

| Job | Title:   | Craning - Lifting and Placing Loads  |                               | Operations Approval (Name; Position):  |                              |  |  |  |
|-----|--|--|-------------------------------|--|------------------------------|--|--|--|
| JHA | Developed By (Name; Position):                                       |  |                               |  |                              |  |  |  |
| JHA | Revised By (Name; Position):   |  |                               | HSE Approval (Name; Position):   |                              |  |  |  |
| JHA | Revision Date:   |  |                               | Dean Neuburger, Director OHS&E   |                              |  |  |  |
|     | Job Steps  | Potential Hazards  | Risk Rating (Before Controls) | Hazard Controls  | Risk Rating (After Controls) |  |  |  |
| 1   | Pre-task preparation and work area assessment                        | <ol> <li>Misinformation due to unclear instructions or lack of PSP (policies, standards, procedures)</li> <li>Pre-existing work area hazards</li> <li>Close quarters in lifting area.         Buildings, equipment or materials.</li> <li>Equipment or property damage from not using proper specified tool for task</li> <li>Incident or damage from introduction of new equipment or process than previous done</li> <li>Incidents caused from lack of knowledge or experience with craning and rigging</li> </ol> | C4                            | <ol> <li>Ensure all applicable JHAs, SWPs, FLRA and pre lift checklist are reviewed and signed by workers, supervisors and HSE.</li> <li>Complete a thorough FLRA and eliminate/control all identified hazards, if hazards cannot be controlled, stop work and report conditions to supervision or site HSE.</li> <li>Flag and Tag area to secure work area and warn other workers of the work in progress.</li> <li>Ladders for the designated crane crew use must be of contrasting color to the body of the crane and be hi-vis tapped.</li> <li>Pre-crane review of the design capabilities, physical measurements, and all safety procedures and processes associated with the crane.</li> <li>Crane crew shall consist of no less than 3 rigging certified employees and each must have a site specific orientation from the crane supervisor of the crane being used and the specific dynamics</li> </ol> | C5                           |  |  |  |
| 2   | Set up Crane with sufficient area<br>to hoist and check swing radius | <ol> <li>Unstable ground conditions due to rain, poor soil conditions. GBP-Ground Bearing Pressure</li> <li>Overexertion when moving outrigger pads.</li> <li>Struck by stationary or moving objects. RTFL or loader.</li> <li>Crush Injury to hands, feet and body from placing outrigger pads</li> </ol>   | C3                            | <ol> <li>All outriggers to be extended and placed on pads. All hoisting areas to have adequate GBP to support crane. The crane outriggers and counterweight swing area are to be control zoned with hard barricades and signage stating hazardous crush zone on all four sides.</li> <li>Use good lifting techniques, 45lbs limit. Use RTFL if required.</li> <li>Good Communications with operators of mobile equipment. Make eye contact with operator before moving.</li> <li>Watch Hand &amp; Body placement while placing outrigger pads. Do not place yourself between stationary or moving object.</li> </ol>   | C5                           |  |  |  |





|     |                                 | <ul> <li>5. Slip, trip, fall from poor housekeeping, jumping down from equipment or ground conditions.</li> <li>6. Fall from heights, from working on crane setup</li> <li>7. Equipment or property damage from placements of materials or tools in the controlled swing zone area of the counterweights or outriggers</li> <li>8. Incidents caused from lack of manpower such as spotters or insufficient crane crew to control</li> </ul> |           | <ol> <li>Clear access routes, watch footing around worksite.         Never jump off equipment, always use the equipment ladder. Use 3-point contact.</li> <li>100% tie off to engineered anchor point at all times and noted on FLRA. Harness and Lanyard inspected and documented before use.</li> <li>Crane crew will consist of qualified members for any craning of loads in the following breakdown of responsibilities.</li> <li>1 signal man, tag men, and spotters.</li> </ol>  |    |
|-----|---------------------------------|---|-----------|---|----|
|     |                                 | the load  1. Congested work area from other vehicles or mobile equipment.  2. Miscommunication due to radio chatter  3. Close quarters to other buildings,  |           | <ol> <li>Be aware of your surroundings and keep your mind on task. Close off section of roadway if required or use traffic control persons. TCP should have traffic control paddles and wear type 2 high viz.</li> <li>Designated Signal Person identified by wearing gauntlets will direct load into staging area. Use Spotters &amp; Good Communications. Use a dedicated radio channel.</li> <li>Crane operator will verify swing radius and assist in spotting load prior to setting down.</li> </ol>   |    |
| 3 N | Move Load into Position to lift | equipment.  4. Struck by loader  5. Incorrect trailer orientation/positioning of load for crane capacity.  6. Pinch Points or caught between trailer, loader, stationary object or cribs.  7. Contacting Energy Source-Overhead High Voltage power line   | <b>C3</b> | <ul> <li>spotting load prior to setting down.</li> <li>4. Watch hand &amp; body placement during placing of blocking under load.</li> <li>5. Loads will not be lifted if the buildings overlap each other if at all possible and can be lifted clear based on crane capacity.</li> <li>6. If possible, loads will be parked in the correct orientation prior to crane staging to eliminate the need for the load having to be turned in the air.</li> <li>7. Review High Voltage Line Encroachment Safe Work Procedure, concrete barricades &amp; fencing to restrict access. Transport and equipment operator education &amp;</li> </ul> | C5 |



