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## 1.0 Purpose

The purpose of this safety practice is to:

1.1 Establish safety related work practices provide protection against and minimize injury to workers, and otherwise provide safe direction during mobile crane operation(s) and fixed lifting equipment at the Galveston Bay Refinery (GBR).

1.2 Provide direction to site personnel concerned with or responsible for lifting operations.

1.3 Guide in the development and enforcement of appropriate lifting permits and approvals.

## 2.0 Scope

This practice shall apply to all persons who operate or are involved in the use of mobile cranes, personnel platforms, rigging attachments and the related processes and procedures used on property owned or operated by GBR. This practice shall also apply to all fixed lifting equipment and all persons who operate or are involved in the use of fixed lifting equipment on property owned or operated by GBR.

## 3.0 Procedure

### 3.1 Lift Classifications

| Load | Single | Multi-Crane / Tailing | Other Requirements |
|---|---|---|---|
| >75% capacity crane | Critical Lift Plan | Critical Lift Plan | 1. Operations Department notified if 'fall zone" of lift encompasses any operating line.<br>2. Crane Capacity Charts in the crane.<br>3. For Multi/Tailing cranes, documentation will only be required for a crane that meets the >75% trigger.<br>4. Excludes Rigging.<br>5. CAUTION: Lifting material over piping and equipment that contain HF should be avoided. When lifting heavy material over piping and equipment that contain HF cannot be avoided, the HF Risk Analysis/Mitigation Questions in Attachment A (Critical Lift/HF Alky Lift Pre-lift Checklist) and Attachment B (Critical Lift Plan/HF Alky Lift Plan) shall be completed.<br>6. MPC Lift Plan reviewed by the MPC Responsible Engineer.<br>7. Contractor Lift Plan completed by registered professional engineer and submitted within 5 days prior to lift date. A Plot Plan w/ crane placement, Swing Radius, Crane Capacity, Chart, Lifting Devices, and Slings must be included.<br>8. A Pre-Lift meeting required prior to lift.<br>9. A Pre-Lift Checklist must be completed each shift for Personnel Lifts.<br>10.Demolition lifts that meet the critical lift criteria shall fulfill both requirements. |
| >100,000 lbs. over live process | Critical Lift Plan | Critical Lift Plan | |
| Personnel Lift | Critical Lift Plan | Critical Lift Plan | |
| 50%-75% capacity crane | JSA | Lift Assessment | 1.The Lift Assessment will vary at the HEOS discretion based upon the complexity of the lift or other factors. (See Attachment C)<br>2. CAUTION: Lifting material over piping and equipment that contain HF should be avoided. When lifting heavy material over piping and equipment that contain HF cannot be avoided, the HF Risk Analysis/Mitigation Questions in Attachment A (Critical Lift /HF Alky Lift Pre-lift Checklist) and Attachment B (Critical Lift Plan/HF Alky Lift Plan) shall be completed. |
| < 50% capacity crane | JSA | JSA | 1. Refer to PR-3 Safe Work Permit<br>2. CAUTION: Lifting material over piping and equipment that contain HF should be avoided. When lifting heavy material over piping and equipment that contain HF can not be avoided, the HF Risk Analysis/Mitigation Questions in Attachment A (Critical Lift /HF Alky Lift Pre-lift Checklist) and Attachment B (Critical Lift Plan/HF Alky Lift Plan) shall be completed. |
| Maintaining a safe distance to power lines | Permit for Mobile Equipment or Work Near Overhead Power Lines | Permit for Mobile Equipment or Work Near Overhead Power Lines | Refer to Electrical Safe Work Practices |

3.2 Rigging and Lifting Plan

3.2.1 Standard Lifts

3.2.1.1 Standard Lifts do not require written lift plans of this procedure to be filled out. These lifts require a copy of the crane capacity charts to be in the crane. If the “Fall Zone” of any lift encompasses any operating lines or equipment, the Owning Department is to be notified

3.2.1.2 A Standard Lift plan will address the following:

3.2.1.2.1 Load weight, center of gravity, and attachment points

3.2.1.2.2 Gross load is less than 75% of the equipment and does not meet any of the other critical lift triggers (capacity, clearance, multi-crane, complexity, greater Crane or Rigging Gross Capacity etc.)

3.2.1.2.3 The rigging is configured to secure and stabilize the load

3.2.1.2.4 The load is protected from damage

3.2.1.2.5 Movement of the lifting equipment and load is agreed upon and communicated

3.2.1.2.6 Communication method or system is determined and agreed upon

3.2.1.2.7 Rigging and lifting equipment inspection and maintenance requirements for repetitive lifts

3.2.1.2.8 Evaluate lifting equipment foundation and support.

3.2.1.2.9 The Safe Work Permit (SWP) and Job Safety Analysis (JSA) shall address the following: site control for vehicular and pedestrian access, potential interferences, and other work in close proximity are evaluated. Site conditions, weather, work area, contingency considerations, and emergency action requirements.

3.2.1.3 Complete a documented daily crane inspection each shift prior to lifting operations.

3.2.1.4 Specific hazards related to rigging and lifting shall be addressed in the JSA.

3.2.1.5 Demolition lifts that shall require a lift plan that addresses the requirements specified in section 3.4.10 Demolition Lifts.

