

Saudi Aramco

Contractor Safety Administrative Requirements

1.0 Purpose

The purpose of this document is to establish Saudi Aramco's contractual requirements for a contractor company's management of safety. These contractual requirements establish minimum acceptable safety-related administrative standards and are intended to supplement, not replace, the contractor's own safety program. Contractors shall implement additional measures as necessary to ensure workplace safety and shall implement all applicable measures required by Saudi Arabian Government laws and regulations. Saudi Aramco (SA) considers safety to be no less of a priority than other business considerations, including schedule and cost.

2.0 Scope

These safety-related administrative standards shall apply to all contractor companies and their subcontractors working on long form contracts, mid form contracts and as applicable on short form contracts within SA facilities, on SA project sites and at project support facilities covered under SA Land Use Permits (including laydown, fabrication or maintenance yards), as well as contractor camps housing SA employees or contractor/subcontractor personnel who work on contracts with SA on or off SA property.

3.0 Standards

The requirements of the following SA standards are mandatory for contractor compliance.

SA General Instructions (GIs):

GI 2.100, *Work Permit System*

GI 2.102, *Pressure Testing Safely*

GI 2.709, *Gas Testing Procedure*

GI 2.716, *Land Use Permit Procedures*

GI 2.718, *Contractor Site Allotment Procedure*

GI 2.721, *Electrical Arc Flash Hazard Mitigation*

GI 6.007, *Reporting of Contractor On-Job Injuries/Occupational Illnesses*

GI 6.012, *Isolation, Lockout and Use of Hold Tags*

GI 6.025, *Control of Remote Area Travel and Search/Rescue Procedures*

GI 6.030, *Traffic and Vehicle Safety*

GI 7.024, *Marine and Offshore Crane, Hoist, and Rigging Operations*

GI 7.025, *Heavy Equipment Operator Testing and Certification*

GI 7.026, *Crane and Heavy Equipment Incident Reporting Procedures*

GI 7.027, *Crane Suspended Personnel Platform (Manbasket) Operations*

GI 7.028, *Crane Lifts: Types and Procedures*

GI 7.029, *Rigging Hardware Requirements*

GI 7.030, *Inspection and Testing Requirements for Elevating/Lifting Equipment*

GI 7.031, *Heavy Equipment Services*

GI 8.001, *Safety Requirements for Scaffolds*

GI 150.002, *Basic Life Support (BLS) Heartsaver Automated External Defibrillator (AED) / Standard First Aid (SFA) and First Aid Kit*

GI 151.006, *Implementing the Saudi Aramco Sanitary Code*

GI 298.010, *Administration Procedure of Contractor Camps/Parks and Construction Camps*

GI 430.001, *Waste Management*

GI 1021.000, *Street and Road Closure: Excavations, Reinstatement and Traffic Controls*

GI 1321.015, *Request for Air Medical Evacuation*

GI 1781.001, *Inspection, Testing and Maintenance of Fire Protection Equipment*

SA Engineering Standards (SAESs):

SAES-A-112, *Meteorological and Seismic Design Data*

SAES-B-014, *Safety Requirements for Plant and Operations Support Buildings*

SAES-B-017, *Fire Water System Design*

SAES-B-019, *Portable, Mobile and Special Fixed Firefighting Equipment*

SAES-B-055, *Plant Layout*

SAES-B-062, *Onshore Wellsite Safety*

SAES-B-064, *Onshore and Nearshore Pipeline Safety*

SAES-M-006, *Saudi Aramco Security and General Purpose Fencing*

SAES-M-100, *Saudi Aramco Building Code*

SAES-P-111, *Grounding*

SAES-P-123, *Lighting*

SA Construction Safety Manual (CSM)

SA Medical Minimum Standards Requirements Manual (MMSR Manual)

SA Safety Handbook, Minimum Safety Rules

SA Sanitary Code (SASC)

4.0 General Requirements

4.1 Contractor's Safety Program and Performance

- A. The contractor shall establish an effective corporate (companywide) safety program that shall be fully implemented at each work site.
- B. The contractor's corporate safety program shall be aligned with SA's safety requirements (e.g., as per Attachment A3 of the SA Safety Management Guide for Contractor Pre-Qualification Safety Evaluation) and shall govern how safety is managed throughout the contractor company.
- C. The contractor's safety program shall be based on the safety/loss prevention policy formally endorsed by the contractor company's owner and/or senior management (e.g., CEO, President, General Manager).
- D. The contractor's safety program shall include procedures for effectively evaluating potential subcontractors' safety programs and for conducting regular site safety performance evaluations of their subcontractor's work at the job site.
- E. SA reserves the right to advise a contractor in writing of its objection to the safety program or safety performance of any subcontractor. The prime contractor retains full responsibility for the safety performance of his subcontractor(s). Contractor is not relieved from any liability or obligation as a result of contractor's use of subcontractors or SA's nonobjection of said subcontractors.
- F. During planning and execution of contracted work, the contractor shall meet all SA safety requirements. Contractor site management shall ensure compliance with the requirements of this document, the *SA Construction*

Safety Manual (CSM), other applicable SA requirements and the Contractor Site Safety Program (CSSP) at the work site.

4.2 Contractor Safety Prequalification

In accordance with SA's contracting procedures, contractor companies are required to be successfully prequalified in safety (as per the SA Safety Management Guide, *Contractor Pre-Qualification Safety Evaluation*) before being eligible to be awarded a long form contract, mid form contract or short form contract for work to be performed within a SA facility or project site or where the SA proponent organization (SAPO) considers the work to be inherently dangerous.

4.3 Contractor Prejob Safety Explanation Meetings

- A. The SAPO will communicate relevant general and site-specific safety standards and information to the contractor during prejob safety explanation meetings, including:
 - Job Explanation (Job X) meetings, which are held with potential bidders, and/or
 - Kick-off meetings, which are held with the contractor that is awarded the contract before they begin on-site work activities.
- B. Following the prejob safety explanation meeting, the contractor shall attend any site hazard identification tour led by the SAPO, with participation by SA Loss Prevention Department (LPD), as required.
- C. Safety, health and environmental standards and information covered during these meetings may not represent all areas of potential hazard to the contractor/subcontractor's personnel and equipment. It shall be the contractor's responsibility to fully comply with the contract, including identifying and addressing all potential safety, health and environmental hazards, and to include the costs of compliance in the contract.

4.4 Facility Safety Orientation

SA requires all contractor and subcontractor personnel to attend a facility-specific safety orientation prior to receiving their SA plant ID and/or being allowed to work on-site. Multiple safety orientations may be required if a plant ID permits access to more than one facility (e.g., one orientation for each facility). Unless provided by the SAPO, the contractor shall provide translation of the safety orientation presentation(s) and materials into languages understood by its employees.

4.5 Contractor Site Safety Staff

- A. Contractor shall provide full-time and qualified site safety staff in accordance with Table 4.1, with respect to the maximum number of contractor and subcontractor employees who are present at the job site at

a given time, or as otherwise requested by the SAPO (e.g., during a Job Explanation meeting).

Table 4.1 Contractor Site Safety Staff Requirements

# Employees	Safety Manager Required	Min. # Safety Supervisor(s) Required	Ratio of Safety Officers to Employees Present (min.)
1 – 25	No	No	None
26 – 50	No	One (1)	None
51 – 500	No	One (1)	1:50
501 – 1,000	Yes	1 for every 10 safety officers	1:50
1,001 – 5,000	Yes	1 for every 10 safety officers	20 officers plus additional at ratio of 1:100
5,001+	Yes	1 for every 10 safety officers	60 officers plus additional at ratio of 1:150

- B. The site safety manager (whose job title could also be site safety superintendent, senior safety engineer, safety coordinator, etc.) shall be fluent in spoken and written English and shall have at least 10 years of safety experience specific to the contract's scope of work.
- C. Site safety supervisor(s) shall be fluent in spoken and written English and shall have at least seven years of safety experience specific to the contract's scope of work.
- D. All field safety officers (whose job title could also be safety inspector, site safety engineer, safety advisor, safety representative or similar position) shall be fluent in spoken and written English and have at least five years of safety experience specific to the contract's scope of work.

Note: Safety officers with less than five years of safety experience, as well as clerical, fire watch, confined space standby men, hazardous materials handlers, etc., shall be excluded from the numbers of safety staff in Table 4.1. Contractor is advised that additional safety officers may be necessary based on the risk of the activities to be performed and as requested by the SAPO.

- E. The contractor shall provide the safety manager and each safety supervisor with a personal means of communication (e.g., mobile phone) and a dedicated motor vehicle equipped for the travel environment that may be encountered during the course of his work.
- F. The names and qualifications (e.g., CV/resume, training certificates) of the safety manager, site safety supervisor(s) and all field safety officers who will work on the job shall be submitted to the SAPO for review and concurrence prior to beginning work.

- G. Prior to beginning work, the SAPO will review the qualifications of the contractor's on-site safety staff, including years of relevant safety work experience, academic education and degree(s), formal safety training and internationally recognized safety certifications (e.g., OSHA, NEBOSH, NSC). If requested by the SAPO, the contractor's safety staff shall also take and pass a written examination and/or interview.
- H. The SAPO reserves the right to reject proposed safety staff personnel based on review of their qualifications.
- I. The safety manager/supervisor and field safety officer positions shall be filled prior to commencement of on-site work and shall remain filled until completion of work.
- J. Contractor safety staff personnel shall not be assigned dual roles (e.g., Not a site safety officer and the scaffold inspector).
- K. During the course of the work, safety staff qualifications shall be made available for review at the contractor's site office as requested by the SAPO.
- L. Contractor's site safety staff personnel shall be present at the job site at all times while contractor and/or subcontractor personnel are working, including nights, weekends, holidays and extended working hours.
- M. The SAPO reserves the right to require the contractor to replace the safety manager/supervisor or any safety officers whose work is deemed unacceptable by the SAPO.
- N. The SAPO reserves the right to require the contractor to provide additional safety and health specialists where special technical expertise is required.

4.6 Safety Meetings

- A. Contractor's site supervision shall conduct prejob ("toolbox") craft safety meetings with their personnel to address job-specific safety issues prior to beginning a different work activity. These prejob craft safety meetings shall include a review of applicable sections of the hazard identification plan (HIP). See Section 6.0.
- B. Contractor's site supervision shall also conduct weekly safety meetings in the native language of the attendees. Attendees shall include contractor's and subcontractor's site personnel. These safety meetings shall be no shorter than 15 minutes and shall cover, but not be limited to, work hazards and related job procedures, as well as a review/update of the HIP.
- C. Weekly safety meetings shall be documented with records maintained and shall be made available for review by the SAPO upon request.

- D. Contractor site management shall attend and participate in the contractor's weekly safety meetings.
- E. Upon request by the SAPO, contractor's site management, site supervision and/or site safety staff shall attend the SAPO's safety meetings (e.g., safe operations committee [SOC] meetings, safety coordination meetings).

