Hazard Identification Plan (HIP)

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
1. WORK PERMITS	ALL AREAS	SERIOUS. / FATAL INJURIS MAJOR EQUIPMENT DAMAGE PROCESS DELAYS OR STOPPAGE FIRES ELECTROCUTION	**1.** The Work Permit System incorporates procedures shall be applied to ensure that necessary communication takes place and hazards are controlled. **2.** Restricted areas are those areas or activities, which have been designated by department managers as requiring the work permit system. These include (but are not limited to) all areas where hydrocarbons, flammable liquids or gases, or oxidizing agents are handled, stored, piped, or processed in significant quantities, and critical non-hydrocarbon operations. **3.** Issuer and receiver must inspect job site together before signing the work permit. **4.** Issue the correct permits for the job - hot, cold, vessel or confined space entry, and/or gas release. Two or more permits may be required for the job. **5.** Issuer and receiver must both have in their possession a valid work permit certification card (issuer and receiver respectively). **6.** Gas test and/or H2S gas test and/or oxygen analysis test must be made before issuing work permit. **7.** Job description and equipment used must be clearly stated on the work permit. Be specific, issue permits for a single pump, drum, etc. **8.** All tick boxes must be correctly filled in and gas readings indicated. **9.** Proper lockouts, hold tags, and blinds must be used where applicable (multiple clips with lock, and/or chains with padlocks). **10.** Work permits shall be issued for the specific period of time required to complete the job. **11.** To extend time work permit beyond one shift, the oncoming shift issuer must inspect job site, write in extended time and sign permit. **12.** Special precautions such as requirements for fire watch, Scott air packs, lifelines, barricades, etc. must be written on the permit. **13.** The work permit must remain on the job site in a conspicuously visible place while work is going on. If an emergency develops, the permit must be withdrawn immediately and all work stopped without questions. **14.** The work permit must be closed out after a job is completed. Issuer and receiver must inspect the job site and sign off the work permit.
2. LOCKOUT/ TAGOUT LOCKOUT/ TAGOUT (CONT.,)	ALL SOURCES THAT MAY REQUIRE ISOLATION,BLINING,PRESSURE RELASE,ETC.	SERIOUS./ FATAL INJURIS MAJOR EQUIPMENT DAMAGE FIRES & EXPLOSIIONS ELECTROCUTION	**1.** Lockout devices such as padlocks and keys shall be numbered. **2.** Padlocks and keys shall be stored in such manner as not to be available to unauthorized personnel. **3.** A master key or second key for each padlock used for lockout purposes shall be kept in secure storage for emergency use only. **4.** Lockout and tag-out procedures shall be covered and supported by permit to work system under supervision of lockout and tag-out authority and HSE coordinator **5.** Before servicing or installing equipment, you must be able to know the following (The type of energy source on the equipment, The potential hazards related to the energy source, Steps for controlling the energy source and the employees who shall be notified that equipment will be shutdown) **6.** Be aware that some equipment has special shutdown procedures (e.g. computer controlled equipment) **7.** Make sure that all energy sources have been located and shutdown (some machines have more than one power source all must be shut down).

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
			8. Equipment shall be isolated by(Shutting of the main breaker or control switch , Closing valves, Disconnecting process lines , Pulling plugs) and for complex machines or equipment refer to manufacturer's control diagram detailing the locations of all isolation points , including breaker panels , switches , valves, etc **9.** Each authorized employee who is performing maintenance is responsible to inform lockout and tag-out authority for locking and tagging the equipment **10.** All employees whose duties require them to work on equipment must be provided with their own lock and key. **11.** If more than one employee is involved in maintenance, multiple locking devices must be used to allow each maintenance employee to lock and tag. This prevents one employee from accidentally starting up the equipment while another employee is still working **12.** Follow work procedure and/or manufacturer's instruction for shutdown and be aware that some equipment has special shutdown procedures (e.g. computer controlled equipment) **13.** Equipment shall be isolated by(Shutting of the main breaker or control switch , Closing valves, Disconnecting process lines , Pulling plugs) and for complex machines or equipment refer to manufacturer's control diagram detailing the locations of all isolation points , including breaker panels , switches , valves, etc **14.** After locking any tagging equipment, you must make sure that any stored energy on the equipment is released is done. **15.** At the end of lock out ant tag out (Test the start switches on the equipment to confirm that all power sources have been shutdown and switches can't be moved to the "on" or "start" position, Secure all blocks, clamps, chains and cribs., Secure blanks and make sure they are not leaking , Check electrical circuits to make sure that voltage is at zero). **16.** Once the maintenance or installation is completed the equipment can be restarted by the following : - Making sure all equipment component are fully assembled and operational - Removing all tools from equipment and work area - Notify affected employees - Removal lockout devices and tags
3. FIRE WATCH &/OR MANWATCH	WHATEVER HOT WORK IS CONDUCTED ANY CONFINED SPACE ENTRY EXCAVATIONS >1.2 M (4FT) IN DEPTH REVERSING HEAVY EQUIPMENT	SERIOUS./ FATAL INJURIS MAJOR EQUIPMENT DAMAGE FIRES PERSONNEL NOT TRAINED IN FIREWATCH PROCEDURES	**1.** Fire watcher shall be provided at any hot work permit **2.** Firewatcher shall be provided with valid fire extinguisher and he must be trained on how it can be used. **3.** Firewatcher shall be award with emergency procedures and escape routes in case of fire or any emergency. **4.** Fire watcher shall be notified with types of fire extinguishers and their purposes

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
4. SMOKING	ALL AREAS	FIRES / EXPLOSIIONS HAZARDS SMOKING DONE IN AREAS OTHER THAN DESIGNATED SMOKING SHELTERS HOUSEKEEPING	**1.** Smoking area shall be designated up wind to any flammable activity. **2.** Smoking area shall be provided with valid fire extinguishers. **3.** Pots filled with sand shall be provided for extinguishing cigarette. **4.** Regular housekeeping shall be done to avoid fire hazard. **5.** Smoking area shall be monitored and audited daily by competent person (HSE or security man) **6.** Completion day shift shall be done to prevent fire to take place. **7.** All combustible material shall be removed from smoking areas. **8.** Smoking area shall be provided with ventilation method. **9.** smoking warning signs shall be posted in a smoking area. **10.** warning sign outline instructions which shall be taken in case of fire emergency
5. EXCAVATIONS &/OR TRENCHING EXCAVATIONS &/OR TRENCHING	ROAD CROSSINGS LOCATIONS WHERE SOIL &/OR FOUNATIONS ARE REMOVED ANY EXCAVATION 1.2 METERS (4 FEET) OR DEEPER	NO EXCAVATION PERMIT SERIOUS/FATAL INJURIES/ VEHICLE ACCIDENTS/ EQUIPMENT DAMAGE DAMAGE TO UNDERGROUND FACILITIES (i.e. BURIED CABLES PIPLENES, ETC.) WALL COLLAPSE LACK OF EGRESS OXGEN DEFICINCY HEAVY EQUIPMENT PLACED TOO CLOSE TO EDGE SPOIL PILES TOO CLOSE TO EDGE NO BARRICADING NO LIGHTS IMPROPER WALKWAYS OVER TRENCHES NO STANDBY MAN HIGH WATER TABLE	**1.** Work permits must be obtained from the appropriate operations supervisor before excavation work is started. **2.** A Confined Space Entry Work Permit is a second work permit and is required for trenches deeper than 1.2 meters (4 feet). **3.** Whenever the presence of underground pipes, cables, vessels, or structures is known or suspected, mechanical excavators shall not be used until all such obstructions have been exposed by hand digging. Mechanical excavators shall not be used within 3 meters (10 feet) of any such obstruction. Pneumatic breakers shall only be used where necessary to break concrete or other hard surfaces. **4.** All protective shoring systems and configurations, such as timber shoring, hydraulic and pneumatic systems, and sloping, benching, shielding, sheet piling and freezing must be designed in accordance with Loss Prevention requirements. **5.** Excavation plans must be submitted to Loss Prevention before work start up. **6.** As soon as an excavation reaches a depth of 1.2 meters (4 feet) or soil banks are greater than 1.5 meters (5 feet), suitable shoring shall be installed, or the sides sloped back to a safe angle. Shoring may be of timber or any other suitable material, such as steel sheet piling. **7.** Shoring systems shall be designed by a qualified person and meet accepted engineering requirements. **8.** All parts of an excavation, including the shoring, shall be inspected every day by a competent person to ensure that there is no danger of collapse and all observations shall be noted in the site safety logbook. **9.** In order to provide a safe footing at the edge, and to prevent spoil falling into an excavation, a clear space at least 0.6 meter (2 feet) wide shall be maintained on all sides. **10.** Men shall not be permitted to work underneath loads or in places where they could be struck by any part of a mechanical excavator. **11.** A close planked bridge or walkway with standard guardrails shall be provided and kept clear of excavated materials or other tripping hazards. **12.** Safe means of getting into and out of an excavation shall be provided at intervals not exceeding 7.5 meters (25 feet). Ladders shall be securely fixed. **13.** Where there is reason to suspect oxygen deficiency or the presence of a hazardous atmosphere

