

 SPARK BUILDING CONTRACTING LLC	PROJECT RISK ASSESSMENT		
	DESIGN AND CONSTRUCTION OF ZADCO CENTRAL RECORD MANAGEMENT IN ESNAAD		
	RISK ASSESSMENT REFERENCE NUMBER: SBC-SJ095-HSE-RA		
	ASSESSOR: Risk Assessment Committee	Assessed Date: 04 July 2015	Rev No: 00

Sl. No	JOB STEP	HAZARDS	HAZARD EFFECT	RISK RATING SCORE			CONTROL MEASURES	Residual Risk	Action By Whom	Remarks
				Likelihood	Severity	Risk Rating				


01	<p>Setting out and survey work</p> <p>Shifting of Surveying Equipment</p>	<ul style="list-style-type: none"> Unfamiliarity of the area. Access/Egress. Adverse weather Uneven ground and slippery. Surfaces during the walk. Exposure to dust. Road hazards. Vehicle breakdown. Improper Manual Handling Poor lighting condition. Slip, trip and fall 	Major Injury/fracture to personnel, Material damage	4	3	12	<ul style="list-style-type: none"> Information, Instruction, Training and Supervision (IITS). Safety induction course to be provided before commencement of job. Toolbox talks to be conducted prior to start the work. Ensure proper area drawing and location information and maps are available prior to start the survey. Dress should be checked to be appropriate before the beginning of the day's activities. Temporary rest facilities shall be provided and mid-day break system to be followed due to heat stress. Verbal warnings when approaching if appropriate. Water spraying on daily basis and maintained. Observe speed limit of the site. Speed limit of 20km/h to be strictly implemented on site. Provide adequate sign boards. Inspect the vehicle with the use of checklist. Provide proper training for Safe Manual Handling techniques. The weight of the load should be recognized prior to manual lifting. Use hand gloves with sufficient grip to avoid insecure hold; Train 	4	Site Managers/Engineers, Safety Officers	
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		<ul style="list-style-type: none"> Insecure Hold & Inadequate space 					the staff for good posture. Use slip resistance shoe with toe protection. <ul style="list-style-type: none"> Area to be illuminated with adequate lighting. Provide appropriate warning sign. Repetitive bending twisting and cutting with nips shall be avoided. 			
02	Mobilization of Personnel and material	<ul style="list-style-type: none"> Unfamiliarity of the area Untrained operators/drivers Emergency access blocked Heavy vehicle movement Unmaintained equipment. 	Personal injury, property damage, vehicle/equipment collision, Damage of existing service, Environmental damage	4	3	12	<ul style="list-style-type: none"> Required Permits to Work shall be obtained before starting the work. Mobilization action plan shall be communicated to all employees. All drivers must have UAE valid Driving license to operate that vehicle. Pre-start work HSE induction shall be conducted. All equipments must be approved from ESNAAD prior to use. Ensure certified operators / banks man assigned for the task. Emergency access shall not be blocked by material/equipment. Material shall not be stored near the existing services. Material storage at designed area only. Ensure that only dedicated road provided for vehicle shall be used during mobilization. Route must be surveyed prior to mobilization 	3	Project manager /site engineer	

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							on site to ensure hazards are identified and controlled. <ul style="list-style-type: none"> Parking of vehicle should be at designated areas Preventive maintenance checks for all equipment and vehicle by a competent person Toolbox talk to be conducted prior to start work. 			
03	Working in Adverse weather Exposure to hot weather /humidity Heavy winds & Sand storm	<ul style="list-style-type: none"> Working under the sun Long exposure Lack of periodic rest in shade In competent/ Untrained work force Exposure to heavy wind and sand storm 	Dehydration, Heat stress, Heat exhaust, Heat cramps, Fatality, Personal Injury(minor/major), Fire Personal injury, property damage	4	3	12	<ul style="list-style-type: none"> Programs for heat stress prevention on site to be communicated to all personnel. Comply Local HSE Regulation for related heat stress prevention. Make sure to provide frequent rest periods to reduce the heat exposure Ensure the employees are drinking adequate water. Rest shelter shall be provided. Wear appropriate clothing loose fitting light weight Toolbox talk to be conducted. First aid facility shall be provided. Dehydration solution (electrolyte or ORS) shall be made available at site. All operators and banks man must be certified by third party Conduct daily Toolbox talk and brief activity 	3	Project manager/ site engineer/HSE	