4.7 Contractor Site Management Safety Meetings

In addition to making safety an agenda item at regular internal contractor company management meetings (e.g., project progress meetings), contractor site management (e.g., project manager, construction managers, site superintendents) shall conduct a separate meeting, at least monthly, to discuss safety, health and environmental issues. Minutes of these meetings shall be documented. Action items and needed corrective actions shall be documented and tracked until closed. Copies of these documents shall be provided to the SAPO upon request. Attendees shall include senior site supervision, the safety manager/supervisor(s), safety officers, key field personnel and, if requested, representatives from the SAPO and other applicable SA organizations.

4.8 Hazard Control and Personal Protective Equipment (PPE)

- A. Hazards not eliminated through design shall be mitigated by appropriate administrative controls (e.g., safe work procedures) and/or personal protective equipment (PPE) controls.
- B. Contractor and their subcontractor(s) shall provide the proper PPE (e.g., hard hat, safety glasses, safety shoes, hearing protection, gloves) that meets SA specifications to its employees. See Chapter I-3, *Personal Protective Equipment (PPE)*, of the *SA Construction Safety Manual (CSM)*.
- C. Contractor and subcontractor personnel who work in SA plant areas where use of flame resistant clothing (FRC) is required or who may be exposed to a flash fire hazard shall be provided by their employer with the proper type, size and quantity of FRC in accordance with SAPO requirements.
- D. The type, size and quantity of arc flash PPE and FRC per GI 2.721 shall be provided to electrical workers by their employer and shall be properly used.

4.9 Health and Environmental Monitoring

Health and environmental monitoring shall be conducted by the contractor, as applicable (e.g., as identified in the HIP), to protect their personnel against exposure to health hazards (e.g., radiation, H₂S, respiratory, noise). Monitoring shall be performed by qualified personnel and the results shall be submitted to the SAPO for review upon request.

4.10 Behavioral Observation and Site Safety Inspection

- A. The contractor shall implement behavioral observation and site inspection programs to detect and correct unsafe acts and conditions. Observations and inspections shall be frequently (e.g., weekly) conducted by contractor site management (e.g., project manager, construction manager, site superintendent), safety staff, supervisors and employees, who shall be properly trained.
- B. Unsafe acts and conditions shall be immediately reported to the relevant supervisor for correction as soon as practical. Life threatening hazards shall be corrected immediately. Corrective actions for unsafe conditions shall be identified and tracked until completion, with follow-up to verify proper implementation.
- C. Contractor shall perform trending and analysis of behavioral observations and site safety inspections to identify negative trends and mitigate safety problems.
- D. Statistics of inspection findings and observations shall be used to establish the priority of safety talks and training topics.
- E. Contractor shall provide copies of any and all inspection and observation records as requested by the SAPO.

4.11 Site Safety Performance Monitoring

- A. The SAPO will monitor, evaluate, inspect and report contractor job site safety performance. Performance monitoring will be performed in accordance with the SA Safety Management Guide, *Contractor Site Safety Performance Monitoring* and/or Project Management's Project Safety Index (PSI). Contractor shall participate in site safety evaluations and inspections, as requested by the SAPO.
- B. A rating of "poor" (4) or "unsatisfactory" (5) in any evaluation category on the SA Contractor Site Safety Evaluation Form (Attachment A3 in the SMG) or PSI is considered a violation of the safety requirements of the contract. In this case, the SAPO reserves the right to conduct performance counseling meeting(s) with contractor management and/or take other measures in accordance with SA's contracting procedures.
- C. Corrective actions shall be implemented by the contractor within any SA-specified time period and in accordance with Section 4.14 herein. Corrective actions shall be identified and tracked until completion, with follow-up to verify proper implementation.

4.12 Work Permits

- A. For work to be carried out in a SA-specified "restricted area," or as may be required by the SAPO, contractor and subcontractor personnel shall

comply with the requirements of GI 2.100, GI 2.102, GI 2.709, GI 6.012, as well as Chapter I-4, *Work Permit System*, of the CSM.

- B. Contractor's and subcontractor's work permit receivers shall obtain the proper work permit (e.g., hot work permit or cold work permit) and any associated confined space entry and release permits for work to be carried out in a SA-specified "restricted area" or as may be required by the SAPO.
- C. Contractors shall maintain records of their current receiver certificate holders, with their names and corresponding certificate expiration dates.

4.13 Jobsite Safety Logbook (JSL)

- A. For capital project construction contracts and other long form contracts as requested by the SAPO, a hardbound Jobsite Safety Logbook (JSL), supplied by the contractor(s), shall be maintained at the SA job site office. The JSL shall have pages that are sequentially numbered.
- B. The SAPO (e.g., SA Project Management), LPD or other SA personnel will enter their name, date and comments regarding safety observations in the JSL on the left-hand page.
- C. Contractor shall immediately take necessary corrective actions to mitigate observed safety hazards, including those documented in the JSL.
- D. Contractor responses shall be entered within 48 hours on the right-hand page opposite the SA entry. Contractor responses shall clearly state action items, responsible parties, and estimated time for completion (ETC) in order to close the entry.
- E. A member of the contractor's site management (e.g., project manager, job manager, site superintendent), other than safety staff, shall sign/date that entries are properly closed.
- F. The SAPO reserves the right to notify contractor of failure to properly close JSL entries and to take necessary actions to eliminate the subsequent deficiency.
- G. Failure to correct deficiencies noted in the JSL may result in that part of the job site work activities being suspended at the contractor's expense until the noted safety deficiencies have been corrected.
- H. JSLs shall be given to the SAPO when all pages are filled and/or at job completion.

4.14 Failure to Comply

- A. Upon receiving notification from the SAPO of failure to comply with the requirements of the contract and any actions needed to prevent the injury or death of personnel, damage to equipment, loss of process or damage to the environment during performance of work, the contractor shall

immediately take all necessary actions including, but not limited to, action requested by the SAPO.

- B. If contractor fails to take prompt corrective action, the SAPO may direct the contractor to suspend all or part of the work until satisfactory corrective action has been taken. Costs incurred by contractor as a result of such work suspension shall be solely the contractor's responsibility.
- C. Disputes involving safety shall be elevated to the contractor's higher management for resolution before work can proceed.

4.15 Transportation

- A. Contractor and their subcontractors shall provide safe and adequate transportation to and from the work site for their employees.
- B. The contractor shall install and maintain roads as needed to access the work site (e.g., for remote capital projects).
- C. Contractor-provided transportation shall stop at a safe location completely off the main road or highway (e.g., on a side street or authorized bus stop) and contractor personnel shall only disembark on the safe (i.e., sidewalk) side.
- D. Motor vehicles used for transportation of contractor's employees shall have a valid SA sticker (if required to enter a SA facility) and be kept in a clean and hygienic condition. Automobiles shall be air-conditioned. Defective vehicles shall not be used for transportation.
- E. Contractor's employees shall be transported in the passenger compartments of motor vehicles equipped with seat belts for all occupants. All seats in cars and trucks shall face forward.
- F. For larger sites, suitable buses may be used for transportation of employees. Buses without seat belts shall not be used after Jan. 1, 2015. Newly purchased buses shall have seat belts provided for all occupants and have air-conditioning installed.
- G. Seat belts shall be continuously worn by all occupants of motor vehicles and buses in motion.
- H. Buses shall not be overloaded (no more occupants than the manufacturer's stated seating capacity of the bus) and emergency exits shall be accessible and operable (not blocked or locked). Buses shall be equipped with fire extinguisher(s).
- I. Motor vehicles and buses shall be in good working order. Documented inspections shall be performed for motor vehicles and buses at least monthly. Motor vehicles and buses shall be maintained in accordance with the manufacturer's instructions. The SAPO reserves the right to require

removal and replacement of any motor vehicle or bus deemed unsafe or unfit for its intended purpose.

- J. Personnel operating motor vehicles and buses on SA property or project sites shall follow all Saudi Arabian Government regulations, GI 6.030 requirements and the rules and requirements in Chapter I-8, *Traffic and Vehicle Safety*, of the CSM.
- K. Contractor site management shall develop and implement a remote area travel program per GI 6.025 to control travel and provide for any necessary search and rescue of their employees in remote areas.
- L. For remote travel and oversize/heavy loads, the contractor shall implement a journey management program.

4.16 Fitness for Duty

- A. Contractor shall verify that its personnel are fit for duty relative to medical, physical and substance abuse considerations.
- B. Contractor shall arrange for vision check(s) for all employees needing or suspected of needing corrective lenses in order to perform their assigned work.
- C. Contractor shall ensure that personnel requiring sight correction (as determined by a vision check) wear appropriate safety eyewear (i.e., prescription safety glasses with side protection or safety overglasses over standard prescription glasses). See Chapter I-3, *Personal Protective Equipment (PPE)*, of the CSM.
- D. To prevent serious fatigue, contractor and subcontractor personnel shall not work excessive hours, with a maximum of 12 hours daily, except as may be requested/approved by the SAPO (e.g., during an emergency or unforeseen circumstances). Maximum work hours including portal-to-portal transportation shall not exceed 16 hours in any 24 hour period.

4.17 Heat Stress

- A. Contractor management is responsible for managing their employees' work so as to avoid and prevent heat-related illnesses. Contractor shall ensure the requirements in Chapter I-13, *Heat Stress*, of the CSM are fully implemented at the work site.
- B. Prior to performing work during hot weather, the contractor shall conduct a thorough heat stress evaluation to identify tasks and conditions that present a potential heat stress hazard. This evaluation shall include observations, discussions with workers and supervisors, review of any previously reported heat-related illnesses and shall be based on the U.S. Occupational Safety and Health Administration (OSHA) Technical Manual TED 01-00-015, Section III: Chapter 4, "Heat Stress" and/or the National Institute for

Occupational Safety and Health (NIOSH) *Occupational Exposure to Hot Environments*.

- C. The contractor shall develop and implement a written heat stress management program based on the results of the heat stress evaluation, as well as SA's heat stress requirements. The contractor shall provide proper resources to support implementation of the plan, including but not limited to procurement and provision of materials and supplies. The contractor's heat stress management program shall be submitted to the SAPO for review and concurrence prior to the start of work during hot weather (i.e., prior to April 1).
 - D. The contractor's heat stress evaluation and management program shall address the following:
 - Job Location — specific locations of each task, including proximity to heat-producing equipment, confined spaces, work requiring specialized PPE, etc.
 - Work Duration and Schedule — frequency at which the task is performed and how much time and effort is required to perform the work.
 - Clothing — what workers wear can make a big difference in how much body heat they build up. Additional work clothing and/or more frequent laundry cycles shall be provided to enable workers to wear clean clothes each day.
 - Environmental Conditions — procedures to monitor air temperature and humidity and immediately communicate changing heat stress conditions to workers (e.g., use of color-coded flags and/or mass distribution of SMS mobile phone text messages to site supervisors and other personnel in nonrestricted areas).
 - Controls — plan for and provide needed heat stress controls (i.e., engineering, administrative and personal protective controls) that shall be used to prevent heat-related illness. See Chapter I-13, *Heat Stress*, of the CSM.
 - E. Contractor shall provide training to site management and supervision on the heat stress management program, including recognition of, prevention of and response to heat-related illness, with emphasis on their responsibilities for ensuring safe working conditions (particularly suitable work/rest rotations for workers).
 - F. Contractor shall provide training and guidance to their employees in the recognition of, prevention of and response to heat-related illness.
- 4.18 Emergency Response
- A. An emergency response plan (ERP) for each specific site shall be established by the contractor and/or by the contractor in coordination with the SAPO. For additional information, see the SA Emergency Management

Guide. The contractor's ERP shall be submitted to the SAPO for review prior to the start of work.

