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| **Serial**  **No.** | **Sub-Activities** | **Hazards Identified**  **(Generic & Task)** | **Risks Involved**  **(People & Property)** | **Risk Rating** | | | **Control Measures** | **Residual Risk** |
| **Severity** | **Probability** | **Initial Risk** |
| 1. | Prepare work area | · Unauthorized, untrained workers | · Cuts  · Abrasions | 2 | A | L | · TBT/DSTI to be conducted by the foreman/  safety officer prior to work commencement  · Task specific safety training to be provided  · Authorized personnel to undertake the job  · Daily safety inspection should be carried and  eliminate the hazard. | Low  (ALARP) |
| 2. | Manual Handling | · Incorrect lifting of loads  · Sharp edges.  · Placing the object while  fingers underneath.  • Slip/trip/fall ( same level )  • Unsafe posture | · Back Injuries  · Cut to finger  · Strain  • Musculoskeletal  Injuries | 3 | C | M | · Any lifting tasks shall be carried out by  persons physically capable to do so  •No employee should be asked to carry loads  above his capacity and in any case no load  shall exceed 30kg per man.  • Mass of the load is more then to be equally  shared  · Deploy enough number of personnel for lifting  shall be appointed to the task depending upon  the type of load to be lifted.  ·Use easy mode of transport like trolley etc.  • Load not to be lifted above your shoulder  Height  • Keep your fingers away from pinch point  While placing the load  • Area to be illuminated with adequate lighting.  · Proper personal protective equipments to be  used while manual handling of materials and  loads. | Low  (ALARP) |

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| **Severity** | **Probability** | **Initial Risk** |
| 3. | Traffic and road management | • Collision with vehicles  • Poor identification  • Unauthorized/ untrained  Operator/ driver, banks men  • Poor access for vehicle  • Public movement | • Fatality  • Property damage  • Fracture | 4 | B | M | • Prior to start obtain all relevant approval from  traffic department in connection to the use of  road.  • PTW to be approved from Company/Contractor  prior to start the activity.  • Trained and experienced operator/ driver and  banks men to be appoint for the activity.  • Restricted to unauthorized and public to enter  the area.  • Public vehicles and transport to be restricted to  enter the work area and proper alternative way  to be provided.  • Warning sign boards to be placed and area to  be well barricaded.  • High visibility vest to be provided to flagman  to increase visibility.  • Flagman to be positioned to the areas wherever  required.  • Close supervision to be done at all times. | Low  (ALARP) |
| 4. | Unloading and shifting tank and accessories with using crane and forklift | • Unauthorized, Untrained  Workers  • Failure of lifting tools &  tackles.  • Failure of lifting  equipments.  • Swinging of material  • Damaged sling/wire rope or  a chain sling  • Poor maintenance of vehicle  • Speedy operation  • Over turn  • Over load | • Fatality  • Fractures  • Property damage  • Injury to personal  • Sprain and strain | 4 | C | H | • Ensure the crane and forklift engaged is tested  and having valid license and the operator has  valid license and approved 3rd party  certificate.  • Engage trained and certified banks man &  rigger.  • Barrication and warning signs in to the area  where lifting operation is carried out and  restrict the entry.  • Check list should be carried out to their  vehicles by the operator prior to start any work  • Use tagline for control of swing and alignment.  • The crane must be stopped when the wind  speed exceeds 38km/hr. | M  (ALARP) |

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| **Severity** | **Probability** | **Initial Risk** |
|  |  |  |  |  |  |  | • SWL should be clearly marked on the crane  and should be check that is functioning.  • The crane and trucks shall be periodically  maintained and a periodical check has been  done by the maintenance team.  ·Vehicle not to be left unattended at site (ie,to be switched off mode if required and keys removed)  • SWL shall not be exceeded.  • Load should be secured properly with the  equipment.  • Operators and rigger must wear high level of  reflecting vest and adequate PPE ( Shoe,  helmet, leather gloves, goggles, over all ) |  |
| 5. | Working in excavated area | **• Collapse of sides**  **• Movement of vehicle**  **• Buried service**  **• Electricity**  **∙ Fall of material into**  **excavation**  · Slip/trip/fall  · Workers/ Pedestrians/ fall  into excavation | · Serious injury  · Fatality  · Property  Damage | 3 | D | M | **· PTW to be applied and obtained prior to**  **start work**  **• Take necessary approvals from concerned**  **Authority(ADDC, ADM, ETISALAT )**  **• Identify all the buried services and display signboard to indicate the location of buried service**  **• Flag man shall be used to ensure safe movement of vehicles.**  **•Slope shall be provided to the side of the excavation to an angle of repose**  **• Safe access and egress shall be provided**  **· Barricade sensitive areas,**  **· Ensure falling protection.**  **· Use warning signboards in those areas.**  **· Use Head protection strictly.** | Low  (ALARP) |

