load limits specified by the manufacturer shall not be exceeded.
- Employees working from aerial lifts shall be provided personal fall arrest systems (PFAS) and tied off 100% of the time while in the basket.
- Tying off to an adjacent pole, structure, or equipment while working from an aerial lift shall not be permitted.

- Employees shall always stand firmly on the floor of the basket and shall not sit or climb on the edge of the basket.

21.8 Other Types of Scaffolds (If Applicable)

- The following types of scaffold shall be designed and constructed in accordance with ANSI A10.8 in addition to applicable regulations:
 - Outrigger scaffolds.
 - Needle beam scaffolds.
 - Interior hung scaffolds.
 - Bricklayer's square scaffolds.
 - Float/ship scaffolds.
 - Boatswain's scaffolds.
 - Window jack scaffolds; and
 - Carpenter's bracket scaffolds.

21.9 Training

- Individuals using scaffolding shall be trained, at minimum, in the following areas by a competent Person:
 - The nature of scaffold hazards; and
 - The proper use of the scaffold; and
 - The proper handling of materials on the scaffold.
- Training documentation shall be maintained on site and made available for review.
- Scaffold erectors and dismantlers involved in scaffold erection or dismantling activities shall be trained at minimum in the following areas by a Qualified Person:
 - Nature of the scaffold hazards.
 - The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question; and
 - The design criteria and maximum intended load-carrying capacity and use of the scaffold.
- Training documentation shall be maintained on site.
- Employees operating aerial lifts and devices shall be trained in the use of the equipment.
- The training shall consist of the following:
 - Reading and understanding the manufacturer's operating manual and any associated rules and instructions, or training by a Competent Person on the contents of these documents; and
 - Reading and understanding all safety decals, warnings, and instructions on the equipment.
 - Retraining shall be required when any employee lacks the skill or understanding needed for safe work involving the erection, use, or dismantling of scaffolds, or when there are changes at the site presenting hazards for which the employee has not been previously trained.

22. Ladders and Stairways

- Ladders and stairways shall be provided at all points of employee access where there is a break in elevation of 18 inches or more, and no other means of safe access is available.
- Where a structure has two or more points of access between levels, at least one point of access shall be kept clear to permit free passage of employees.
- When a structure has only one point of access between levels, that point of access shall be kept clear to permit free passage of employees. When work must be performed or equipment must be used that restricts free passage at a point of access, a second point of access shall be provided and used.
- DFJV shall provide and install all stairway and ladder fall protection systems as required before employees begin work that necessitates the installation and use of stairways, ladders, and their respective fall protection systems.

22.1 Ladders

- The primary purpose of ladders is to provide access to or egress from a work area and shall not be used as work platforms.
- Ladders shall not be used in a horizontal position as platforms.
- Ladders shall not be loaded beyond the maximum intended load for which they were built.
- Any accessory, including but not limited to ladder levelers, ladder stabilizers, ladder stand-off devices, ladder jacks, ladder straps, or ladder hooks, that may be installed or used in conjunction with ladders must be installed and used per the manufacturer's instructions.
- Ladders shall be inspected before use. Ladders with broken or missing rungs or steps, broken or split side rails, or other defects shall be tagged "OUT OF SERVICE" and either properly repaired or destroyed.
- Ladders shall be positioned away from electrical wires. Before raising or climbing a ladder, employees shall inspect the work area for overhead obstructions and electrical lines. Portable metal or conductive ladders are prohibited on the DFJV Project.
- Ladders must be used only on stable and level surfaces. Ladders shall not be used on slippery surfaces unless provided with slip-resistant feet to prevent movement.
- All ladders shall be tied, blocked, or otherwise secured to prevent displacement while in use.
- Ladders that are not self-supporting shall be pitched 1 foot out from the support structure for every 4 feet of ladder working length.
- Ladder side rails shall extend at least 36 inches above the upper landing surface. When this precaution is impractical, grab rails shall be installed to provide a secure grip for employees mounting or dismounting the ladder.
- Ladders shall not be moved, shifted, or extended while occupied.
- Ladders placed in any location where they can be displaced by workplace activities or traffic, such as in passageways, doorways, or driveways, shall be barricaded or otherwise protected to keep the activities or traffic away from the ladders.
- Ladders shall not be tied or fastened together to provide longer sections unless they are specifically designed for such use. Extension ladders shall not be separated and used as two straight ladders unless designed by the manufacturer to be used in two sections.

- When two or more separate ladders are used to reach an elevated work area, they must be offset with a platform or landing between the ladders.
- Ladders shall not be climbed by more than one person at a time, unless designed by the manufacturer for such use.
- A double-cleated ladder or two or more separate ladders shall be provided when ladders are the only mean of access or exit from a working area for 25 or more employees, or when a ladder is to serve simultaneous two-way traffic.
- The length of portable stepladders shall not exceed 20 feet. A metal spreader bar or locking device shall be provided on each stepladder to hold the front and back sections in an open position.
- The top or top step of a stepladder shall not be used as a step. Cross-bracing on the rear
- Section of stepladders shall not be used for climbing unless the ladders are designed for and provided with steps for climbing on both front and rear sections.
- When not in use ladders shall be stored in the horizontal position or secured in the vertical position. Ladders must be stored away from and separate of walking/working surfaces.

22.2 Job-Made Wooden Ladders

- Job-made wooden ladders shall be constructed for their intended use. Cleats shall be uniformly spaced no less than 10 inches apart and no more than 12 inches apart.
- Protective coatings on job-made wooden ladders must not include any opaque material that obscures the structural integrity of the wood from visual inspection.
- Ladders shall be surfaced to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.
- Job-made wooden ladders are not to exceed 30 feet in working length. In the event the required ladder length exceeds 30 feet, two or more separate job-made ladders are to be used in conjunction with platforms protected with railings.

22.3 Fixed Ladders

- Fixed ladders shall:
 - Be fixed in position with side rails extending 3 feet above the top landing.
 - Have rungs at least 7 inches away from the surface to which the ladder is attached.
 - Be offset at rest platforms at least every 30 feet.
 - Be equipped with cages or wells and ladder safety devices or self-retracting lifelines
 - Have rungs spaced a minimum of 10 inches and a maximum of 12 inches apart.
- Fixed ladders fabricated from reinforcing bars or other questionable material shall not be used.
- Ladder safety devices shall be used when employees are climbing fixed ladders equal to or greater than 24 feet. This precaution applies even when a fixed ladder is equipped with cages, wells, and landing platforms.
- IF APPLICABLE, a cage must extend at least 42 inches above the top of the platform or above the point of access and egress at the top of the ladder.

- For a through ladder, the step-across distance from the centerline of the steps or rungs to the nearest edge of the structure, or equipment shall be a minimum of 7 inches and a maximum of 12 inches. If the normal step-across distance exceeds 12 inches, a landing platform shall be provided to reduce the distance to between 7 and 12 inches. The landing platform shall be equipped with a handrail over the landing.
- The side rails of through or side-step ladder extensions shall extend 42 inches above the top of the access/egress level or landing platform served by the ladder.

22.4 Stairways

- Where a door or gate opens directly onto a stairway, a platform extending at least 20 inches beyond the swing of the door shall be provided.
- Slippery conditions on stairways shall be eliminated.
- Material shall not be stored in stairways.
- The access points to stairways and the stairs shall be always kept clear.
- Stairways shall be adequately illuminated.
- Stairways that will not be a permanent part of a structure shall have landings at least 30 inches deep and 22 inches wide at every 12 feet of vertical rise.
- Stairways shall be installed between 30 and 50 degrees from the horizontal. Variations in riser height or stair tread width may not exceed 1/4 inch on any stairway system.
- Stairways having four or more risers or rising more than 30 inches shall have at least one handrail and one stair rail system along each unprotected side or edge.
- Handrails shall provide an adequate handhold for employees.
- The height of the top rails of a stair rail system shall be between 36 and 37 inches from the upper surface of the handrail to the tread.
- Mid rails that consist of 1-inch x 6-inch material, or equivalent intermediate structural members, shall be provided between the top rail and the steps.
- Handrails and top rails shall be capable of withstanding, without failure, a force of at least 200 pounds applied within 2 inches of the top edge in any downward or outward direction.
- Temporary handrails shall have a minimum of 3 inches of clearance between the handrail and walls or other objects.
- All parts of stairways shall be free of hazardous projections, such as protruding nails.

22.5 Stairways under Construction

- Except during stairway construction, foot traffic is prohibited on stairways with pan stairs or skeletal metal stairs where the treads or landings are to be filled in with concrete or other material and permanent treads are to be installed at a later date.
- Stairways under construction can be opened to foot traffic only after the stairs are temporarily fitted with wood or another solid material to the top edge of the pan, and a guardrail system or handrails are installed.
- Treads for temporary service shall be installed the full width and depth of the stair or landing and shall be secured to prevent movement. Temporary treads shall be replaced when worn below the level of the top edge of the pan.

22.6 Training

- DFJV shall provide training for employees to recognize hazards related to ladders and stairways, and to use proper procedures to minimize these hazards. DFJV shall ensure that each employee has been trained by a Competent Person in the following areas:
 - The nature of fall hazards in the work area.
 - The correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used.
 - The proper construction, use, placement, and care in handling of all stairways and ladders.
 - The maximum intended load-carrying capacities of ladders; and
 - The proper use of ladders.
- Retraining shall be provided for employees as necessary to maintain the understanding and knowledge acquired through compliance with this standard.

23. Heat Illness Prevention Program

23.1 General Summary

California Employers with any outdoor places of employment must comply with the Heat Illness Prevention Standard T8 CCR 3395.

These procedures have been created to reduce the risk of work-related heat illnesses among employees.

Please note: These procedures provide the minimal steps applicable to most outdoor work settings and are essential to reducing the incidence of heat related illnesses. In working environments with a higher risk for heat illness (e.g., during a heat wave, or other severe working or environmental conditions), DFJV will exercise greater caution and additional protective measures beyond what is listed in this document, as needed to protect their employees.

23.2 Definitions

"Acclimatization" means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.

"Heat Illness" means a serious medical condition resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.

"Environmental risk factors for heat illness" means working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees.

"Personal risk factors for heat illness" means factors such as an individual's age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body's water retention or other physiological responses to heat.

"Preventative recovery period" means a period of time to recover from the heat in order to prevent heat illness.

"Shade" means blockage of direct sunlight. Canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not

cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning.

(c) Provision of water. Employees shall have access to potable drinking water meeting the requirements of Sections 1524, 3363, and 3457, as applicable. Where it is not plumbed or otherwise continuously supplied, it shall be provided in sufficient quantity at the beginning of the work shift to provide one quart per employee per hour for drinking for the entire shift. The crew may begin the shift with smaller quantities of water if they have effective procedures for replenishment during the shift as needed to allow employees to drink one quart or more per hour. The frequent drinking of water shall be encouraged.