- B. Contractors shall ensure that their ERP is aligned with the SAPO and/or SA facility's ERPs, as applicable.
- C. Contractor shall train personnel on their specific roles in the ERP and shall conduct their own periodic emergency drills.
- D. When an emergency alarm is sounded for any reason, all contractor personnel shall immediately shut down their job, make it safe and proceed in an orderly manner to the designated assembly point.
- E. SA periodically conducts emergency response drills to perform and evaluate emergency response procedures. All contractor personnel are required to take part in these drills just as if it were an actual emergency as mentioned above.
- F. Any action items from critiques of emergency drills that are applicable to the contractor shall be implemented by contractor site management. Review and verification of closure of these action items shall be performed during contractor site management safety meetings.
- G. For projects outside of SA facilities, the contractor shall install a proper emergency notification system and alarm(s), which shall include prompt activation of emergency response personnel. Contractor shall periodically conduct emergency response drills to evaluate emergency response systems and procedures.

4.19 Authority for Employees to Stop Work

Contractor shall provide the SAPO with written evidence that its employees and subcontractor employees clearly have authority to stop their own work and the work related to the contract due to unsafe conditions or acts.

4.20 Incident Reporting and Investigation

- A. Contractor shall establish a policy and procedures to promote timely reporting of all unsafe acts and conditions, near-misses, injuries and other incidents, in accordance with GI 6.007 and Chapter I-2, *Incident Reporting and Investigation*. Proper corrective actions shall be promptly taken.
- B. Contractor shall investigate all incidents involving their personnel and/or their subcontractors' personnel and shall participate in any SA incident investigation as requested by the SAPO.
- C. Contractor's incident investigations shall be performed in a timely manner and root causes of the incident shall be properly identified. Effective corrective actions to prevent recurrence shall be identified and tracked to completion, with follow-up to verify proper implementation.

5.0 Contractor Site Safety Program (CSSP)

- 5.1 Contractor shall properly plan and establish job-specific safe work procedures for all contracted work. For long form capital project construction contracts where SA Project Management is the proponent or as requested in writing by the SAPO, the contractor shall develop, implement and adhere to a **job-specific** contractor site safety program (CSSP) that conforms to the requirements of the contract, this document and all other applicable SA safety requirements. If requested by the SAPO, the contractor shall submit a supplementary detailed safety plan as may be needed before starting a new major phase of work.

Note: The CSSP replaces the previously required contractor Loss Prevention Program (LPP), which no longer needs to be submitted.

5.2 CSSP Submittal and Review Requirements

- A. Within fifteen (15) working days of contract execution, contractor shall submit three copies of the job-specific CSSP to the SAPO for review. The SAPO will forward a copy of the CSSP to the Loss Prevention Department (LPD) and other applicable SA organizations for additional review.
- B. Any review comments will be forwarded to the contractor for its action. Contractor shall address all comments and resubmit the CSSP to the SAPO for final review and concurrence. Contractor shall not begin work onsite until the job-specific CSSP for the contract, if required, has been concurred with by the SAPO. The contractor shall furnish two (2) copies of the final CSSP to the SAPO prior to the start of work and shall also maintain copies at the job site.

- 5.3 The CSSP shall state specifically **how** the contractor will meet SA's safety requirements for the work to be performed. The CSSP shall include the following, as applicable to the contract and work to be performed:

- A. Title page, specifying budget item (BI), job order (JO) or contract number.
- B. Job title and brief scope of work.
- C. Site location map(s) with legend (symbols).
- D. Contractor company's current safety policy (signed by their upper management).
- E. Job-specific organization chart that clearly defines safety reporting relationships.
- F. Names and qualifications (e.g., CV/resume) of safety manager/supervisor(s) and safety officers, as required.
- G. Job-specific assignment of safety responsibilities by job classification.

- H. Job-specific training needs analysis (e.g., training matrix) showing the safety training and job-skills/competency training required for all job classifications, as applicable to project's scope of work.
- I. Written *safety* training program that includes: (1) a description of the basic safety training courses (e.g., first aid, fire safety, hazard recognition, confined space safety, H₂S safety, driving safety) provided to contractor company's employees, (2) how these safety training courses are delivered (e.g., in-house, third-party) and (3) which of these courses are required for each type of job (e.g., documented in a safety training matrix or safety training plan).
- J. Written *job skills/craft competency* training program that includes: (1) a description of the specific job skills/craft training courses required for each type of job (e.g., HVAC technician, plumber, pipefitter, scaffolder, welder) that are specific to their work for SA, (2) how these job skills/craft training courses are delivered (e.g., in-house and/or third-party) and (3) refresher training frequency.
- K. List of jobs to be performed that require SA-approved certification (e.g., scaffold supervisor/inspector, crane/heavy equipment operator, rigger, welder).
- L. Complete list of known subcontractors.
- M. Project-specific plan/program the contractor will use for managing their subcontractors, including their safety performance.
- N. Procedures for behavioral observations, site safety inspections, safety meetings, incident/injury/near miss reporting and investigation, safety training, safety recommendation tracking, etc.
- O. Description of contractor's site safety incentive and/or disciplinary action programs.
- P. Hazard identification plan (HIP) as per Section 6.0.
- Q. Waste management plan as per Section 10.0.
- R. Hazardous substances plan, which describes the contractor's procedures for identifying and handling hazardous chemicals, materials, etc. Hazardous chemicals/materials shall be stored and handled in accordance with SA chemical hazard bulletins (CHBs) and the manufacturer's material safety data sheets (MSDSs).
- S. Job-specific and/or location specific safety procedures that are applicable to the contract's scope of work. These procedures may include but are not limited to: work permits, confined space entry, PPE, respiratory protection, fall protection, lock-out/tag-out, waste management, site demobilization/restoration, emergency response, etc., (see Section 6.2 for additional topics).

Note 1: When the SAPO has applicable procedures, the contractor shall adopt them by reference with the contractor's job-specific safety procedures supplementing SA's requirements by explaining specifically **how** the contractor will meet SA's requirements. The contractor's safety procedures shall **not be a verbatim copy** of SA's safety requirements (e.g., copied directly from the SA *Construction Safety Manual*).

Note 2: If the SAPO confirms that they do not have the needed existing procedures or that their procedures are not applicable to the project, the contractor shall develop their own safety procedures.

- 5.4 Since the contractor is completely responsible for their subcontractors, the contractor shall verify that the safety procedures and safe work practices identified in each subcontractor's site safety program are adequate and satisfy SA's and the contractor's minimum expectations and requirements. In the event that any subcontractor's safety procedure or safe work practice does not meet the minimum expectation, contractor shall work closely with subcontractor to develop/upgrade the appropriate safety procedure or safe work practice. Contractor shall complete the verification process prior to commencement of the work. SAPO may participate in the development/upgrade process at their discretion.

6.0 Hazard Identification Plan (HIP) and Other Submittals

- 6.1 For all SA contracts (e.g., long form, mid form and short form contracts), the contractor and/or their subcontractor(s) shall develop, implement and adhere to a contract-specific HIP. The HIP shall list all tasks/activities associated with the contracted work, potential hazards of each activity and control measures to mitigate these hazards. The contractor's HIP shall identify all potential hazards associated with the work to be performed. The HIP shall not be a list of generic hazards.
- 6.2 The topics in Table 6.1 represent some, but may not be all, of the safety issues that shall be considered when developing the HIP.

Table 6.1 Possible HIP Topics

Abrasive blasting	Falling object prevention
Asbestos	First aid, medical facility, hospital transfer provisions
Blinding	Hand tools
Cartridge operated tools (Hilti)	Heat stress hazards
Chemicals and chemical handling	Heavy equipment operations
Communications	Housekeeping
Compressed gas cylinders	Hydrogen sulfide (H ₂ S)
Concrete formwork & shoring	Hydrotesting
Concrete placement	Impact on SA's operations
Confined space entry/rescue	Ionizing radiation
Cranes and rigging	Isolation/lockout/hold tag
Cutting, welding and brazing	Materials handling
Demobilization	Mechanical equipment
Demolition	Painting and coating
Driving/vehicle safety	PPE
Dust control	Portable power tools
Electrical safety	Scaffolding
Elevating/lifting equipment	Steel erection
Emergency response	Transportation
Excavations and shoring	Welding on lines in service
Explosives	Work at heights
Fall prevention/protection	Work over water
Fire prevention/firefighting	Work permits

- 6.3 Within fifteen (15) working days of contract execution, the contractor shall submit three copies of contractor's job-specific HIP to the SAPO for review. The SAPO will forward a copy of the HIP to the LPD and other applicable SA organizations for additional review.
- 6.4 Any comments will be forwarded to the contractor for its action. Contractor shall address all comments and resubmit the HIP to the SAPO for final review and concurrence. Contractor shall not begin work on-site until the HIP for the contract has been concurred with by the SAPO. The contractor shall furnish two (2) copies of the final HIP to the SAPO prior to the start of work and shall also maintain copies at the job site.
- 6.5 The contractor's job-specific HIP shall be revised and amended, as needed, when conditions change, new hazards are introduced or the scope of work changes.
- 6.6 In addition to the HIP, contractor shall submit, as applicable to the contract, job-specific plans such as, but not limited to: site layout plans, site-specific traffic flow plans, fire protection plans, security fence layout plans, project support facility plans (e.g., office, maintenance, sanitary, dining, laydown/storage facilities) and contractor camp plans (see Section 10.3 and Section 11.0 herein). The contractor shall submit three copies of these job-specific plans to the SAPO for review within fifteen (15) working days of contract execution. Contractor shall not begin work on-

site until the job-specific plans for the contract have been reviewed by the SAPO. Contractor shall furnish two (2) copies of these job-specific plans to the SAPO prior to the start of work and shall also maintain copies at the job site.