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
(CONT.,)		BUILD-UP OF TOXIC &/OR EXPLOSIVE GASES FALLS COLLAPSE OF EXISTING SURFACE STRUCTURES	in an excavation, gas tests must be carried out by a qualified person. Where necessary, mechanical ventilation shall be used, or other appropriate precautions shall be taken before men enter. **14.** Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may develop during work in an excavation. This equipment shall be attended by a standby man outside the trench when in use. **15.** Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, shall wear a harness with a lifeline attached to it. **16.** Where an internal combustion engine is used in an excavation, special precautions must be taken to ensure that exhaust gases are discharged so as not to be a hazard to men working in the excavation. **17.** the side of the excavation shall be sheet-piled, shored, and braced as necessary to resist the extra pressure due to placing or operating power shovels, derricks, trucks, materials, soil banks or other heavy objects on a level above and near an excavation, **18.** Portable trench boxes or sliding trench shields may be used for the protection of personnel in lieu of a shoring system or sloping. **19.** Trench boxes shall be designed, constructed, and maintained to provide protection equal to or greater than the sheeting or shoring required. **20.** Shields shall be installed in a manner to restrict lateral or other movement of the shield and be capable of withstanding any sudden application of lateral loads. **21.** Shields shall be extended above the excavation to protect employees working inside the shields and when entering or exiting the areas protected by shields. **22.** Employees shall not be allowed inside the shielded areas whenever shields are being installed, removed or moved (
6. NON-DESTRUCTIVE TESTING (X-RAY RADIATION PROTECTION) NON DESTRUCTIVE TESTING (X-RAY RADIATION PROTECTION (CONT.,)	ALL AREAS WHERE WELDING WILL TAKE PLACE	OVER-EXPOSURE TO IONIZING RADIATION INADEQUATE CONTROL &/OR STORAGE OF ISOTOPES LACK OF BARRICADES/ WARNNING LIGHTS/ WARNNING SIGNS UNCERTIFIED PERSONNEL	**1.** Personnel involved in performing non-destructive testing must be certified and hold a valid "Permit to Use Material/Equipment Producing Ionizing Radiation". **2.** Each radiographer will check at the beginning of each shift on the zeroing and recharging of dosimeters and on the condition of the equipment. **3.** A competent person familiar with all radiation use requirements will make field audits to ensure compliance with Company instructions and standards. He must report the results of these audits to the applicable department responsible for the operation. Also he must be familiar with all equipment and procedures so that the proper corrective action can be taken in any emergency situation involving radioactive equipment. **4.** At the start of each shift, radiographers must ensure that all equipment is in safe working order. The radiographer must also make sure that he is wearing a valid TLD or film badge and a direct-reading pocket dosimeter, which has been charged and zeroed. **5.** Radiation doses to workers shall always be kept as low as reasonably achievable. **6.** (ALARA). Under no circumstances shall the doses exceed limits for occupational or **7.** Non- occupational people. **8.** Equipment must be transported to the work site with safety locks in place. Under no

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
			circumstance is equipment to be transported in an unassembled or open condition. **9.** Transporting radiation sources to work locations requires a locked container located out of the passenger compartment. The vehicle shall have radiation signs on the front and rear. **10.** Upon completion of work or at the end of each work period, every sealed source must be returned to a storage area approved by the Radiation Protection Committee. **11.** Radiation readings must be taken at the perimeter of the storage area and the radiation level must be within the acceptable limits. **12.** Radiation signs must be fixed to the barriers of all storage areas. **13.** A log shall be maintained of radiation sources in storage, logged in or out, by source and responsible competent person in charge of source. **14.** Signs, flashing lights and barricades shall be installed during NDT activities on site
7. EXISITING PIPING PROTECTION	PROCESS AREAS	EXPLOSIONS/FIRES/HYDROCARBON SPILLS DAMAGE FROM EQUIPMENT &/OR PERSONNEL INJURIES FROM LACK OF PROPER WALKWAYS OR FALL PROTECTION EQUIPMENT	**1.** Before starting work, lower explosive limit shall be measured by competent person **2.** Gas test shall be done to ensure that no leakage. **3.** Hot work permit shall be issued and signed from concerned divisions **4.** All exhaust equipment shall be provided with flame arrestors to avoid spark and prevent fire to take place. **5.** Area shall be cleaned from any grease or oil. **6.** Escape routes shall be free from any objects. **7.** All electrical and mechanical equipment shall be grounded. **8.** over current protection devices shall be used to avoid electric short circuit to avoid fire hazards. **9.** Temporary walkways and access ways shall be provided to avoid falling hazards
8. OFF- SITE TRAVEL OFF- SITE TRAVEL (CONT.,)	TRAVEL AWAY FROM SITE OR CAMP	INJURIES/ILLNESS VEHICLE ACCIDENT VEHICLE FAILUR GETTING LOST NO LOGIN/LOG OUT SYSTEM NO SEARCH &RESCUE PROGRAM	**1.** Qualified personnel as drivers of motor vehicles shall be employed Operators of Company vehicles must receive defensive driving training and driver evaluations and be in possession of a current government driver's license. **2.** The driver of the vehicle is fully responsible and accountable for the mechanical and physical condition of the vehicle. He must report any damage, beyond normal wear and tear, immediately. **3.** The driver is responsible for transporting materials properly and ensuring that a load does not exceed the manufacturer's design load capacity. **4.** All loads must be properly secured and tied down. Materials shall not extend over the sides of the truck. Loads extending beyond the front or rear shall be marked with a red flag. Also, such loads must be equipped with visible brake and taillights at t heir rear end. **5.** Tires, which have breaks in the casing, or with exposed fabric, shall not be used. **6.** Drivers shall not transport unauthorized persons in Company vehicles. **7.** driver's supervisor shall authorize all passengers in the vehicle. **8.** The driver and all passengers of a Company vehicle shall always wear seat belts while the vehicle is in motion. **9.** Passengers shall not be transported in the rear of pickups or on truck beds. **10.** Drivers shall not transport more passengers than the number of seat belts provided in the vehicle.

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
			11. All drivers shall be familiar with what the Company considers unsafe driving practices and always avoid them. **12.** The driver must not exceed the posted speed limit. This is the maximum speed allowed in a certain area. Every driver is expected to reduce his vehicle's speed under hazardous weather or road conditions. **13.** Each driver shall become familiar with, and abide by, the Government Traffic Regulations **14.** Each driver is responsible to ensure his vehicle is safe to operate. **15.** Vehicle Inspection Checklist shall be followed by each driver before operating. **16.** All Drivers shall be conduct Driving Training courses **17.** In the event of serious injury, fire or hazardous roadblock caused by an accident emergency telephone number shall be used. For emergencies occurred **18.** All persons who drive in the desert shall study "Driving guide on safe driving tips and desert travel". It is recommended that the driver have a copy with him in the vehicle.
9. EMERGENCY RESPONSE/EVACUATION PLANS	ALL AREAS PROCESS AREAS FABRICATION YARD	LIVE SAFING KNOWLAGE NOT PUT INTO ACTION INADEQUATE EMRGENCY RESCUE PROCEDURES EMERGENCY RESPONS PROCEDURES NOT FOLLOWED EMPLOYEES NOT TRAINED IN EMERGENCY EVACUATION NO EMERGENCY ASSEMBLY AREAS INADEQUATE EMRGENCY RESCUE EQUIPMENT INADEQUATE EMRGENCY RESCUE TEAM TRAINING	**1.** All new commerce employees shall be inducted with emergency procedures in case of fire, oil leakage, radiation contamination…. etc. **2.** Warning signs about the emergency procedures shall be distributed in all areas on site. **3.** Evacuation alarm shall be heard to all personnel at any area on site. **4.** Drill shall be performed more than one time to train personnel how they can behave in case of any emergency. **5.** Lesson learned from drills shall be raised to top management and all site personnel to take in their considerations the negative points. **6.** Assembly points and escape routes shall be cleared to all personnel on site. **7.** All teams of emergency (rescue, fire, transportation) shall be trained together to be able to deal with the emergencies. **8.** Roles and responsibilities for each contractor employee shall be identified. **9.** All escape routes shall be free from any objects. **10.** All scenarios of emergencies shall be identified, and all personnel shall be trained about it during drills to avoid confusion in case of actual emergency. **11.** All employees shall be trained on emergency plan and shall be instructed to direct to assembly points in case of emergency. **12.** All operating equipment shall be shut down in case of announcing evacuation alarm
10. CHEMICAL HANDLING &STORAGE (INCLUDINGMATERIAL SAFETY DATA SHEETS [MSDS's]	ALL AREAS	NO MSDS's IMPROPER PPE CONTAINERS IMPROPERLY MARKED UNTRAINED PERSONNEL	**1.** Hazard Identification System shall be applied to identify the hazardous nature of a material is related to the way it is transported, stored or used; the materials with which it may come in contact; and how it is disposed of or recycled. **2.** When handling a volatile liquid, the maximum allowable concentration (MAC) of the vapor shall be known and not exceeded. Where exhaust ventilation is not available, good mechanical ventilation must be provided or the work must be done outdoors. **3.** If the concentration of the chemical in the air exceeds the threshold limit value (TLV) or MAC, then respiratory protective devices are needed. **4.** Proper handling methods for chemical shall be followed to avoid skin Hazards.

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
		IMPROPER DISPOSAL	**5.** In the case of materials, which act rapidly on the human body, such as corrosive chemicals (i.e., acids and caustics) is to provide a physical barrier in the form of goggles, face shields, hoods, gloves, aprons, suits, etc. **6.** Eyewash fountains and safety showers, which flush the material from the eyes or skin shall be provided. **7.** The type of personal protective equipment required depends on the hazardous characteristics of the chemical and the way it is used. **8.** Personal cleanliness is important. Thorough washing of the hands and face before meals, daily bathing, and a regular change of clothing will reduce harmful contact with chemicals. **9.** All employees shall know that the material is hazardous if swallowed, and that they must wash their hands free of harmful chemicals before smoking, drinking, or eating. Never store harmful chemicals in food containers or handle chemicals near food. **10.** Emergency Treatment system shall be applied including Artificial Respiration, First Aid and shower and Eyewash fountains. **11.** Hazardous materials must not be allowed to accumulate, and any extra amounts shall be cleared from the work area. Slop liquids or trash shall be cleared away immediately. **12.** All flammable materials shall be stored according to the specifications of their Chemical Hazard Bulletins, or Material Safety Data Sheets (MSDS). **13.** Smoking and the use of sparking devices near flammable liquids or finely divided combustible solids must be prohibited. **14.** The use of firefighting equipment, such as fire extinguishers or water streams, must be available in case all effective fire prevention measures fail to prevent a fire. **15.** During transportation, hazardous materials must be protected against shock, accidental mixing with other materials, damage to containers, undue heat from the sun or other sources, and theft, which could allow the hazardous materials to come into contact with people who are unaware of the dangers. **16.** Specific storage recommendations for hazardous materials contained in the site warehouse and manufacturer-provided Material Safety Data Sheets (MSDS) shall be followed. Incompatible chemicals shall not be stored together. **17.** A list of hazardous materials shall be kept indicating type and quantity of materials used in each case, its hazardous classification rating and the quantity disposed of. **18.** Hazardous materials must be stored in containers that are safe for the transportation and use of the material **19.** Containers must be labeled with the appropriate hazardous materials label to indicate the actual contents **20.** Waste management Program shall be applied to ensure proper disposal
11. TRAFFIC FLOW & ROAD CROSSINGS	ALL ROADS	SERIOUS /FATAL INJURIES FROM VEHICLE ACCIDENTS DAMAGED VEHICLES / PLANT EQUIPMENT ACCESS INTERFERENCE FOR EMERGENCY RESPONSE VEHICLES TRAFFIC CONGESTION	**1.** Site access and traffic plan shall be implemented