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							related hazards & controls <ul style="list-style-type: none"> Emergency response plan to be communicated with all personnel involved. Use Proper PPE and Respiratory protective equipment Suspend work if heavy windy condition affect visibility and safety of the work environment. Avoid work at heights Secure loose and light materials suspected to be carried away Stop all lifting activities if the wind speed more than 35 km/hr. 			
04	Bore holing drilling for soil test	<ul style="list-style-type: none"> Interaction with underground utilities Incompetent /Untrained work force Equipment failure. Hit by moving vehicle 	Personal Injury	4	3	12	<ul style="list-style-type: none"> Refer as built drawings. Instruction from local authorities. Cable / metal detectors shall be provided. Ensure all equipments and operators are approved from ESNAAD prior to mobilize. Ensure all equipments are serviced, calibrated as per manufactures instruction and functioning correctly. Mark line of excavation and identity exact drill locations (using paints/color coding as required) Ensure all underground utilities are exposed prior to work. Equipments and operators must have valid 3rd party certificate. 	4	Project manager/ site engineer/HSE	

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							<ul style="list-style-type: none"> • Provide proper maintenance of equipment with the use of check list. • Competent and effective supervision. • Barricades and sign boards shall be provided. 			
05	Excavation Activity Manual excavation	<ul style="list-style-type: none"> • Employees working in the trenches 	Personal injury	4	3	12	<ul style="list-style-type: none"> • Obtain require PTW from ESNAAD. • Supervisor shall ensure the physical fitness of the employees on every job start day. • Ensure proper access and egress should be clear. • Ensure the ground stability in good condition • Excavated material should be placed 1 m away from edge of the trench. • Provide proper slop to all excavation to avoid trench collapsing. • Work rest cycle shall be followed to prevent heat stress illness. 	3	Project manager/ site engineer	

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		<ul style="list-style-type: none"> Interaction with Underground facilities /services 	Property damages				<ul style="list-style-type: none"> Refer as built drawings. Instruction from local authorities. Cable / metal detectors shall be provided. Make trail pit to avoid the interaction of the underground utilities. Any Damaged existing utilities shall be immediately reported to concern authority. Competent and effective supervision. 			
		<ul style="list-style-type: none"> Open trench 	Personnel injury & Property damages				<ul style="list-style-type: none"> Appropriate barricading and warning sign boards shall be provided. Toolbox talk /in house training to be conducted prior to start work All identified UG facilities/services shall be protected from project operations. 			
		<ul style="list-style-type: none"> Water flooding 	Personal injury				<ul style="list-style-type: none"> De watering systems to be used 			
	Mechanical Excavation	<ul style="list-style-type: none"> Damage of Underground utilities Unprotected /open trench Poor access or egress Dust pollution Noise Vibration 	Personal Injury Property damage, White finger	5	3	15	<ul style="list-style-type: none"> Obtain require PTW from ESNAAD. Cable / metal detectors shall be provided. Make trail pit prior to mechanical excavation to avoid the interaction of the underground utilities. Appropriate shoring /sloping methods shall be adopted Barricade the area around proposed excavation and post adequate warning signs, flickering light for night traffic. 	4	Project manager/ site engineer	

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							<ul style="list-style-type: none"> Excavated soil should be placed 1.5 m away from edge of the excavation Use Proper PPEs as required by the activity. Unauthorized entry shall be restricted and vehicle/equipment movement shall be controlled by flagmen at strategic points. Ensure proper access or egress. Spray water to reduce dust generation due to vehicle movement & or excavated soil handling (shifting). Work shall be monitored by competent supervision. Daily inspection of tools & equipments to ensure they are in good condition. Excavation materials shall be stock piled at a designated area with proper barricades. Take regular breaks and job rotation. 			
06	Form work Shuttering work De shuttering	<ul style="list-style-type: none"> Failure of shuttering material from height. Unsecured shutters. Protruding edges Improper use of hand and power 	Fatality, Personal Injury, Property damage	4	3	12	<ul style="list-style-type: none"> Proper access and egress shall be constructed by site team prior to start work. Toolbox talk shall be conducted prior to start work. Maintain the access way free of obstruction and material storage. Ensure all workers are competent for this job. Adequate supervision shall be in place. Follow design of the shuttering works. Civil engineer shall design and inspect the 	4	Project manager/ site engineer	