7.0 Contractor Personnel Safety Responsibilities

7.1 General

- A. Each contractor employee working on SA jobs shall comply with the SA GIs, standards, manuals and other contract documents that are applicable to the work, including the *SA Safety Handbook*.
- B. The contractor's line management and site supervision shall be fully responsible for compliance with SA's safety requirements. This responsibility shall not be delegated to the contractor's safety manager/supervisor(s)/officer(s).
- C. Contractor supervisory personnel or other qualified staff shall be present at the job site while work is in progress.
- D. The contractor shall remove from the job site any of its employees who refuse or repeatedly fail to comply with safe work practices or supervisors who fail to enforce compliance, including as requested by the SAPO.
- E. Listed below are some responsibilities associated with specific contractor job categories, as applicable (e.g., specific management and supervisory job categories may not be required or may be combined if agreed to by the SAPO). Contractor personnel working on SA jobs shall abide by these responsibilities.

7.2 Contractor Management

Contractor company management shall:

- Ensure compliance with SA's safety requirements for the control of injury, damage and fire as stated in the contract, in particular Schedule "D" and this document.
- Ensure preparation and submittal of a contract-specific CSSP and/or HIP, as required by the SAPO.
- Ensure the contractor's subcontractor selection process includes an evaluation of subcontractor safety management program and performance.
- Provide the necessary personnel, training, tools, equipment and materials to enable the work to be performed competently and safely.
- Train and qualify contractor site management and supervision on their job safety responsibilities, including incident investigation and job safety analysis (JSA).

- Conduct training needs analysis to determine the required training for all levels of contractor employees.
- Ensure contractor employees are trained and qualified on their safety responsibilities.
- Provide needed PPE and establish training/procedures to ensure proper PPE selection, use and maintenance.
- Participate in coordination (interface) meetings between SA, subcontractors and any other contractors that may be working on the same jobsite to coordinate work activities.
- Ensure development, SAPO review and implementation of detailed procedures for critical work activities such as welding, tie-ins, hot taps, loop tests, excavations, confined space entries, equipment/vehicle access, etc.

7.3 Contractor Site Management

- A. The contractor's site management (project manager, construction manager, site superintendent or equivalent position) shall establish the following at the planning stage:
 - Safety responsibilities for supervisors, subcontractors and other personnel.
 - Fire prevention and protection provisions.
 - Emergency vehicle access.
 - Specific hazards to be identified in the CSSP and/or HIP.
 - Job-skills/craft training and safety training/orientation requirements for personnel.
 - Types and quantities of PPE needed.
 - First aid, medical and sanitation facilities needed.
 - Work permit procedures and requirements, if not already established by the SAPO.
 - Emergency Response Plan (ERP) and/or emergency procedures aligned with any applicable SAPO ERP.
- B. The contractor's site management shall be fully responsible for implementation of all contractual requirements at the job site and shall visibly demonstrate the priority of safety in all activities, including setting a good personal example and as follows:
 - Empower all contractor and subcontractor personnel on site to stop their own work and work related to the contract that they deem to be unsafe and take immediate corrective actions as needed.
 - Understand and implement the safety and health requirements of the contract, in particular Schedule "D" and this document.

- Implement the CSSP and/or HIP and convey the safety responsibilities of each level of supervisory staff.
- Use only SA-certified work permit receivers when work will be conducted in SA restricted areas or where required by the SAPO.
- Implement contractor's work permit procedures in work areas where SA work permits are not required or as requested by the SAPO.
- Attend/conduct safety meetings to promote and reinforce proper safety and health performance.
- Periodically inspect the work site, report any unsafe acts/conditions to the contractor's site supervisor and/or foreman, provide recommendations to correct deficiencies and perform follow-up inspections to ensure corrective actions have been taken.
- Routinely consult with the contractor's safety manager/supervisor(s)/officers to assess the job site safety status and identify areas for supervisors and foremen to take corrective action.
- Provide and maintain a Jobsite Safety Logbook (JSL) at each separate job site (note: the JSL shall be used by SA and the contractor to document unsafe acts/conditions and the corrective actions taken).
- Ensure that the appropriate supervisor or foreman responds immediately to comments written in the JSL.
- Review work methods and precautions with site supervision before work starts.
- Immediately report all incidents and near misses to the SAPO in accordance with GI 6.007 and Chapter I-2, *Incident Reporting and Investigation*, of the CSM.
- Ensure incidents and near misses are properly investigated to determine root causes, make recommendations to prevent recurrence and that corrective actions have been taken.

7.4 Site Safety Manager/Supervisor

The contractor's site safety manager/supervisor (site safety superintendent, senior safety engineer, safety coordinator or equivalent position) shall visibly demonstrate the priority of safety in all activities, including setting a good personal example and as follows.

- Be responsible and accountable for the proper performance of field safety officers under his authority.
- Be empowered in writing by his management to stop their own work and work related to the contract that they deem to be unsafe and take immediate corrective actions as needed.
- Understand safety and health requirements of the contract — in particular Schedule "D" and this document — as well as the CSSP/HIP and CSM.

- Conduct safety kickoff meetings with subcontractors to explain site-specific safety requirements and expectations.
- Ensure all contractor and subcontractor personnel attend site safety orientations, including as required by the SAPO, and ensure contractor and subcontractor personnel attend applicable safety training.
- Communicate safety rules and standards to the contractor and subcontractor workforce.
- Provide/assist with safety training for personnel.
- Periodically inspect the work site, report any unsafe acts/conditions to the area supervisor and/or foreman, provide recommendations to correct deficiencies and follow-up to verify corrective actions have been taken.
- Keep a record of safety meetings, including agendas and personnel attendance records.
- Keep a permanent record of job-related injuries/illnesses, near misses, fires, motor vehicle accidents, property damage, crane and heavy equipment incidents, etc.
- Participate in incident investigations, safety meetings, drills, etc., and conduct/facilitate safety training sessions.
- Ensure general safety rules are printed in languages understood by contractor and subcontractor personnel and are posted in areas where they are clearly visible.

7.5 Project Engineer

- A. The contractor's project engineer (project superintendent or equivalent position) shall immediately notify the contractor's site management and the SAPO of the following:
 - Injury or death of personnel, damage to equipment, loss of process or damage to the environment.
 - Safety infractions noted during site inspections, etc.
- B. The contractor's project engineer shall visibly demonstrate the priority of safety in all activities, including setting a good personal example and as follows:
 - Conduct daily site inspections and evaluate safe work methods in operation.
 - Monitor compliance with Saudi Arabian Government regulations and SA requirements, including the adequacy of sanitation and first aid/medical facilities.
 - Provide/assist with safety training for personnel.

- Meet and discuss with the SAPO, regarding injury or death of personnel, damage to equipment, loss of process or damage to the environment.
- Obtain and circulate relevant safety information applicable to personnel.
- Attend safety meetings and report on-job safety performance.
- Participate in incident investigations, drills, etc., and conduct/facilitate safety training sessions.

7.6 Site Supervision

The contractor's site supervision (field engineers, supervisors, foremen or equivalent position) shall visibly demonstrate the priority of safety in all activities, including setting a good personal example and as follows.

- Be qualified, proficient in both verbal and written English, provide direct and effective on-site supervision and be continuously present on-site.
- Be empowered in writing by their management to stop their own work and work related to the contract that they deem to be unsafe and to take immediate corrective actions as needed.
- Understand the safety and health requirements of the contract — in particular Schedule "D" and this document — as well as the contractor's CSSP and/or HIP.
- Assess the workplace and work activities to determine hazards that are present or are likely to be present, in consultation with the safety manager/supervisor(s) or field safety officer as needed.
- Evaluate hazardous operations and implement needed precautions to ensure the safety of all affected personnel (note: hazardous operations may include, but are not limited to: welding, radiography, abrasive blasting, asbestos removal, electrical work, solvent cleaning, crane operations, etc.).
- Understand the safest method of performing each job activity in their area of responsibility.
- Provide instructions to their personnel on proper work methods, sequence of operations, potential hazards at each stage and precautions to follow.
- Inform their personnel of safe work methods and safety requirements detailed in the CSSP and/or HIP prior to beginning a different work activity (i.e., conduct prejob "toolbox" craft safety meetings).
- Use only trained personnel who are properly qualified for the work to be performed.
- Ensure that equipment operators operate only the specific equipment for which they have been trained and/or certified.

- Plan and maintain good housekeeping in the work area.
- Coordinate with subcontractors and other contractors on-site to avoid confusion in areas with joint or overlapping responsibility or joint occupancy (note: this includes work that may be separate and unrelated).
- Position temporary equipment to avoid safety hazards.
- Provide the required PPE and ensure proper use.
- Ensure equipment and tools (both power and hand tools) are in good operating condition and properly used.
- Train their personnel on emergency response procedures/plans.
- Provide immediate assistance as requested by the contractor's safety manager/supervisor, emergency response organizations, SAPO, etc., during emergencies.
- Conduct weekly safety meetings for their personnel.
- Conduct daily work site inspections to identify and immediately correct unsafe acts, conditions and/or equipment.
- Document and coordinate safety inspection activities and findings with the safety manager/supervisor.
- Commend personnel who, by action and/or initiative, eliminate hazards.
- Immediately report all incidents, unsafe conditions and defects in equipment to the contractor's site management and the SAPO.
- Participate in incident investigations, safety meetings, drills, etc., and conduct/facilitate safety training sessions.

7.7 Field Safety Officer

The contractor's field safety officers (safety inspector, site safety engineer, safety advisor, safety representative or equivalent position) shall visibly demonstrate the priority of safety in all activities, including setting a good personal example and as follows:

- Be empowered in writing by their management to stop their own work and work related to the contract that they deem to be unsafe and take immediate corrective actions.
- Understand the safety and health requirements of the contract — in particular Schedule "D" and this document — as well as the CSSP/HIP.
- Communicate safety rules and standards to the contractor and subcontractor workforce.
- Inspect the work site daily, report any unsafe acts/conditions to the supervisor and/or foreman, provide recommendations to correct deficiencies and follow-up to ensure corrective actions have been taken.

- Participate in incident investigations, safety meetings, drills, etc., and conduct/facilitate safety training sessions.

7.8 Equipment Manager/Supervisor

- A. The contractor's equipment manager/supervisor or equivalent position shall ensure that all equipment purchased, rented or leased:
 - Has proper guarding for electrical, mechanical and chemical hazards.
 - Is equipped with required safety devices.
 - Has required testing laboratory stamps, labels and certifications affixed.
- B. The equipment manager/supervisor shall visibly demonstrate the priority of safety in all activities, including setting a good personal example and as follows:
 - Attend and participate in safety meetings.
 - Verify heavy equipment operators are certified as required by SA.
 - Ensure compliance with the requirements of GI 7.024 through GI 7.031 as applicable.
 - Ensure hand-held electrical equipment and power tools are rated at 110 volts.
 - Ensure tools constructed of good quality materials are used. Use of "homemade" tools is prohibited.
 - Ensure periodic tests, inspections and maintenance of equipment are carried out when due and records are properly maintained and available for review by the SAPO.
 - Ensure equipment defects are promptly repaired and defective equipment is immediately "red tagged", removed from service and discarded/destroyed.