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
		OVERSIZE / OVERWEIGHT LOADS	
12. PERSONNEL PROTECTIVE EQUIPMENT (PPE)	ALL WORK LOCATIONS	INJURIES /ILLNESSES PERSONNEL NOT TRAINED ON PPE REQUIRED FOR JOB BEING PERFORMED EQUIPMENT NOT DESIGNED FOR JOB BEING PERFORMED SUBSTANDARD EQUIPMENT INADEQUATE SUPPLY OF REPLACEMENT EQUIPMENT	**1.** Approved And adequate Personal protective equipment must be used to eliminate the hazard. **2.** The proper type of equipment and shall be used and ensure that the supervisor instructs his employees in the use and care of that equipment, in accordance with the instructions provided by the manufacturer. **3.** Employees working in areas where there is danger of head injury from impact; from falling or flying objects; or from electrical shock and burns, shall be protected by protective helmets. **4.** His complete helmet shall be cleaned regularly with soap and water. Helmets shall be scrapped following any penetration, high impact, or subjection to extreme heat. **5.** A safety helmet shall be worn by all persons at all times when on a construction job site; in an operating plant area; or whenever there are overhead hazards **6.** Protection of the eyes and face from injury by physical or chemical agents or light radiation, is of prime importance in an industrial environment by using safety goggles and face shield. **7.** The kind of gloves used depends primarily upon the material or equipment being handled and can be resistant against one or more of the following: heat, acid, caustic, slipping, wear, fire, oil, sharp edges, general wear and tear, cold, etc. **8.** Gloves shall not be used near moving machinery as they can be caught and trap the hand before it can be withdrawn from the glove. **9.** Foot protection used must be manufactured to the referenced ANSI standard Z41-83 . Safety footwear is available in many styles, with special soles to resist oil, abrasion, heat, and other abuses to which the footwear may be subjected. Comfort is particularly important for the wearer, so safety footwear must fit properly. **10.** approved Ear plug/Muff shall be used at noisy areas to protect hearing from loss **11.** Full body harnesses are required when working in areas with no guard rails at heights above 1.82 meters (6 feet) or for potential falls of six feet or greater. Exceptions shall require the review and concurrence of the Loss Prevention Department. **12.** All personnel shall be trained on safe use and maintain PPE **13.** All Used PPE shall be Designed for job
13. CRANES &OTHER ELEVATING /LIFTING EQUIPMENT SLINGING / RIGGING HARDWARE A-FRAMES BOOM TRUCKS MANBASKETS CERTIFIED PERSONNEL (OPERATORS & RIGGES)	ALL AREAS PROCESS AREAS FABRICATION YARD ALL LOADING / OFFLOADING AREAS	SERIOUS/FATAL INJURIES MAJOR EQUIPMENT DAMAGE DEFECTIVE / INADEQUATE EQUIPMENT UNCERTIFIED EQUIPMENT UNCERTIFIED PERSONNEL LACK OF DAILY /MONTHLY INSPECTION PROGRAMS INADEQATE LIFT PLANS	**1.** Rigger Technician, Crane and Rigging Specialist Crane operator shall be competent. **2.** Before beginning any crane operation, the supervisor and operator shall complete the pre - operation checklist. **3.** Lifting plan shall be prepared and attached work permit before lifting operation. **4.** One competent person shall be placed in charge of the lift with the responsibility of explaining in detail, the duties of all involved in the lift before the actual lift commences. **5.** The outriggers of crane must be fully extended prior to the lift, and the rubber tires must be off the ground. **6.** Cranes shall have a valid Crane Safety inspection sticker. **7.** A valid SAG heavy equipment license and Crane Operator Certificate are required for all mobile crane operators. **8.** A special procedures for Heavy lifts, critical lifts, and crane personnel work platform operations shall be prepared

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
CRANES &OTHER ELEVATING /LIFTING EQUIPMENT SLINGING / RIGGING HARDWARE A-FRAMES BOOM TRUCKS MANBASKETS CERTIFIED PERSONNEL (OPERATORS & RIGGES) (CONT.,)		UNSTABLE CRANE IMPROPER GROUND COMPACTION	**9.** When wind velocities are above 32 km/h (20 mph), the work shall be stopped. Wind forces are greater at height by as much as 35% or more. All lifts above ground level, must account for wind force, i.e., side loads, down drafts, etc. as applied to the load and boom. **10.** It is strictly forbidden to move any crane boom or load line or load into power lines area unless the line has been de-energized or insulated. **11.** lifting zone shall be barricaded by warning taps and warning signs to prevent unauthorized personnel from entering lifting zone. **12.** pre-lift operation checklist shall be done before each lift. **13.** Slings and other rigging equipment must be constructed according to a recognized standard. the load shall never be exceeding the Save working load. **14.** Before use, all new equipment shall be subjected to a proof load test by the manufacturer and certified. **15.** Safe working load and serial number shall be clearly marked on the sling and the lifting gear, either by tagging, stamping, engraving, or embossing. Riggers shall not use lifting gear unless the safe working load is clearly visible. **16.** All rigging shall be inspected at least every six months, and a Sling Inspection Report shall be completed and filed for review by the Crane Inspector. **17.** Hooks shall be fitted with a safety catch on the hook opening or shall be moused with wire and a shackle used or the hook shall be designed so that the slings cannot be displaced. **18.** Hooks shall be regularly inspected for signs of damage. **19.** All spreader bars shall be manufactured, tested, and inspected. **20.** Spreader bars shall be permanently identified with the safe working load, manufacturer's name and serial number. **21.** Shackles (clevis) are used for making connections in rigging. They shall be tested by the manufacturer and marked with the safe working load. **22.** The job of rigger requires Company certification. **23.** the Land shall be properly compacted before lifting operation
14. HOT TAPPING	PIPE TIE-INS TO IN SERVICE LINES TANKS, OR VESSELS	SERIOUS/FATAL INJURIES EXPLOSION &/OR FIRE EQUIPMENT/PROPERTY DAMAGE HOT TAP CHECKLIST NOT USED / SIGNED	**1.** Hot work permit shall be issued and signed from concerned divisions. **2.** Supervisor from operation shall be witness. **3.** Fire watcher with valid fire extinguisher shall be available. **4.** The area shall be tapped with warning phosphoric tape. **5.** Unauthorized personnel shall not be allowed to enter the taped area. **6.** All escape routes shall be free from any objects. **7.** All hot tapping procedures shall be followed. **8.** Checklist of hot tapping shall be signed from concerned divisions
15. CONFINED SPACES	PIPING VESSELS EXCAVATIONS TANKS	SERIOUS /FATAL INJURIES PERSONNEL NOT TRAINED IN CONFINED SPACE PROCEDURES NO STAND-BY MAN NO SIGN-IN/SIGN-OUT SHEET	**1.** Before work may be undertaken in a confined space, a confined space entry permit and an appropriate work permit must be issued. **2.** Before allowing personnel to enter a confined space, it must be positively isolated by methods such as spool removal, blanking and blinding. **3.** All sources of energy affecting the confined space e.g., power driven equipment such as agitators, nucleonic sources etc. must be isolated and tested as de energized in accordance with Lockout/Tag out Procedure and secured so as to prevent any accidental free movement. **4.** . Residual materials inside must be removed by drainage, pumping off or flotation. Depending

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
CONFINED SPACES (CONT.,)	LOW LYING RAEAS MANHOLES SEWERS BULDINGS	NO LOCKOUT/TAG OUT PROCEDURE EXPLOSION &/OR FIRE OXYGEN DEFICIENCY COMBUSTIBLE ATMOSPHERE CHEMICAL EXPOSURE HEAT STRESS CAVE-INS INADEQUATE EMERGENCY RESCUE EQUIPMENT 7 PROCEDURES 12 VOLT LIGHTING SYSTEM NOT USED	on the degree of contamination, it shall then be thoroughly cleaned by hot/cold water flushing, steaming, chemical neutralization, and inert gas and/or air purging. **5.** Gas testing for entry shall only be carried out by approved persons who have been fully trained in gas testing for confined space entry purposes. **6.** Gas testing shall be repeated whenever the confined space is vacated for a work break and at the start of every shift. **5.** Stand by man shall be provided on manhole in case of executing work inside confined space entry. **6.** Stand by man shall tie-in the worker inside confined space entry with life rope. **7.** Stand by man shall communicate with worker inside confined space regularly to be ensure that employee is good and in case of emergency he shall inform all entrants. **8.** Stand by man shall be responsible for registration the names of entrants and time on/off from confined space. **7.** If the depth of excavation is more than 2 meters, the excavation is considered as confined space and stand by man shall be provided and he shall be responsible for assistance in measuring (carbon monoxide, lower explosive limit and hydrogen Sulfide concentration) **8.** No entry even with Breathing apparatus (BA) if oxygen levels are<19% **9.** No entry if oxygen levels >22.5% **10.** Oxygen cylinders to be kept outside the confined space if possible. **11.** Oxygen cylinders and hoses to be removed from the confined space during break. **12.** Where BA is required as a condition of entry, 2 persons must work on a “buddy” system. **13.** An entry attendant who has been trained in rescue and who is equipped with rescue BA and resuscitation equipment must be present outside the entrance in constant communication with the persons inside and the local emergency response team. **14.** Tanks, vessels or other confined spaces having manholes in the side as well as in the top must be entered from the side. An approved safety belt with a lifeline must be used. **15.** Unless properly ventilated, no sources of ignition to be introduced where flammable gas is or has been present. **16.** The Performing Authority shall ensure that everyone who is to enter the confined space is aware of the hazards, precautions and emergency response arrangements that have been put in place through this Procedure and the Work Permits. **17.** A through check must be made by the Area Authority to ensure that no personnel, tools or equipment have been left behind after job completed. **18.** The isolation devices must be removed in accordance with the requirements specified in the Process Isolation Procedure after Job completed **19.** The Entry Permit and other work permit shall be cleared and cancelled in accordance with the requirements specified in the Permit to Work Procedure after job completed **20.** As part of the entry planning process, arrangements shall be made to ensure persons inside a confined space could be rescued in an emergency. Those arrangements include:- 1. Entry attendant wearing BA 2. Resuscitation equipment available at the entrance with a trained person to use it 3. Effective communications with the entry team and the emergency response team 4. Harnesses and lifelines – note that it requires a winch to vertically hoist an average person