(d) Access to shade. Employees suffering from heat illness or believing a preventative recovery period is needed shall be provided access to an area with shade that is either open to the air or provided with ventilation or cooling for a period of no less than five minutes. Such access to shade shall be permitted at all times. Cooling measures other than shade (e.g., use of misting machines) may be provided in lieu of shade if the employer can demonstrate that these measures are at least as effective as shade in allowing employees to cool.

23.3 Procedures for Provision if water include but are not limited to the following:

- The Foreman will bring an adequate number of drinking water containers (of 5 to 10 gallons each) to the site, so that at least 1 quart of water per person per hour is available.
- The Foreman will bring an adequate number of paper cone rims or bags of disposable cups and the necessary cup dispensers to ensure that enough disposable cups are made available for each worker and are kept clean until used.
- To ensure Effective Replenishment Procedures, the Foreman will check the water level of all containers every 30 minutes and more frequently when the temperature exceeds 95F. When the water level within a container drops below 50%, water containers will be refilled with cool water. To accomplish this task, the Foreman will carry 1-2 additional water containers (i.e., 5-gallon bottles) to replace water as needed.
- When the temperature exceeds 95F degrees, the Foreman will carry ice in separate containers, so that, when necessary, it will be added to the drinking water to keep it cool.
- The Foreman will check the work site and place the water as close as possible to the workers (i.e., no more than 50 feet from the workers). If field terrain prevents the water from being placed as close as possible to the workers, the Foreman will bring bottled water or individual containers (in addition to disposable cups and water containers), so that workers can have drinking water readily accessible.
- The Foreman will ensure that the water containers are relocated to follow along as the crew moves, so drinking water will be readily accessible.
- The Foreman will be responsible for cleaning the water containers and ensuring that they are kept in sanitary condition (all necessary cleaning supplies are provided by the company).
- DFJV will reimburse the supervisors for any cost incurred for them to fill up their water containers as needed daily or to purchase necessary disposable cups or cleaning supplies.
- The Foreman will point out daily the location of the water coolers to the workers and remind them to drink water frequently. When the temperature exceeds or is expected to exceed 95 degrees F, the Foreman will hold a brief 'tailgate' meeting each morning to review with employees the importance of drinking water, the number and schedule of water and rest breaks and the signs and symptoms of heat illness.

- When the temperature equals or exceeds 95F or during a heat wave, the Foreman will increase the number of water breaks, and will remind workers throughout the work shift to drink water.
- During employee training and Daily Tailgate Meetings, the importance of frequent drinking of water will be stressed.

Procedures for Access to Shade include but are not limited to the following:

- Each Foreman will provide a source of shade at the site, to accommodate at least 100 percent of the employees on the shift and either chairs, benches, sheets, towels or any other items to allow employees to sit and rest without contacting the bare ground. However, chairs, benches, etc. are not required for acceptable sources of shade such as trees. The Foreman's truck may be used as shade if the air conditioning is operational.
- The Foreman will ensure that shade is as close as practical to the workers when the temperature equals or exceeds 80F. When the temperature is below 80F, the shade will be provided at the site. Note: The interior of a vehicle may be used to provide shade if the vehicle is air-conditioned, and the air conditioner is on.
- The Foreman will point out the daily location of the shade to the workers as well as allow and encourage employees to take a 5 min cool-down rest in the shade, when they feel the need to do so to protect themselves from overheating.
- The Foreman will ensure that the shade is relocated to follow along with the crew and double-check that they are as close as practical to the employees, so that access to shade is always provided.
- In situations where trees or other vegetation are used to provide shade, the Foreman will evaluate the thickness and shape of the shaded area (given the changing angles of the sun during the entire shift), before assuming that sufficient shadow is being cast to protect employees.
- In situations where it is not safe or feasible to provide shade, the Foreman will document how this determination was made, and what steps will be taken to provide shade upon request or other alternative cooling measures with equivalent protection.

Procedures for Monitoring the Weather include but are not limited to:

- 2 weeks in advance (or with as many days in advance as possible), The DFJV Superintendent will go on the internet (www.nws.noaa.gov), call the National Weather Service Phone Numbers (see CA numbers attached) or check the Weather Channel TV Network to view the extended weather forecast in order to plan in advance the work schedule, know whether a heat wave is expected and if additional schedule modifications will be necessary. This type of advance planning should take place all summer long.

CALIFORNIA Dial-A-Forecast

Eureka 707-443-7062

Sacramento 916-979-3051

Hanford 559-584-8047

San Diego 858-297-2107(#1)

Los Angeles 805-988-6610(#1)

San Francisco 831-656-1725(#1)

- Prior to each workday, the DFJV Superintendent will review the forecasted temperature and humidity for the worksite and compare it against the National Weather service Heat Index to evaluate the risk level for heat illness, for instance whether workers will be exposed at a

temperature and humidity characterized as either “extreme caution” or “extreme danger” for heat illnesses such as heat stroke. It is important to keep in mind that the temperature at which these warnings occur must be lowered as much as 15 degrees if the workers under consideration are in direct sunlight.

- Prior to each workday, the DFJV Superintendent will be responsible for monitoring the weather (using www.nws.noaa.gov or with the aid of a simple thermometer) at the worksite. This critical weather information will be taken into consideration, to determine when it will be necessary to make modifications to the work schedule (such as stopping work early, rescheduling the job, working at night or during the cooler hours of the day, increasing the number of water and rest breaks).
- The DFJV Superintendent will be responsible for using a thermometer at the jobsite and checking the temperature every 60 minutes to monitor for sudden increases in temperature, to ensure that once the temperature exceeds 80F, the shade structures are opened and accessible to the workers and to make certain that once the temperature equals or exceeds 950F additional preventive measures such as the High Heat Procedures are implemented.

Handling a Heat Wave:

- During a heat wave or heat spike (e.g., a sudden increase in daytime temperature of 9 degrees or more), the workday may be cut short (example 12 PM), will be rescheduled (example conducted at night or during cooler hours) or if possible, cease for the day.
- If schedule modifications are not possible and workers have to work during a heat wave, the Foreman will provide a tailgate meeting to reinforce heat illness prevention with emergency response procedures and review the weather forecast with the workers. In addition, the Foreman will institute alternative preventive measures such as provide workers with an increased number of water and rest breaks, supervise workers to ensure that they do stop work and take these breaks, and observe closely all workers for signs and symptoms of heat illness.
- During a heat wave or heat spike (e.g., a sudden increase in daytime temperature of 9 degrees or more), and the start of the workday, the Foreman will hold a tailgate meeting with the workers to review the company heat illness prevention procedures, the weather forecast and emergency response.
- The Foreman will assign each employee a “buddy” to be on the lookout for signs and symptoms of heat illness and ensure that emergency procedures are initiated when someone displays possible signs or symptoms of heat illness.
- High Heat Procedures include but are not limited to: [High Heat Procedures are additional preventive measures that this company will use when the temperature equals or exceeds 95 degrees Fahrenheit].
- The Foreman will ensure that effective communication by voice, observation, or electronic means is maintained so that employees at the worksite can contact a supervisor when necessary. If the Foreman is unable to be near the workers to observe them or communicate with them, then an electronic device, such as a cell phone or text messaging device, may be used for this purpose only if reception in the area is reliable.
- The Foreman will observe employees for alertness and signs and symptoms of heat illness.
- The Foreman will remind employees throughout the work shift to drink plenty of water.
- The Foreman will closely supervise a new employee or assign a “buddy” or more experienced coworker for the first 14 days of the employee’s employment by the employer unless the

employee indicates at the time of hire that he or she has been doing similar outdoor work for at least 10 of the past 30 days for 4 or more hours per day.

Procedures for Acclimatization include but are not limited to:

- Acclimatization is the temporary and gradual physiological change in the body that occurs when the environmentally induced heat load to which the body is accustomed is significantly and suddenly exceeded by sudden environmental changes. In more common terms, the body needs time to adapt when temperatures rise suddenly, and an employee risks heat illness by not taking it easy when a heat wave strikes or when starting a new job that exposes the employee to heat to which the employee's body has not yet adjusted.
- Inadequate acclimatization can imperil anyone exposed to conditions of heat and physical stress significantly more intense than what they are used to.
- DFJV will monitor the weather and in particular be on the lookout for sudden heat wave(s) or increases in temperatures to which employees have not been exposed to for several weeks or longer.
- During a heat wave or heat spike (e.g., a sudden increase in daytime temperature of 9 degrees or more), the workday may be cut short (example 12 PM), will be rescheduled (example conducted at night or during cooler hours) or if possible, cease for the day.
- During the hot summer months, the work shift may start earlier in the day or later in the evening.
- For new employees, the Foreman will try to find ways to lessen the intensity of the employees work during a two-week break-in period (such as scheduling slower paced, less physically demanding work during the hot parts of the day and the heaviest work activities during the cooler parts of the day (early-morning or evening)). Steps taken to lessen the intensity of the workload for new employees will be documented.
- The Foreman will be extra-vigilant with new employees and stay alert to the presence of heat related symptoms.
- The Foreman will assign new employees a "buddy" or experienced coworker to watch each other closely for discomfort or symptoms of heat illness.
- During a heat wave, the Foreman will observe all employees closely (or maintain frequent communication via phone or radio) and be on the lookout for possible symptoms of heat illness.
- DFJV's training for employees and supervisors will include the importance of acclimatization, how it is developed and how these company procedures address it.

Procedures for Emergency Response include but are not limited to:

- Prior to assigning a crew to a particular worksite, the Safety Manager and/or Foreman will provide workers and the foreman a map along with clear and precise directions (such as streets or road names, distinguishing features and distances to major roads) of the site, to avoid a delay of emergency medical services.
- Prior to assigning a crew to a particular worksite, the Superintendent will ensure that a qualified, appropriately trained and equipped first aid and CPR person will be available at the site, to render first aid, if necessary.
- Prior to the start of the shift, the Foreman will determine if a language barrier is present at the site and take steps (such as assigning the responsibility to call emergency medical services to the foreman or an English-speaking worker) to ensure that emergency medical services can

be immediately called in the event of an emergency.

- Prior to the start of the shift, the Foreman will determine the appropriate location for first aid equipment / supplies (preferably site muster point). All employees are to be aware of location as part of DRA briefing.
- All foremen and supervisors will carry cell phones or other means of communication, to ensure that emergency medical services can be called and check that these are functional at the worksite prior to each shift.
- When an employee is showing symptoms of possible heat illness, the Foreman will take immediate steps to keep the stricken employee cool and comfortable once emergency service responders have been called (to reduce the progression to more serious illness).
- At remote locations, the Foreman will designate an employee or employees to physically go to the nearest road or highway where emergency responders can see them. If daylight is diminished, the designated employee(s) shall be given reflective vest or flashlights in order to direct emergency personnel to the location of the worksite, which may not be visible from the road or highway.
- During a heat wave or hot temperatures, workers will be reminded and encouraged to immediately report to their supervisor any signs or symptoms they are experiencing.
- DFJV's training for employees and supervisors will include every detail of these written emergency procedures.