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		tools <ul style="list-style-type: none"> Use of Homemade tools. Damaged electrical cables Electrocution Poor access or egress Protruded nails on the shuttering Failure to follow safe method of de-shuttering Manual handling Repetitive movements 					shuttering system. <ul style="list-style-type: none"> Maintain good housekeeping. All dangerous sharp edges shall be covered sharply. All personnel should wear mandatory PPE ad job specific PPE. All unused nails and clamps shall be removed from site. All hand tools and powered tools shall be inspected before receiving from store Colour coding of power tools shall be done by store keeper under close supervision of safety officer. Personnel are not allowed to fabricate tools at site. All homemade tools shall be discarded from site All electrical leads will be damage free, use industrial socket and elevate the cable as to avoid the tripping. Inspection of shuttering structure supports and clearance shall be done prior to start concreting work. Follow safe sequence of removal of shuttering. Ensure open edges and openings are barricaded All surplus materials shall be removed from site. 			

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							<ul style="list-style-type: none"> Avoid stacking of materials on high elevations which may cause collapse of material Used lumbers & ply wood should de-nailed and properly stored Toolbox talk on manual handling shall be conducted. Use trolleys or other manual handling aids. Ensure all Personnel are trained on kinetic lifting technique. Always set first priority for mechanical handling whenever possible. The weight of the load should be recognized prior to manual lifting. Repetitive bending, twisting and cutting with nips shall be avoided. 			
07	Reinforcement work Rebar fixing	<ul style="list-style-type: none"> Protruding edges Inadequate access to workplace Use of Power tools Improper PPE Untrained / uncertified operators Damaged 	Personal Injury	3	3	9	<ul style="list-style-type: none"> Provide re-bar caps on all steel rods end. Restrict all unauthorized entry in the area Excessive tension shall not be applied to tie-wire causing breakage. Wire shall be tied properly in/down. Maintain the access way free of obstruction. Provide appropriate plat form above reinforcement for the movement of workers. Color coding of power tools shall be done by store keeper under the close supervision of safety officer Use appropriate tools/equipment for the job. 	2	Project manager/ site engineer	

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		Equipment					<ul style="list-style-type: none"> All hand tools and power tools shall be inspected before receiving from store. 			
08	Concrete Work (Selection and setting of concrete truck and pump Concrete pouring for blinding and raft foundation Slab concrete)	<ul style="list-style-type: none"> Poor access control. Overturn Topping Vehicle/equipment collision Handling of concrete, cement Air pollution by cement Concrete splashing Continuous pouring by same gang Revolving concrete mixture/vibrator Physical contact Manual handling Failure of form work 	Personal Injury, Irritation, Dermatitis, Environmental damage, Property damages	4	3	12	<ul style="list-style-type: none"> Ensure adequate access and egress to and from the workplace. Maintain the access way free from obstruction and material storage. Equipments and operators must have valid 3rd party certificate. Ensure concrete pump placed in a solid even ground. Outrigger of the pump shall be fully extended and in a solid surface. Toolbox talk shall be conducted prior to start work. Close supervision shall be in place. Banksman/Flagman for the equipment and controlling the traffic shall be deployed. Appropriate PPE shall be used. Periodic inspection & maintenance of gangway shall be done by site supervisor. Concrete pump while pouring concrete will be kept lower to the ground level and all the workers involved will be with necessary PPEs Temporary access shall be provided for other vehicle movement. Provide covering for the necessary area on the ground to avoid land contamination. 	3	Project manager /site engineer	

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		while pouring					<ul style="list-style-type: none"> Excess concrete material shall be removed / disposed after the job. Good supervision is must along the work. Concrete washout shall be permitted only in designated area. Workers to be trained on proper manual handling technique. Avoid manual handling if possible. Standard shuttering practices by trained & experienced personnel, must be inspected & cleared by competent civil engineer. Toolbox Talk to be conducted prior to start work. 			
09	Chemical Storage, usage & handling Painting work	<ul style="list-style-type: none"> Improper storage Exposure to temperature. Exposure to toxic fumes, reaction with skin, ingestion Inhalation of chemical. Chemical spill(soil contamination) 	Personal injury(min or/major), Fire, Burns,	4	3	12	<ul style="list-style-type: none"> MSDS for all chemical shall be made available and strictly adhere with Only competent person shall be assigned for the task. Ensure all chemical storage and handling are done as per the instruction mentioned in the MSDS. Storage area must be bounded properly. Restricted entry for unauthorized personnel. The storage are must be clean and tidy at all times. Spill kit shall be made available near the storage. Toolbox talk shall be conducted and recorded 	3	Project manager /site engineer	

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		<ul style="list-style-type: none"> Irritation when contact with skin and eyes 					by the concern supervisor or foreman. <ul style="list-style-type: none"> Fire extinguisher shall be made available near the chemical storage area. Appropriate PPE (chemical resistant gloves, respirators, and eye protection as per standard) shall be used. Follow safe handling procedure Drip tray must be provided for paint storage area. Area to be isolated (restricted access) and provide proper signage. Smoking is not allowed near the paint storage area. MSDS and COSHH assessment will be available for all substances /material taken to site. 			