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
			from a space below. **21.** personnel likely to be involved in confined space entry - entrants, attendants, rescue team members, gas testers, Area Authorities – must have received suitable training to ensure they possess the understanding, knowledge, and skills to perform their assigned duties **22.** No one shall enter confined space with showing proof of certification of Enppi confined space training
16. LAYDOWN /FABRICATION YARD MATERIALS HANDLING WAREHOUSE	OFF-SITE & ON-SITE	SERIOUS INJURIES/FIRES/EMERGENCY RESPONSE/TRAFFIC FLOW/EQUIPMENT DAMAGE/DESTRUCTION OF RECORDS UNORGANIZED/POORLY MAINTAINED WAREHOUSE UNCERTIFIED HEAVY EQUIPMENT OPERATORS IMPROPER ACCESS TO STORED MATERIALS OVERLOADED STORAGE SHELVES IMPROPERLY MAINTAINED EQUIPMENT FORKLIFT USED AS CRANE UNCERTIFIED BOOM TRUCK OPERATORS UNCERTIFIED BOOM TRUCKS CERTIFIED RIGGER NOT USED WITH LOADING/UNLOADING BOOM TRUCKS	**1.** Selection of the storage area shall be made with due consideration for drainage and protection from rain and sandstorms **2.** Open storage areas shall be planned to minimize the reversing and maneuvering of trucks especially into and out of confined areas. **3.** Access ways must be wide enough to allow for the passage of fire trucks. Fire fighting equipment shall be located throughout the area **4.** Cribbing timber, racks, or pallets shall be used to ensure that all materials are stored off the ground. **5.** Protection shall be provided for materials such as cement, in solution, and other bulk material, which could be damaged by moisture. **6.** All machinery, equipment, and valves shall be maintained fully assembled and securely closed. All machined surfaces must be covered and fully protected from exposure to the weather. **7.** The quantity of material on site at any one time must be restricted to a minimum stock. **8.** Flammable stores shall be kept separated **9.** A materials controller responsible for materials from the planning stage through to the final unloading, storage, and distribution stage. **10.** All Equipment used for material transportation shall be inspected and well maintained **11.** All Equipment operators shall be certified and have a license **12.** For small or valuable materials which cannot be conveniently stored in outside areas, it is essential that an indoor stores shed, under the control of a responsible person, be established on site **13.** The issuing and receiving of stores must be under the control of a responsible person. **14.** Adequate fire fighting equipment must be readily available in the area. **15.** Materials shall be stored on shelving or with small items such as nuts and bolts, etc. in bins suitably marked with the contents. **16.** The safe loads allowed on racks and the maximum stack heights shall be established **17.** All hazardous material, such as paints, fuels, chemicals, etc., shall be separated and stored in an isolated flammable storage area. Notices warning of the dangers associated with these materials s shall be posted in the hazard area. **18.** Workers shall be trained in the correct methods of manual handling. **19.** Loading /Unloading equipment shall be calibrated and certified **20.** All rigger shall be trained and certified **21.** Proper access to higher levels of shelves shall be provided **22.** lighter loads shall be stored on the higher shelves to ensure the stability of shelves .
17. ELECTRICAL	OVERHEAD & BELOW GROUND	SERIOUS/FATAL INJURIES	**1.** Qualified, experienced electricians must carry out all installation work. **2.** A competent person must be made directly responsible for the overall safety of the

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
ELECTRICAL (CONT.,)	ELECTRICAL HAND TOOLS BUILDINGS-OFFICE SITE(S), SHOP AREAS, FABRICATION YARDS ALL SPARK PRODUCING EQUIPMENTS ALL AREAS PROCESS AREAS	EQUIPMENT DAMAGE CORD &/ OR PLUG DAMAGE GFCI REQUIREMENTS NOT FOLLOWED MONTHLY COLOR COD INSPECTION PROGRAM ELECTRICAL REPAIRS PERFORMED BY UNQUALIFIED PERSONNEL CABLE SPLICERS NOT CERTIFIED LOCKOUT/LAYOUT SYSTEM NOT IN USE MECHANICAL & /OR SPARK PRODUCING EQUIPMENT IN ELECTRICALLY CLASSIFIED ZONES DAMAGE TO BURIED CABLES 220 VOLT PORTABLE TOOLS MAJOR PLANT UPSET	installation. Its general usage, its maintenance, and any alterations and extensions to the system shall be under his control. **3.** All electrically operated tools shall be rated and used at a voltage not exceeding 125V. The use of 220V is prohibited. **4.** Defective extension lights and electric hand tools shall be repaired or replaced. **5.** Portable electric tools, extension lights and cords shall be inspected each time they are issued and returned. **6.** Portable hand lamps shall comply with the following: (A) Metal shell, paper-lined lamp holders shall not be used. (B) Hand lamps s hall be equipped with insulated handle. (C) Substantial lamp guard shall be attached to the handle or holder. Metallic lamp guards shall be grounded. Three-wire power cords with grounding conductor shall be used. **7.** Before any portable tool or extension, light is plugged in, the voltage required for the tool or light must be the same, as the power source, and the plugs must be checked for damage. **8.** All non-current carrying metal parts of any electrical equipment must be properly grounded. This will reduce the electrical shock hazard. **9.** In hazardous areas, more rules that are stringent apply as to the type of equipment, which may be used. Explosion proof light fittings for extension lights are one example. **10.** As with all work carried out on Company installations, Work Permits must be obtained and the type of equipment to be used discussed and agreed upon before the permit is issued. **11.** All extension lights must be fitted with protective guards **12.** Up to a 120 volt maximum rated AC portable lighting system may be used for illuminating inside confined spaces and vessels, provided it is protected by an externally located ground fault circuit interrupter **13.** Ground fault circuit interrupters shall be used on all electrical circuits including portable power electrical supplies **14.** Whenever workers are required to work on energized equipment, the job must be planned thoroughly and the workers shall proceed with caution. **15.** Before any work on live equipment starts, there must be a thorough knowledge of the work involved, personal protective equipment must be available, and all necessary work permits must be obtained. **16.** Employees must never work alone on live equipment. In addition to the man doing the job, there must be another electrician standing by. **17.** Work platforms and equipment used near energized equipment shall be properly grounded. **18.** Contact shall be made with the Electrical department at the planning stage of the job to determine the work permit requirements, route and depth of any underground cables and the recommended safe clearances. If re -routing existing cables is necessary, this shall be done before the main contract starts.

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
ELECTRICAL (CONT.,)			**19.** Underground cables, exposed during excavation work shall be assumed to be energized and not repositioned or moved until certified to be de-energized. Exposed buried cables in open trenches shall be properly supported and the area barricaded. **20.** When multiple cables exist in an excavation, the cable to be worked on shall be identified by electrical means. **21.** provide training for employees to be knowledgeable and proficient in the following: a Procedures involving emergency situations; b First-aid fundamentals including cardiopulmonary resuscitation; and c Remote field crews shall have an employee certified in First Aid. **22.** When working at night, spotlights or portable lights for emergency lighting shall be provided as needed to perform the work safely. **23.** When crews are engaged in work over or near water and when danger of drowning exists, suitable protection such as buoyant work vests shall be worn. Life rings, ropes and at least one skiff shall be provided. **24.** Equipment to be worked on when it is deenergized shall be isolated from the system and tested for voltage using test equipment rated for the system, and be grounded. **25.** Grounding cables and clamps shall be capable of conducting the anticipated fault current and shall have a minimum size of No. 2 AWG standard copper. **26.** Prior to climbing poles, ladders, scaffolds, or other elevated structures, an inspection shall be made to determine that the structures are capable of sustaining the additional or unbalanced stresses to which they will be subjected. **27.** Designated employees shall perform work on or adjacent to energized control panels. Precaution shall be taken to prevent accidental operation of relays or other protective devices due to jarring, vibration, or improper wiring. **28.** Apply lock out and tag out system.
18. PRESSURE TESTING	ALL NEW PIPING OTHER AREAS WHERE REQUIRED	SERIOUS/FATAL INJURIES FROM PIPE RUPTURE &/ OR HIGH PRESSURE WATER BLAST HAZARDOUS WASTE TESTING FLUIDS NO DISTANCE BARRICADES NO WARNING SIGNS NO PRELIMINARY WALKTHROUGH IMPROPER DISPOSAL OF TEST	**1.** Written procedures approved prior to testing shall be followed **2.** A work permit shall be issued prior to commencement of hydrostatic test operations. **3.** Piping, vessels, supports and foundations designed for gas service shall not be overloaded by the extra weight of the test liquid. Temporary supports and braces may be required. **4.** Hazardous gases or vapors must be vented clear of any area where personnel are working or where there is any possible source of ignition. **5.** Pressure relief valve(s) shall be used to prevent over pressuring of the equipment. **6.** Valves must isolate any ancillary equipment not under test. **7.** Only calibrated test gauges shall be used and they shall be mounted in the upright position. Pump discharge gauges must be visible to the pump operator for the duration of the test. **8.** The equipment / vessel shall have adequate vacuum relief capacity to avoid