Handling a Sick Employee:

- When an employee displays possible signs or symptoms of heat illness, a trained first aid responder or supervisor will check the sick employee and determine whether resting in the shade and drinking cool water will suffice or if emergency service providers will need to be called. Do not leave a sick worker alone in the shade, as he or she can take a turn for the worse!
- When an employee displays possible signs or symptoms of heat illness and no trained first aid worker or supervisor is available at the site, call emergency service providers.
- Call emergency service providers immediately if an employee displays signs or symptoms of heat illness (loss of consciousness, incoherent speech, convulsions, red and hot face), does not look OK or does not get better after drinking cool water and resting in the shade. While the ambulance is in route, initiate first aid (cool the worker: place in the shade, remove excess layers of clothing, place ice pack in the armpits and groin area and fan the victim). Do not let a sick worker leave the site, as they can get lost or die (when not being transported by ambulance and treatment has not been started by paramedics) before reaching a hospital!
- If an employee does not look OK and displays signs or symptoms of severe heat illness (loss of consciousness, incoherent speech, convulsions, red and hot face), and the worksite is located more than 20 min away from a hospital, call emergency service providers, communicate the signs and symptoms of the victim and request Air Ambulance.

Procedures for Employee and Supervisory Training include but are not limited to:

- DFJV will ensure that all supervisors are trained prior to being assigned to supervise other workers. Training will include this company's written procedures and what steps supervisors will follow when employees' exhibit symptoms consistent with heat illness.
- DFJV will ensure that all employees and supervisors are trained prior to working outside. Training will include the company's written prevention procedures.

- DFJV will train employees on the steps that will be followed for contacting emergency medical services, including how they are to proceed when there are non-English speaking workers, how clear and precise directions to the site will be provided as well as stress the need to make visual contact with emergency responders at the nearest road or landmark to direct them to their worksite.
- When the temperature exceeds 80F, the Foreman will hold short ‘tailgate’ meetings to review the weather report, reinforce heat illness prevention with all workers and provide reminders to drink water frequently, to be on the lookout for signs and symptoms of heat illness and inform them that shade can be made available upon request.
- The Foreman will assign new employees a “buddy” or experienced coworker to ensure that they understood the training and follow company procedures.

24. Valley Fever

Valley fever is another name for the sometimes-deadly infection coccidioidomycosis. It is called valley fever because the organism that causes it is commonly found in the soil of the southwestern United States. Valley fever is spread through the air. If soil containing the valley fever fungus is disturbed by construction, natural disasters, or wind, the fungus spores get into the air. People can breathe in the spores and get valley fever. The disease is not spread from person to person.

24.1 Mitigation methods

Because Valley Fever is spread by dry dusty soil the preferred mitigation methods will be dust control measures, primarily water. Before disturbing any soil, every effort shall be made to minimize creating dust. Water shall be added thoroughly and regularly. Monitoring of the dust control measures shall be continuous. Wind speed and direction shall be considered during any soil excavation operations to include personal protection needs.

- Site plans and work practices that reduce workers’ exposure, which may include:
 - Minimize the area of soil disturbed.
- Use water, appropriate soil stabilizers, and/or re-vegetation to reduce airborne dust Stabilize all spoils piles by tarping or other methods.
- Provide air-conditioned cabs for vehicles, if feasible, that generate heavy dust and make sure workers keep windows and vents closed.
- Take measures to reduce transporting spores’ offsite, such as: Clean tools, equipment, and vehicles before transporting offsite.
- If workers’ clothing is likely to be heavily contaminated with dust, provide coveralls and change rooms, and showers where possible.
- Suspend work during heavy winds.

24.2 Training

All workers and supervisors shall be trained about the risk of Valley Fever, the work activities that may increase the risk, and the measures, including PPE, used onsite to reduce exposure. Training shall take place on how to recognize Valley Fever symptoms.

- All workers and supervisors shall report Valley Fever symptoms promptly to a supervisor. Not associating these symptoms with workplace exposures can lead to a delay in appropriate diagnosis and treatment. This training shall take place during the initial on-site orientation.

Retraining shall be provided for employees as necessary to maintain the understanding and knowledge acquired through compliance with this standard.

25. Public Protection Program

- When it is necessary to maintain public use of work areas involving sidewalks, entrances to buildings, and vehicular roadways, DFJV with the responsible Subcontractor shall protect the public with appropriate guardrails, barricades, temporary fences, overhead protection, temporary partitions, shields, mirrors, and adequate visibility.
- Sidewalks, entrances to buildings, lobbies, corridors, aisles, doors or exits must always be kept clear of obstructions to permit safe entrance and exit of the public. Americans with Disabilities Act, (ADA) rules shall be understood and implemented where necessary
- Appropriate warnings and instructional safety signs shall be conspicuously posted where necessary. In addition, a flag person shall control the movement of motorized equipment in areas where the public might be endangered as allowed by local regulations.
- Where work must be performed above building entrances and exits, whether on the construction site or part of a public area, canopies shall be installed and enclosed to fully protect pedestrians from falling objects. These canopies shall be capable of withstanding the maximum forces that could be applied from potential falling objects, considering the maximum fall distance from the elevated work area to the canopy.
 - Noise monitoring and appropriate noise reduction measures shall be addressed when working near the public. Noise reduction measures such as scheduling, equipment selection, barriers, etc., shall be implemented if the noise levels become greater than allowable under the regulations of the governing authority having jurisdiction. Site assessments shall take place prior to any work being conducted that may negatively impact the public. Other environmental hazards such as vibration, dust control, run off, track out, etc., must be addressed through the DRA and JHA process as well. If hazards are identified that may have negative impacts or present safety issues to the public they must be adequately addressed before any work commences. Monitoring shall be ongoing and mitigation methods appropriate for the situation.
- In areas adjacent to public walkways or travel ways, canopies shall be installed and enclosed to fully protect pedestrians and vehicles from falling objects. These canopies shall be capable of withstanding the maximum forces that could be applied from potential falling objects, considering the maximum fall distance from the elevated work area to the canopy. In addition to the site fence required by the contract, drawings, and contract documents, the following shall apply:
 - A temporary fence shall be provided around the perimeter of above ground operations adjacent to public areas. Perimeter fences shall be at least six (6) feet high. They may be constructed of wood or metal frame and sheathing, wire mesh, or a combination of both. When the fence is adjacent to a sidewalk near a street intersection, at least the upper portion of fence shall be open wire mesh.
 - Guardrails shall be provided on both sides of vehicular and pedestrian bridges, ramps, runways, and platforms. Pedestrian walkways elevated above adjoining
 - Surfaces, or walkways within six (6) feet of the top of excavated slopes or vertical

banks shall be protected with guardrails. A crosswalk must contain striping, curb cut for handicap access.

- Barricades meeting local requirements shall be provided where sidewalk shed or bridges, fences, or guardrails as referenced above are not required between work areas and pedestrian walkways, roadways, or occupied buildings. Barricades shall be secured against accidental displacement and shall be maintained in place except where temporary removal is necessary to perform the work. During the period, a barricade is temporarily removed for the purpose of work, a watchman shall be placed at all openings.
- Temporary sidewalks shall be provided, as directed, when a permanent sidewalk is obstructed by the Contractors operation. They shall be installed in accordance with the requirements listed above.
- Warning lights shall be maintained from dusk to sunrise around excavations, barricades, or obstruction in the public areas. Illumination shall be provided from dusk to sunrise for all temporary walkways in both public and construction areas.

26. Hazardous Waste Operations

DFJV will manage all hazardous waste, (e.g., lead paint, asbestos, contaminated soil), in accordance with all applicable federal, state, and local regulations, including but not limited to the State hazardous waste regulations and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Hazardous waste generated by a Subcontractor as part of its work is the responsibility of that Subcontractor.

DFJV and subcontractors will develop a Hazardous Waste Remediation Plan as needed that identifies all procedures for the safe handling of hazardous waste. The Hazardous Waste Remediation Plan shall describe the responsibilities related to hazardous wastes and shall include but is not limited to the following: identification of those wastes classified as hazardous waste in accordance with all applicable regulations; proof of registration with EPA and/or DEP as a generator of hazardous waste and/or waste oil; and certification of appropriate hazardous waste training for all Employees.

26.1 Lead

- Unless a specific lead-paint inspection has been provided, DFJV shall assume that any painted surface with which there is contact during performance of the work is coated with lead-based paint, except where the paint was installed by a Contractor as part of the work and the paint is known not to contain any level of lead.
- Subcontractors should not perform any intrusive, dust-generating work (e.g., drilling, cutting, sanding, and brazing, scraping, demolition) on painted surfaces unless the surface has been confirmed to be non-lead or unless such work is part of the contracted work and they are specifically trained to do so.
- Any painted surfaces that have loose, flaking, chipping, or otherwise non-intact paint should not be impacted by the subcontractor and should be reported to the Safety Manager immediately.
- Lead paint abatement Contractors shall coordinate with the DFJV Project Manager for specific requirements for lead abatement work, including procedures for containerizing, testing and shipping LBP.

26.2 Asbestos Containing materials, (ACM)

- Structures that may contain ACM are required to maintain the ACM in good repair to prevent the release of asbestos fibers, or if disturbance of ACM for repair purpose must take place,

activities are required to adhere to current asbestos regulations.

- DFJV Project Manager should notify the Safety Manager prior to initiating any construction, renovation, and/or demolition work. The Subcontractor doing the abatement work should provide a specific asbestos inspection report for work in those areas in question identifying, before work is begun, the presence, location, and quantity of asbestos-containing or potentially asbestos-containing materials that would be specifically impacted by the pending work.
- Prior to commencement of the work, the Subcontractor shall make all required notifications and secure all required permits for asbestos abatement activities.
- The abatement Contractor will be responsible to abate all identified ACM in accordance with all applicable regulations.
- Asbestos Contractors shall coordinate with the DFJV Project Manager for specific requirements regarding asbestos abatement work.
- The Abatement Contractor shall not disturb, damage, or otherwise handle any suspect ACM unless such activities are part of its contracted work and be specifically trained to conduct asbestos abatement work.
- Asbestos waste shall be handled and managed in accordance with all federal, state, and local regulations and ordinances. The Abatement Contractor shall coordinate with the DFJV Project Manager for disposal of asbestos-containing waste.
- The following suspect materials are assumed to contain asbestos, until analytical data shows otherwise:
 - Acoustical and decorative plaster
 - Adhesives
 - Asbestos Concrete Pipe
 - Boiler, breeching, and pipe insulation
 - Bridge bearing pads
 - Caulking/putties
 - Ceiling tiles and lay-in panels
 - Cement wallboard
 - Chalkboards
 - Cooling towers
 - Electrical panel partitions, electrical cloth, and wiring insulation
 - Elevator equipment panels and brake shoes
 - Fireproofing materials, including gaskets, fire blankets, fire curtains, fire doors, etc.
 - Flooring backing, construction mastics, and asphalt floor tile
 - Heating and electrical ducts
 - HVAC duct insulation, flexible fabric, and flexible fabric connectors
 - Lab hoods, benches, and gloves
 - Packing materials, wall/floor penetrations
 - Roofing shingles and felt
 - Spray-applied and blown-in insulation u. Taping, spackling, and joint compounds, or textured paints/coatings
 - Thermal paper products
 - Vinyl sheet flooring and floor tile
 - Vinyl wall coverings
 - Wallboard

26.3 Soils

DFJV and all Subcontractors will comply with all applicable federal, state, and local regulations and ordinances regarding the excavation and off-site management of soils removed during their work. The Subcontractor must first coordinate with the DFJV Project Manager for the proper characterization and management of soils. A pre-characterization plan may be necessary to characterize the soils prior to excavation. Preparation and implementation of this plan must be under the direction of a Qualified Person. Prior to excavation, the Subcontractor shall determine the off-site disposal/recycling facility for the soils. DFJV Project Manager should contact any listed and approved soil management facilities.