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10	Working at height Scaffolding	<ul style="list-style-type: none"> Uneven levels and improper scaffolding positioning Collapse of scaffold Unsafe working platform Working beneath the scaffolding activity Improper manual handling Adverse weather. Falling of personal. Falling of material 	Fatality, Personal injury, property damages	4	3	12	<ul style="list-style-type: none"> Certified and competent Scaffolders shall be deployed. There must be suitable access & egress of the scaffold. Selection of the material shall be done by experienced personal Ensure all scaffolding materials are in good condition. All damaged scaffolding materials shall be removed from site. All scaffolding shall be positioned in proper ground level only. Sole plate and base jack shall be provided where ever necessary. Scaffolding Platform must be clean and tidy. Certified Scaffolding inspector shall be inspected and re-inspect the material before and after the erection and dismantling of the scaffolding. All tools and material shall be properly secured in scaffolding while performing the activity. In complete should be red tagged. The scaffolding inspector shall place the green tag to use after the completion of the scaffold. Personnel shall not be permitted to work if scaffolding is in complete. Periodical inspection shall be carried out by competent scaffolding inspector. 	4		

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		<ul style="list-style-type: none"> Damage ladder Falling from height Collapse of ladder Poor maintenance of ladder Obstructed access 	Fatality, Personal injury, property damages	3	3	9	<ul style="list-style-type: none"> Ensure all ladders are in good condition and free from damage before using on the job. Ladders shall be set on a firm level base, at an angle of 75 degrees at the top where practicable. Ladder shall be prevented from sagging and swaying by lashing top and bottom of ladders in both stiles. Ladders will extent 1.07 m above a landing and must not rest against surfaces that can move or are fragile. No Ladders shall exceed 9 meters without the provision of an intermediate landing. Rungs of ladder shall be free from greasy, oil or other slippery substances. Ladders shall not be misused. Homemade ladders shall not be used. Only one person shall be on a ladder at a time. Three point contact shall be maintained while ascending and descending the ladder. Heavy loads shall not be carried out while ascending and descending the ladder. Operatives, working from a ladder, must not over-reach or jump the ladder to reposition. 	4	Project manager /site engineer	

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	Ladder	<ul style="list-style-type: none"> Falling of person or material from height. Falling of material from roof edge. Untrained work force. 	Personal injury, Property damage.	4	3	12	<ul style="list-style-type: none"> ESNAAD PTW system shall be obtained. Safe access to the roof will always be provided and maintained. Edge protection shall be in the form of guardrails and toe boards will be erected. All openings, when not worked on, shall be covered and / or guarded and clearly delineated. Suitable secure barrier may be set back from the roof if persons are not likely to approach within 2 meter of roof edge. All persons engaged in roof work will be adequately trained and supervised. Mandatory PPEs shall be worn by all personnel. Material will not be thrown from the roof. Competent supervisor shall be in place. Where work is in progress at the roof edge guard rail and toe board may be removed subject to a safe system of work being used, to prevent falls i.e. Use of safety harness and protection is replaced as soon as work is complete 	3		
	Roof work								Project manager /site engineer	

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11	Lifting Mobile crane	<ul style="list-style-type: none"> Poor selection of lifting equipment Uneven ground level. Crane failure Fall of load or topping of the crane. Suspended load. Failure of lifting equipment and gears Poor maintenance Adverse weather 	Personal Injury, Property damage	5	3	15	<ul style="list-style-type: none"> ESNAAD PTW System shall be followed All lifting tackles shall be in good condition, certified by 3rd party & to be inspected daily prior to work. Crane must have 3rd party certificate. Task shall be carried out in line with the sequences of approved method statement. Competent Operator, rigger, Banksman must have 3rd party certificate. Selection of the crane shall be fit for the purpose in line with the load and SWL of the crane. Lifting area should be barricaded and provide and sign board and unauthorized personnel shall not be entering to the area of lifting operation. The Load shall not be exceeded than the safe working load. The positioning of the crane shall be on rigid ground, level surface and all out riggers fully extended to the ground. No one shall be allowed to work or move under the suspended load. All lifting appliances shall be in good condition, certified by 3rd party & to be inspected daily prior to work. Work shall be suspended due to bad weather. Toolbox Talk to be conducted prior to start work. 	6	Project manager /site engineer/HSE	