3.2.2 Critical Lifts

3.2.2.1 All Critical Lift Plans (See Attachment B) shall be reviewed and signed off by the MPC HEO Maint Supervisor (HEOS), Maintenance/Project Manager, Reliability/Project Engineer, Reliability/Project Supervisors, and Contractor Reps when applicable (See Attachment B).

3.2.2.2 The Critical Lift shall consist of the following:

3.2.2.2.1 Cover Sheet with Unit, Equipment and date.

3.2.2.2.2 A narrative of lift sequence and how the lift will be performed,

3.2.2.2.3 Section 1: Lift Procedure Data

3.2.2.2.4 Section 2: Equipment Data: Certified gross weight, drawings, dimensions, and lifting lug details.

3.2.2.2.5 Section 3: Rigging Data: Detailed rigging drawing, sling charts, shackle charts, data sheets for all rigging, miscellaneous rigging (Below the Hook) spreader bars, chain falls, & NDE Testing.

3.2.2.2.6 Section 4: Crane Data: Elevation and plot drawings, specific crane charts, crane configuration and capabilities, crane location, swing radius, cable capabilities & weights, load blocks / ball capabilities & weights, jib deductions, and fleet angles.

3.2.2.3 Lift plans generated by contractors shall be completed by a registered professional engineer and turned in five days prior to lift date for approval.

3.2.2.4 Critical Lift Pre-Lift Checklist (See Attachment A):

3.2.2.4.1 Personnel involved in a critical lift meeting shall meet prior to the lift with all the appropriate Pre-Lift Meeting Attendees.

3.2.2.4.2 The meeting will explain the lift and work plans to Operations so they can prepare any special operation procedures, instructions, or precautionary measures needed.

3.2.2.4.3 The crane operator, rigging crew, signal person(s), responsible engineer, owning department representative, servicing group representative, HEOS, and a safety representative will attend the pre-lift meeting and sign the completed Pre-Lift Checklist.

**Note**: Once the initial Pre-Lift Checklist has been completed and conditions have NOT changed regarding load, crane or rigging configuration, then proceed with the lift. If conditions have changed regarding load, crane or rigging configuration, then a new Pre-lift Checklist must be completed.

3.2.2.5 Accuracy of the load weight must be considered when developing the lift plan. An appropriate safety factor must be applied for scale, sludge or other debris, which will increase the weight of the load. Remember that wet refractory, wet insulation, condensate when steaming out equipment, or wet scale deposits can make a dramatic increase in lift weight.

3.2.2.6 All critical lifts shall be scheduled to minimize interference with other work in the area.

3.2.2.7 A copy of the Critical Lift Plan and Pre-Lift Check List shall be kept with the copy of the SWP and JSA at the jobsite.

3.2.2.8 Lift plans prepared for removal of a particular piece of equipment may be used to reinstall that item. A lift plan for a specific piece of equipment may be used as long as there are no changes in rigging or crane placement and the crane is as large or larger than the one used for developing the plan and the equipment weight is less than or equal to the equipment weight used for developing the plan.

3.2.2.9 Demolition lifts that meet the critical lift criteria shall require a critical lift plan completed that in addition to the critical lift addresses the requirements specified in section 3.4.10 Demolition Lifts

3.2.2.10 Hoisting of Personnel in Platforms shall require a Critical Lift Plan and a Pre-Lift Check List. See section 3.7 Requirements for Hoisting Personnel Platforms for additional requirements.

### 3.2.3 HF Alky Lifts

3.2.3.1 **Lifting Over In-Service Equipment API RP 751 (4.4 Lifts):** Use of a crane to lift materials over piping and equipment that contain HF should be avoided. For all lifts over or potentially over HF-containing equipment and piping based on crane radius, a lift plan shall be prepared, documented and reviewed. As such, lifts on adjacent units may need to be considered due to crane radius concerns. The lift plan shall include appropriate management approval as well as a consequence analysis that includes, at a minimum, assessing the radius of the lift from the start through the destination plus any additional area that could be affected as a result of failure or error. The lift plan shall include a written rigging plan and cover details such as alternative lifting schemes; placement, mechanical condition, and capacity of the crane; and location of underground piping, including sewer lines. If the lift is over or potentially over equipment and piping containing greater than 5% HF based on crane radius, the lift shall require a plan review and approval by VP Refining Galveston Bay Refinery or RLT designee.

3.2.3.2 **Requirements:** The HF Alky Consequence Analysis shall be used for all lifts over or potentially over HF-containing equipment and piping based on crane radius. If the lift is over or potentially over equipment and piping containing greater than 5 % HF based on crane radius, the lift shall require a plan review and approval by VP Refining Galveston Bay Refinery or RTL designee. (PR-20 Attachment A (Critical Lift /HF Alky Lift Pre-Lift Checklist) and Attachment B (Critical Lift Plan/HF Alky Lift Plan)).