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| **Severity** | **Probability** | **Initial Risk** |
| 6. | Installation of tank and accessories | • Untrained, unauthorized  Workers  • Material Fall  • Sharp edges  • Unsafe posture  • Slip, trip and fall | • Cut and abrasion  • Back Injuries  • Fatigue  • Musculoskeletal  Injuries | 3 | C | M | · Authorized personnel to undertake the job  ∙Work location shall be inspected by  concerned supervisor / foreman.  • Close supervision to be done at all times  • Materials should not kept in walkways, edge  of the opening.  · Deploy enough number of personnel for  material lifting shall be appointed to the task  depending upon the distance  • Proper communication to be maintained  between the workers while doing the  installation  • Maintain a good housekeeping policy to  prevent from slip, trip, fall hazards.  • PPE to be worn at all times( Gloves, goggles,  mask, helmet, shoe, vest, overall) | Low  (ALARP) |
| 7. | Working with Hand tools. (Hacksaw blade) | • Slip, trip and fall  • Damaged warn out hand  tools  • Flying objects | • Fatigue  • Trigger finger  • Cuts and abrasions | 3 | C | M | • Defective tools should not be issued or used  to perform the task, to be checked by store  keeper  • Don’t extend the spanner by using a pipe as  an extension bar  • Never use a file as a lever  • Never use a screw driver as a chisel  • Don’t work with oily or greased hands  • Use eye/ face protection when there is flying  materials hazard, wear gloves while required to  protect the hands  • Use right tools for the job | Low  (ALARP) |

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| 8. | Handling chemicals  (Solvent cement) | • Unauthorized, untrained  workers  • Spillage  • Poor ventilation  • Fire  • Health hazards ( External /  Internal ) | · Skin injury  · Ingestion  • Eye injury  • Environment affect  • Property damage  • Occupational health | 3 | C | M | · Ensure the chemicals are stored as per the  manufacturer recommendation and  identification.  •Adequate lighting and ventilation to be provided  • MSDS to be referred prior and to follow the  manufacturer instruction  • Trained and authorized person to do the job  • Only required quantity to take for the work  • Do not store chemicals at non designated areas.  • Old/ empty container return to store for proper  Dispose  • Container should check for leakage before  Handling  • Personnel hygiene to be maintained while  after use of chemicals  • All spillage shall be clean by sand or other  absorbent materials  • Rubber gloves, overall, helmet, vest, shoe,  goggles, mask to be worn while during the  activity | Low  (ALARP) |
| 9. | Welding work (arc) | • Fire  • Untrained, Unauthorized  Worker  • Lighting and ventilation  • Electricity  • Fumes  • Heat | •Electric Shock  •Burns  •Skin Effect  •Eye Injury  •Property damage | 4 | C | H | • PTW to be applied and obtained prior to start,  If spark producing activity is performed  • Certified person only undertake the welding job  • All Flammable /combustible materials should  be removed from the area where welding & gas  cutting operations are carried out.  • Fire blankets should be used to contain sparks  and molten metal’s within the floor and should  not be allowed to fall from height. | Low  (ALARP) |