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12	Hot work Welding and grinding activity	<ul style="list-style-type: none"> Fire/Explosion Flying particles Hot metal slugs Exposure to fumes and gases. Unauthorized access. Toxic fumes. 	Personal Injury, Property damage	4	3	12	<ul style="list-style-type: none"> Welding and grinding safe practices shall be followed at site. Competent person should be do the task. Obtain Hot work PTW from ESNAAD. The work areas, surrounds, and adjacent wall area shall be cleared of all loose combustible materials. The place of work shall be checked thoroughly after completion of the task. Maintain good housekeeping. Cover all equipment and nearby facilities with the fire retardant cloths to prevent accidental fire. During welding small particles of very hot metal are expelled, no combustible material can be ignited by these. Appropriate clothing must be worn Access/egress shall not be obstructed at all times. Operators and personal working in close proximity must wear suitable PPEs. Fire extinguisher and fire watcher shall be nearby and only authorize person shall be permitted in the work area when hot work is in progress. 	4	Project manager /site engineer	

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	Water proofing Works	<ul style="list-style-type: none"> Injury with water proofing materials Fire Exposure to hot weather / humidity 	Physical Injury, Property damages	3	3	9	<ul style="list-style-type: none"> Adequate ventilation shall be used to avoid the fumes. Torch equipment shall be properly connected and hoses in good working condition. All fittings shall be free from leakage and leakage shall check by use of soak water to intent the gas leaks. Propane gas cylinder must be kept away from flame and his hose to be fitted with two flash back arrestor. Avoid splashes to the eyes. Emergency evacuation procedure shall be discussed in Toolbox talk prior to start work. Fire extinguisher shall be kept nearby area of work. First aider shall be provided and dehydration solution shall be made available at site. Heat stress prevention on site to be communicated to all personnel Drinking water shall be available at site. 	4	Project manager /site engineer	
13	Use of Electrical equipment (power tools cartridge operate tools)	<ul style="list-style-type: none"> Damaged tools Homemade tools Improper usage Damaged 	Personal Injury, Personal burns, Asset damage, Fire	4	3	12	<ul style="list-style-type: none"> All tools and equipment shall be in good condition All power tools must be inspected and color coded prior to start work Toolbox talk to be conducted prior to start work 	4	Project manager /site engineer	

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		<ul style="list-style-type: none"> cables Exposed electrical wires/points Loose connection Improper earthing Contact with exposed electricity 					<ul style="list-style-type: none"> Homemade tools and fabricated tools are not allowed. Electrical cables must be managed properly and properly protected to avoid being damaged by heavy equipment and vehicle. Welding holder and cable must have proper insulation. Double insulated industrial type All cables must be inspected regularly to ensure that no danger exists from worn or damaged insulation or loose unsound electrical connections. Machine shall be turned off when it is not in use or unattended All electrical equipment must have earthing. Fire extinguisher shall be available at site All portable electrical appliances shall be subject to a maximum voltage of 110 volts. 			
14	Distribution of electricity (Use of electricity)	<ul style="list-style-type: none"> Electrocution Design change or modification Inadequate or inactive electrical protection Improper 	Electric shock, Personal injury, Property damages	4	4	16	<ul style="list-style-type: none"> Inspection shall be carried out on the insulation on power cords, patch cords, and cables for deterioration. Ensure all Electrical appliances are checked regularly. Earth leakage circuit breaker shall be provided. All faulty items should be taken out of service immediately. 	6	Project manager /site engineer	

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				Likelihood	Severity	Risk Rating				
		use of machinery or • Improper use of electrical outlets					<ul style="list-style-type: none"> Do not splice equipment or cords. Do not use any equipment or cords that have splices. 			
15	Interference with public and visitors	<ul style="list-style-type: none"> Un authorized personal entry In adequate fencing Touching construction properties Collision / Entrapment 	Fatality, Personal injury, Property damage.	3	3	9	<ul style="list-style-type: none"> Visitors must be reported to ESNAAD Security Department. Public access to be strictly controlled. Perimeter Fencing shall be installed around the construction site. All visitors must be followed company safety rules as well as ESNAAD safety rules. All visitors to be wear mandatory PPEs. 	4	Project manager /site engineer	
16	Loading and unloading Use of mobile crane.	<ul style="list-style-type: none"> Collision/ Entrapment Crane positioning / Uneven ground level Failure of lifting equipment and lifting gear. 	Fatality, Personal injury, Property damage.	4	4	16	<ul style="list-style-type: none"> ESNAAD PTW System shall be followed. All lifting tackles shall be in good condition, certified by 3rd party & to be inspected daily prior to work. Crane must have 3rd party certificate. Task shall be carried out in line with the sequences of approved method statement. Competent Operator, rigger, Banksman must have 3rd party certificate. Lifting gears should be color coded. Lifting activity shall not be carried out due to 	6	Project manager /site engineer	