3.2.3.2.1 The HF Alky Consequence Analysis shall include consequence analysis questions such as:

3.2.3.2.1.1 Does the process equipment under the load contain HF acid?

3.2.3.2.1.2 Have emergency plans been discussed/communicated in the event of an incident?

3.2.3.2.1.3 Have operations personnel been notified and placed on standby?

3.2.3.2.1.4 Is the Alky Deluge system operational?

3.2.3.2.1.5 Are the Rapid Acid Dump system operational and isolation points identified?

3.2.3.2.1.6 Are fire monitors and cameras pointed in the direction of the lift?

3.2.3.2.1.7 Has SOC and the Emergency Response Team been notified of the lift?

3.2.3.2.1.8 Is Emergency Notification System Operational?

3.2.3.2.1.9 Does the team performing the lift have radio communication with the board operator?

3.2.3.2.1.10 Have wind direction and evacuations muster points been identified?

3.2.3.2.2 Before performing an HF Alky lift, a pre-lift meeting shall be held to:

3.2.3.2.2.1 Review and discuss the details of the lift.

3.2.3.2.2.2 Discuss any hazards or unique conditions associated with the lift.

3.2.3.2.2.3 Discuss emergency contingencies and safety concerns.

3.2.3.2.2.4 Assign personnel and responsibilities.

3.2.3.2.2.5 Establish a communication plan.

3.2.3.2.2.6 Resolve any question/concerns with lift.

3.2.3.2.2.7 The HF Alky Consequence Analysis must be signed by the Operations Supervisor/Foreman.

3.2.3.2.3 Once a Hydrofluoric Acid unit has been de-inventoried and neutralized, it is not required to conduct the additional HF Consequence Analysis.

3.2.3.2.4 If the Hydrofluoric Acid is stored in the HF Acid Storage Drum for a turnaround/maintenance event, lifts shall not be made over the HF Acid Storage Drum.

3.2.3.2.5 Synthetic slings should not be used unless concerns with chemical compatibility (HF and neutralizing chemicals that will be used to decon/clean slings), service life, inspections, handling and storage have been addressed.

3.3 Responsibilities

3.3.1 Critical Lift Plan Approval

HEOS / Project Supervisor, Maintenance Manager / Engineering Manager, Reliability / Project Engineer, Reliability / Project Supervisor, Area Safety Representative will review and sign the Critical Lift Plan.

3.3.2 Mobile Crane Operator

3.3.2.1 Operating mobile lifting equipment in accordance with ASME 30.5., ASME P-30.1, OSHA 29 CFR 1926.1400-1501, and OSHA 29 CFR 1910.180.

3.3.2.2 Complete and maintain the crane's periodic (monthly) inspection reports as well as submit any repairs needed. The frequent (daily) inspection shall be maintained in the crane.

3.3.2.3 Aware of all site conditions that might affect the crane's safe operation.

3.3.2.4 Verifying work crew has adequately prepared the site for lifting operations.

3.3.2.5 Verifying the weight of the load and center of gravity.

3.3.2.6 Verify that the swing radius and counterweight is free from obstructions.

3.3.2.7 Verify with Rigger, Signalman, and Operations that all personnel will not be exposed to any overhead loads during the lift.

3.3.2.8 Authority to suspend any work that affects the crane operations in an unsafe manner.

3.3.3 HEOS: Heavy Equipment Operator Supervisor

3.3.3.1 Verify that all daily inspections are being conducted and any maintenance or

repairs are completed in a timely manner.

3.3.3.2 Maintain and pass out new inspection books.

3.3.3.3 Lead the Critical Lift Pre-Lift meeting and provide clarity for the lift and configuration.

3.3.4 Fixed Lifting Equipment Operator

3.3.4.1 Responsible for operating fixed lifting equipment in accordance with ASME 30.2, 30.4 & 30.11 and OSHA 29 CFR 1910.179.

3.3.5 VP Refining Galveston Bay Refinery or RLT Designee

3.3.5.1 Responsible for reviewing and approving lift plans for all lifts over or potentially over equipment and piping containing greater than 5% HF based on crane radius

3.3.6 HF Supervisor

3.3.6.1 Participate in the Critical Lift Pre-Lift Checklist meeting meetings and sign off the HF Consequence Analysis questions.

3.3.7 Owning Department Representative

3.3.7.1 Responsible for reviewing operational hazards, lift location and signing the Crane Lifting Assessment and associated lift permits with the Servicing Group Representative requesting the lift.

3.3.7.2 Participate in the Critical Lift Pre-Lift Checklist meeting and sign off understanding the lift outlined by the HEOS.

3.3.8 Qualified Signal Person

3.3.8.1 Trained and qualified in signaling operations in accordance with HESS Practice EQ-13 Rigging Operations and OSHA 1926.1428.

3.3.8.2 Use the appropriate signaling methods during all phases of the lifting operations (See Attachment E- Hand Signaling Chart).

3.3.9 Qualified Rigger

3.3.9.1 Trained and qualified to perform rigging at GBR in accordance with HESS Practice EQ-13 Rigging Operations and OSHA 1926.1404(r).

3.3.9.2 Responsible for using the proper rigging equipment, applying the correct rigging configuration and rigging practices during all phases of the critical lift operation.

3.3.9.3 Review and sign the Pre-Lift Checklist.

3.4 General Mobile Crane Requirements

3.4.1 Industry Code and Standards

All cranes/heavy lifting equipment on the Galveston Bay Refinery will meet the requirements of all applicable industry codes and standards.

3.4.2 Cab and Crane Safety Communications

3.4.2.1 Crane Load Chart shall be located in the cab of each mobile crane.

3.4.2.2 Associated permits/forms will be maintained with the Safe Work Permit for the duration of the lift.

3.4.2.3 Rated load capacities, recommended operating speeds, special hazard warnings or instructions, shall be posted on all equipment where they are easily visible. Instructions or warnings shall be visible to the operator while he or she is at the controls.