7.9 Contractor Personnel

Contractor personnel shall visibly demonstrate the priority of safety in all activities and shall:

- Be empowered in writing by their management to stop their own work and work related to the contract that they deem to be unsafe (without fear of retribution).
- Immediately report all incidents or hazardous conditions to their supervisor.
- Never endanger themselves or their fellow workers, including refraining from horseplay.
- Take and pass required job-skills/craft training and safety training.

- Understand safety rules, safe work practices and follow special safety precautions (e.g., in SA restricted areas).
- Properly use the correct tools and equipment for the job.
- Keep tools in good condition and repair.
- Properly use the correct PPE.
- Never remove, modify or abuse safety devices, equipment and welfare facilities.
- Attend and participate in safety meetings, “toolbox talks”, safety training, etc.
- Obey posted warning signs.

8.0 Personnel Qualifications, Training and Certification

8.1 General

- A. Contractor shall ensure that all its personnel are qualified, competent and have demonstrated they have the necessary knowledge and skills to safely and properly perform their assigned work.
- B. Contractor shall ensure their personnel receive documented training, based on job classification and training needs analysis, before being permitted access to the work site. This training shall include: (1) safety orientation, (2) job-specific safety training and (3) job-skills/craft competency training for personnel engaged in specific craft activities (e.g., electrical, scaffolding, steel erection, welding, cutting, crane/heavy equipment operation).
- C. Contractor shall establish job classifications (e.g., welder, rigger, crane operator, heavy equipment operator, driver) required to perform the work and the specific job skills/craft competence and training requirements for each of these job classifications, including Saudi Aramco and/or Saudi Arabian Government certification/license requirements.
- D. Where a specific job function requires SA and/or Saudi Arabian Government certification/license, these job functions shall be assigned only to properly certified/licensed personnel (e.g., certified crane/heavy equipment operators per GI 7.025, certified scaffold supervisors/inspectors per GI 8.001).
- E. Contractor shall establish additional training programs for personnel who perform high-risk activities, such as but not limited to: confined space entry, fire watch, isolation and lock-out/tag-out, working on or near energized electrical equipment, working at height, lifting and rigging, excavation, specialized power tools and equipment, handling of hazardous chemicals, waste storage and handling, etc.

- F. Contractor's in-house or third-party training shall include:
- Training facilities complete with multimedia (audio/visual) resources.
 - Qualified instructors to ensure personnel properly receive the required training.
 - Verbal instruction and written materials in a language clearly understood by the personnel receiving the training.
 - Documented post-training competency assessments.
 - Documentation of completed safety training (e.g., pocket card, "safety passport" or file copies of training records).
- G. Personnel shall maintain the required SA and/or Saudi Arabian Government certification/licenses in their possession at all times.
- H. Contractor shall work closely with their subcontractors to provide training programs to ensure that subcontractor personnel have the necessary knowledge and skills required to safely and properly perform the assigned work.
- 8.2 Safety Orientation for Contractor Employees
- A. Contractor companies shall ensure that their employees and subcontractor employees who are new to a particular work site attend and pass their own company's safety orientation, as well as any facility safety orientation that may be required by the SAPO.
- B. The contractor's safety orientation program shall include an overview of relevant requirements in the SA *Safety Handbook* and *Construction Safety Manual* (CSM).
- C. The contractor's safety orientation program shall include, but not be limited to, the applicable topics shown in Table 8.1.

Table 8.1 Contractor's Safety Orientation Topics

Alarms and notifications	Incident reporting procedures
Assembly points	PPE
Basic safety rules	Smoking restrictions and locations
Break areas	Traffic rules and restrictions
Emergency response procedures	Understanding safety signs and Warnings
Heat stress precautions	Work permits
Hydrogen sulfide (H ₂ S) safety	

8.3 Short Service Employee (SSE) Program

- A. Contractor shall establish a short service employee (SSE) program. This program shall include identification of new or inexperienced personnel so others may take extra care in their presence and provide additional assistance.
- B. The SSE program shall define the criteria for an inexperienced worker based on duration of employment, change of job scope and/or length of industry service.
- C. All new or inexperienced workers shall be classified as a SSE for a predetermined duration (e.g., 3-6 months) and shall be assigned a mentor during this time.
- D. All SSE's shall continuously wear a visual identifier while at the job site (e.g., orange hard hat). The SSE visual identifier to be used shall be approved beforehand by the SAPO.
- E. Before work commences, contractor shall inform the SAPO of the maximum ratio of SSEs to experienced workers that will be present at the job site at any given time. The SAPO reserves the right to require an alternate maximum ratio of SSEs.
- F. Supervisors shall observe their SSE's work performance until they are satisfied that the employee can perform his job in a safe and effective manner.
- G. The SSE program shall provide additional training as requested by the supervisor.

8.4 Job-Skills/Craft Competency Training and Safety Training

- A. Contractor shall ensure that job-skills/craft and safety training fully qualify personnel to perform their job properly and safely.
- B. Job-skills/craft competency training and safety training shall include, but not be limited to, the relevant topics listed in Table 8.2, depending upon the job scope and assigned responsibilities.

Table 8.2 Job-Skills/Craft and Safety Training Topics

Job-Skills/Craft Training	Safety Training
Abrasive blasting	Basic life support (BLS)
Asbestos	Communications
Cartridge operated tools (Hilti)	Compressed gas cylinders
Concrete formwork/shoring	Confined space entry/rescue
Cranes and rigging	Emergency response procedures
Cutting, welding, brazing	Fall prevention/protection
Demolition	Falling object prevention/protection
Electrical systems/equipment	Fire prevention/firefighting
Elevating/lifting equipment	First aid
Excavations and shoring	Hazard recognition
Explosive materials	Hazardous chemicals
Gas testing	Heat stress
Hand tools and power tools	Housekeeping
Heavy equipment	Hydrogen sulfide (H ₂ S)
Hydrotesting	Incident reporting/investigation
Ionizing radiation	Isolation/lockout/hold tag
Isolation and blinding	Job safety analysis (JSA)
Non-destructive testing (NDT)	Ladders
Painting and coating	Materials handling
Piling	Personal protective equipment (PPE)
Pipefitting	Respiratory protection
Plumbing	Vehicle/traffic/driving safety
Portable power tools	Work over water
Pressure testing	Work at heights
Scaffolding	Work permits

- C. Contractors shall maintain training records for review by the SAPO upon request.
- D. SA reserves the right to test/verify the job skills/craft competency and qualifications of contractor's employees and to remove any employee failing this test/verification.
- E. Safety training shall also address off-job hazards (e.g., seat belt use, cooking safety).

8.5 Refresher Safety Training

Refresher safety training shall be:

- Conducted at a frequency not less than that established by Saudi Arab Government regulations or SA requirements (note: in the event that refresher safety training is not covered by Saudi Arabian Government regulations or SA requirements, the SAPO or contractor shall document the refresher safety training frequency).

- Documented by the contractor, including the personnel that attended and passed refresher safety training.

8.6 Safety Training for Site Supervision and Safety Staff

- A. Contractor shall ensure that all their site supervision and safety staff receive formal safety training, including a 24-hour (min.) OSHA, NEBOSH, NSC or other SAPO-approved equivalent safety training program. This training shall include a review of typical site hazards and safe work practices.
- B. Contractor's site supervision and safety staff shall be trained in, but not be limited to, the following:
 - The job-specific CSSP and HIP.
 - The contract's safety requirements.
 - Specific hazards and safe work practices associated with the job.
 - Relevant sections of the *SA Safety Handbook* and the *SA Construction Safety Manual (CSM)*.
 - Injury/incident reporting and investigation.
 - Applicable emergency response procedures.
 - First aid and basic life support (BLS). Note: They shall have valid first aid and BLS certificates in their possession at all times.

9.0 Medical

9.1 General

Contractor shall provide for medical care of its employees according to requirements established by the Saudi Arabian Government Ministry of Health (MOH) and Saudi Arabian labor law, GI 150.002, the *SA Minimum Medical Standards Requirements (MMSR)* Manual and in accordance with this section. This medical care shall include, but not be limited to, first aid, urgent and emergency care, stabilization and immediate transfer of patients to hospital, inpatient/outpatient hospitalization and emergency and disaster response. Following is a summary of some of the requirements from the MMSR manual.

9.2 Provision of First Aid

- A. First aid, which is the immediate help provided at the work site to injured or seriously ill personnel prior to the arrival of professional medical assistance, shall be in strict compliance with the minimum requirements specified in Category D Facilities (Section 4) of the MMSR manual.
- B. Contractor shall provide and maintain adequate first aid supplies for contractor and subcontractor personnel at all work locations per GI 150.002 and as follows:

- If fewer than 50 people are at a work site, provide at least one 10-unit first aid kit/cabinet. See GI 150.002 and the MMSR manual, Attachments 23 and 24, for the required contents of a 10-unit first aid kit/cabinet.
 - If 50 people or more are at a work site, provide at least one 36-unit first aid kit/cabinet. See GI 150.002 and the MMSR manual, Attachments 23 and 24, for contents.
 - If work is carried out at locations that are more than 300 m (1,000 ft) apart, a separate first aid kit/cabinet shall be provided for each group of workers.
 - The contractor shall assign first aid attendant(s) to be responsible for each first aid kit/cabinet and to ensure there is sufficient stock of all supplies at all times.
 - Signs/notices shall be posted near each first aid kit/cabinet stating the following:
 - Name of person(s) who is in charge of the first aid kit/cabinet.
 - Hospital where injured/ill personnel are to be transported.
 - Telephone number(s) of doctor(s) or first aid attendant(s).
 - Emergency telephone number(s).
- C. First aid supplies shall be kept readily available in a first aid kit/cabinet designated for those supplies only. First aid supplies shall be kept in a sanitary condition at all times.
- D. Contractor shall provide an adequate number of personnel at each work site who are trained in first aid and BLS, including those in charge of first aid supplies. See GI 150.002 for training requirements.
- E. One four-wheel drive vehicle equipped with a well-stocked first aid kit for each crew shall be available for personnel performing pipeline or power-line work, or who are working in remote areas. These vehicles shall be marked to indicate they carry a first aid kit. A minimum of one person in every remote area crew shall have a valid first aid/BLS certificate.
- F. A medical logbook shall be maintained at each first aid station and medical facility by the first aid attendant who shall log all injuries/illnesses treated. See the MMSR manual for a sample log.
- G. Contractor shall provide Automated External Defibrillators (AEDs) as required by GI 150.002 and the MMSR manual. At each site with an AED, contractor shall provide an adequate number of personnel who are trained in AED operation.