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
		FLUIDS NO TRAFFIC CONTROL	damage or collapse, when draining the test liquid. **9.** Lines shall be drained and dried mechanically when the test liquid is corrosive or otherwise hazardous. **10.** A system under test shall be depressurized (with the exception of pressure due to a liquid head) before any work is done to stop leaks or repair weakness, including the tightening of bolts. **11.** A block valve is required on the line from the test pump to the equipment under test. **12.** Air shall not be used to displace test fluid from underwater equipment unless it has been determined that the equipment will not float. **13.** Warning signs and preliminary walkthrough shall be involved at site area. **14.** Distance barricades must be at work area. **15.** The traffic shall be controlled through prepared the traffic plan.
19. TEMPORARY OFFICES	ALL OFFICES ON SITE	LOCATION &/ OR MATERIALS DO NOT COMPLY WITH SAES-B-014 DOES NOT MEET ELECTRICAL STANDARDS EMERGENCY LIGHTING/EXIT SIGNS NOT FUNCTIONING/NOT INSPECTED MONTHLY DOES NOT MEET FIRE CODE STANDARDS DOES NOT MEET SANITARY CODE REQUIREMENTS	**1.** All offices shall be designed up wind to flammable and toxic warehouse to avoid f **2.** All electrical cables shall be in a good conditions and applicable with standard **3.** All plugs shall be in s good condition and applicable with standard **4.** Lighting shall be adequate **5.** Escape routes shall be clear and free from any objects **6.** Emergency drill shall be activated many times to train all personnel on scenarios of emergencies **7.** Housekeeping shall be done regular **8.** housekeeping crew and equipment shall be available **9.** All offices shall be connected with sanitary system applicable with environmental code and standards **10.** LPG cylinders which used in buffet shall not be allowed in temporary offices and electrical heater can be used as alternative **11.** All workers in buffet shall be provided with hygienic healthy certificate
20. WELDING & CUTTING	PIPING , SLEEPERS, SKIDS , (WHERE WORK PERMIT PROVIDES) ALL AREAS PROCESS AREAS FABRICATION YARD	SERIOUS / FATAL INJURIES PROPERTY DAMAGE FROM FIRE AND /OR EXPLOSION PROCESS AREA DRAINS NOT COVERED WORK AREA NOT WATERED DOWN MONTHLY COLOR CODE INSPECTION PROGRAM	**1.** Personnel working with welding equipment shall be trained, competent, and provided with personal protection equipment. Welding goggles, helmets, screens, forced ventilation and similar equipment shall be provided to all workers and to trainees in the immediate area. **2.** Oxygen cylinders or apparatus shall not be handled with oily hands or gloves. A jet of oxygen must never be permitted to strike an oily surface, greasy clothes or enter fuel, oil or other storage tanks. **3.** Acetylene cylinders shall be stored, handled, and used in the vertical position to prevent the liquid acetone from escaping and damaging the valves and other equipment. **4.** Regulated Acetylene pressures must never be allowed to exceed 103 (15 psig) or it may explode. **5.** All compressed gas cylinders shall be marked by a color code. **6.** Cylinders shall be stored in a safe, dry, well-ventilated place prepared and reserved for

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
WELDING & CUTTING (CONT.,)		UNSHELTERED OXYGEN / ACETYLENE STORAGE OXYGEN / ACETYLENE BOTTLES NOT SEGREGATED NO FLASH ARRESTORS AT GAUGES DAMAGED REGULATOR GAUGES IMPROPER REGULATOR PRESSURES NO FIRE EXTINGUISHERS UNGROUNDED WELDING MACHINE DAMAGE WELDING LEADS IMPROPER PPE NO TRAINED FIRE WATCH FIRE BLANKET NOT USED LACK OF WELDING SCREENS COMBUSTIBLE MATERIALS USED FOR WELDING INADEQUATE VENTILATION REFUELING OF WELDING MACHINES TRANSPORTATION OF COMPRESSED GAS CYLINDERS	that purpose. **7.** Flammable substances such as oil and volatile liquids or corrosive substances shall not be stored in the same area. **8.** Oxygen cylinders and flammable gas cylinders shall be stored separately, at leas t 6.6 meters (20 feet) apart or separated by a fire proof, 1.6 meters (5 feet) high partition. **9.** All storage areas shall have Arabic and English "No Smoking Permitted" signs prominently displayed. **10.** All cylinders shall be chained or otherwise secured in an upright position. **11.** Valve caps shall be kept in place when cylinders are not in use. **12.** Flammable substances shall not be stored within 50 feet of cylinder storage areas. **13.** Cylinders shall not be stored at temperatures exceeding 54oC (130oF). Accordingly, they shall not be stored near sources of heat such as radiators, furnaces, or near highly flammable substances like gasoline. **14.** Cylinders shall be stored out of the direct rays of the sun, in protective enclosures or sun shelters. **15.** Empty and full cylinders must be stored separately with empty cylinders plainly marked as such, to avoid confusion. Empty cylinders shall be segregated according to the type of gas they have held. **16.** Their valves shall never lift cylinders since the valves are not designed to take such stress. **17.** All valves must be fully closed before a cylinder is moved. Unless a trolley or special carrier is used, regulators and hoses shall be detached from the cylinders, for moving. **18.** All equipment shall be examined immediately before use and regularly maintained. All welding operations shall be conducted in well-ventilated areas. **19.** Gas Leak test shall be done for compressed gas cylinders by only soapy water. **20.** Hoses shall be used for one type of gas only and color-coded for identification. They shall be examined before use for any signs of splitting which might give rise to leakage. Clips or crimps shall make all connections. The hoses used for acetylene and for oxygen shall not be interchangeable. **21.** Connections and check valves shall be regularly examined. **22.** An acetylene cylinder valve wrench shall be available at all times for the cylinder in use. **23.** Means of torch ignition shall be readily available. A friction lighter shall be used for this purpose. **24.** All Hoses shall be connected with Flash back arrestors attached at the gauges . **25.** Fuel gas and oxygen manifolds shall bear the name of the substance they contain in English and Arabic letters at least 1-inch high which shall be painted either on the manifold or on a sign permanently attached to it. **26.** Fuel gas and oxygen manifolds shall be placed in safe, well ventilated, and accessible locations. They shall not be located within enclosed spaces. **27.** All electric Welding Machines shall be inspected periodically and stocked by inspection

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
WELDING & CUTTING (CONT.,)			card. **28.** Maintain welding and ground cables and connections in good condition **29.** All combustible material shall be removed from the work area to avoid fire during welding. **30.** Operators of arc welding equipment must always switch off the current to the electrode holder and remove the electrode whenever it is to be set down and is not actually in use. **31.** When welding or cutting material that is supported by a crane, a shield or an effective screen shall be provided to protect the suspension ropes or chains. Grounding cables shall only be connected to the work, not to the crane or rigging. **32.** Forced ventilation shall be arranged wherever work is to be carried out in a confined area. **33.** Electric welding operations must be effectively screened to prevent nearby personnel from being affected by harmful radiation. Screens shall be made from fire resistant materials or shall be suitably treated with a fire resistant compound. Screens shall be designed and placed so as not to restrict the flow of air for ventilation purposes. **34.** Careful tests shall be made to establish that the tank, vessel or drum is free from explosive flammable vapors or substances before welding.
21. EATING FACILITIES	ALL AREAS	INADEQUATE FACILITIES POOR HOUSEKEEPING LACK OF PEST CONTROL PEOPLE EATING AT WORK SITE IMPROPER FOOD PREPARATION INGESTION OF CHEMICALS DUE TO INADEQUATE HYGIENE FACILITIES IMPROPER TRASH RECEPTACLES & TRASH REMOVAL	**1.** All cafeterias, restaurants, mess facilities, and related facilities on areas, projects, or installations shall be established, operated, and maintained in compliance with Company sanitary code . **2.** All food service operations shall be carried out in a sound manner. Food shall be free from spoilage and kept uncontaminated throughout the storage, preparation, and serving process. **3.** No food or beverage shall be consumed or stored in a toilet room or in any area exposed to a toxic material. **4.** An adequate number of waste receptacles shall be provided in the food service area. **5.** Receptacles shall be constructed of corrosion resistant or disposable material, provided with solid tight-fitting covers (covers may be omitted where sanitary conditions can be maintained without the use of a cover), emptied at least daily, and maintained in a sanitary condition. **6.** Solid and liquid waste shall be removed in a way that avoids creating a menace to health and as often as necessary to maintain a sanitary environment. **7.** Enclosed places shall be constructed and maintained, as far as practical, to prevent the entrance or harborage of rodents, insects, and other vermin. An effective extermination program shall be instituted where the presence of such vermin is detected. **8.** Proper washing facilities shall be provided for employees
22. FIRST AID FACILITIES	ALL WORK LOCATIONS	INJURY /ILLNESS TO PERSONNEL MEDICAL PERSONNEL DO NOT MEET SAG OR COMPANY CERTIFICATION REQUIREMENTS	**1.** The first aid facility shall be kept in a sanitary condition at all times , and have the minimum requirement which is a telephone; desk; hot and cold water; wash basin; examining table; air conditioning; adequate lighting; and dust tight medical supply cabinet. **2.** First aid supplies shall be kept readily available in a cabinet designated for those supplies only. **3.** This cabinet shall be placed under the charge of a first aid attendant, who shall ensure the