3.4.2.4 Hand signals to crane operators shall be those prescribed by the applicable ASME standard for the type of crane in use. An illustration of the signals shall be posted at the job site and mounted on the type of crane being used.

3.4.2.5 A boom angle and radius indicator that is readable from the operator's cab shall be provided. On telescoping crane booms, a length indicator that is readable from the operator's cab shall be provided unless the load rating is independent of the boom length.

3.4.2.6 A portable fire extinguisher, with a basic minimum extinguisher rating of 10 BC, shall be installed in the cab or at the equipment housing. Operating and maintenance personnel shall be familiar with the use and care of the fire extinguishers provided.

3.4.2.7 All cranes shall be equipped with anti-two blocking devices or anti two block prevention systems on all points of two blocking.

3.4.2.8 Means shall be provided by the operator to visually determine the level of the crane.

3.4.2.9 When moving the crane, enough dedicated spotters will be used to maintain line-of-sight with the operator and ensure that the crane is free from obstructions.

3.4.2.10 A sign shall be installed that is visible from the operator's cab warning that electrocution or serious bodily injury may occur, unless a minimum clearance of at least 20ft. is maintained between the mobile equipment, crane, or load and un-insulated energized overhead power lines (i.e., 480V to 138,000 V).

If any mobile equipment (i.e. man-lifts), crane, or load is to be within 20 ft. of un-insulated energized overhead power lines (excluding insulated buckets trucks), then Electrical Infrastructure Group (EIG) will be notified and the "Permit for Mobile Equipment or Work Near Overhead Power Lines" must be obtained.

3.4.2.10.1 If it is determined that a crane or lift will not maintain the minimum clearance specified in 1926.1408 (TABLE A), then the lift will be considered a critical lift and will require a critical lift permit in addition to "Permit for Mobile Equipment or Work Near Overhead Power Lines".

3.4.2.11 Exposed moving parts (such as gears, set screws, projecting keys, chains, chain sprockets, and reciprocating or rotating parts) that might constitute a hazard under normal operating conditions shall have guards. Guards shall be fastened and shall be capable of supporting, without permanent distortion, the weight of a 200-pound person, unless the guard is located where it is impossible for a person to step on it.

3.4.2.12 All new cranes with a maximum rated load capacity of 3 tons or more should have load indicators.

3.4.2.13 The main block must be removed when a jib/extension is in the erected position. Lifting shall not be permitted from over main boom upper point when jib extension is in the erected position. Exception for lattice boom cranes.

3.4.3 Crane Inspections

All cranes shall be inspected as follows:

3.4.3.1 Before being placed in service, annually, and after alteration which might affect the load carrying capability, equipment will be load tested to ensure it meets the manufacturer's specifications and is safe for operation. Upon passing the inspection and/or test, the equipment shall have the test date and rated load capacity of the device neatly marked on it. For cranes that have more than one hoisting unit, each hoist shall have the rated load marked on it or its load block. All markings shall be clearly legible from the ground or floor.

3.4.3.2 Frequent inspections – Conducted daily by a crane operator(s).

3.4.3.2.1 Properly rated for the load

3.4.3.2.2 No visible hook or safety latch deformities

3.4.3.2.3 No visible air or hydraulic leaks

3.4.3.2.4 Cable or chain not visibly damaged

3.4.3.2.5 Verify that the upper travel limit (anti two-block) switch is operable while exercising the crane with no load to determine if there are any items out of adjustment which interfere with proper operation.

3.4.3.2.6 Preventative maintenance has been performed in the previous month, as indicated in the daily inspection log book.

3.4.3.2.7 Daily inspection must be documented in the crane inspection log book, or on the daily inspection card on the equipment.

3.4.3.3 Periodic inspections – Conducted monthly by a crane operator(s) or HEOS. An operational check and visual inspection will be conducted monthly by a designated inspector for cranes to ensure that the equipment is in good condition.

3.4.3.4 Annual inspections – A thorough inspection made per OSHA Requirements. When the equipment passes inspection, the inspection date will be indicated with an updated annual inspection label affixed to the crane (cab area). The annual inspection label must be maintained legible always.

3.4.3.5 Repair – If any discrepancies are noted on the daily, monthly, or annual inspections which adversely affect the integrity or safe operation of the lifting equipment, the crane will be tagged "Out of Service". Repairs relating to safe operation will be inspected by a licensed certifying agency prior to initial use.

3.4.3.6 Crane inspection records will be signed, dated and kept in the cab, readily available to all users. The most recent applicable, daily, periodic and annual inspections shall be available upon request from the HEOS.

3.4.4 Employee Training and Qualifications: See Attachment F – OSHA Crane & Derrick Personal Training Applicability Matrix

3.4.4.1 Only authorized personnel trained, qualified, and physically fit to ASME and OSHA standards will be permitted to operate cranes/lifting equipment.

3.4.4.2 All operators responsible for operation of a crane for construction activities

(i.e., TAR and projects) must be trained by the following means:

3.4.4.2.1 Certification: Certified by a nationally recognized accrediting agency for crane operating testing. This option requires a knowledge and skills test. The testing organization must be accredited at least every 3 years. Operator certification by this method is portable and good for 5 years.