If an unanticipated contamination or potentially hazardous material is discovered in the soil by a DFJV employee or Subcontractor. Work should stop and the area should be cordoned off and no one should enter the area until the area can be assessed for health and safety risks. The Safety Manager shall be notified. The Project Manager will decide on whether and how the work should proceed. This will likely require additional investigation and sampling of soil.

Below are the steps taken for contaminant characterization and disposal for anticipated and unanticipated Class I and Class II materials

- Contact approved testing facility to request collection of representative samples of contaminate
- The testing facility will review the lab data as necessary to determine California regulated (non-RCRA) hazardous waste or non-hazardous waste
- The testing facility will send lab data to transporter Environmental or another transporter
- Transporter generates a profile (non-hazardous) or if hazardous waste (acceptance letter has info added to it or if new materials a profile is generated).
- Transporter gets landfill acceptance.
- DFJV of the Subcontractor setup trucking schedule with transporter.
- Signed manifests (post-disposal) returned to Generator from landfill.
- Manifests scanned and logged in the disposal database.
- Tonnage report from transporter to DFJV or Subcontractor to be logged into the disposal database with corresponding manifest info.

27. Respiratory Protection program

The primary means of controlling occupational hazards will be by first applying engineering controls and then by implementing adequate administrative, (workplace), controls. When engineering and or administrative controls are ineffective and/or not feasible or when the controls are being implemented, an employee 's exposure may be controlled with the use of personal protective equipment. When respirators are used, their use must follow CCR Title 8 section 5144 and ANSI Z88.2 1969. Appropriate NIOSH certified respirators are considered an acceptable method of protecting the health of DFJV employees only under the following circumstances.

- When it has been determined to the satisfaction of the Construction Manager and/or Safety Manager that there are no feasible engineering or administrative controls that can be used to adequately control the hazard.
- During intermittent, non-routine operations.
- During the interim periods when engineering controls are being designed and/or installed.

- During emergencies.
- Employee has been trained, is medically able to wear the respirator, and has been fit tested.
- Voluntary Usage: respiratory protection is not required if exposures are in control relative to the DFJV internal standards; however, if an employee expresses a desire to voluntarily wear a respirator, a NIOSH approved respirator is required.
- When required by the DFJV.

27.1 Roles and responsibilities

Safety Manager/Program Administrator

The Safety Manager will administer the program and is responsible for establishing procedures to implement the program. The Safety Manager works in conjunction with individual facility and construction managers to develop job-specific procedures as needed. The Safety Manager is also responsible for overseeing all training of employees in the use of respirators, as well as the updating of the program as necessary to reflect changes in workplace conditions that respirator use.

The Safety Manager shall:

- Evaluate all respiratory hazards
- Select the appropriate NIOSH certified respirators
- Identify locations or areas where respirator protection is required
- Provide guidance in implementing the respiratory protection program.

DFJV Construction Managers and field supervision will ensure that their personnel are provided with and use the approved respirators.

DFJV Employees provided with respirators shall use them in accordance with instructions and training received.

27.2 Respirator Program Elements

Respirator Selection

The Safety Manager will select an appropriate NIOSH certified respirator for a specific job/task at a specific location. The job specific program will identify the approved respirators to be used for the respirator required task(s) identified above. The Safety Manager will approve the appropriate respirator based on the hazards to which the worker is exposed.

Training and Education

For safe use of any respirator, it is essential that the user be properly instructed in its selection, use, and maintenance. Both supervisors and workers shall be so instructed by competent persons. Minimum training shall include the following:

- Instructions in the nature of the hazard, whether acute, chronic, or both, and an explanation of what may happen if the respirator is not used.
- Explanation of why engineering or administrative controls are not immediately feasible. This shall include recognition that reasonable efforts are being made to reduce or eliminate the need for respirators.
- A discussion of why this is the proper type of respirator for the particular purpose.
- A discussion of the respirator's capabilities and limitations.

- Instruction and training in actual use of the respirator (especially a respirator for emergency use) and close and frequent supervision to assure that it continues to be properly used.
- Classroom and field training to recognize and cope with emergency situations.
- How to inspect, put on and remove, use, and check the seals of the respirator.
- What the procedures are for maintenance and storage of the respirator.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
- Other special training as needed for special use.

The Safety Manager or a certified third party will provide training and fit testing for all employees who are required to use specific respirators (see fit testing section) when they are first hired, annually, when workplace conditions change, when new types of respirators are used or when inadequacies in the employee 's knowledge or use of respirators indicate a need for more training. Training shall provide an opportunity to handle the respirator, have it fitted properly, test its face piece-to-face seal, wear it in normal air for an appropriate familiarity period, and finally, to wear it in a test atmosphere.

27.3 Medical evaluations

DFJV employees will not be assigned to tasks requiring the use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. In cases of voluntary use of a non-disposable negative pressure respirator, a medical evaluation needs to be conducted prior to use. Where the use of a respirator is required, such determination will be made by a physician or other licensed health care professional (PLHCP) a part of the employee 's initial or recall physical exam.

OSHA Respirator Medical Evaluation Questionnaire shall be filled out by required respirator user and provided to a licensed health care professional who will determine if the employee is physically fit to wear a respirator or needs further medical evaluations. DFJV is required by the standard to obtain additional medical evaluations at a minimum when:

- An employee reports medical signs or symptoms related to his or her ability to use a respirator.
- The PLHCP, program administrator, or supervisor recommends reevaluation.
- Information from the respirator program, including observation made during fit testing and program evaluation, indicates a need.
- Change occurs in workplace conditions that may substantially increase the physiological burdens on an employee.

27.4 Fit testing

All DFJV employees that are required to wear a respirator must be medically evaluated prior to fit testing or wearing a respirator. Positive pressure (PAPRs) and loose-fitting respirators (e.g., air helmets, hoods, etc.) do not require fit testing. However, DFJV employees wearing these respirators must be medically evaluated and trained in their proper use. To assure proper protection, the face- piece fit shall be checked by the wearer each time he/she puts on the respirator following the manufacture 's face piece-fitting instructions. Persons providing fit testing must be trained by the fit testing kit manufacturer or the Safety Manager/Program Administer. Every required negative pressure and tight-fitting respirator wearer annually will receive fit testing on the respirator(s) they are required to wear. This fit testing shall be documented.

Respirators should not be worn when conditions prevent a good face seal (except for certain air supplied types).

Such conditions may include:

- Facial hair
- A skullcap that projects under the face piece
- Temple pieces on glasses
- Facial Hair
- DFJV employees who work in respirator required areas will be required to be clean shaven if a negative pressure and tight-fitting respirator is required to be worn to the point that the facial hair will not affect the seal of the respirator.
- Glasses If an employee wears corrective glasses or goggles or other personal protective.
- Equipment, the supervisor shall ensure that such equipment is worn in a manner that it does not interfere with the face-piece of the user.
- DENTURES The absence of teeth or dentures can also seriously affect the fit of a respirator.

Records of fit testing will include the following:

- Date of test and/or training
- Person tested and/or trained
- Manufacturer and model number of respirator used for test and/or training
- Type of respirator (e.g., disposable dust and mist) used for test and/or training
- Signature of person conducting test and training
- Indication of pass or fail for testing

27.5 Inspections

Any respirator worn must be inspected prior to each use. Disposable respirators should be inspected for tears, broken straps, cleanliness, and valve damage (if equipped). Damaged respirators should not be worn and should be disposed of properly. Non-disposable respirators will be routinely inspected during cleaning and worn, broken or deteriorated parts will be replaced with the parts designed for the damaged respirator. Air supplied respirators using self-contained compressed air or compressor and air lines will be inspected prior to each use. Air supplied respirators must use Grade D breathing air. Compressor supplied air must be pre-treated and tested periodically to meet Grade D breathing air specifications.

Compressed gas cylinders, regulators, lines, and compressors will be inspected prior to use. Compressors used to supply breathing air to respirators will be constructed and situated to:

- Prevent entry of contaminated air into the air-supply system.
- Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees Fahrenheit below the ambient temperature.
- Have suitable in-line-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters will be maintained and replaced or refurbished periodically following the manufacturer 's instructions.
- Have a tag with the most recent change date and the signature of the person authorized to perform the change. The tag must be maintained at the compressor.

- For compressors that are not oil-lubricated, the air supply will be monitored at intervals sufficient to prevent carbon monoxide levels in the breathing air from exceeding 10 ppm.
- For oil-lubricated compressors, high-temperature and/or carbon monoxide alarm must be installed in line to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply must be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.
- Breathing air couplings must be equipped with fittings that are incompatible with outlets for non-respirable worksite air or other gas systems. No asphyxiating substance may be introduced into breathing airlines.
- Breathing gas containers must be marked in accordance with NIOSH respirator certification standard, 42 CFR Part 84.
- Spot inspections of areas where respirators are used will be made to ensure compliance with the respirator protection program. It is the responsibility of the foreman and safety department to make regular inspections for compliance in these areas.
- A respirator that is not routinely used but is kept ready for emergency use shall be inspected after each use and at least monthly to assure that it is in satisfactory working condition.
- Self-contained breathing apparatus shall be inspected monthly when regularly used.
- Air and oxygen cylinders shall be fully charged according to the manufacturer's instructions.
- It shall be determined that the regulator and warning devices function properly. Respirator inspection shall include a check of the tightness of connections and the condition of the face-piece, headbands, valves, connecting tube and canisters. Rubber or elastomer parts shall be inspected for pliability and signs of deterioration by stretching and manipulating rubber parts.

27.6 Maintenance/ Cleaning /Storage

Non-disposable respirators should be cleaned and disinfected prior to each use. Non-disposable respirators will be assigned to individuals and are not to be shared among workers. Shared air supply respirators are to be cleaned and disinfected prior to use by another worker. Respirators, regardless of type, will be stored in a clean, dry, and sanitary manner according to manufacturer's recommendations.