| 4 | Attach rigging to crane & hoist to connect rigging. Connect rigging to load & center block | <ol> <li>Rigging and component failure</li> <li>Pinch Points or caught between, rigging assembly components.</li> <li>Struck by swaying rigging.</li> <li>MSI from Overhead Lifting</li> <li>Wind</li> </ol>  | C3 | <ol> <li>All rigging and lifting components are to be inspected prior to use and capacity verified.</li> <li>Do not place hands between rigging components, use proper PPE for task. Use tag line to control rigging if required.</li> <li>Do not turn your back on rigging; maintain a visual on rigging assembly. Stay out from underneath rigging.</li> <li>Stretch and flex before commencement of work, and periodically throughout day.</li> <li>Follow manufacturer's specifications for maximum wind speed limits. Monitor weather conditions throughout the day</li> </ol>  | C5 |
|---|--|---|----|--|----|
|   |  | 6. Uneven Hoisting  |    | 6. Do not reach or over stretch to connect rigging to the hook, direct operator to lower the block if assessing the block is difficult.  |    |
| 5 | Connect rigging from crane to load connections & Center block over the rigging/load        | <ol> <li>MSI from overhead lifting</li> <li>Wind</li> <li>Unplanned movement/dropped Load</li> <li>Miscommunication due to radio chatter or pre-lift meeting not held to discuss hazards involved and identification of them in the work area</li> <li>Uneven Hoisting from improper placement of rigging and unknown weight / location of loads inside trailers</li> <li>Cuts to rigging from sharp edges/ nails.</li> </ol> | C3 | <ol> <li>Conduct a pre-lift meeting prior to EVERY lift which will include a in-depth discussion involving all parties in the crane crew and will detail paths of travel, a 360 degree walk around of the crane and load swing area to alleviate any obstacles in the paths of these. Do not over reach or over stretch to connect rigging to the hook, direct operator to lower the block if accessing the block is difficult.</li> <li>Follow manufacturer's specifications for maximum wind speed limits.</li> <li>Use tag lines to assist in controlling the movement of the load. Slowly pick the load from rest.</li> <li>Maintain visual contact and or radio contact with crane operator. Radio silence will be maintained unless hazardous condition develops.</li> <li>Signal person to watch load as they are being hoisted, to identify if the load is picking uneven.</li> <li>When rigging load, inspect the positioning of the rigging to ensure it is not in contact with sharp edges/ nails.</li> </ol> | C5 |
|   |  |   |    | Use softeners to keep rigging from contacting sharp edges  |    |



| 6 | Hoist, load, & swing to set into position | <ol> <li>Trailer contacts boom from improper crane boom angle.</li> <li>Miscommunication or change in discussed path or travel for the unit</li> <li>Unplanned Movement of the load</li> <li>Equipment failure from inadequate rigging</li> <li>Uneven Hoisting from rigging not being centered</li> <li>Over Capacity of crane from miscalculation of weight, picking distance, extreme weather conditions.</li> <li>Falls from heights and/or EWP</li> <li>Dropped Load/Materials while attaching alignment brackets (Pigs Ear)</li> </ol> | C1 | <ol> <li>Crane operator to ensure to keep boom angle low enough that load and boom do not contact.</li> <li>Pre-lift meeting to establish path of travel for load and obstacles.</li> <li>Direction of the lift will be given by a designated signal person by use of radio. Radio silence will be maintained by crew unless a hazardous condition develops. If radio communications is lost, the operator is to stop all functions until communications can be reestablished. Use tag lines on the load to assist in controlling movement of the trailer.</li> <li>Competent and certified rigger to inspect rigging prior to using to hoist trailers, ensuring adequate condition and capacity for the lift.</li> <li>Test lift will be conducted to ensure load is level and stable prior to being moved into final position.</li> <li>Crane operator will verify that the weight on the Load Moment Indicator corresponds to the weight provided by the client and used on the lift calculation. If weights are inconsistent, lower the trailer and lift calculation is to be redone.</li> <li>Inspect harness, lanyard and anchor point and document prior to each use. Always maintain 100% tie off to engineered anchor point</li> <li>Always maintain control of alignment bracket while attaching or loosening lag bolts. Ensure pigs ear lanyard is attached prior to install if applicable</li> </ol> | D4 |
|---|---|--|----|--|----|
| 8 | Disconnect Rigging                        | <ol> <li>Pinch Points between rigging and load.</li> <li>MSI from overhead lifting.</li> <li>Wind</li> <li>Unplanned Movement of rigging</li> </ol>  | C3 | <ol> <li>Do not place hand between rigging components. Use appropriate gloves for task. Watch hand and body placement.</li> <li>Do not over reach or over stretch to connect rigging to the hook, direct operator to lower the block if assessing the block is difficult.</li> <li>Follow manufacturer's specifications for maximum wind speed limits. Monitor weather conditions throughout the day</li> <li>Maintain good communications with coworkers. Crane operations are to be halted when AWPs are operating in the craning area.</li> </ol>   | C5 |