9.3 Work Site Medical Facilities (Clinics)

- A. Contractors employing more than fifty (50) total people for a given project (whether working on multiple shifts or not), including personnel employed

by the contractor's subcontractors, shall contractually arrange with a SA medical designated facility (MDF), or other medical facility recommended in writing by the SA Medical Services Organization (SAMSO), to establish, supply, staff and operate one or more work site medical facilities (clinics) as required by the MMSR manual.

- B. Work site medical facilities (clinics), as defined in the MMSR manual, shall be either:
 - Category A (Physician operated – Large).
 - Category B (Physician operated – Small).
 - Category C (Nurse operated).
- C. The category of a work site medical facility (clinic) shall be in accordance the Initial Category/Level Evaluation Form (Section 2) in the MMSR manual, which is based on the following criteria:
 - Number of personnel at the work site.
 - Remoteness of the work site and access to definitive medical care (e.g., hospital).
 - Potential risk factors at the work location.
 - Specialized services required (medical procedures, diagnostics or otherwise).
- D. If approved in writing by the SAPO, the contractor for a non-construction contract is not required to provide a work site medical facility (clinic) for office personnel (e.g., working in an office building within a major metropolitan area) if the contractor has contractually arranged for emergency response and medical care with a nearby hospital that is operated 24-hours a day, seven days a week and is capable of responding to the office building within a maximum travel time of ten (10) minutes.
- E. Work site medical facilities (clinics) shall be fully established and in operation before work begins and shall:
 - Have the capability to provide first aid, urgent care, prehospital and resuscitation care, stabilization and prompt transfer to the nearest hospital.
 - Have a building that complies with the building specifications and acceptable floor configurations in the MMSR manual. The floor plan and specifications of all new work site medical facilities (clinics) shall be submitted to the SAPO and approved by SA prior to use.
 - Have an emergency response plan (ERP) detailing the response capabilities specific to the geographical location. A medical emergency and disaster call-out list shall be posted in the work site medical facility (clinic). Each facility shall have at least one emergency response bag as specified in the MMSR manual.

- F. The contracted MDF or other medical facility shall provide, in addition to qualified manpower (see Section 9.4) and proper supplies, all medical services required to operate the work site medical facility in accordance with the MMSR manual. This operation shall include, but not be limited to, providing the following services: clinic supervision, medical referral and consultation, pharmaceutical (drug formulary, storage, administration, dispensing and disposal), medical equipment and equipment maintenance, medical transportation, emergency/disaster response planning and training, healthcare policies and procedures, and other needed general and technical medical support services, including medical training to the contractor's employees.
- G. Contractor shall make arrangements to have each work site medical facility (clinic) independently inspected/audited prior to startup and at least semiannually thereafter. These inspections/audits shall be performed by medically qualified personnel from the contracted MDF or other medical facility used by the contractor for its work site medical facilities (clinics), but shall not be personnel who staff the specific work site medical facility being inspected/audited.
- H. These inspections/audits shall use the Survey and Compliance Review Report (Sections 3 and 4) in the MMSR manual, including during initial setup of a medical facility (clinic). The clinical and technical parts of the survey shall be performed by medically qualified personnel. The contractor shall be responsible for promptly correcting all deficiencies or violations identified by any such inspections/audits. Initial and periodic inspections/audits shall cover all areas mentioned in this Section 9.0 and the MMSR manual, including:
- General health care requirements.
 - Building specifications.
 - Manpower requirements.
 - Staff qualifications, continuing education and training.
 - Safety, environmental, health and infection control requirements.
 - Medical equipment and supplies.
 - Pharmaceutical Services.
 - Support services (communications/ambulance/janitorial services).
 - Medical emergency and disaster response procedures/Medevac procedures.
 - Health care policies, procedures and scope of service.
 - First aid kit/cabinets required, including an Automated External Defibrillator (AED).
- I. Contractor shall ensure that drug formulary, prescription, supplies, storage, administration and dispensing shall be under the supervision of a licensed

pharmacist or physician from the contracted MDF or other medical facility used by the contractor for its work site medical facilities (clinics).

- J. Contractor shall ensure it has or has arranged to have in place the necessary support services required to comply with the requirements in the MMSR manual, including safety, environmental health and infection control (e.g., disposal of medical waste), equipment management, janitorial services and communication services.
- K. Work site medical facilities (clinics) shall be subject to inspection by SA. The contractor shall be responsible for promptly correcting any deficiencies or violations identified by SA following any such inspections/audits.

9.4 Medical Professional Personnel

- A. Contractor shall contractually arrange with a SA-contracted MDF, or other medical facility recommended in writing by SAMSO, to provide qualified medical professional personnel as per the MMSR manual to staff each work site medical facility (clinic).
- B. Medical professional personnel (e.g., physicians, nurses) shall at a minimum meet the licensing requirements of the Saudi Arabian Government MOH Saudi Council for Health Specialties (SCFHS) and shall possess the necessary experience, training, minimum qualifications and required certifications as specified in the MMSR manual.
- C. The names, qualifications and MOH certificates of the medical professional personnel who will staff a medical facility (clinic) shall be submitted to the SAPO for review before work begins.
- D. Contractor shall have arrangements in place with the contracted MDF or other medical facility used by the contractor for its work site medical facilities (clinics) to provide medical professional personnel coverage for unplanned emergencies, holidays, sickness, off-duties, absences and other unplanned events.
- E. Medical professional personnel shall be provided with periodic mandatory and continuing education by their employer as required by the MOH. This continuing education shall include, but not be limited to: first aid/BLS, safety and infection control, heat stress, fire and disaster training, etc.
- F. Contractor shall make arrangements with the contracted MDF or another medical facility (e.g., hospital) for consultation services so a qualified physician (specialist or otherwise) can be consulted by the work site medical facility's staff 24 hours a day, seven days a week for medical advice, prescription of drugs, referral and/or transfer of patients as needed.
- G. All medical professional personnel shall receive disaster training at least annually. Training shall include the application of the commonly used

triage system in disaster management, communication strategies and participation in at least two disaster drills per year.

9.5 Medical Insurance and Ambulance(s)

- A. To facilitate and expedite patient transfer and admission to a nearby hospital for definitive care and to comply with the Saudi Arabian Government's medical insurance laws, contractors shall ensure all their employees, including subcontractor employees, are continuously provided with valid medical health insurance coverage, before they enter the work site, for outpatient, first aid, emergency, specialist and inpatient care at a nearby hospital that is operated 24-hours a day, seven days a week. Contractor shall submit documentary evidence of current medical health insurance coverage for its employees to the SAPO monthly and upon request.
- B. Contractors shall provide or make arrangements to provide a dedicated, full-size emergency vehicle (ambulance) at each work site medical facility (clinic) to transport injured/ill personnel to the nearest hospital. If the work location is off road, the contractor shall provide a four-wheel drive ambulance.
- C. Ambulances shall comply with the vehicle specifications in the MMSR manual and shall be maintained in a safe, clean, sanitary and roadworthy condition in compliance with Saudi Arabian Government regulations and SA vehicle requirements. Ambulances shall be provided with a dedicated shaded parking space.
- D. Ambulances shall have purpose markings, be configured safely and be equipped, at a minimum, with emergency and resuscitation supplies as specified in the MMSR manual.
- E. A daily ambulance log and ambulance preventive maintenance work sheet shall be maintained (see the MMSR manual for samples).
- F. Contractors shall provide ambulance drivers with first aid/BLS training, site orientation and medical facilities location training.
- G. Ambulance drivers shall be qualified as per the MMSR manual and shall have a valid Saudi Arabian Government driving license.

9.6 Air Medical Evacuation (Medevac)

- A. Contractor shall ensure that needed Medevac procedures are incorporated into their emergency response procedures as a part of their CSSP.
- B. Procedures to initiate a Medevac are in GI 1321.015.

10.0 Site Planning, Usage and Housekeeping

10.1 Initial Site Planning

- A. Prior to start of on-site work, the contractor shall determine what personnel, equipment, procedures, etc., will be needed and how they will be provided in order to ensure that the work will be conducted in a safe manner.
- B. The contractor's initial site planning shall consider, but not be limited to, the following topics:
 - Site location—offices, worker camps, etc. (see Sections 10.0 and 11.0).
 - Heavy equipment, chemicals, demolition, welding, nondestructive testing (NDT), etc.
 - Personal protective equipment (PPE).
 - Emergency response procedures.
 - Work permit requirements.
 - Control of falling objects.
 - Required barriers.
 - Medical and first aid resources needed (see Section 9.0).
 - Heat stress management and prevention.
 - Fire/drinking/sanitary water supply and distribution.
 - Transportation (see Section 4.15).
 - Excavations.
 - Electrical tools and services.
 - Scaffolding and work at heights.
 - Safety staff (see Section 4.5).

Note: Some of the above topics are covered in further detail elsewhere in this manual.

10.2 Site Planning and Layout

- A. Site planning shall include, but not be limited to: building spacing, fire protection, welfare facilities, rest areas, recreational facilities, assembly areas, offices, living quarters, medical facilities, dining facilities, prayer areas, laydown yards, fabrication shops, etc.
- B. The site layout shall be planned before mobilization to the work site to identify issues such as, but not limited to: emergency access routes, normal traffic flow, parking areas, siting for cranes, staging areas, material storage, sanitation/welfare facilities, first aid stations/medical facilities, fixed/portable fire protection, utilities, etc.

- C. Access road planning shall include, but not be limited to: traffic flow, load-bearing capacities, traffic signs and controls, road striping, parking areas, road intersections and multiple-use roads. Emergency response vehicle access shall be provided at all times to all locations.
- D. Contractor shall provide adequate shelters/rest facilities and drinking water supply at construction sites and work locations, including as needed for prevention of heat stress.

10.3 Plans for Contractor Camps and Project Support Facilities

- A. Contractor shall prepare comprehensive plans for all contractor camps and project support facilities that incorporate the requirements from the above planning and are in accordance with Section 11.0. These plans shall address, at a minimum, the following as applicable to the contract:
 - Plot plans and building layouts, which for contractor camp facilities shall show the camp site layout including medical, dining, recreation and toilet/shower facilities.
 - Interior building layout/space utilization, which shall show site offices, conference rooms, prayer rooms, open office space for clerks, partitioned office spaces, kitchens, storage areas, etc. For contractor camps, interior building layouts shall show dormitory room planned occupancy and furniture layout.
 - Building architectural/structural design features, including materials of construction.
 - Building fire protection and alarm systems.
 - Blast resistance features (if located within a blast hazard zone as per SAES-B-014).
 - Building air-conditioning, heating and ventilation distribution systems, including temperature control and equipment sizing calculations.
 - Electrical power distribution systems.
 - Electrical outlets per room (number and location shall be sufficient to safely accommodate personal electronics needs, such as TVs, mobile phone chargers, radios, etc.).
 - Building and area lighting.
 - Communications systems, data cabling and equipment.
 - First aid, ambulance and medical services/clinics.
 - Fire prevention and fire fighting provisions.
 - Raw water treatment and drinking water supply.
 - Sewage/waste water collection, treatment and disposal.
 - Sanitation plan, including refuse handling requirements and waste management facilities.