27.7 Recordkeeping and Administration

The approved list of respirators (manufacturers and model numbers) for different tasks or exposures shall be determined by the Safety Manager. Respirators are available from your supervisor or in designated locations.

Additionally: Records of fit testing, medical clearance and training will be maintained and for each respirator in use.

The Safety Manager or its designee is responsible for the on-site administration of the program including:

- Documentation (i.e., fit testing, medical evaluation, training records and the site-specific written respiratory protection program).
- Selection and enforcement of acceptable respirators.
- Assistance may be obtained from the Safety Manager for any elements of the Program.
- Medical testing contractor medical findings.
- IH Sampling of Respiratory Hazards.

28. Roadway Worker Protection Program

An on-track safety program shall include procedures for conducting and participating in a safety briefing before beginning work and when work or job conditions change. Before any roadway worker fouls a track, the designated person providing on-track safety for the group shall ensure that a job safety briefing is held. Additional job safety briefings shall be held anytime the job conditions change during the work period. Such information shall be given to all affected roadway workers before the change is effective. Emergency situations do not relieve the requirement for on-track safety briefings; all workers shall attend a Contractor Safety Orientation prior to entering the railway work area. Workers must be always badged and their badges visible. The Worker Protection Program shall comply with 49 CFR part 214 subpart C. Our RWP Program will follow all BNSF/ UPRR guidelines as detailed in the BNSF agreement.

The Daily Briefings shall include, at a minimum, the following items:

- A discussion of the general work plan.
- Information on the means by which on-track safety is to be provided for each track identified to be encroached upon.
- Identification and location of key personnel, such as the Employee in Charge (EIC), watchperson/lookout, etc.
- Existing or potential hazards, including ways to eliminate or protect against those hazards.
- Information about any tracks adjacent to the track to be encroached upon, on-track safety for such tracks, if required, and identification of any roadway maintenance machines that will work on or near the tracks. In such cases, the on-track safety briefing shall address the nature of the work to be performed and the characteristics of the work location.
- Any TTC that may be deployed within the work area or adjacent road crossings.
- Means of communication to be used at the site.
- Method of train approach warning
- An On-site Safety Action Plan will be developed and reviewed prior to the commencement of any work.

All roadway workers involved in the work shall be included in the job safety briefing.

A job briefing for on-track safety shall be deemed complete only after all roadway workers have acknowledged an understanding of the on-track safety procedures and instructions presented.

28.1 Working limits

The on-track safety program shall provide procedures to establish working limits that afford on-track safety to roadway workers. Working limits established under any procedure shall conform to the following provisions:

- Only a roadway worker who is qualified in accordance with the railway rules shall establish or have control over working limits for the purpose of establishing on-track safety.
- Only one roadway worker shall have control over working limits on any one segment of track.
- All affected roadway workers shall be notified before working limits are released for the operation of trains. Working limits shall not be released by the EIC until all affected roadway workers either have left the track or have been afforded alternate means of on-track safety in accordance with the rules of the railway.

- Equipment, materials, or machinery shall not be stored within the working limits.
- The following temporary clearances must be maintained during construction activities:
 - 25'-0" Horizontally from centerline of nearest track
 - 21'-6" Vertically above top of rail
 - 27'-0" Vertically above top of rail for electric wires carrying less than 750 volts
 - 28'-0" Vertically above top of rail for electric wires carrying 750 volts to 15,000 volts.
 - 30'-0" Vertically above top of rail for electric wires carrying 15,000 volts to 20,000 volts.
 - 34'-0" Vertically above top of rail for electric wires carrying more than 20,000 Volts.
- Upon completion of construction the following clearances shall be maintained.
 - 25' horizontally from centerline of nearest track.
 - 23' 6" Vertically above top of rail.
- Temporary crossings must be gated and always locked when not required for use by the construction activities.

29. False Work Program

Prior to any false work operation, the Project Management Team shall prepare and review written JHA/DRA plans. The JHA/DRA plans shall identify all potential injury hazards or operation failures that could occur through each phase of the operation. At least a week prior to the start of any operation involving erection, stripping or lowering of false work, a hold point site meeting shall be conducted by the Project Segment Manager with the project team, Safety Manager, and engineering personnel all in attendance to discuss the construction specifics of these operations. It is the Construction Manager and/or Project Segment Manager's responsibility to conduct these meetings in a timely manner.

The segment project or construction manager has the authority to delay the operation start date until all required attendees have met to discuss the operation in detail. The project team shall be prepared to present the step-by-step work plan for completing all aspects of the operation and outline any restrictions of the systems utilized in the operation.

The following procedures shall take place during all false work operations.

- A jacking plan shall be prepared by a qualified engineer. This plan shall show the locations of each jack during the jacking operation. This plan shall also indicate the maximum jacking load that can be applied to the false work bent being jacked.
- The jacking plan shall be reviewed by the false work foreman and his crew prior to starting the jacking operation.
- If multiple jacks are powered by a single pump (manifold system) jack operator shall be trained and qualified as qualified jacking system operators.
- Any deviations from the jacking plan shall be reviewed by a qualified engineer. At no time shall the maximum jacking load be exceeded.

- False work jacking shall never be performed over live traffic.
- The JHA and DRA process shall be followed, and all documents shall be thoroughly reviewed prior to each false work jacking operation.
- Each employee shall be properly trained, qualified, and authorized for his/her specific duties during the jacking operation.
- Proper lifting techniques shall be used when lifting/moving jacks and dunnage.
- The area shall be kept clear of obstructions.
- Escape routes shall be identified during the JHA and DRA process in the event of false work failure.
- All operations shall adhere to the maximum allowable jacking load or rated capacity of the jack.
- The required wedge packs shall be kept tight during lifting and shall never exceed a 1.5 - inch gap during lowering operations.
- When there is any deviation from the original plan, the supervisor shall STOP and RE- ASSESS the operation and provide an updated JHA to address any hazards associated with the operational changes.
- When any unexpected movement is detected, supervisors shall STOP and RE-ASSESS the operation and provide an updated JHA to address any unexpected hazards.

29.1 Responsibilities and Training

- The Construction Manager, Safety Manager, or other designated manager shall ensure this procedure is distributed, and that proper training has been provided.
- The Construction Manager and field supervision shall be responsible for implementing this procedure in the field and shall make sure the false work foreman is trained and qualified for the jacking operation.
- All DFJV employees shall be instructed on their specific duties during the false work jacking operation. A full review and understanding of the job specific JHA are required.
- The false work foremen shall be trained on all aspects of the jacking operation and ensure his/her crew is trained and qualified. A full review and understanding of the job specific JHA and this procedure is required.
- Qualified jacking system operators shall be trained and qualified for operation of multiple jack systems.
- Training records shall be maintained by the Safety Manager

30. Employee Recognition Program

Each employee employed on the DFJV CP2-3 jobsite is eligible to participate in the employee recognition program. Individual employees will be identified by their peers and supervisors for going above and beyond what would be considered normal duties. Safety is the primary function of the recognition program, however quality and production can and will be rewarded.

- At the discretion of the DFJV management team the project will have monthly / quarterly / annually lunch or BBQ
- Employees will be recognized based by their performance.

- All employees employed by the DFJV CP2-3 project will also be eligible for on-the-spot recognition.
- For on-the-spot recognition employees will be identified by their peers and supervisors for going above and beyond what would be considered normal duties.
- DFJV Management Team has the ultimate authority and control to amend and revise the recognition program at any time.

31. Drill Shaft Plan

Prior to beginning shaft construction, a drilled shaft construction plan shall be drafted. The plan shall review the equipment suitability based on the understanding of the site subsurface conditions.

The plan shall detail of shaft excavation methods, including proposed drilling methods and a disposal plan for excavated material. Include details of methods used to perform final cleaning of the excavation. Include details of the methods and materials used to fill or eliminate all voids between the plan shaft diameter and excavated shaft diameter, or between the casing and surrounding soil, if permanent casing is specified. Include a disposal plan for any water or contaminated concrete expelled from the top of the shaft (if applicable). Details of the proposed method(s) for ensuring drilled shaft stability during excavation and concrete placement. Details for the use of drilling slurry including mix design, slurry head requirements, mixing methods, maintaining, and disposing of the slurry (if applicable). Include a discussion of the suitability of the proposed drilling slurry in relation to the anticipated subsurface conditions. Prior to drilling the following procedures shall be taken:

- Drill operators must inspect the drill rig each shift, prior to drilling. Drill operators must inspect the drill rig, prior to drilling. Operator is not to use the equipment until all necessary repairs have been made.
- Before any drilling begins, identify all overhead and underground utilities and obstructions.
- Maintain all clearances from overhead power lines.
- Inspect ground conditions to ensure adequate level support for the drill rig.
- All employees shall wear hard hats, safety vest, safety glasses, and hearing protection while working within drill area.
- All employees must know which side of the drill the operator will swing to spin off drill spoils. (This may change from shaft to shaft, ensure that all employees are aware of the swing prior to drilling).
- Fall protection is required within 6 feet of all open drilled shafts. Guardrails or PFAS attached to an approved anchor point shall be utilized. The drill operator is not to drill the shaft without the fall protection device in place. Erect barricades or place a cover over any open shaft that is not completed.
- Watch out for auxiliary equipment such as assist cranes, loaders, backhoes, skid steers, or others that may be working near the drilled shafts. The operator may not see you due to poor visibility from the equipment. Use properly sized rigging for all loads. Do not work under a suspended load. Use tag lines whenever possible.
- Inspect all electric power cords and tools before use. Do not use damaged or defective tools or cords. Ground Fault Circuit Interrupters (GFCI) must be used.
- Ensure all concrete trucks have adequate access to the shaft. Do not adjust the chute while

the truck is in motion.

- Signalpersons shall be used while backing concrete trucks.
- If concrete is pumped, inspect all hoses and connections to ensure soundness, with safety pins locked.
- Whip checks must be in place.
- Only one person shall signal the pump operator.
- No employee shall enter drilling area for any reason unless they have been trained and authorized to do so.
- Watch for auxiliary equipment such as assist cranes, loaders, backhoes, skid steers, or others that may be working near the drilled shafts. All shafts shall be barricaded or covered if not completed.

32. Demolition Plans

Demolition plans will be developed for the High-Speed Rail Project. Such activities could include demolition of building, verification of utility disconnects or isolation, removal of asbestos containing materials (ACM), lead based paints (LBP), chemicals or hazardous materials, and debris/material to appropriate disposal/recycling facilities.