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
FIRST AID FACILITIES (CONT.,)		LACK OF EMERGENCY RESPONSE PROCEDURES INADEQUATE EMERGENCY TRANSPORTATION CLINIC DOESN'T MEET SAG OR COMPANY REQUIREMENTS AMBULANCE DOES NOT MEET SAG OR COMPANY REQUIREMENTS	cabinet is well stocked at all times. **4.** A suitable type of stretcher must be available on all sites. **5.** During working on pipeline, vehicles shall be equipped with a well-stocked first aid kit for each crew, and that at least one man in every crew is trained in first aid. The vehicle shall be marked to indicate that it carries a first aid kit. **6.** A site register shall be maintained by all contractors listing all injuries treated. **7.** When more than 50 persons are employed within a radius of 15 kilometers, first aid facilities run by a nurse familiar with first aid cardiopulmonary resuscitation (CPR) requirements and exclusively assigned to medical duties. **8.** An emergency vehicle (ambulance) properly supplied and marked, to transport injured personnel to the nearest designated health care facility. **9.** Each ambulance shall be equipped, as a minimum, with the following supplies: ☐ Stretcher and blankets ☐ Portable oxygen ☐ Splints for bone fractures ☐ Bandages/rubber tourniquet ☐ Sterile wash water **10.** The employer shall assign one or more persons to be responsible for administering first aid to the injured at all times during working hours, provided that the person-in-charge shall be one of the establishment's employees who will either be trained in first-aid procedures **11.** First Aid Room shall meets the following standards: (a) It shall meet all sanitary specifications. (b) It shall be conveniently located and readily accessible to injured persons and stretcher-bearers. (c) Where quick means of transporting for the injured are not available, the said room shall not be more than 300 meters from the farthest work site. (d) An adequate number of stretchers shall be available for moving the injured to the first aid room. (e) First aid materials and supplies shall be no less than those specified under (f) A licensed nurse shall be on duty at all times during working hours under the supervision of a physician. **12.** The first aid cabinet shall be of hard wood or sheet metal, measuring 85 cm. in length, 45 cm. in width, and 30 cm. in depth **13.** Emergency Response procedure shall be established **14.** A Government nurse and doctor to be availed at the site clinic
23. HEAVY EQUIPMENT	ALL AREAS	UNCERTIFIED OPERATORS EQUIPMENT NOT PROPERLY MAINTAINED	**1.** All Heavy Equipment operator shall be certified and have SAG license **2.** Inspection & Maintenance program shall be prepared and applied for all heave equipment **3.** All Equipment shall have Back reverse Alarm **4.** Mechanical equipment such as cranes and bulldozers shall be equipped with wire mesh guards over windows and with solid protection over the driving position so that there is no danger of

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
HEAVY EQUIPMENT (CONT.,)		NO BACK –UP ALARMS SPOTTERS/FLAGMEN NOT PROPERLY TRAINED OF AVAILABLE SPOTTERS/FLAGMEN NOT WEARING FLUORESCENT VESTS	the operator being struck by flying debris. **5.** Spotters/flagmen shall be properly trained **6.** Potters/flagmen shall wear fluorescent Vests **7.** Daily Inspection shall be performed prior to operate by operators **8.** Prepare adequate and safe traffic plan **9.** avail safe parking area **10.** Follow site speed limit **11.** Passenger not exceed the designed no of equipment **12.** check fire fighting Equipment (Fire Extinguishers)
24. SCAFFOLDING	ALL AREAS	SERIOUS /FATAL INJURIES STRUCTURE COLLAPSE EQUIPMENT / PROPERTY DAMAGE IMPROPER FALL PROTECTION IMPROPER SPACING INADEQUATE FOUNDATIONS UNCERTIFIED & /OR INADEQUATE NUMBER OF SCAFFOLD SUPERVISORS / INSPECTORS UNQUALIFIED SCAFFOLD ERECTION CREWS SCAFFOLD DRAWINGS NOT SUBMITTED FOR SPECIAL SCAFFOLDS SCAFFOLDS NOT PROPERLY TAGGED BEFORE USE UNAUTHORIZED ALTERNATION OF SCAFFOLD TAGS	**1.** All scaffold structures shall be erected with metal component and approved by Company . **2.** Scaffolds shall be stored to prevent damage and to permit easy access for use. **3.** Scaffold erection plans (drawings) shall be submitted to Loss Prevention Department for review prior to men being allowed to work on the scaffold. **4.** Aluminum tubing shall not be used where there is likelihood of contact with materials harmful to aluminum such as caustic liquids, damp lime, wet cement and sea water. **5.** All fittings (couplers, clamps, etc.) shall be of a metal type approved to ANSI or equivalent requirements. They shall be examined regularly and care must be taken to ensure that moving parts are sound and well lubricated and that threads are not stripped. **6.** Planks shall not be painted or treated in any way that would conceal defects. **7.** Planks which are split, decayed or warped shall not be used, but the parts affected may be cut off to produce shorter planks with the ends banded o r bolted through. **8.** Planks shall be stacked on a suitable foundation. Where the height of a stack exceeds 20 planks, measures shall be taken to tie or bond succeeding layers. **9.** Scaffold planks shall not be used for shuttering for concrete, shoring for trenches, or as sills for scaffolding. Planks shall be inspected for defects, including decay, prior to each use. **10.** The design working load of each platform unit (i.e., plank) shall be capable of supporting without failure one or more 91 kg (200 lb) person with 22.7 kg (50 lb.) of equipment. **11.** Platform units rated for one person capacity shall be designed and constructed to carry 113.6 kg (250 lb.) at the center of the span. **12.** Platform units rated for two persons shall be designed and constructed to carry a working load of 227 kg (500 lb.) : 113.6 kg (250 lb.) placed at0.46 meters (18 inches) to the left and right of the center of the span. **13.** Platform units rated for three persons shall designed and constructed to carry a working load of 341 kg (750 lb.) : 113.6 kg (250 lb.) placed at 0.46 meters (18 inches) to the left and right of the center of the span, and at the center of the span. **14.** Each platform, where applicable, shall be designed and constructed to carry a uniformly distributed load. Uniformly distributed loads and person loading are not cumulative and the most restrictive loading shall be used for platform design. **15.** Scaffolds requiring 50 pounds per square foot or greater shall be designed as a special scaffolds and shall follow all special scaffolds requirements . **16.** The ground or floor on which a scaffold is going to stand must be carefully examined . **17.** Where scaffolding is erected on a solid bearing such as rock or concrete, small timber pads may be used in place of sills and nailed to prevent the base plates sliding off.

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
SCAFFOLDING (CONT.,)			**18.** Concrete blocks, barrels, and other loose or unsuitable material shall not be used for the construction or support of scaffolding. **19.** The base plate shall be of a type approved for supporting scaffolding posts. (See manufacturer's specifications.) **20.** Scaffold erection crew shall be qualified. **21.** Apply scaff tag system. **22.** Prepare safe storage yard for scaffolding materials. **23.** Scaffold crew shall equipped with PPE specially fall protection equipment during erection and dismantling. **24.** Improve house keeping at scaffold plat form. **25.** Scaffold supervisors and inspectors shall be Company certified .
25. Drinking water/toilet facilities / washing facilities Drinking water/toilet	All work locations	EMPLOYEE HEALTH DISEASES WATER NOT REPLENISHED ON REGULAR BASIS UNSANITARY WATER CANS SHARED DRINKING CUPS OR NO CUPS AVAILABLE IMPROPER DISPOSAL OF USED DRINKING CUPS NO HAND WASHING FACILITIES NOT ENOUGH TOILETS TOILETS NOT CLEANED /SANITIZED TOILETS NOT REPAIRED / MAINTAINED	**1.** An adequate supply of drinking water shall be provided in all places of employment. Cool water shall be provided during hot weather. **2.** Drinking water shall has no objectionable tastes or odors and meet all water quality requirements as defined in Company sanitary code (table. 9) . **3.** Tanks and Containers which shall used for conveyance of potable water for drinking or domestic uses shall meet Company sanitary code requirements SASC- S- 01 item 12 concerning transportation of potable water . **4.** Only approved potable water systems shall be used for the distribution of drinking water. Drinking water shall be dispensed by means that prevent contamination between the consumer and source. **5.** Portable drinking water dispensers shall be designed constructed, and serviced to ensure sanitary conditions, shall be capable of being closed, and shall have a tap. Containers shall be clearly marked as to their contents and shall not be used for other purposes. Water shall not be dipped from containers. **6.** Use of a common cup (a cup shared by more than one worker) is prohibited without the cup being sanitized between uses. Employees shall use cups when drinking from portable water coolers/containers. Unused disposable cups shall be kept in sanitary containers and a waste receptacle shall be provided for used cups. **7.** Outlets dispensing nonportable water will be conspicuously posted “CAUTION - WATER UNFIT FOR DRINKING, WASHING, OR COOKING.” **8.** Cross-connection - open or potential - between a system furnishing potable water and a system furnishing nonportable **9.** When sanitary sewers are not available, one of the following facilities shall be provided: chemical toilets; recalculating toilets; combustion toilets, or other toilet systems as approved by Company . **10.** Each toilet facility shall be equipped with a toilet seat and toilet seat cover; each toilet facility - except those specifically designed and designated for females - shall be equipped with a metal, plastic, or porcelain urinal trough. **11.** Toilet facilities shall be so constructed that the occupants shall be protected against weather and falling objects; all cracks shall be sealed and the door shall be tight fitting, self-closing, and capable of being latched. **12.** Adequate ventilation shall be provided and all windows and vents screened; seat boxes shall