- Storage, shop, fabrication areas.
 - Roads and parking areas.
 - Provisions for vehicle repairs, service and maintenance.
 - Site lunch shelters.
 - Site security fencing.
- B. Contractor shall submit three copies of all contractor camp and project support facility plans to the SAPO for review within fifteen (15) working days of contract execution. Construction shall not start on the contractor camp or project support facility until the plans have been reviewed and approved per GI 298.010.

10.4 Land Use Permit

- A. Whenever a contractor camp or project support facility is needed, the contractor shall obtain, through the SAPO, any required land use permit (LUP) prior to the commencement of any work activity at the site.
- B. The LUP application shall be in accordance with GI 2.716 and GI 2.718. The LUP application (SA Form 8037) shall specify the maximum number of occupants and shall include plans of the proposed contractor camp and project support facilities, as specified in Section 10.3.
- C. Contractor shall comply with all conditions stated on the SA LUP.
- D. If required, a letter of understanding per GI 2.718 for contractor site allocation shall be signed by contractor and contractor shall comply with all conditions stipulated therein.

10.5 Project Signs

- A. A job activity information sign (e.g., see Figure 10.1 below) shall be erected at the main entrance(s) to the job site and shall comply with the requirements of this section.
- B. At a minimum, the following information shall be shown on project signs:
- SAPO name.
 - Project title.
 - Budget item (BI), job order (JO) or contract number.
 - Prime contractor name, address and telephone number.
 - Emergency contact numbers for SAPO and contractor representatives.

Figure 10.1 Example Job Activity Information Sign

SA/CENTRAL AREA PROJECTS
SA-BUILT GOVERNMENT SCHOOLS
BOYS SECONDARY - DAMMAM
BI# 2510
CONTRACTOR:
NAME
P.O. BOX
LOCATION
TELEPHONE NUMBER
SA REPRESENTATIVE
TEL. – OFFICE/TEL. – MOBILE –

- C. The design of project signs shall be:
- A minimum of 1.2 m (4 ft) high and 2.4 m (8 ft) wide.
 - Printed in black and white.
 - Printed in Arabic and English, with the Arabic text located above or to the right of the English text.
- D. Sufficient signs shall also be erected and maintained on or near the site to direct delivery vehicles and visitors to the work area.
- E. Other signs, such as safety warnings, may be required (e.g., by the SAPO).

10.6 Entry and Exit

Safe entry and exit points shall be provided at work sites. Entry and exit points shall be kept clear and unobstructed at all times.

10.7 Pedestrian Pathways On-Site

On-site dedicated pedestrian walkways/pathways shall be clearly marked and distinct from vehicular travel routes. Physical barriers shall separate parallel personnel walkways/pathways from adjacent vehicular and heavy equipment traffic.

10.8 Barricades

Barricades shall be provided where required. Barricades shall be clearly marked with flagging. Barricades shall have protective lighting, when necessary.

10.9 Site Drainage

Sites shall have good drainage and be graded so water does not pool on job sites, camps, roads, etc.

10.10 Fire Protection and Prevention

- A. Contractor shall provide firefighting equipment (e.g., fire extinguishers, hydrants, hoses, sprinklers, alarms) as specified in SAES-M-100, or if applicable, SAES-B-019. See Section 11.6 for fire water system requirements, as applicable.
- B. Firefighting equipment shall be readily available and accessible. Areas around fire extinguishers, hydrants, hoses and other firefighting equipment shall be kept clear.
- C. Fire extinguishers, hydrants, hoses and other firefighting equipment shall be regularly inspected (i.e., per GI 1781.001) and maintained. Contractor shall provide fire equipment inspection and maintenance records to the SAPO upon request.
- D. Designated site personnel shall be trained in the use of the various types of firefighting equipment on-site. See Chapter I-7, *Fire Prevention*, of the CSM for further details.
- E. Smoking shall be permitted only in designated areas.

10.11 Materials Storage Yards

- A. Flammable and combustible material storage areas within materials storage yards shall be clearly marked and adequate in size and layout.
- B. Material storage yards shall not be closer than 15 m (50 ft) to any other structure.
- C. For further information, see Chapter I-12, *Materials Handling*, of the CSM (including an example of a proper material storage yard layout drawing).

10.12 Site Illumination and Electrical

- A. Adequate lighting shall be provided per SAES-P-123.
- B. Grounding for electrical tools and wiring installations shall be in accordance with SAES-P-111.
- C. Contractor shall comply with the National Fire Protection Association, NFPA 70, *National Electrical Code (NEC)*, and SA's electrical safety requirements.

10.13 Security Fencing

- A. Contractor shall provide, install and maintain required temporary security fencing in accordance with SA requirements (e.g., SAES-M-006).
- B. Fences shall be properly designed, grounded, of sound construction, appropriate for the intended purpose and built in accordance with SA requirements (e.g., SA standard drawing AB-036677, “An Overview [Architectural] Saudi Aramco Security and General Purpose Fencing”).
- C. Fences shall be periodically inspected.
- D. Existing roadways and pedestrian walkways crossing the work site shall be rerouted outside the work site perimeter fence prior to the start of work.
- E. Red and white, blue and white, or black and reflective yellow (or white) flags shall be fastened to the fence when a fence crosses an existing road.
- F. Dead-end signs shall be erected on the approach to fences if access is blocked. The distance to the blocked access shall be noted on the sign. However, if there is a temporary bypass, a “DIVERSION AHEAD” sign, with diversion arrows showing the proper route, shall be erected on the approach to the fence in black and yellow (or white) reflective material.
- G. At least two access gates 4.5 m (15 ft) wide, located at opposite ends, shall be provided to the site. Access gates, where possible, shall avoid opening onto main thoroughfares.
- H. Standard Saudi Arabian Government-compliant stop signs shall be attached to vehicle access gates.
- I. Temporary signs shall be erected to route traffic in the safest manner to, from and within the site. Temporary signs shall not be placed on public highways and roads (refer to Saudi Arabian Government traffic regulations).

10.14 Securing Site and Equipment after Working Hours

- A. Power-driven construction equipment shall have the ignition locked and key removed when not in use.
- B. Heavy equipment that will be left unattended overnight shall be made immobile by disconnecting the battery or by other appropriate means if there is no lock for the cab and the engine compartment access is readily available.
- C. Bulldozer blades, front loader and backhoe buckets and similar pieces of equipment shall be lowered to the ground when not in use.

- D. Excavations or obstructions creating hazards to pedestrian or vehicular traffic at night shall have adequate lighting. Warning signs shall be posted on approved types of barricades (see GI 1021.000).
- E. Contractor shall provide night watchmen and security personnel as needed to control access to the site after hours.

10.15 Manholes and Covers

Open manholes and openings in grating on elevated levels shall be properly barricaded. Hard barricades and warning signs shall be installed prior to removing a manhole cover or grating. Manhole and grating shall be immediately put back in place upon completion of the work activity.

10.16 Guy Lines/Ropes

Temporary guy lines and barrier ropes shall be clearly marked with reflective tape and/or signs and barricades provided to protect them, when needed.

10.17 Road Closures

Road closures shall be performed in accordance with Saudi Arabian Government regulations and SA requirements, including GI 1021.000.

10.18 Dust Control

A dust control program shall be identified in the HIP, developed and implemented to protect personnel and the general public.

10.19 Protection of the General Public

The general public shall be protected from exposure to hazards associated with the contractor's work activities such as, but not limited to, abrasive blasting, radiation, painting, excavations and traffic routing.

10.20 Housekeeping

- A. Contractor shall provide for:
 - Cleaning of the entire site, including identifying areas where each subcontractor is responsible for the cleaning.
 - Collection, storage and disposal of nonhazardous and hazardous waste in accordance with GI 430.001.
 - An adequate amount of trash receptacles in work areas.
 - Keeping waste segregated at all times in accordance with waste handling requirements (see GI 430.001).
- B. The contractor's site supervision shall ensure that trash and debris is properly collected and disposed of daily.

- C. Trash containers shall be of durable construction and shall be located as needed throughout the work area. Trash containers shall be covered, clearly marked and emptied daily. Separate trash containers, with suitable disposable plastic liners, shall be provided for food scraps and other organic matter.
- D. Refuse, trash and garbage shall only be disposed of at approved sites as designated by SA or local municipality.
- E. Excavation spoils and building materials shall only be disposed of at other approved sites as designated by SA or local municipality.
- F. Contractor shall establish a site-specific waste management plan, which shall include specific procedures for disposal of any hazardous wastes (e.g., waste oil, sewage, naturally occurring radioactive materials [NORM]), in accordance with Saudi Arabian Government regulations and SA Environmental Protection Department (EPD) requirements. Contractor shall submit their site-specific waste management plan to the SAPO for review. The SAPO reserves the right to forward a copy of the waste management plan to EPD for review.

11.0 Contractor Camps and Project Support Facilities

11.1 General

- A. Contractor shall ensure contractor camps/compounds and project support facilities (e.g., site offices, storage/laydown yards, fabrication/maintenance shops, medical/clinics) that are provided for contractor's personnel, subcontractors' personnel and/or SA employees comply with the provisions of the Saudi Arabian Labor and Workmen Law and SA's safety, health and environmental requirements, including Section II of Schedule "D", the SA Sanitary Code (SASC) and GI 151.006.
- B. SA will inspect and periodically reinspect any contractor camp, other project support facility or work site, on or off SA property, for compliance with applicable laws and SA's safety, health and environmental requirements. Corrective actions shall be taken as noted.
- C. Contractor camps and project support facilities shall be located so as to minimize exposure to hazards (e.g., located upwind from process areas and well sites), including traffic hazards to work site(s). SA shall approve the location of contractor camps and project support facilities prior to their construction, as per Section 10.4.
- D. Buildings, including portable buildings, are not allowed within 500 m (1,640 ft) of a plant perimeter fence, pipeline corridor or well site without SA's written permission. See SAES-B-014, SAES-B-055, SAES-B-062 and SAES-B-064 for additional facility siting requirements.