## **HSE Safety Management System**Job Hazard Analysis

| Ear)   | C1 (High) | is attached prior to recovery if applicable.  | D4 (Low) |
|--|-----------|---|----------|
| Dropped Load/Materials while removing alignment brackets |           | <ol> <li>Always maintain control of alignment bracket while<br/>attaching or loosening lag bolts. Ensure pigs ear lanyard</li> </ol>                          |          |
| 5. Falls from heights and/or AW                          | /P.       | <ol> <li>Inspect harness, lanyard and anchor point and<br/>document prior to each use. Always maintain 100% tie<br/>off to engineered anchor point</li> </ol> |          |



| Safety Guidelines Required For task |                            |   |                             |   |                    |        |               |          |                   |            |               |          |                    |
|-------------------------------------|----------------------------|---|-----------------------------|---|--------------------|--------|---------------|----------|-------------------|------------|---------------|----------|--------------------|
|                                     | Process PPE                |   |                             |   | ı                  | Health |               | Training | E                 | nvironment | l             | Security |                    |
| Х                                   | Pre Job Hazard Analysis    |   | Arc flash coveralls         |   | Yak tracks- Cleats |        | Nitrile glove |          | Bear awareness    |            | Spill kit     |          | Working Alone      |
| Х                                   | FLRA                       |   | Disposable coveralls        |   | Goggles            |        | Hand Washing  |          | CTEC              |            | Drip trays    |          | Daylight time only |
| Х                                   | JHA review                 |   | Ear plugs                   |   | Face shield        |        | Ergonomics    |          | CSTS              |            | Traffic Mgt.  |          | Guards & barriers  |
|                                     | Signage (Safety/Wet Floor) |   | Ear muffs                   | Х | Cut gloves         |        | Other         |          | Confined space    |            | Wildlife Mgt. |          | Journey Mgt.       |
| Х                                   | Spotter                    |   | Hard hat                    |   | Chain-mail gloves  |        |               |          | Fall protection   |            | Bear spray    |          | Buddy system       |
|                                     | LOTO                       |   | Harness                     |   | Leather gloves     |        |               |          | Fire extinguisher |            | Air horn      |          | Radio contact      |
|                                     | PTW (Permit to Work)       |   | Lanyard                     |   | ½ Respiratory mask |        |               |          | LOTO              |            | Vibration     |          | ERP contact list   |
|                                     | Toolbox                    |   | Life line                   |   | Other              |        |               |          | Loader            |            | Ventilation   |          | Other              |
|                                     | Ventilation                |   | Knee pads                   |   |                    |        |               |          | Skid steer        |            | Other         |          |                    |
|                                     | SDS review                 |   | Sealed eyewear              |   |                    |        |               |          | Spill responder   |            |               |          |                    |
|                                     | Fall Protection Plan       | Х | Steel toed boots (6" ankle) |   |                    |        |               |          | TDG               |            |               |          |                    |
|                                     | Barricades                 |   |                             |   |                    |        |               |          | WHIMIS            |            |               |          |                    |
|                                     | Temp logs and verification |   |                             |   |                    |        |               |          | Other             |            |               |          |                    |
|                                     | Other                      |   |                             |   |                    |        |               |          |                   |            |               |          |                    |

|             | Severity  |   |  |   |   |  |  |  |  |  |  |
|-------------|---|---|--|---|---|--|--|--|--|--|--|
| ity         | NDUSTRA   | Catastrophic  Death or multiple life-threatening principals | Major Life threatening injury or multiple serious injuries causing hospitalization | Moderate Significant serious injury Non- permanent injury | Minor  Medical Help needed, Treatment by medical professional | Insignificant Injuries or ailments not requiring medical treatment |  |  |  |  |  |
| pil         |   | 1   | 2  | 3   | 4   | 5  |  |  |  |  |  |
| Probability | A Almost Certain: Almost certain to occur in most circumstances     | 1   | 1  | 1   | 2   | 2  |  |  |  |  |  |
| ٩           | Likely: Likely to occur frequently                                  | 1   | 1  | 2   | 2   | 2  |  |  |  |  |  |
|             | Possible: Possible and likely to occur at some time                 | 1   | 2  | 2   | 2   | 3  |  |  |  |  |  |
|             | Remotely Possible:  May occur in rare and exceptional circumstances | 2   | 2  | 2   | 3   | 3  |  |  |  |  |  |



## **HSE Safety Management System**Job Hazard Analysis

| Name (print) | Name (sign) | Date (yyyy/mm/dd) | Name (print) | Name (sign) | Date (yyyy/mm/dd) |
|--------------|-------------|-------------------|--------------|-------------|-------------------|
| ,            |             |                   |              |             | 1,,,,,            |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |
|              |             |                   |              |             |                   |