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				Likelihood	Severity	Risk Rating				
	Vehicle movements	<ul style="list-style-type: none"> Poor maintenance Poor visibility Falling of material. Access/egress Exposure to Dust In competent driver 	Personal injury, Property damage.				heavy wind. <ul style="list-style-type: none"> Area to be isolated and provide warning signs. Banks man shall be in attendance at all times whilst machine is operating. All operatives should wear reflective jackets at all times All drivers must have valid UAE license. Vehicle should be properly maintained. No movements for fog/sand storm/ heavy rain. Look for overhead obstructions while driving. Periodic site watering shall be carried out to prevent dust. All drivers should follow the ESNAAD Speed limits. 			
17	Material Storage at site	<ul style="list-style-type: none"> In adequate space. Improper stacking of material In adequate signage 	Personal Injury	3	3	9	<ul style="list-style-type: none"> Adequate space shall be provided for storing of material. Material shall be secured while shifting of material. Material shall be properly stacked. Area to be illuminated with adequate lighting and provide proper signage Maintain good housekeeping. 	4	Project manager /site engineer	

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				Likelihood	Severity	Risk Rating				
	Office activities	<ul style="list-style-type: none"> Slip, trip and falls Improper Manual handling of office equipments Screen equipment 	Personal injury Muscular skeletal disorders, Eye Fatigue, stress	3	3	9	<ul style="list-style-type: none"> Health and safety policy and guidance for safety in the work place. Good housekeeping shall be carried out. No trailing leads or cables Boxes shall not be left in the walk ways. Arrange for loose carpet tile on the floor to be repaired / replaced. Remind staff that they should not lift objects that look all or appear too heavy to handle. High shelves for light object only. Trolley shall be used for collecting boxes and other heavy items during delivery time. Equipment set to ensure good posture and to avoid glare and reflection on the screen. Lighting and temperature suitably controlled. Adjustable blinds at windows to control natural light on the screen. 			
18	Waste Management	<ul style="list-style-type: none"> Improper Waste segregation. Accumulation of waste on site. Improper disposal of hazardous waste. 	Personal Injury(major/minor), Fire, Environmental Pollution.	4	3	12	<ul style="list-style-type: none"> COSHH (Control of substance hazardous to health) assessment must be undertaken for all chemical with correct storage and disposal procedures being adhered to. Regular housekeeping shall be carried out to ensure waste does not become a slip, trip, fall hazard. Waste shall be stored in suitable containers to prevent access by pests. Combustible materials on site to a minimum. Combustible stored in secure compounds or 	4	Project manager /site engineer	

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							bins and emptied regularly. <ul style="list-style-type: none"> No combustible waste to be stored near storage tanks. Hazardous waste must not be disposed of via normal waste. Special containers for hazardous waste must be available. Waste a special collection for hazardous waste can be arranged with the waste disposal service provider for sites in the waste collection and recycling contract. Regular monitoring shall be carried out. Appropriate PPE shall be used. 			
19	Welfare of workers	<ul style="list-style-type: none"> In adequate working place Non availability of drinking water and rest room Poor illumination. Inadequate washing facility, drinking and dining 	Personal injury,	3	3	9	<ul style="list-style-type: none"> Work place must be adequately ventilated. Suitable lighting must be provided to allow people to work and move around safely. Suitable and sufficient sanitary convenience and washing facility must be provided at readily accessible places. Sanitary facilities must be kept clean, ventilated and light. Provide proper housekeeping must be maintained at all times. Regular monitoring shall be carried out. 	4	Project manager /site engineer	