- E. Contractor shall furnish, install and maintain a fire alarm system for all contractor camp and project support buildings as required by SAES-M-100.
- F. Contractor shall provide designated outdoor smoking facilities within contractor camp and project support facilities. Only smoking facilities approved by the SAPO shall be used by workers on jobs located within a SA plant or hazardous area.
- G. Contractor shall provide, install, operate and maintain potable water supply and distribution system(s) in accordance with Section 01, *Water*, of the SA Sanitary Code (SASC). Potable water systems shall have sufficient storage capacity for providing acceptable potable water supply as required for contractor camp and project support facilities, as well as at construction sites and other work locations. Potable water shall have a residual chlorine level of between 0.5 ppm minimum and 3.0 ppm maximum. See Section 11.7.
- H. Prior to occupancy and connection of utilities, contractor camp and project support facilities shall be subject to inspection by the SAPO, LPD, Fire Protection Department, Inspection Department (electrical, mechanical, plumbing), EPD, SAMSO, and shall meet all applicable safety, fire and health standards. Any concerns generated during the inspection or otherwise brought to the attention of the contractor shall be promptly and satisfactorily resolved prior to occupancy.
- I. For contractor camps and project support facilities, a dedicated and properly trained maintenance crew shall be available 24 hours per day. The names and contact information for these maintenance personnel shall be prominently displayed within the camp/facility.
- J. High risk maintenance activities (e.g., confined space entry, electrical isolation, rigging and lifting) at contractor camps and project support facilities shall be controlled (e.g., by developing JSAs, using work permits, or issuing procedures).

11.2 Contractor Camp General Requirements

- A. Contractor shall design and construct structures and buildings to meet the requirements of SAES-M-100.
- B. Contractor shall provide a camp(s) to adequately house anticipated staff and labor force. Depending on the nature of the contract these camps may also house SA and subcontractor personnel in addition to contractor personnel.
- C. Contractor shall operate and inspect (with corrective actions), manage and maintain accommodation camps so as to ensure an acceptable standard of living, including proper facility maintenance, hygiene standards, fire and life safety, pest control and food safety in accordance with SAES-M-100, SASC-S-07 (*Camps and Communal Living Facilities*), and the contract.

Facilities for sleeping, dining, medical, firefighting, sanitation and recreation, as well as barber shops, bakeries, grocery/convenience markets, cleaning/laundry services, etc., shall be provided in accordance with the requirements of this document, SAES-M-100, SASC-S-07, and the contract.

- D. Sleeping and living areas within contractor camps shall be air-conditioned and periodically maintained on at least a biannual basis in accordance with the manufacturer's recommendations. The contractor shall submit to the SAPO a copy of the maintenance records, upon request.
- E. Contractor camps shall include a fully equipped kitchen(s) and dining room(s) suitable for the preparation of high-quality meals per Section 07 of the SASC. Dining facilities shall be provided with tables, chairs, utensils and cutlery.
- F. Personnel housed in the contractor camp shall be provided with three ample and well-balanced meals per day.
- G. Cooking shall not be allowed within contractor camp accommodation rooms per section 07 of the SASC. Use of hot plates, stoves, portable ovens, open-flame burners, etc., shall only be permitted in designated kitchen and break room areas. Use of smoking materials, including cigarettes, cigars, pipes, etc., and burning of candles, incense, etc., shall not be allowed inside any building.
- H. Camp food establishments, grocery/convenience markets, etc., shall not sell raw meats, cooking oil, cooking pots and pans, cooking burners, hot plates or other food items and equipment that would enable camp residents to cook in their own rooms.
- I. All buildings, including portable buildings, shall be equipped with hand-held fire extinguishers as per SAES-M-100 and SAES-B-019, as applicable.
- J. Any personal electrical items offered for sale to camp residents (e.g., in a camp grocery market or convenience store) or used in the camp shall be labeled as meeting CE, Underwriters' Laboratories (UL) or Factory Mutual (FM) requirements (or equivalent as specified in writing by the SA Loss Prevention Department).
- K. Contractor camps and project support facilities shall include adequate purpose-designed lighting for all streets, parking areas, sidewalks and around buildings and outdoor facilities.
- L. Contractor camps and project support facilities shall be adequately drained on and away from the site.
- M. Contractor camps and project support facilities shall include paved/designated streets and parking areas with a properly prepared and compacted base. Speed bumps/dips shall be installed on streets as required

for pedestrian safety. The camp/support facility shall include paved/designated sidewalks for all areas to be utilized as pedestrian walkways and shall include small diameter crushed stone as ground cover in unpaved areas around all buildings.

- 11.3 Minimum Safety Standards for Contractor Camp Buildings and Project Support Buildings
- A. The minimum clear spacing between non-combustible buildings larger than 548 m² (5,900 ft²) and/or between clusters of smaller buildings totaling more than 548 m² (5,900 ft²) shall be 6.1 m (20 ft). The minimum clear spacing between smaller buildings and buildings within a cluster shall be 1.8 m (6 ft). The minimum clear spacing from perimeter fences to buildings shall be 3 m (10 ft). See SAES-M-100.
 - B. The building's structural design shall be for applicable loads and in accordance with SAES-M-100, including wind loads per SAES-A-112. Building frames shall be supported on concrete footings.
 - C. Camp accommodation rooms shall have not less than 4.6 m² (50 ft²) of air-conditioned living area per person, preferably at least 6.5 m² (70 ft²) per occupant.
 - D. A separate bed shall be provided for each camp occupant. Triple deck bunk beds are not permitted.
 - E. Sleeping rooms shall have an emergency egress opening, which can either be an outward opening mandoor or a window that opens to the outside. Emergency egress openings shall comply with SAES-M-100 and shall be operational from inside the room without use of keys or tools. All operable windows in accommodation rooms shall be provided with an insect screen.
 - F. Newly installed, relocated or renovated contractor camp buildings and project support buildings, including portable buildings, provided for SA and/or contractor/subcontractor personnel shall comply with SAES-M-100 as explained in the SA Safety Management Guide, *Application of Saudi Aramco Building Code to Contractor Camp and Project Support Buildings*.
 - G. Any newly installed, relocated or renovated building, whether portable or fixed, that is located in a zone predicted to receive at least 3.5 kPa gauge (0.5 psig) peak side-on overpressure from a vapor cloud explosion shall be designed and constructed in accordance with SAES-B-014.
 - H. Pre-engineered modular buildings meeting SAES-M-100 equivalent standards of quality, durability, safety, sanitation and reliability may be proposed by the contractor for consideration by the SAPO. Proposals for pre-engineered modular buildings shall include the manufacturer's name, address, phone/facsimile numbers, Internet Web site address and sufficient product information to enable the SAPO to evaluate the suitability of such structures.

- I. Pre-engineered modular buildings shall meet the following minimum requirements:
- Welded steel skids or attached running gear.
 - 100 mm (4 inches) minimum wall thickness.
 - Fully insulated walls and ceilings.
 - Metal or other nonflammable roof materials.
 - Suspended ceiling completely wired and plumbed with concealed wiring and plumbing.
 - Built-in circuit breaker panel and exterior electrical connection.
 - Ground fault circuit interruption (GFCI) devices on all electrical outlets within 1.8 m (6 ft) of a water source (e.g., sink, tub, toilet, shower, etc.).
 - Air conditioning and heating with individual controls to maintain temperature between 21 and 24 °C (70-75 °F).
 - Offices with full height walls shall be lockable and have windows facing the outside of the building with blinds.
- J. External egress doors shall swing outward and shall be provided with panic push bars as required by SAES-M-100. Internal doors shall be painted solid core with frame and door stopper.
- K. Buildings and structures shall be electrically grounded. Metal enclosures of power distribution panel boards shall be connected to a grounding system.

11.4 Welfare/Sanitation Facilities

- A. Contractor shall provide welfare facilities (e.g., toilet/washing facilities) for personnel at contractor camps, project support facilities and other work sites in accordance with GI 151.006 and Section 07, *Camps and Communal Living Facilities*, of the SASC.
- B. Toilet facilities shall include western- and eastern-style toilets, urinals, ablution hoses, sinks, water heaters, air extractors, mirrors, toilet paper holders, paper towel holders, soap dispensers/dishes, coat hooks and garbage bins.
- C. Toilets shall be provided, as a minimum, according to Section 07, Table 2, of the SASC.
- D. Toilet facilities shall be easily accessible and shall be of durable and hygienic construction consistent with their purpose and shall have adequate lighting, ventilation and a continuous supply of water.
- E. Washing facilities shall be provided in accordance with GI 151.006 and the SASC.

- F. Toilets and washing facilities shall be continuously maintained in a clean and sanitary condition.
- G. Potable (fresh) drinking water shall be readily available. Contractor shall provide conveniently located bottled drinking water dispensers. Only water bottles with tops that have been sealed by the supplier shall be used (i.e., bottles shall not be refilled except by the bottle supplier). Water bottles shall be routinely changed and all water dispensers shall be frequently cleaned to maintain a sanitary and fresh supply of drinking water in each dispenser. Common drinking cups or dippers are prohibited. Disposable paper cups or other separate cups shall be provided for each person.
- H. Sun-protected rest areas shall be provided and shall be away from operating equipment and work areas.

11.5 Electrical Power Generation and Distribution Systems

- A. Contractor shall provide, install, operate and maintain power generation and distribution facilities at contractor camps, project support facilities and worksites, as needed.
- B. The power system shall provide electrical power supply at 110 volts/60 Hz, on a 24 hour per day, 7 days per week basis, or as needed.
- C. Power distribution panel boards shall be labeled to identify the service of individual breakers.
- D. The entire electrical installation shall comply with the U.S. National Electrical Code (NEC) and be tested at least annually by a qualified electrical engineer from an independent source. The contractor shall submit to the SAPO a copy of the electrical test certificate, upon request.

11.6 Fire Protection Systems

- A. Contractor shall design, install and operate a fire water system(s) with sufficient storage capacity to provide full fire protection coverage. Design plans for fire protection systems shall be submitted to the SAPO for review.
- B. Inspection, testing and maintenance of fire alarm and protection systems, including sprinklers and portable fire extinguishers, shall be in accordance with GI 1781.001.
- C. Dedicated fire water storage capacity shall not be used for any other purpose (e.g., drinking, bathing, ablution).

11.7 Raw Water Treatment and Drinking Water Supply Facilities

- A. Contractor shall provide, install, operate and maintain all required raw water treatment facilities, potable water distribution systems, drinking

water supply systems within the contractor's and subcontractor's assigned areas in accordance with Section 01, *Water*, of the SASC.

- B. Plans for raw water treatment and drinking water shall be reviewed by the SA EPD prior to construction.
- C. Contractor shall ensure that the bacteriological and chemical qualities of the drinking water, including during transportation and storage, are in accordance with Section 01, Table 10, of the SASC.

11.8 Sewage and Solid Waste Management Facilities

- A. Contractor shall provide, install, operate and maintain all required sanitary sewer systems at contractor and subcontractor assigned areas, including contractor camps and project support facilities, in accordance with Section 02, *Sanitary Wastewater and Sewerage Systems*, of the SASC. The contractor shall be responsible for installing all required sewage collection manholes and piping, etc.
- B. Contractor shall remove all solid waste and debris from contractor camp and project support facilities on not less than a daily basis and dispose of it at a solid waste disposal facility approved by SA.
- C. Plans for sewage collection, holding, treatment and final disposal and plans for solid waste management facilities shall be reviewed by the SA EPD prior to construction.