3.4.4.2.2 All Certified crane operators must be trained for the type and capacity of crane operating

3.4.4.2.3 All Certified crane operators must have successfully completed a crane evaluation for the type and capacity of crane operating (See Attachment D – Crane Operator Evaluation).

Note: MPC crane operators will be maintained with the HEO group. All contractors must maintain all documents and be made available upon request.

3.4.4.3 All operators responsible for operation of a crane for routine maintenance activities must be trained to safely operate cranes, according to training content to be developed by the site maintenance, training and safety departments per OSHA 29 CFR 1910.179 & 29 CFR 1910.180. (See MPC Interim Guidance IG 33 Crane Operator Training).

3.4.4.4 Crane operators must have documentation showing current training on their person for the specific type of crane operating.

3.4.4.5 Employee training records will be provided upon request and will reflect the following as minimum information: trainee's name, date trained, brief description of course contents, name of crane(s) trainee is qualified to operate and instructor's name.

3.4.5 Unattended Cab and Crane

Before leaving the crane unattended, the operator shall:

3.4.5.1 Land any load, bucket, lifting attachment, or other device.

3.4.5.2 Disengage the master clutch.

3.4.5.3 Set travel, swing, boom brakes and other locking devices.

3.4.5.4 Put controls in the "off" or "neutral" position.

3.4.5.5 Secure the crane against accidental travel.

3.4.5.6 Stop the engine. An exception to this is when crane operation is frequently interrupted during a shift and the operator must leave the crane. Under these circumstances, the engine may remain running if the following conditions are met:

3.4.5.6.1 The operator shall be situated where unauthorized entry of the crane can be observed.

3.4.5.6.2 The crane shall be located within an area protected from unauthorized entry.

3.4.5.7 At the end of the work day: Operations personnel and the individual in charge of the crane should agree on the set up of the crane so that the crane may be safely left in a safe operating position. This should apply for the duration

of the job.

3.4.6 Safety Devices and Procedures

3.4.6.1 Verify ground/pad is sufficient to support crane and load weight. Matting shall be utilized under the outrigger floats to spread the load to a larger bearing surface where practical. Crane matting configuration must provide enough surface area to achieve soil or pad loading below allowable ground bearing pressure for surface.

3.4.6.2 The load line hoist drum power train will be equipped with a device, other than the load hoist brake, that regulates the lowering rate of speed of the hoist mechanism. Free fall is prohibited. The use of machines having live booms (controlled by brake only) is prohibited.

3.4.6.3 The Servicing Group Representative will be responsible for barricading the lift area as necessary using red barricade tape. The entire swing radius (360 degrees) of the rotating superstructure of the crane shall be barricaded to prevent personnel from being struck or crushed. Only employees essential to the operation are permitted in the fall zone, but never directly under the load. The crane lift radius shall be protected during lifting to restrict access by means of barricading or signalman.

3.4.6.4 The crane operator is responsible for barricading crane tail swing clearance.

3.4.6.5 If the operator's view is limited from the cab when moving the crane, an escort shall be used.

3.4.6.6 All crane hooks shall be equipped with a safety latch.

3.4.6.7 A SWP for vehicle entry must be obtained prior to entry with a crane into a restricted area.

3.4.6.8 Cranes will not be operated without the full amount of any ballast or counterweight needed for the load being lifted as specified by the manufacturer. The maximum ballast or counterweight specified by the manufacture will not be exceeded.

3.4.6.9 The crane operator must test the brakes each time a load approaching the rated load is handled by raising it a few inches and applying the brakes.

3.4.6.10 Cantilever bars shall include fail-safe systems to prevent uncontrolled trolley movement in case the primary trolley brakes fail.

3.4.6.11 When load balancing equipment is used the HEO Supervisor or designee will verify the operator is trained in the use of balancers and is familiar with equipment, controls, and operations of the balancer being used.

3.4.7 Platform Plate/Label

Material, scaffold, skid pans platforms shall have a plate or other permanent label which indicates:

3.4.7.1 The weight of the platform

3.4.7.2 Its rated load capacity or maximum intended load.

3.4.8 Crane Accident Notification Procedure

In the event of a crane accident, the crane operator will notify the HEOS, the Owning Department, and the safety department. The crane operator and the HEOS will initiate an

Initial Incident Report Form.

3.4.9 Assembly and Disassembly of Cranes

3.4.9.1 Assembly/disassembly must be directed by a person who meets the criteria for both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons (“A/D director”).

3.4.9.2 Assembly/Disassembly Director - a person who meets the criteria for both a competent person and a qualified person, or a competent person who is assisted by one or more qualified persons (“A/D director”).

3.4.9.3 Where the assembly/disassembly is being performed by only one person, that person must meet the criteria for both a competent person and a qualified person. For purposes of this standard, that person is considered the A/D director.

3.4.9.4 Knowledge of procedures - The A/D director must understand the applicable assembly/disassembly procedures.

3.4.9.5 Review of procedures - The A/D director must review the applicable assembly/disassembly procedures immediately prior to the commencement of assembly/disassembly unless the A/D director understands the procedures and has applied them to the same type and configuration of equipment (including accessories, if any).

3.4.9.6 Verification of procedures - The A/D director must demonstrate that assembly / disassembly procedures were followed prior to the lift taking place. To facilitate this requirement, the A/D director must check and provide signature that assembly / disassembly procedures were followed. The Refinery Crane Representative must also acknowledge for Critical Lifts, Man Baskets and Super Lifts.