Appendix A – Tools and Forms

List of Tools and Forms

- DFJV Job Hazard Analysis (JHA)
- JHA Definable Features of Work
- Daily Risk Assessment (DRA)
- DFJV EHS Visitor Information Guide
- DFJV Contact Information Label Specification
- DFJV EAP Label Specification
- Near Miss Report Form
- Incident Report Form
- Environmental Release Report
- Excavation Checklist
- Table of Investigation Team Members
- Root Causes of Near Misses and Incidents
- Fire Prevention - Site Inspection Checklist
- Hot Work Permit
- Lockout/Tagout Energy Control Procedure
- Equipment Lockout/Tagout Procedure
- Confined Space Entry Permit
- Crane Inspection Checklist – Annual/Comprehensive Inspections
- Crane Inspection Checklist – Monthly or Shift Inspections
- DFJV Project Crane Log
- Fall Protection Competent Person Daily Site Inspection Checklist

JHA Definable Features of Work

| The definable features of work of which JHAs are required include, but are not limited to the following: | |
|--|--------------|
| Activity | Prepared By: |
| Grubbing & clearing | |
| Utility repair or installation | |
| Electrical work (installation and live work) | |
| Hot work (welding, torch cutting etc.) | |
| Line breaking | |
| Mechanical work | |
| Work on or above water | |
| Demolition | |
| Painting/coating | |
| Abrasive blasting | |
| Excavation and borings | |
| Concrete work (forming, placements, form stripping) | |
| Scaffolding erection & dismantling | |
| Overhead lifting and rigging operations | |
| Confined space | |
| Handling of hazardous substances | |
| Roofing | |
| Asbestos/Lead abatement | |
| Crane assembly/disassembly | |

Table of Investigation Team Members

| Parties | Significant Incidents | Serious Incidents |
|--|---|--|
| | Fatality, hospital admission overnight, property or equipment damage | OSHA recordable injury/illness, motor vehicle or motorized equipment accident. Operations are adversely affected or similar |
| Subcontractor | EHS Professional and PM | EHS Rep and Superintendent |
| Construction Manager | PE and EHS Officer | EHS Officer |
| DFJV | PM, RM and Safety Manager | PM, Super, Foreman and Safety Manager |
| Contractors* (unrelated to incident) | EHS Professional, PM or Superintendent (only one is required) | N/A |
| <p>NOTE: A more senior person may take the place of a junior person.</p> <p>PM - Project Manager</p> <p>PE - Project Engineer</p> <p>RM - Risk Manager</p> | | |

Tables of Immediate and System Causes Used to Determine Contributing and Root Causes of
Near Misses and Incidents

| System Causes Personal Factors | | | | | | | | | | | |
|-----------------------------------|---------------------------------------|-----|--|-----|------------------------------------|------|---|-----|--|-----|---|
| 1 | Physical Capability | 2 | Physical Condition | 3 | Mental State | 4 | Mental Stress | 5 | Behavior | 6 | Skill Level |
| 1-1 | Vision deficiency | 2-1 | Previous injury or illness | 3-1 | Poor judgment | 4-1 | Preoccupation with problems | 5-1 | Improper performance is rewarded • saves time or effort • avoids discomfort • gains attention | 6-1 | Inadequate assessment of required skills |
| 1-2 | Hearing deficiency | 2-2 | Fatigue • due to workload • due to lack of rest • due to sensory overload | 3-2 | Memory failure | 4-2 | Frustration | | | 6-2 | Inadequate practice of skill |
| 1-3 | Other sensory deficiency | | | 3-3 | Poor coordination or reaction time | 4-3 | Confusing directions/ demands | 5-2 | Improper supervisory example | 6-3 | Infrequent performance of skill |
| 1-4 | Reduced respiratory capacity | 2-3 | Diminished performance • due to temperature extremes • due to oxygen deficiency • due to atmospheric pressure variation | 3-4 | Emotional disturbance | 4-4 | Conflicting directions/ demands | 5-3 | Inadequate identification of critical safe behaviors | 6-4 | Lack of coaching on skill |
| 1-5 | Other permanent physical disability | | | 3-5 | Fears or phobias | 4-5 | Meaningless or degrading activities | 5-4 | Inadequate reinforcement of critical safe behaviors • proper performance is criticized • inappropriate peer pressure • inadequate performance feedback • inadequate disciplinary process | 6-5 | Insufficient review of instruction to establish skill |
| 1-6 | Temporary disabilities | 2-4 | Blood sugar insufficiency | 3-6 | Low mechanical aptitude | 4-6 | Emotional overload | | | 6-6 | Other • not applicable |
| 1-7 | Inability to sustain body positions | 2-5 | Impairment due to drug or alcohol | 3-7 | Low learning aptitude | 4-7 | Extreme judgment/ decision demands | 5-5 | Inappropriate aggression | | |
| 1-8 | Restricted range of body movement | 2-6 | Other • not applicable | 3-8 | Influenced by medication | 4-8 | Extreme concentration/ perception demands | 5-6 | Improper use of production incentives | | |
| 1-9 | Substance sensitivities or allergies | | | 3-9 | Other • Not applicable | 4-9 | Extreme boredom | 5-7 | Supervisor implied haste | | |
| 1-10 | Inadequate size or strength | | | | | 4-10 | Other • not applicable | 5-8 | Employee perceived haste | | |
| 1-11 | Diminished capacity due to medication | | | | | | | 5-9 | Other • not applicable | | |
| 1-12 | Other • not applicable | | | | | | | | | | |

| Immediate Causes | | | | | |
|------------------|--|------|--|------|--|
| 1 | Following Procedures | 4 | Inattention/Lack of Awareness | 7 | Work Exposures to |
| 1-1 | Violation by individual | 4-1 | Improper decision making or lack of judgment | 7-1 | Fire or explosive |
| 1-2 | Violation by group | 4-2 | Distracted by other concerns | 7-2 | Noise |
| 1-3 | Violation by supervisor | 4-3 | Inattention to footing and surroundings | 7-3 | Energized electrical systems |
| 1-4 | Operation of equipment without authority | 4-4 | Horseplay | 7-4 | Energized systems, other than electrical |
| 1-5 | Improper position or posture for the task | 4-5 | Acts of violence | 7-5 | Radiation |
| 1-6 | Overexertion of physical capability | 4-6 | Failure to warn | 7-6 | Temperature extremes |
| 1-7 | Work or motion at improper speed | 4-7 | Use of drugs or alcohol | 7-7 | Hazardous chemicals |
| 1-8 | Improper lifting | 4-8 | Routine activity without thought | 7-8 | Mechanical hazards |
| 1-9 | Improper loading | 4-9 | Other | 7-9 | Clutter or debris |
| 1-10 | Shortcuts | | | 7-10 | Storms or acts of nature |
| 1-11 | Other | | | 7-11 | Slippery floors or walkways |
| | | | | 7-12 | Other |
| 2 | Use of Tools or Equipment | 5 | Protective Systems | 8 | Work Place Environmental/Layout |
| 2-1 | Improper use of equipment | 5-1 | Inadequate guards or protective devices | 8-1 | Congestion or restricted motion |
| 2-2 | Improper use of tools | 5-2 | Defective guards or protective devices | 8-2 | Inadequate or excessive illumination |
| 2-3 | Use of defective equipment (aware) | 5-3 | Inadequate personal protective equipment | 8-3 | Inadequate ventilation |
| 2-4 | Use of defective tools (aware) | 5-4 | Defective personal protective equipment | 8-4 | Unprotected height |
| 2-5 | Improper placement of tools, equipment or materials | 5-5 | Inadequate warning systems | 8-5 | Inadequate work place layout • controls less than adequate • displays less than adequate • labels less than adequate • locations out of reach or sight • conflicting information is presented |
| 2-6 | Operation of equipment at improper speed | 5-6 | Defective warning systems | | |
| 2-7 | Servicing of equipment in operation | 5-7 | Inadequate isolation of process or equipment | | |
| 2-8 | Other | 5-8 | Inadequate safety devices | | |
| | | 5-9 | Defective safety devices | | |
| | | 5-10 | Other | | |
| 3 | Use of Protective Methods | 6 | Tools, Equipment & Vehicles | | |
| 3-1 | Lack of knowledge of hazards present | 6-1 | Defective equipment | 8-6 | Other |
| 3-2 | Personal protective equipment not used | 6-2 | Inadequate equipment | | |
| 3-3 | Improper use of proper personal protective equipment | 6-3 | Improperly prepared equipment | | |
| 3-4 | Servicing of energized equipment | 6-4 | Defective tools | | |
| 3-5 | Equipment or materials not secured | 6-5 | Inadequate tools | | |
| 3-6 | Disabled guards, warning systems or safety devices | 6-6 | Improperly prepared tools | | |
| 3-7 | Removal of guards, warning systems or safety devices | 6-7 | Defective vehicle | | |
| 3-8 | Personal protective equipment not available | 6-8 | Inadequate vehicle for the purpose | | |
| 3-9 | Other | 6-9 | Improperly prepared vehicle | | |
| | | 6-10 | Other | | |

System Cause Job

Factors

| | |
|-----------|---|
| 12 | Purchasing, Material Handling & Material Control |
| 12-1 | Incorrect item received <ul style="list-style-type: none"> ➤ Inadequate specifications to vendor ➤ Inadequate specifications on requisition ➤ Inadequate control on changes to orders ➤ Unauthorized substitution ➤ Inadequate product acceptance requirements ➤ No acceptance verification performed |
| 12-2 | Inadequate research on materials / equipment |
| 12-3 | Inadequate mode or route of shipment |
| 12-4 | Improper handling of materials |
| 12-5 | Improper storage of materials or spare parts |
| 12-6 | Inadequate material packaging |
| 12-7 | Material shelf life exceeded |
| 12-8 | Improper identification of hazardous materials |
| 12-9 | Improper salvage and/or waste disposal |
| 12-10 | Inadequate use of safety and health data |
| 12-11 | Other – not applicable |
| | |
| 13 | Tools and Equipment |
| 13-1 | Inadequate assessment of needs and risks |
| 13-2 | Inadequate human factors / ergonomics considerations |
| 13-3 | Inadequate standards or specifications |
| 13-4 | Inadequate availability |
| 13-5 | Inadequate adjustment / repair / maintenance |
| 13-6 | Inadequate salvage and reclamation |
| 13-7 | Inadequate removal / replacement of unsuitable items |
| 13-8 | No equipment record history |
| 13-9 | Inadequate equipment record history |
| 13-10 | Other – not applicable |
| | |
| 14 | Work Rules / Policies / Standards / Procedures (PSP) |
| 14-1 | Lack of PSP for the task <ul style="list-style-type: none"> ➤ Lack of defined responsibility for PSP ➤ Lack of job safety analysis ➤ Inadequate job safety analysis |
| 14-2 | Inadequate development of PSP <ul style="list-style-type: none"> ➤ Inadequate coordination with process / equipment design ➤ Inadequate employee involvement in the development ➤ Inadequate definition of corrective actions ➤ Inadequate format for easy use |

| | |
|-----------|---|
| 14-3 | <p>Inadequate implementation of PSP, due to deficiencies</p> <ul style="list-style-type: none"> ➤ Contradictory requirements ➤ Confusing format ➤ More than one action per step ➤ No check-off spaces provided ➤ Inaccurate sequence of steps ➤ Confusing instructions ➤ Technical error / missing steps ➤ Excessive references ➤ Potential situations not covered |
| 14-4 | <p>Inadequate enforcement of PSP</p> <ul style="list-style-type: none"> ➤ Inadequate monitoring of work ➤ Inadequate supervisory knowledge ➤ Inadequate reinforcement ➤ Non-compliance not corrected |
| 14-5 | <p>Inadequate communication of PSP</p> <ul style="list-style-type: none"> ➤ Incomplete distribution to work groups ➤ Inadequate translation to appropriate languages ➤ Incomplete integration with training ➤ Out of date revisions still in use |
| 14-6 | Other – not applicable |
| 15 | Communication |
| 15-1 | Inadequate horizontal communication between peers |
| 15-2 | Inadequate vertical communication between supervisor and person |
| 15-3 | Inadequate communication between different organizations |
| 15-4 | Inadequate communication between work groups |
| 15-5 | Inadequate communication between shifts |
| 15-6 | Inadequate communication methods |
| 15-7 | No communication method available |
| 15-8 | Incorrect instructions |
| 15-9 | Inadequate communication due to job turnover |
| 15-10 | Inadequate communication of safety and health data, regulations or guidelines |
| 15-11 | Standard terminology not used |
| 15-12 | Verification / repeat back techniques not used |
| 15-13 | Messages too long |
| 15-14 | Speech interference |
| 15-15 | Other – not applicable |