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| **Severity** | **Probability** | **Initial Risk** |
|  |  |  |  |  |  |  | • Warning signs and boards should be provided  And area to be well barricaded  • Appropriate fire extinguisher should be placed  in to the work area ( Dry powder, CO2, Fire  blanket )  • Adequate lighting and ventilation to be  Provided.  • Ensure that welding cables, earth lead & holders are free from damages.  • Close supervision to be done at all times.  ·Appropriate PPE Should use ( Face shield, Dust  mask, Goggles, Gloves, Shoe, Helmet, Overall,  Vest ) |  |
| 10. | Flushing, pressure and leakage testing | • Untrained, unauthorized  Workers  • Faulty pressure gauge  • Poor lighting  • Improper identification  • Bursting of pipes | • Fatality  • Property damage  • Fractures  • Full body injury | 4 | B | M | • PTW to be applied and obtained prior to  start work  • Calibrated pressure gauge only to be used for  pressure testing  • Never pressure test the system/ pipe above  its designed pressure.  • Never do hot work on a pressurized system (  always de-pressurize )  • Air compressor should be check prior to start  the work and authorized person only to operate  the compressor.  • Close supervision to be done at all times  • Proper lighting to be provided in around the  working area.  • Warning signs and boards should be provided  And area to be well barricaded | Low  (ALARP) |

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| **Severity** | **Probability** | **Initial Risk** |
| 11. | **Concrete pouring surrounding the tank** | • Unauthorized person  • Health hazard ( internal /  external )  • Poor lighting  • Unsafe posture  • Slip, trip and fall  • Flying objects. | •Skin Effect  •Eye Injury  • Cut and abrasion  • Fracture  • Ingestion  • Occupational health | 3 | C | M | • Trained and authorized person to do the job  • Personnel hygiene to be maintained while  after use of concrete pouring.  ∙Work location shall be inspected by  concerned supervisor / foreman.  • Housekeeping to be maintained at all times.  •Close supervision to be done at all times  • Proper lighting to be provided in around the  working area.  ·Appropriate PPE Should use ( Face shield, Dust  mask, Goggles, Gloves, Shoe, Helmet, Overall,  Vest ) | Low  (ALARP) |
| 12. | While working at night shift | ∙ Poor illumination  · Slip/trip/fall | ∙ Fatality  • Cuts | 3 | B | M | · Proper illumination to be provided  · light post to be secured from fall  · Proper cable management system to be  Followed  · All materials to be staged in proper manner  without obstacles | Low  (ALARP) |
| 13. | Working in hot weather | · Heat | ∙ Dehydration  · Sunburn  · Skin Cancer | 2 | B | M | · Drink plenty of water  · Proper awareness of heat stress symptoms  · Avoid highly physical tasks during the hottest  part of the day  · Isotonic drinks to be provided | Low  (ALARP) |

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| **Severity** | **Probability** | **Initial Risk** |
| 14. | Work Completion | · Poor housekeeping  · Slip/trip/fall | · Fire | 2 | A | L | · General housekeeping, Remove all surface,  unwanted waste materials from the building  · All necessary precautions will be adopted to  prevent fire | Low  (ALARP) |

**RISK MATRIX**

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|  |  |  |  |  | Probability | | | | | |
|  |  |  |  |  | A | B | C | | D | E |
| Severity | People | Assets | Environment | Reputation | Improbable  1 in 100,000  Years | Remote  1 in 10,000  Years | Occasional  1 in 1000  years | | Probable  1 in 100 years | Frequent  1 in 10 years |
| 5-Catatrophic | Multiple fatalities or permanent total disabilities | Extensive damage | Massive effect | International impact |  |  | | | | |
| 4-Severe | Single  fatalities or permanent total disabilities | Major damage | Major effect | National impact |  | | | **High Risk** | | |
| 3-critical | Major injury or health effects | Local damage | Localised effect | Considerable impact |  | **Medium Risk**  **(ALARP)** | |  | |  |
| 2-Marginal | Minor  injury or health effects | Minor damage | Minor effect | Minor impact |  |  | | |
| 1-Negligble | Slight injury or health effects | Slight Damage | Slight effect | Slight impact | **Low Risk** | | |  | |

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| HIGH | **3-E**  **4-C,D,E**  **5-B,C,D,E** |
| MEDIUM | **1-D,E**  **2-B,C,D,E**  **3-A,B,C,D**  **4-A,B**  **5-A** |
| LOW | **1-A,B,C**  **2A** |