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				Likelihood	Severity	Risk Rating				
		facility.								
20	Sustainability requirement Fuel Consumption Power consumption	<ul style="list-style-type: none"> Fuel spillage Soil contamination <ul style="list-style-type: none"> Continuous usage Overload use of multi socket adapters High voltage machinery instead of low voltage machinery. All 	Fire, Environmental pollution, Power failure, Fire	4	3	12	<ul style="list-style-type: none"> Fire extinguisher shall be located near the fuel storage areas. Emergency procedure shall be followed during emergency situation. No hot work shall take place within 3 meter of storage zone. Smoking shall not be permitted in the area of the fuel storage. Provide adequate sign boards. “No smoking” signs are to be maintained in good condition. Provide drip trays for all equipment. Spill kit shall be provided. 	4	Project manager /site engineer	
				3	3	9	<ul style="list-style-type: none"> Adequate circuit for the current. ELCB shall be provided all the equipments. Low voltage systems shall be used. Educate all the workers the importance of power saving. 	4		

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	Water consumption	machines working same time. <ul style="list-style-type: none"> Water leak and cave in Water pollution. Contact In electrical connection Slip Electrical shock 	Personal injury, Environmental pollution	3	3	9	<ul style="list-style-type: none"> Only use standard cables and fuses. Close supervision and monitoring. Provide adequate signboards and posters. Filter shall be changed periodically. 	3		
21	Behavioral Safety	<ul style="list-style-type: none"> New workers & aged workers Working without PTW. Inadequate training of personal Leaving without information. Over 	Personal Injury(minor/major)	3	3	9	<ul style="list-style-type: none"> Safety induction shall be provided for new employees prior to mobilize to the site. ESNAAD PTW system shall be followed. Adequate regular training shall be provided for the work force. Close supervision must be provided. Disciplinary action to be taken against violation. Continuous monitoring. 	4	Project manager /site engineer	

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		confidences <ul style="list-style-type: none"> Horse play Site violation. 								
22	Ergonomics Material handling	<ul style="list-style-type: none"> Improper material handling Repetitive movement Awkward posture and lifting Segmental vibration 	Personal injury(major/minor), Property damage	4	3	12	<ul style="list-style-type: none"> Use trollies or other manual handling aid. Ensure all personnel are trained for kinetic lifting technique. Job rotation and job breaks shall be provided. Use job enlargement, increase the number of takes performed by the worker. Varying the type of movement. Design reach distance for the shortest worker Arm supports shall be provided. Reduce the speed of the motion if possible. Use mechanical assists and malfunction tools. Select power tools with lower vibration. Regular maintenance shall be provided on tools. Use battery operated tools rather than air powered tools where possible. Reduce vibration exposure duration. Appropriate PPE shall be provided. Close supervision and monitoring must be carried out. Educate all the workers through instruction, 	4	Project manager /site engineer	03/11/2015

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							information & training.			
23	MEP works Mechanical Works	<ul style="list-style-type: none"> Entanglement Ejection Traps Impact Contact Vibration 	Personal injury(major/minor), Property damage	3	3	9	<ul style="list-style-type: none"> Trained and experienced personnel to be employed for work. Regular maintenance shall be provided on tools. All Machine parts are properly guarding. Never leave a running tools as unattended. Area should be barricaded and restricted to authorized entry. Sign boards shall be provided. Adequate illumination shall be provided. Proper access and egress. Use fixed guards to prevent the access to moving parts. Appropriate PPE shall be used. 	4	Project manager /site engineer	

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	Electrical Works	<ul style="list-style-type: none"> Electrocution. Inadequate in active or electrical protection. Improper use of electrical outlets Improper maintenance of, outlets and electrical equipments 	Personal injury(major/minor), Property damage	4	3	12	<ul style="list-style-type: none"> Follow ESNAAD PTW system All electrical appliances are checked regularly. Do not overload circuits. All cables are proper insulated. Industrial sockets shall be used. Only competent person allowed to do the specific task. Information, instruction& supervision. Regular inspection shall be carried out all tools and equipment. 	4	Project manager /site engineer	
	Plumbing works	<ul style="list-style-type: none"> Slip trip Improper manual handling Use of hand/power tools. Cut from sharp edges on pipes 	Personal injury(major/minor), Property damage	3	3	9	<ul style="list-style-type: none"> Follow ESNAAD PTW system Prior to commencing the work plumbers should be inspected the area free from obvious trip hazard to allow them to commence of works. Make sure the project area is well lighted and uncluttered. Area should be free from excessive debris and proper access and egress shall be provided. Mechanical lifting aids shall be utilized to transport sanitary wear as close as possible to 	4	Project manager /site engineer	