3.4.9.7 The A/D Director shall have read, understand, and follow all parts of the OSHA Standard 29 CFR 1926.1404.

3.4.10 Demolition Lifts

3.4.10.1 Weight of material being lifted must be verifiable by either equipment drawings showing weighted inspection/unit records documenting any modifications made to the equipment.

3.4.10.2 In cases where reliable equipment information is not available, and the weight has to be calculated, a detailed spread sheet will be developed listing the components of the equipment (i.e., steel thickness, tube size schedule, insulation, jacketing, refractory, ladders, platforms).

3.4.10.3 Consideration for bolts, clips, pins, etc. are to be taken into account. If material/equipment is known to exist, it must be listed in the spread sheet and given a value. The total of all sheets will have an additional 10% safety factor added.

3.4.10.4 When making allowances for unknown material (i.e., scale, sludge, etc.), consideration is to be given for the type of service vessel was in, ability to verify quantity, etc. The material weight will be calculated, and 10% safety factor added.

3.4.10.5 Identify specific cut locations on a drawing and include the drawing with SWP, JSA, and Lift Plan (as required). Document the expected weight of

each piece on the drawing.

3.4.10.6 Review the original equipment specification, the fabrication drawing and the inspection/repair records prior to developing the lift plan.

3.4.10.7 Require involvement of the demolition contractor in the lift planning. All lifting documentation will be reviewed with the demolition contractor. Demo contractor does the technical basis work (e.g., equipment spec, fabrication drawings, weight estimates, etc.)

3.4.10.8 Inspect demo load for undocumented repairs (patches welded on the shell, nozzles not shown on the drawings, internals not shown on the drawings, etc.)

Require ultrasonic thickness measurements and drilling of pilot holes to verify thickness. **WARNING**: Ultrasonic thickness measurements cannot read for the combined thickness of two layers of metal that are not acoustically bonded. This may only be measuring a layer of corrosion products or may miss an internal patch.

3.4.10.9 **NOTE**: All weights must be verified by the responsible engineer prior to the lift.

3.5 Fixed Lifting General Requirements

3.5.1 Hazardous Conditions:

3.5.1.1 Hazardous conditions regarding fixed lifting equipment include, but not limited to, the following; improper or inadequate maintenance, overloading, dropping or slipping of the load, obstructing the free passage of the load, and using fixed lifting equipment for a purpose for which it was not intended or designed. Fixed lifting equipment at the GBR shall meet the requirements of all industry codes, standards and design specifications.

3.5.2 Working Over or Near Energized Power Lines

3.5.2.1 If lifting occurs within 20 ft. of unprotected energized electrical lines refer to Permit for Mobile Equipment or Work Near Overhead Power Lines and Critical Lift Plan (if applicable).

3.5.2.2 Non-conductive tag lies will always be used to control the load.

3.5.2.3 A dedicated spotter will be positioned in such a way to ensure that the load line or any part of the crane preventing encroachment with the overhead powerline.

3.5.3 Crane Safety Communications

3.5.3.1 Only personnel trained, qualified, and physically fit in accordance with ASME and OSHA standards will be permitted to perform fixed lifting operations.

3.5.3.2 Fixed lifting equipment shall not be used to lift, lower or travel while anyone is on the load or hook.

3.5.3.3 All hoist chains or ropes shall be free from kinks or twists and shall not be wrapped around the load.

3.5.3.4 Hook latches shall be closed and shall not be used to support any part of the load.

3.5.3.5 All hoist chain or rope shall be seated in its chain sprockets or drum and sheave grooves.

3.5.3.6 Personnel shall stay clear of suspended loads.

3.5.3.7 Fixed lifting equipment shall be used in accordance with the manufacturer's requirements.

3.5.3.8 All warning, safety signs, labels, plates or tags shall be visible and adhered to.

3.5.3.9 The rated load of all fixed lifting equipment must be plainly marked.

3.5.3.10 All safety devices installed on fixed lifting equipment must be operational.

3.5.3.11 If modifications are made to the fixed lifting equipment it must be re-rated and the supporting structure must be checked thoroughly for the new rated load by a qualified engineer or the equipment manufacturer. The fixed lifting equipment must be tested per this standard and the new rated load plainly displayed.

3.5.3.12 Softeners shall be utilized where slings might contact sharp edges.

3.5.3.13 Standard and critical lift criteria shall follow the requirements for mobile equipment.

3.5.3.14 Minimum clearance for overhead, monorail and under hung crane shall consist of three inches overhead and two inches laterally maintained between the crane and obstructions. Obstructions must not be placed in passageways or walkways so that safety of personnel is jeopardized by movements of the overhead, monorail and under-hung crane.

3.5.3.15 Before turning the power on ensure that the work area directly below the fixed lifting equipment and intended travel path is clear of obstruction and non-essential personnel.

3.5.3.16 Ensure that the fixed lifting equipment is positioned at a safe location upon completion of the task.

3.5.3.17 Note: In addition to this practice and other site practices, mobile crane operations conducted at the Docks will comply to USCG regulations: 46 CFR 107.258 - Crane certification, 46 CFR 107.259 - Crane inspection and testing

3.5.4 Overhead, Monorail and Under Hung Cranes

3.5.4.1 Bumpers with sufficient energy-absorbing capacity must be provided for both the trolley and bridge at the end of travel.