Appendix B – Glove Assessment Tool

| Work Activity | Hazard Exposure | Hand Protection | Glove |
|---|---|--|---|
| Inspection Observation | Cuts/Lacerations Splinters | Leather gloves Nitrile glove |  |
| Arc Welding Torching Cutting Oxy-fuel Welding | Electric Shock Flash Burns Cuts/Lacerations | Puncture/cut resistant gloves Leather gloves |  |
| Grinding Chipping Sanding Sawing Hammering/Drilling | Struck by flying debris Cuts/Lacerations | Puncture/cut resistant gloves |  |
| Power Tools Pneumatic Tools | Struck by flying debris | Nylon, nitrile, or coated palm gloves |  |
| Electrical Work | Electric Shock | Rubber gloves w/leather protectors |  |
| Using Cutting Tools | Cuts/lacerations | Cut/puncture resistant gloves |  |
| Manual Material Handling | Splinters Abrasions Cuts | Nylon, nitrile, or coated palm gloves Leather gloves Cut/puncture resistant gloves |  |
| Concrete placing/finishing | Flying concrete debris Chemical burns | Nylon glove or similar |  |

Appendix C – Earthquake Addendum

DFJV Post Earthquake Falsework Inspection Procedure

- Immediately following an earthquake, the DFJV will ensure that all personnel on site are accounted for and at a safe distance from falsework on the project. To achieve this any DFJV personnel working at a falsework site will evacuate to the designated muster point at each location that falsework is in use. The direct supervisor at any given location will conduct a head count to confirm all personnel are accounted for. The perimeter around any type of falsework will be delineated as a hazard zone with red danger tape at a horizontal distance of 1 ½ times the height of the falsework. The manager at each individual site will notify the DFJV safety manager and segment manager in any of the respective segments once these two actions are taken.
- Once it has been determined that no other earthquakes or significant aftershocks will occur a full falsework inspection will take place (See attached checklist).
- One or more of the DFJV designated falsework inspectors will perform a full falsework inspection to the extent that they have been delegated to perform. If outside their scope, then the falsework engineer of record will perform the inspection. (See DFJV designated falsework inspector roles and responsibilities section)
- The designated DFJV falsework inspector will arrive to the site and perform a visual inspection outside the designated hazard zone before entering the area to determine if it is safe for an inspection inside the designated hazard zone.
- A full inspection following the DFJV post-earthquake check list along with the falsework design drawings, will be performed to ensure the structural integrity of each component has not been compromised.
- If damage has occurred, it will be documented in the Falsework Inspection and Signature Letter (See attached) then a JHA will be developed with a step-by-step procedure to repair the damage areas of falsework. This step-by-step procedure will also be signed off by the engineer of record of any falsework design in question.
- This procedure will be signed off by the Segment Manager, Construction Manager, Safety Manager, and the Structures General Superintendent in any segment that may have falsework in use at the time of an earthquake.
- An onsite hold point meeting shall be conducted with above personnel along with any personnel that will be performing any repair work. During this meeting the JHA, and a step-by-step procedure along with a site-specific DRA will be created before the start of any repair operation.
- After all repairs have been completed the Falsework Inspection and Signature Letter will be signed by the Designated Falsework Inspector, Segment Manager, Construction Manager, and the Structures General Superintendent stating that the falsework materials and workmanship are satisfactory to sustain the stresses required by the falsework design. If it is determined that no damage has occurred to the falsework the falsework inspection and signature letter will still be required to be signed off by the segment manager, construction manager, and the structures general superintendent before personnel are allowed to resume work on or around the falsework in question.

Falsework Inspector Designee

California High-Speed Rail Project



Design-Build Contract for Construction Package 2-3

Agreement No. HSR13-57



A joint venture

| | | | | | | | | |
|---|------------|--------------------------|---------|----------|-------------|-----------------------|------|-----------------------|
| | | | | | | | | |
| A | 08/28/2020 | First Edition | | M. Yang | S. Drake | M. Orear | | |
| Rev | Date | Description | | By | Checked | Approved | | |
| Prepared By: | | | | | | | | |
| | | | | | | | | STATUS |
| | | | | | | | | PRE |
| DFJV Internal Submittal for Approval | | | | | | | | |
| Falsework Inspector Designee Assignment Protocol | | | | | | | | |
| Particular document code | CP | Construction Segment No. | Depart. | Doc type | Discipline. | Identification number | Rev. | Document Segment/Part |
| | 2-3 | 0 | C | PR | ST | | A | 1/1 |

Approval of the Falsework Inspector Designee Assignment Protocol

This Protocol has been reviewed and is hereby approved by the personnel listed below. All listed personnel shall complete review and approval prior to implementation of the Protocol.

Project Director (Print)

Project Director Signature

Date

Daniel Cruz

Deputy Project Director (Print)

Deputy Project Director Signature

Date

Operations Manager (Print)

Operations Manager Signature

Date

Safety & Security Manager (Print)

Safety & Security Manager Signature

Date

29.2 Falsework Inspector Designee Assignment Protocol

29.2.1 Definitions applicable to Section 29.2

Engineer of Record (EOR) – A Professional Engineer registered in the State of California who designs, seals and signs the Falsework plans and supporting calculations.

Designee – A designated Falsework Inspector authorized per the DFJV Falsework Inspector Designee Assignment Protocol.

29.2.2 References

- Cal OSHA Title 8, Subchapter 4, Article 29, Section 1717.
- California High-Speed Rail Project – Construction Specifications Section 03 11 14
- Caltrans 2015 Standard Specifications Section 48-2.01C(2)

29.2.3 Protocol

In compliance with the above listed references, Falsework inspections requiring a Letter of Certification shall be completed by either the EOR or the EOR approved designee. Under this Protocol, the DFJV requires the Designee to be approved by the EOR, Segment Manager and Operations Manager.

The Designee shall have the minimum experience as described in the Caltrans 2015 Standard Specifications Section 48-2.01C(2). The Designee shall then be determined as qualified by the EOR and the Operations Manager based on the Designee's experience and knowledge of Falsework design and/or Falsework installation. The "Falsework Inspector Designee Assignment Approval Form", shown in section 29.2.4, shall be completed for each Designee and shall include the specific Falsework structures or portions of Falsework structures for which the Designee is approved to inspect.

29.2.4 Falsework Inspector Designee Assignment Approval Form (Sample)



Falsework Inspector Designee Assignment Approval Form

_____ is henceforth authorized as a designated Falsework Inspector (Designee) for the following Falsework designed by the Engineer of Record named below:

(Describe Falsework structures or portions of Falsework structures delegated to Designee)

| | | |
|-------------------------------------|---------------------------------------|---------------|
| _____ Segment Manager (Print) | _____ Segment Manager Signature | _____ Date |
| _____ Operations Manager (Print) | _____ Operations Manager Signature | _____ Date |
| _____ Engineer of Record (Print) | _____ Engineer of Record Signature | _____ Date |

All signatures as listed above are required for completion of approval.

Falsework Inspection Checklist

Falsework Inspection Checklist

To be completed by designated falsework inspector and submitted to Engineer of Record, Segment Manager and DFJV Safety Department prior to concrete placement

Project: _____ Inspection Date: _____
Bridge: _____ Planned concrete pour date: _____
Falsework span(s) inspected: _____
Inspector: _____

The purpose of this inspection checklist is to ensure falsework stability prior to concrete placement. This checklist will also be used at all phases of falsework installation and post-earthquake inspection to ensure all aspects are considered.

The following questions shall be answered yes or n/a prior to concrete placement.

- _____ Is the ground under and around the falsework pads firm and well compacted?
- _____ Has a ground bearing test been performed?
- _____ Is the area around the falsework pads graded to drain away from the pads?
- _____ Are falsework pads the correct width, thickness?
- _____ Are falsework pads secure and in full contact with grade?
- _____ Has run-off water/creek/river flow been channelized away from falsework?
- _____ Are the correct size pile driven to the required capacity?
- _____ Has the pile driving log been recorded and sent to the EOR?
- _____ Have the correct number and length of corbels been installed at the proper spacing?
- _____ Are the sandjacks built per the detail, installed level, have full bearing and buildup allows for settlement?
- _____ Is the buildup centered under the bottom cap and have the required bearing?
- _____ Is all traffic bracing installed and secure?
- _____ Are construction openings protected by traffic barriers?
- _____ Are the correct sized caps installed and level across the cross-section?
- _____ Are double cap restraints installed? Are both caps the same beam type?
- _____ Are the correct number and size posts installed at the correct location and are plumb and in good condition?
- _____ Has the transverse bracing (2x6s or strand) been installed correctly?
- _____ Are the correct size and quantity stringers installed at the right spacing?
- _____ Has stringer bracing (compression flange bracing) been installed correctly, if required?
- _____ Are the stringers secured to the top caps (welds, c-clamps, angles) as required?
- _____ Are abutment restraints properly installed and secured?
- _____ Is the column blocking installed correctly?
- _____ Are the longitudinal bracing cables installed completely with the correct tension & number of Crosby clips?
- _____ Is the area under the bridge free of stored materials?
- _____ Are cables flagged to increase visibility and prevent construction equipment/vehicles from encountering?
- _____ Are pipe braces (Super Studs, etc.) installed correctly and to the correct deadmen weight?
- _____ Are pedestrian openings installed per the approved drawings?
- _____ Is the falsework lighting installed and functioning properly?
- _____ Has the proper thickness camber and sleeper strips been installed?

Falsework Inspection Checklist

To be completed by designated falsework inspector and submitted to Engineer of Record, Segment Manager and DFJV Safety Department prior to concrete placement

- _____ Any other areas specific to this falsework design that requires inspection? Describe below.
- _____ Any other areas specific to this falsework design that require correction? Describe below and/or attach marked up plans or photos.
- _____ Are there any questions or concerns the Engineer of Record should be made aware of?