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							<ul style="list-style-type: none"> Always wear the appropriate PPEs. 			
26	Work Completion Demobilization	<ul style="list-style-type: none"> Untrained operator/driver Poor access /egress Improper manual handling 	Personal injury, Property damage, Vehicle & equipment collision	4	3	12	<ul style="list-style-type: none"> Follow ESNAAD PTW system Pre start work safety induction shall be conducted Trained and competent person shall be deployed for the task Emergency access shall not be blocked. Parking of vehicles should be at designated place. Emergency numbers displayed at site. Dedicated road shall be used during mobilization. Use trollies or other manual handling aid. Ensure all personnel are trained on kinetic lifting technique. 	9	Project manager /site engineer	

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Signature: _____
Safety Engineer / Officer

Signature: _____
Project Manager

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RISK Matrix

Severity of Consequences				Likelihood (Probability)				
				Never occurred	Same incident has occurred in similar industry (once every five years)	Same incident occurred more than once in similar industry (1-5 times per year)	Same incident occur several times in similar industry. Often Happens at least (5-12 times per year)	Same incident Occurs Frequently in the similar industry. Continuous or will happen frequently
Safety and Health	Environment	Production and Cost		1 (Rare)	2 (Possible)	3 (Likely)	4 (Often)	5 (Frequent)
<ul style="list-style-type: none"> Minor injuries which may require self administered first Aid. Insignificant impact to surrounding communities. 	<ul style="list-style-type: none"> Insignificant Environmental Impacts. Temporary nuisance from noise, odours, dust other air emission, vibration and visual impacts. Result in the generation of non-hazardous waste. 	<ul style="list-style-type: none"> Incident/event without causing production loss. Financial Loss (compensation, fines, cost to repair, plant damages) of less than AED 5000. 	- Insignificant	1	2	3	4	5
<ul style="list-style-type: none"> Injuries requiring treatment by medical practitioners. Personnel unable to perform assigned duties. (Restricted Work Cases) 	<ul style="list-style-type: none"> Minor environmental impact due to contained release of pollutants. Significant use of water, fuels, energy and other natural resources. Minor spillage of Chemical (less than 100 liters) to onshore areas. Minor spillage of chemical (less than 10 liter) for Offshore. 	<ul style="list-style-type: none"> Incident/event without causing production loss. Financial Loss (compensation, fines, cost to repair, plant damages) of less than AED 10000. to AED 50000 	2 - Minor	2	4	6	8	10
<ul style="list-style-type: none"> Serious injuries requiring Treatment by medical practitioner or immediate evacuation to hospital. Potential for long term or permanent disabling effect. (e.g. Fracture, chronic back injuries, sprain, burns, etc). 	<ul style="list-style-type: none"> Significant short term impact to flora/fauna and water resources. Spillage of Chemical more than 100 liters resulting to localised impacts. Spillage of chemical more than 10 liters to Offshore areas. 	<ul style="list-style-type: none"> Incident/event without causing production loss or delay up to one week. Financial loss (compensation, fines, cost to repair plant damage) of AED 50000 to AED 500000 	- Moderate	3	6	9	12	15
<ul style="list-style-type: none"> Single fatality or permanent total disability from an accident or occupational illness (Poisoning, cancer) 	<ul style="list-style-type: none"> Continuous and serious damage to flora/fauna and water resources. Spillage of chemical resulting to widespread contamination. Major destruction of significant habitat. Major environmental impact due to uncontained release, which required outside assistance. 	<ul style="list-style-type: none"> Production loss or delay for over one month. Financial loss (compensation, fines, cost to repair plant damage) AED 500000 to AED 10M. 	4 - Major	4	8	12	16	20
<ul style="list-style-type: none"> Multiple fatality or permanent total disabilities from an accident or occupational illness (Poisoning, Cancer) 	<ul style="list-style-type: none"> Long term impact to environment (Flora/fauna and ground water resources). Spillage of chemical resulting to long term environmental effect. Widespread destruction to a significant area of land, rare flora and fauna and or ground water resources. 	<ul style="list-style-type: none"> Loss of the ability to produce. Severe financial penalties or legal liabilities. Financial Loss greater than 10M. 	- Catastrophic	5	10	15	20	25
Risk	Low	1-4		No action required (ALARP Level), unless escalation of risk is possible.				
	Medium	5-10		Activity can proceed subject to proper management and/or modification				
	High	12-25		Activity must proceed unless risk is reduced to acceptable level				

Reference: ADEHSMS RF - TG - Process Risk Management ; ADNOC COPV1 -08