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
facilities / washing facilities (CONT.,)			be vented to the outside (minimum vent size 10 cm (4 in) inside diameter) with vent intake located 2.5 cm (1 in) below the seat. **13.** Toilet facilities shall be constructed so that the interior is lighted. **14.** Provisions for routinely servicing and cleaning all toilets and disposing of the sewage shall be established before placing toilet facilities into operation: the method of sewage disposal and location selected shall be in accordance with Federal, State, and local health regulations. **15.** Washing facilities shall be provided as needed to maintain healthful and sanitary conditions. Washing facilities for persons engaged in the application of paints, coatings, herbicides, insecticides, or other operations where contaminants may be harmful shall be at or near the work site and shall be adequate for removal of the harmful substance. **16.** Whenever employees are required by a particular standard to shower, showers shall be provided in accordance with the following: **a.** one shower shall be provided for every ten employees **b.** body soap or other appropriate cleansing agent convenient to the shower shall be provided; **c.** showers shall have hot and cold running water feeding a common discharge line; and **d.** Employees using showers shall be provided with individual clean towels. **17.** Whenever employees are required by a particular standard to wear protective clothing, change rooms with storage facilities for street clothes and separate storage facilities for protective clothing shall be provided. **18.** One toilet / 15 people shall be provided on the construction site **19.** Portable toilet shall be kept clean , sanitized , repaired and drained at all times
26. RESPIRATORY PROTECTION	ALL AREAS	HEALTH ISSUES SUBSTANDARD PPE FOR JOB BEING PERFORMED INADEQUATE PPE SUPPLIES FOR JOB BEING PERFORMED	**1.** Breathing air compressors shall have: ☐☐☐☐☐☐☐☐☐☐Pressure Relief Valve ☐☐☐☐☐☐☐☐☐☐ High temperature alarm ☐☐☐☐☐☐☐☐☐☐ Periodic carbon monoxide (CO) testing to ensure it meets the CGA Grade 'D' limit ☐☐☐☐☐☐☐☐☐☐ Breathing air tested to meet requirements. **2.** Proper training of employees in the use of this equipment. **3.** Fit testing of mask/hood prior to each use. **4.** Employees determined by a medical evaluation to be physically fit to use equipment. **5.** Proper cleaning and inspection program for equipment. **6.** Written standard operating procedures for using the equipment. **7.** A rescue man with a self-contained breathing apparatus (SCAB) is required when equipment is used in immediately dangerous to life and health (IDLH) atmospheres. **8.** Lifelines shall always be attached to the safety belt worn by employees using a respirator.
27. ABRASIVE BLASTING/PAINTING	ALL WORK LOCATIONS	SERIOUS /FATAL INJURIES EQUIPMENT/ PROPERTY DAMAGE BREATHING AIR NOT GRADE "D"	**1.** Areas of abrasive blasting operation shall be fenced **2.** Area of abrasive blasting shall be designed down wind to personnel and equipment **3.** Compressor which is used in abrasive blasting operation shall be tested and shall not leak **4.** All hoses connections with compressor shall be fixed properly **5.** All sandblasters shall equip with air breathing hood **6.** The assistant guy shall equip with suitable mask from sand, grit or iron

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
ABRASIVE BLASTING/PAINTING (CONT.,)		UNCERTIFIED BREATHING AIR EQUIPMENT INADEQUATE PPE UNCERTIFIED PERSONNEL UNCONTROLLED AIR CONTAMINATE DRIFT VENTILATION / NOISE / LIGHTING CONCERNS NOT ADDRESSED AREA NOT BARRICADED EQUIPMENT NOT GROUNDED DEAD MAN SWITCH MISSING/ INOPERABLE IMPROPER ABRASIVE BLASTING MATERIAL OVERLOADING STRUCTURE WITH BLAST MATERIAL RESIDUE IMPROPER DISPOSAL OF RESIDUE	**7.** All abrasive blasters and assistants shall be periodically medically check to avoid silicosis occupational illness **8.** Air cylinders shall be available for supplying pure air to abrasive blaster and compressor can be used for supplying air with condition that air quality shall be tested **9.** Abrasive blasting hoses shall be provided with dead man hand **10.** All labors who are subjected to paints shall be provided with suitable mask **11.** Flash points of paint shall be identified for storing in suitable condition and identify its fire hazard availing **12.** Fire extinguisher shall be provided **13.** MSDS sheet shall be provided and all safety precautions shall be taken **14.** All electrical equipment shall be grounded **15.** Housekeeping shall be done in regular basis
28. FALL PROTECTION	ALL AREAS ABOVE 1.8 M (6 FT)	SERIOUS / FATAL INJURIES LACK OF PROPER TIE-OFF POINTS IMPROPER RAILS MIDRAILS ,TOEBOARDS IMPROPER WALKING/WORKING SURFACES SUBSTANDARD PPE LACK OF ENFORCEMENT	**1.** Employees shall be protected by standard guardrail, catch platforms, temporary floors, safety nets, personal fall protection devices **2.** Each employee who might be exposed to fall hazards shall be trained by a competent person qualified in the following areas, in the safe use of access ways and fall protection systems. **3.** Guardrail systems shall be so surfaced as to prevent injury to an employee from prevent snagging of clothing, a standard guardrail shall consist of top rails, midrail, and posts. **4.** A standard handrail shall be of construction similar to a standard guardrail except that it is mounted on a wall or partition and does not include a midrail. **5.** Selection of personal fall protective equipment shall be based on the type of work; the work environment; the weight, size, and shape of the user; the type and position of anchorage; and the length of the lanyard. **6.** Harnesses shall have two lanyards when necessary to insure that a person is tied off with at least one lanyard at all times, or where the lanyard is the primary support for operations such as rock-scaling and high-wall concrete finishing. **7.** Personal fall protection equipment shall be inspected before use each day to determine that it

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
			is in safe working condition: defective equipment shall be immediately replaced. 8. Lifelines shall be included in the system. 9. 9. Safety nets shall be installed as close under the work surfaces as practical but in no case more than 7.5 m (25 ft) below such work surface. 10. 10. Safety and debris nets shall be inspected by a competent person in accordance with the manufacturer's recommendations. 11. 11. Toeboards shall be securely fastened in place and have not more than 6.4 mm (1/4 in) clearance above floor level.
29. FUEL STORAGE & DISPENSING	ALL AREAS & EQUIPMENT	IMPROPER GROUNDING OF CONTAINERS WHILE REFUELING IMPROPER STORAGE TANKS / CONTAINERS IMPROPER FUELING PROCEDURES NO BACKUP ALARMS ON FUEL TRUCK NO FIRE EXTINGUISHERS LACK OF OIL/ FUEL SPILLAGE CONTAINMENT REFUELING DURING WORKING HOURS/ WORK ACTIVITIES	1. All fuel storage tanks shall be grounded with earthing system 2. All fuel storage tank shall be placed on dike paved area to avoid land contamination 3. Area of storage fuel shall be fenced and marked with warning signs indicating characteristics of fuel which tank contains 4. Area of fuel storage shall be provided with fire extinguishers or foam trailer to be used incase of fire 5. Oil spillage shall be prevented 6. Any hot work shall be prohibited at this area 7. Area of storage fuel shall be far distance from heavy equipment roads to avoid accident 8. Storage tank shall be placed in area down wind to any source of spark 9. Dispensing of fuel shall be carried in a specific truck 10. Manual pump shall be used for transfer the fuel to equipment 11. All operating equipment shall be shutdown before fueling it to avoid fire hazards 12. Dispensing truck shall be provided with warning sign indicate that specific dispensing fuel to equipment to avoid any mistakes 13. Proper smoking signs shall be in place at all fuel storage and dispensing locations
30. WORK AREA LIGHTING	ALL AREAS	LIGHTING DOES NOT MEET COMPANY MINIMUM REQUIREMENTS LIGHTING DOES NOT MEET SITE WORK ACTIVITIES NEEDS LACK OF PROPER APPROVED LIGHTING	1. All working areas shall be provided with adequate lighting to avoid accidents 2. All lighting provided shall be applicable with standard 3. The power supply shall not increase than 120 volt 4. power supply within confined space entry 5. any allowed 12 volt lighting fixtures within confined space and it shall be explosion proof to avoid electrical shock and explosion 6. electrical switches shall be meet the electrical standard 7. all electrical switches and plugs at restricted areas shall be fire proof 8. escape routes to assembly points shall be provided with adequate lighting

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
		12 VOLT LIGHTING NOT USED IN CONFINED SPACES	
31. LADDERS	ALL AREAS	SERIOUS / FATAL INJURIES LADDERS NOT PROPERLY MAINTAINED IMPROPER ANGLES IMPROPERLY TIDED OFF NOT CONSTRUCTED ACCORDING TO COMPANY REQUIREMENTS METAL LADDERS USED IN ELECTRICAL AREAS LADDERS DO NOT EXTEND 1 M (3 FT) ABOVE LANDING	**1.** All ladders shall be erected safely **2.** All ladders shall be free from grease or oil to avoid slipping **3.** All ladders shall be fixed on leveling ground **4.** Metal ladders shall not be used a in areas near from high or low voltage(wooden ladder is recommended) **5.** Ladders shall conform to be placed at an angle of 75o, and extend at least 0.9 meter (3 feet) above the stepping-off point. **6.** Areas around ladders must be kept clear of material and debris **7.** Ladder shall be provided with steps which meet the standard **8.** Ladder with broken legs or have any defect shall be dismissed from site and provided with warning sign **9.** Ladders shall be stored in ventilated area to avoid humidity and insects affect **10.** Pre-check shall be done before using ladder **11.** A ladder must be of the proper length for the job to be done **12.** Ladders, which are wet, shall not be used near electrical equipment with exposed live conductors. **13.** Aluminum ladders shall not be used where there is a likelihood of contact with materials harmful l to aluminum, such as caustic liquids, damp lime, wet cement, etc. **14.** Before mounting a ladder, personnel shall check their shoes for freedom from grease, oil or mud. They shall always step through, not around, the rail extensions at the top of the ladder **15.** A ladder shall always be placed so that there is space behind each rung or cleat for a proper foothold **16.** Ladders shall extend at least one meter above landing . **17.** Ladders shall be properly secured or held at bottom by personnel to prevent movement
32. HOUSEKEEPING	ALL AREAS	COVERS ALL AREAS OF INJURIES / ILLNESS & / OR EQUIPMENT DAMAGE POTENTIAL	**1.** All steel and rebaring areas shall be cleaned daily **2.** All wooden plates shall be removed daily **3.** Concrete waste shall be removed regular daily **4.** All access ways shall be cleaned to be free from any objects **5.** Equipment shall be cleaned by rinsing from oil or fuel leakage **6.** Areas of refueling shall be cleaned daily
33. CONCRETE ,CONCRETE FORMS , & SHORING	ALL AREAS	IMPROPER SHORING FORM WORK NOT DENAILED PERSONNEL WORKING VERTICALLY OVER PROTRUDING REBAR FORMWORK IMPROPERLY DESIGNED , ERECTED , SUPPORTED	**1.** Shoring with wood shall be constructed according to standard **2.** Nails shall be removed from wooden plates **3.** Access way with handrails shall be provided for labors from excavation **4.** All MSDS sheet for all chemicals which will be used shall be followed and implemented on site **5.** Proper personnel protective shall be worn **6.** All shoring equipment shall be inspected prior to erection to determine that it is as specified in the shoring layout. **7.** Any equipment found to be damaged shall not be used for shoring. **8.** Erected shoring equipment shall be inspected immediately prior to and immediately after the placement of concrete.