Inspector's name:_____ Inspector's signature:_____

Appendix D – Glossary of Terms

Accepted – Provided to and reviewed by DFJV. Comments/issues considered and resolved.

- ANSI – American National Standards Institute.
- Approved – Reviewed and accepted as satisfactory by DFJV. Approvals are to be provided in writing.
- Arc – A discharge of electricity through a gas, such as air.
- Authorized employee – An individual who locks out or tags out machines or equipment, to perform service or maintenance on those machines or equipment.
- Benching (benching system) – A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near- vertical surfaces between levels.
- Body harness – Straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders, with means for attaching it to other components of a personal fall arrest system.
- Cave-in – The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.
- CAZ (controlled access zone) – An area in which certain work (e.g., overhand bricklaying) may take place without guardrail systems, personal fall arrest systems, or safety net systems, and in which access to the zone is controlled.
- Chock – A wedge, block, or large stone placed against the tires of a vehicle to prevent it from moving, especially on an incline.
- Competent Person – One who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- Contractor – Any contractor, subcontractor, or consultant working at a project site.
- Cross braces – The horizontal members of a shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.
- Deceleration device – Any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyard, automatic self-retracting lifeline/lanyard, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest
- Deceleration distance – The additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance between the location of an employee's body belt or body harness attachment point now of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.
- De-energize – To free from any electric connection and/or electric charge.
- Employee – Any person working for DFJV, a consultant, a contractor, or a subcontractor at the

project site.

- Energize – To direct electric current through a conductor. Power lines and wires can be intentionally energized (or de-energized) to carry current to an electrical device. But conductive surfaces that are unintentionally energized, like the metal case of a tool, the metal housing of a circuit box, or a metal object such as an aluminum ladder, present a danger of electrocution.
- Equivalent – Alternative designs, materials, or methods to protect against a hazard that the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials, or designs specified in the standard.
- Excavation – Any man-made cut, cavity, trench, or depression in an earth surface formed by earth removal.
- Faces – The vertical or inclined earth surfaces formed as a result of excavation work.
- Failure – The breakage, displacement, or permanent deformation of a structural member or connection that reduces its structural integrity and its supportive capabilities.
- Fire watch – A group of employees specifically trained and positioned to watch for hot work hazards in a work area, and to react to emergency situations.
- Flagger – An individual who uses flags to direct people and equipment.
- Formwork – The total system of support for freshly placed or partially cured concrete, including the mold or sheeting (form) that is in contact with the concrete, as well as all supporting members including shores, hardware, braces, and related hardware.
- Free fall – The act of falling before a personal fall arrest system begins to apply force to arrest the fall.
- Free fall distance – The vertical displacement between onset of the fall and just before the fall arrest system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.
- GFCI (ground-fault circuit interrupter) – A device that detects an insulation failure by comparing the amount of current flowing to electrical equipment with the amount of current returning from the equipment. Whenever the difference is greater than 5 milliamps, the GFCI trips and interrupts the flow of electricity.
- Ground – A conducting connection, intentional or unintentional, between an electrical circuit or equipment and the earth, or to some conducting body that serves in place of the earth.
- Ground-fault – A fault, or insulation failure, in the wire used to create a path to ground.
- Grounding – To prevent the buildup of hazardous voltages in a circuit by creating a low-resistance path to earth or some other ground plane.
- Guarding – Placement of live parts of electrical equipment where they cannot accidentally be contacted, such as in a vault, behind a shield, or on a raised platform, to which only Qualified Persons have access.
- Guardrail system – A barrier erected to prevent employees from falling to lower levels.
- Hazardous atmosphere – An atmosphere that, by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

- Hazardous substance – A substance that, by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful, is likely to cause death or injury.
- Hole – A gap or void 2 inches (5.1 cm) or more in its least dimension, in a floor, roof, or other walking/working surface.
- Hoist – A manually or power-operated mechanical device to raise or lower a suspended scaffold.
- Incident – An event in which a person or persons are injured or made ill, property or equipment is damaged, the environment is harmed, or an environmental release occurs.
- Incident, serious – An incident in which property or equipment damaged, an injury/illness is OSHA- recordable, a motor vehicle or motorized equipment accident occurs, CHSRA operations are adversely affected, or any similar incident.
- Incident, significant – An incident in which a fatality occurs, personnel are admitted to a hospital overnight, property or equipment damaged and CHSRA operations are shut down or severely impacted, or any similar incident.
- Infeasible – Construction work that is impracticable or impossible to perform using the identified standard or methodology.
- Insulator – Any material, such as glass or rubber, which prevents the flow of electric current.
- Jacking operation – The task of lifting a slab or group of slabs vertically from one location to another
- (e.g., from the casting location to a temporary [parked] location, or to its final location in the structure) during the construction of a building/structure where the lift-slab process is being used.
- Lanyard – A flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.
- Leading edge – The edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) that changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is an "unprotected side and edge" during periods when it is not actively and continuously under construction.
- Lifeline – A component consisting of a flexible line connected vertically to an anchorage at one end (vertical lifeline) or connected horizontally to anchorages at both ends (horizontal lifeline), and that serves as a means for connecting other components of a personal fall arrest system to the anchorage.
- Lift director – An individual who directs the lifting of equipment via crane.
- Lift slab – A method of concrete construction in which floor and roof slabs are cast on or at ground level and lifted into position using jacks.
- Limited access zone – An area alongside a masonry wall that is under construction and clearly demarcated to limit access by employees.
- Lockout – To lock a switch in the "off" position by means of a padlock, or to lock electrified equipment behind a locked door, to which only Qualified Persons have a key.
- Lower levels – Those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations,

pits, tanks, material, water, equipment, structures, or portions thereof.

- Near miss – An opportunity to improve environmental, health, and safety performance based on a condition, or an incident with potential for more serious consequence.
- Operator – An individual who operates a specific piece of equipment, such as a crane.
- Overcurrent – Any current in excess of the rated capacity of equipment or of a conductor.
- Personal fall arrest system – A system used to stop an employee in a fall from a working level. It consists of an anchorage, connectors, a body harness, and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. As of January 1, 1998, using a body belt for fall arrest is prohibited.
- Platform – A work surface elevated above lower levels. Platforms can be constructed using individual wood planks, fabricated planks, fabricated decks, and fabricated platforms.
- Positioning device system – A body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.
- Pre-cast concrete – Concrete members (such as walls, panels, slabs, columns, and beams) that have been formed, cast, and cured before final placement in a structure.
- Protective system – A method of protecting employees from cave-ins from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.
- Qualified Person – One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his or her ability to solve or resolve problems relating to the subject matter, work, or project.
- Ramp – An inclined walking or working surface that is used to gain access to one point from another and is constructed from earth or from structural materials such as steel or wood.
- Registered professional engineer – A person who is registered as a professional engineer in the state where the work is being conducted.
- Reshoring – The construction operation in which shoring equipment (also called reshores or reshoring equipment) is placed, as the original forms and shores are removed, to support partially cured concrete and construction loads.
- ROPS (rollover protective structure) – Vehicle structures such as rollbars, frames, roll-protective cabs, etc., designed to prevent the vehicle operator from being crushed as a result of a rollover.
- Roof – The exterior surface on the top of a building. This does not include floors or formwork that, because a building has not been completed, temporarily becomes the top surface of a building.
- Safety factor – The ratio of the ultimate breaking strength of a member or piece of material or equipment to the actual working stress or safe load when in use.
- Safety-monitoring system – A safety system in which a Competent Person is responsible for recognizing and warning employees of fall hazards.
- Scaffold – Any temporary elevated platform (supported or suspended) and it is supporting

structure (including points of anchorage), used for supporting employees or materials or both.

- Seatbelt – A device, usually worn around the waist, consisting of a strap or straps anchored to a vehicle, which holds a person in his or her seat.
- Self-retracting lifeline/lanyard – A deceleration device containing a drum-wound line that can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.
- Shall – Mandatory.
- Sheeting – The members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.
- Shield (shield system) – A structure that can withstand the forces imposed on it by a cave-in, and thereby protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either pre-manufactured or job-built in accordance with CCR Title 8 section 1541.1 (g) Shields used in trenches are usually referred to as "trench boxes" or "trench shields."
- Shore – A supporting member that resists a compressive force imposed by a load, or the operation by which a supporting member is placed.
- Shoring (shoring system) – A structure such as a metal hydraulic, mechanical, or timber shoring system that supports the sides of an excavation and is designed to prevent cave-ins.
- Should – Recommended.
- Signal person – An individual who provides safety, location, and distance signals to an operator.
- Sloping (sloping system) – A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.
- Snap hook – A connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, that may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snap hooks are generally one of two types: The locking type with a self-closing, self-locking keeper that remains closed and locked until unlocked and pressed open for connection or disconnection; or the non-locking type with a self-closing keeper that remains closed until pressed open for connection or disconnection. As of January 1, 1998, the use of a non-locking snap hook as part of personal fall arrest systems and positioning device systems is prohibited.
- Spoil – The dirt, rocks, and other materials removed from an excavation and either temporarily or permanently put aside.
- Stable rock – Natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed. Unstable rock is stable when the rock material on the side or sides of the excavation is secured against caving in or movement by rock bolts, or by another protective system that has been designed by a registered professional engineer.
- Stair tower (scaffold stairway/tower) – A tower comprised of scaffold components that contains internal stairway units and rest platforms. These towers are used to provide access to scaffold platforms and other elevated points such as floors and roofs.

- Structural ramp – A ramp built of steel or wood, usually used for vehicle access. Ramps made of soil or rock are not considered structural ramps.
- Suitable – A piece of material or equipment that fits and has the qualities or qualifications to meet a given purpose, occasion, condition, function, or circumstance.
- Supervisor – An individual who supervises operations of specific equipment.
- Support system – A structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.
- Tabulated data – Tables and charts approved by a registered professional engineer and used to design and construct a protective system.
- Toe board – A low protective barrier that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel.
- Trench (trench excavation) – A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m).
- Unprotected sides and edges – Any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp, or runway, where there is no wall or guardrail system at least 42 inches (1.0 m) high.
- Valley Fever - Valley fever is another name for the sometimes-deadly infection coccidioidomycosis. It is called valley fever because the organism that causes it is commonly found in the soil of the southwestern United States.
- Vertical slip forms – Forms that are jacked vertically during the placement of concrete.
- Walking/working surface – Any surface, whether horizontal or vertical, on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork, and concrete reinforcing steel, but not including ladders, vehicles, or trailers, on which employees must be in order to perform their job duties.
- Walkway – A portion of a scaffold platform used only for access and not as a work level.
- Warning line system – A barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and that designates an area in which roofing work may take place without the use of guardrail, body belt, or safety net systems to protect employees in the area.
- Work area – At a project site, a specific vicinity of work pertaining to certain employee(s) performing certain work.