3.5.4.2 Bridge trucks must be equipped with sweeps which extend below the top of the rail and project in front of the truck wheels.

3.5.4.3 A functional test will be performed prior to each use to verify that the limit switch and safety devices are operational, all labels are legible, and the annual inspection label is current.

3.5.4.4 Overhead crane operators will receive training on the use, limitations, and inspection criteria prior to use.

3.5.4.5 Guards must be securely fastened.

3.5.4.5.1 Prevention of contact between hoisting ropes and bridge conductors if they can come into contact.

3.5.4.5.2 Exposed moving parts such as gears, set screws, protective keys, chains, chain sprockets and reciprocating components

which may constitute a hazard under normal operating conditions.

3.5.4.6 Electrical Equipment

3.5.4.6.1 Suspended push-button stations must be supported in some manner to protect the electrical conductors from strain.

3.5.4.6.2 Control stations must be marked to clearly identify functions.

3.5.4.6.3 Electrical equipment must be so located or enclosed to prevent accidental contact during normal operations.

3.5.4.6.4 Electrical equipment must be protected from dirt, grease, oil and moisture.

3.5.4.6.5 Guards for live parts shall be substantial and so located that they cannot be accidentally deformed so as to make contact with the live parts.

3.5.4.6.6 “Danger - High Voltage Electrical Equipment” signs shall be placed accordingly to warn employees of the potential electrical hazard.

3.5.4.7 Hoisting Equipment

3.5.4.7.1 Sheave groves must be smooth and free from defects that could cause rope damage.

3.5.4.7.2 Only hoisting ropes meeting the crane manufacturer's recommendations may be used.

3.5.4.7.3 At least two wraps of rope must remain on the drum when the hook is in its lowest position.

3.5.4.7.4 Rope end terminations must be anchored by a clamp attached to the drum or by a socket arrangement approved by the manufacturer.

3.5.4.7.5 Rope clip attached with U-bolts must have the U-bolts on the dead or short end of the rope, the spacing and number of which must be in accordance with the clip manufacturer's recommendation.

3.5.4.7.6 Whenever exposure to temperatures is a possibility, only rope with temperature-damage resistant core shall be used.

3.5.4.7.7 If a load is supported by more than one part of rope, the tension in the parts must be equalized.

3.5.4.7.8 Hooks must meet manufacturer's recommendations and must not be overloaded.

3.5.4.8 Emergency power cut off location should be identified prior to turning the power on for overhead, monorail and under hung cranes as equipped.

3.5.5 Inspections & Preventative Maintenance (PM)

3.5.5.1 An initial inspection of the fixed lifting equipment prior to initial use of new and altered equipment is necessary. Once placed into service, this fixed lifting equipment will require frequent, periodic and annual inspections (PM). The purpose of these inspections is to detect critical components of the fixed lifting equipment and to determine the extent of wear, deterioration or malfunction.

3.5.5.2 A preventive maintenance program based on the crane manufacturer's recommendations must be implemented. The requirements for the periodic inspections are met through the inspection schedule. If any deteriorated components or unsafe conditions are detected during the required inspections, they must be corrected before the fixed lifting equipment is allowed to be used.

3.5.5.3 Initial Inspection

3.5.5.3.1 Prior to use, all new, altered, or modified fixed lifting equipment and electric or air-powered hoists must be inspected by the manufacturer or their authorized agent to verify compliance with the required regulations.

3.5.5.3.2 Documentation of initial inspections includes the date of the inspection, the name of the person performing the inspection, and the serial number or other identifier of the equipment being inspected.

3.5.5.4 Frequent Inspection

3.5.5.4.1 A visual inspection for damage or defects must be performed by the qualified person before each use.

3.5.5.4.2 Conditions that may result in a hazard to the plant and personnel will cause the equipment to be removed from service.

3.5.5.5 Periodic Inspection – Overheard crane

3.5.5.5.1 A complete inspection for wear, deformation, or damage to the fixed lifting equipment and/or hoisting equipment will periodically be performed by the qualified person. Each component will be examined individually for conditions that may result in a hazard and if necessary the equipment will be removed from service.

3.5.5.5.2 Documentation of periodic inspection records includes the date of the inspection, the name of the person performing the inspection, and the serial number or other identifier of the equipment being inspected.

3.5.5.6 Annual Inspection

3.5.5.6.1 All fixed lifting equipment and their accessory gear shall be tested and examined annually by a licensed certificating agency. The annual certification can serve as one of the required periodic inspections.

3.5.5.6.2 A certificate must be issued by the certificating agency and maintained as evidence of compliance.

3.5.5.6.3 When certified fixed lifting equipment has been out of service for

six months or more beyond the due date of an annual certification inspection, an examination equivalent to an initial certification, including proof load test, must be performed before the fixed lifting equipment re-enters service.

3.5.5.6.4 All unit and area overhead cranes and material hoists annual inspections will be maintained by the area/unit planner or scheduler.

3.6 Lifting Equipment Requirements

3.6.1 The permits shall be created for each lift, as appropriate, except as noted below:

3.6.1.1.1 Based on the worst case situation for cranes and rigging, the same permit may be used where a crane is making multiple lifts from the same location using the same load travel path.