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
		,BRACED.&/ OR MAINTAINED IMPROPER PPE USED IMPROPER ACCESS CHEMICAL HAZARDS EXCAVATION HAZARDS	**9.** Any shoring equipment that is found to be damaged or weakened shall be immediately reinforced or re-shored. **10.** Re-shoring shall be provided when necessary to safely support slabs and beams after stripping, or where such members are subjected to superimposed loads due to construction work done. **11.** Form work and shoring shall be designed, erected, supported, braced, and maintained so that it will safely support all vertical and lateral loads that may be imposed upon it during placement of concrete. **12.** Personnel shall not be allowed under or in close proximity of the formwork during pour operations. **13.** Personnel not engaged in the pour operation shall stay clear of the pour area. **14.** A clear area shall be maintained at 1-1/2 times the highest point of the formwork. **15.** Drawings or plans showing the jack layout, formwork, shoring, working decks, and scaffolding, shall be available at the job site. **16.** All rebar shall be capped or bent over **17.** Proper scaffolds shall be constructed and used during all concrete form work as needed .
34. WORKING AT HEIGHTS	ALL AREAS	SERIOUS / FATAL INJURIES PERSONNEL FALL POTENTIAL FALLING OBJECTS STRIKING PERSONNEL &/OR EQUIPMENT INADEQUATE EMERGENCY RESPONSE /RESCUE `	**1.** Scaffold shall be erected for any work on height more than 1.8 meter **2.** Competent scaffolder shall be responsible for erection the scaffold and provide it with all requirements according to standard **3.** All personnel working over 1.8 meter shall be provided with full body harness with shock absorbing lanyards . **4.** Scaffold shall be provided with toe-boards, midrail and handrail **5.** Scaffold shall be provided with ladder
35. FIRE PROTECTION & PREVENTION FIRE PROTECTION & PREVENTION (CONT.,)	ALL AREAS	NO EMERGENCY RESPONSE PLANS UNTRAINED FIRE RESPONSE PERSONNEL UNTRAINED FIRE WATCH PERSONNEL INADEQUATE NUMBER OF FIRE EXTINGUISHERS & WATER BARRELS ETC IMPROPER TYPE OF FIRE EXTINGUISHERS FOR TYPE OF	**1.** Avoid congestion around machinery and equipment where there is a high level of activity and traffic. **2.** Be sure to provide adequate emergency access and egress Operations having a high fire risk, such as welding and spray painting, shall be isolated from flammable and explosive materials or specially protected. **3.** All fire watcher shall be trained to how to use fire extinguishers **4.** Fire drills shall be activated for training employees incase of emergency **5.** Fire extinguishers shall be availed according to the type of material which can be ignited **6.** All fire extinguishers shall be inspected monthly and provided with color code **7.** Proper bonding and grounding techniques shall be used for any operation where static electricity could become an ignition source **8.** All electrical and mechanical equipment shall be grounded **9.** Smoking is permitted only in designated areas and it shall be posted with warning signs **10.** Storage of flammable and explosive materials in the plant site shall be restricted to minimum quantities necessary for an uninterrupted cycle of operations

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
		FIRE EXPECTED MONTHLY COLOR CODE INSPECTIONS NOT PERFORMED YEARLY INSPECTION NOT PERFORMED UNGROUNDED GENERATOR SETS STUB BUCKETS NOT IN USE FIRE BLANKETS NOT USED SMOKING IN AREAS OTHER THAN DESIGNATED SMOKING AREAS COMBUSTIBLE MATERIAL USED FOR WELDING SHELTERS	**11.** Use a larger, secondary storage site outside the plant area where possible. **12.** Electrical equipment shall be checked regularly for defects **13.** Welding equipment, asphalt kettles, heating appliances and other open flames or hot surfaces shall be segregated from combustible materials. **14.** Open fires and/or open burning of materials are strictly prohibited. **15.** Beware of indirect sources of ignition: hot welding slag dropped from a height for example, or sparks from a fire under an asphalt kettle are familiar examples of this. **16.** Transportation must always be in (closed) metal containers. (Plastic containers are prohibited.) **17.** All flammable liquids must be kept in securely capped metal containers or steel drums on which the contents are clearly marked **18.** housekeeping shall be done regular **19.** Fire watcher shall remain on site a minimum of 30 minutes after welding and cutting operations have stopped.
36. HAND/POWER/ CARTRIDGE TOOLS HAND/POWER/ CARTRIDGE TOOLS (CONT.,	ALL AREAS	IMPROPER TOOLS FOR WORK BEING PERFORMED POWER TOOLS NOT PROPERLY GROUNDED OR DOUBLE INSULATED GFCI REQUIREMENTS NOT IN EFFECT PORTABLE ELECTRICAL TOOLS MORE THAN 125 VOLTS DAMAGE OR SPLICED ELECTRICAL CORDS ROTATING DISKS & BLADES DO NOT MATCH EQUIPMENT OR USAGE CARTRIDGE OPERATED TOOL OPERATORS NOT CERTIFIED CARTRIDGE TOOL REQUIREMENTS	**1.** Tools constructed of good quality materials shall always be used. **2.** Power tools, however, allow many jobs to be carried out more efficiently and with greater speed and accuracy **3.** The correct use of power tools can only be achieved by the proper training of workmen, by proper maintenance, and by adequate site supervision **4.** Hand tools are regularly cleaned and, where necessary, lightly oiled as a protection against corrosion **5.** All hand tools shall be regularly inspected before and after use, and before storage. **6.** If wear or damage is observed, the tool shall be withdrawn from use for repair or disposal. **7.** Proper racks and boxes shall be provided for the storage of hand tools. **8.** Insulation shall be checked at regular intervals by a competent electrician **9.** It is essential that the correct type, size, and weight of tool shall be decided upon before any work is carried out. **10.** All portable power tools do not exceed 125 volts rating, are manufactured of sound materials, and are free from defects and properly grounded. **11.** All portable power tools shall be stored in clean, dry conditions. **12.** The contractor shall provide a schedule of systematic inspection and maintenance for all power tools. **13.** Power tools must not be left lying around the job site where they could be damaged. **14.** Rotating tools shall be switched off and held until rotation has completely stopped before they are set down. **15.** Tools must be disconnected before changing bits, blades, cutters, or wheels. **16.** Power for tools can be supplied by compressed air or electricity. **17.** All electrical tools and equipment shall be grounded

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
		NOT MET NO CARTRIDGE INVENTORY LOGBOOK PROPER PPE NOT IN USE GUARDS NOT PROPERLY INSTALLED &/OR MAINTAINED DAILY INSPECTIONS NOT BEING PERFORMED MONTHLY COLOR CODE INSPECTIONS NOT PERFORMED TOOLS NOT KEPT IN PROPER WORKING CONDITION	**18.** All personnel shall be equipped with full personnel protective equipment **19.** Work Permits will not normally be required for use on job sites but incase of using in restricted areas (operation area), a Hot Work Permit must be obtained before work commences. **20.** Before any electrical tool is used, a careful check shall be made by the supervisor to ensure that the supply voltage is within the range marked on the information plate on the tool. **21.** Ground Fault Circuit Interrupters (GFCIs) are required for all 120 volt, single phase, 15 and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring system. **22.** All electrical power hand tools shall be of the double insulated type or properly grounded. **23.** All tools shall be used with extension cords, which are as short as possible. **24.** All extension cords shall be fitted with grounding pin and blades to fit the socket outlet on the distribution board. **25.** Extension cords shall be of the three-wire conductor type. **26.** Plugs and sockets must meet the National Electrical Code requirement with respect to grounding and polarity **27.** Over-current protection shall be provided to extension cords in accordance with the requirements of the National Electrical Code **28.** Where it is necessary to make electrical splices, these shall be made with proper connector blocks or by plug and socket, connectors and taped joints shall not be permitted. **29.** All electrical tools shall establish a proper inspection and maintenance routine. **30.** A competent electrician shall carry out the inspection and maintenance of all tools at least once in every working week.
37. STEEL STRUCTURE ERECTION & PIPING	ALL AREAS	SERIOUS/FATAL INJURIES FALLING MATERIALS DAMAGE TO EQUIPMENT IMPROPER/NON-EXISTENT WALKWAYS/SCAFFOLDS PERSONNEL NOT WEARING FALL ARREST PPE FALL ARREST PPE NOT TIED OFF LACK OF ENFORCEMENT	**1.** Work shop areas for steel structure fabrication shall be erected and identified with warning sign **2.** Work shop areas for piping fabrication shall be erected and identified with warning sign **3.** Steel & pipe waste shall be removed on regular basis **4.** Material of piping and steel shall be handled and lifted according to lifting operation procedures **5.** Center gravity of load shall be allocated to ease lift it safe **6.** Suitable certified slings and shackles shall be used for lifting materials **7.** Load shall be provided with tag line to avoid hitting equipment or personnel Access way shall be free from steel bars, pipes waste, or any objects. **8.** All personnel shall equipped with full personnel protective equipment especially full body harness with shock absorbing lanyards at height more than 1.8 meter
38. PERSONNEL	ALL AREAS	NO DOCUMENTATION OF UPPER MANAGEMENT ACCOUNTABILITY UNQUALIFIED PERSONNEL UNTRAINED PERSONNEL	**1.** Induction courses shall be given to all personnel who authorized to work in a construction site **2.** All personnel shall be trained according to nature of their work **3.** Training schedule program shall be available and it shall be implemented on site **4.** Trained personnel is only authorized to work on site **5.** HSE trainer shall be qualified to conduct sessions to all employees **6.** Site management is required to provide HSE trainer with all necessary requirements(data show,

ACTIVITIES	LOCATION	POTENTIAL HAZARDS	ACTION TO BE DONE
		CONTINUING TRAINING NOT PROVIDED NO EMPLOYEE RECOGNITION PROGRAM	lab top, camera and training room)