3.6.1.1.2 If a crane is moved and then positioned in the exact location where it was prior to the move, and conditions have not changed, the permit is still valid.

3.6.1.1.3 The Crane Operator and rigger noted on the permits will verify whether or not new permits are required.

3.6.1.2 All associated personnel performing lifting operations will review prior to the lift; all the elements and phases of the lift, the permit requirements, and the hazards associated in the JSA.

3.6.2 Rigging the Load

3.6.2.1 Appropriate rigging material and configuration for the load will be used.

3.6.2.2 When rigging the load the configuration shall be in accordance with manufacturer's specifications.

3.6.2.3 All rigging shall be inspected in accordance with HESS Practice EQ-13 Rigging Operations.

3.6.2.4 A Qualified Rigger will rig the load.

3.6.2.5 Crane Operator will verify proper rigging equipment and configuration.

3.6.2.6 Before utilizing lifting lugs, calculations and NDE testing will be performed to verify structural integrity for the rigging configuration.

3.6.2.7 Synthetic slings (2-ply) will be protected from: abrasion, sharp edges, and configurations that could cause a reduction in the sling's capacity such as distortion or localized compression.

3.6.2.8 Verify that enough Rigger(s)/Signalman will be used to maintain line-of-sight with the load.

3.6.2.9 Ensure that enough taglines will always be used to maintain control of the load. Other positive means to control the load in areas where tag line may present a greater hazard (rotating equipment, etc.) will be used.

3.6.3 Attaching the Load

3.6.3.1 The hoist rope shall not be wrapped around the load and shall be free of kinks.

3.6.3.2 The load shall be attached to the hook by means of slings or other devices of sufficient capacity.

3.6.3.3 If multiple slings are connected to hook and the fleet angle is less than 45 degrees from horizontal a shackle should be used to connect to the hook.

3.6.4 Hoisting the Load

3.6.4.1 No crane shall be loaded beyond the specifications of the load rating chart, except for test purposes.

3.6.4.2 Load weight shall be calculated by trained personnel or engineered calculations, manufacturer's specifications/drawings, or shipping weight.

3.6.4.3 The load to be lifted shall be within the rated capacity of the crane in its existing configuration.

3.6.4.4 Operation of the crane shall be conducted in such a manner and at such speeds as to minimize dynamic effects, such as swaying.

3.6.4.5 The operator and rigger shall be responsible for verifying that all lifting ropes are in satisfactory condition both before and after lifting, and that there is adequate rope to reach the ground without having to lower the boom.

3.6.4.6 The hoist winches of hydraulically operated cranes are powered by hydraulic motors operating through reduction gearing, so they all meet the power load lowering requirements. The boom hoist cylinder becomes the critical feature in these machines. The boom hoist cylinder must have an integral excess-flow check valve to lock the hydraulic fluid within the cylinder in the event of a hydraulic line rupture.

3.6.4.7 On truck-mounted cranes, no loads will be lifted over the cab of the vehicle except as approved by the crane manufacturer.

3.6.5 Holding the Load

3.6.5.1 No person is permitted to stand or pass under a suspended load.

3.6.5.2 Neither the load nor the boom will be lowered below the point where less than two full wraps of cable remain on the drum.

3.6.6 Moving the Load

3.6.6.1 The crane shall be level and, where necessary, blocked.

3.6.6.2 The load shall be well secured and balanced in the sling or lifting device, and the device fully seated in the saddle of the hook, before it is lifted more than a few inches

3.6.6.3 In situations where a lift could travel over or endanger personnel, someone other than the crane operator shall sound a whistle to warn personnel in the area that a lift is taking place.

3.6.6.4 The lift and swing path shall be clear of obstructions. Make sure the load, boom or other parts of the equipment don't contact any obstructions (in all directions).

3.6.6.5 All personnel shall be clear of the swing radius of the crane counterweight.

3.6.6.6 Side loading of the booms shall be limited to freely suspended loads. Cranes shall not be used for dragging loads sideways.

3.6.6.7 The operator will avoid carrying loads over personnel.

3.6.6.8 Any time when outriggers are used, the outriggers shall be fully extended or deployed per load rating chart specifications and set to remove the

equipment's weight from the wheels.

3.6.6.9 Blocking under outrigger floats, when required, shall meet the following requirements:

3.6.6.9.1 Sufficient strength to prevent crushing, bending or shear failure.

3.6.6.9.2 Such thickness, width and length as to completely support the float, transmit the load to the supporting surface, and prevent shifting, toppling or excessive settlement under the load.

3.6.6.9.3 Use of blocking only under the outer bearing surface of the extended outrigger beam.

3.6.6.10 When two or more cranes are used to lift one load, one designated person shall be responsible for the lifting operation.
That person shall analyze the operation and instruct all personnel involved.

3.6.6.11 Before moving a crane with a load, it shall be determined that this practice is not prohibited by the manufacturer. Specified tire pressures shall be maintained. The boom should be carried in line with the direction of travel. Sudden starts and stops should be avoided. Tag or restraint lines shall be used to control swinging of the load. Exceptions to using tag or restraint lines must be documented utilizing the ADM-6 Safety Exception and Variance Procedure. Personnel shall not be permitted to ride the bare hook or a load of material suspended from the hook.

3.6.6.12 If the wind speed exceeds 20 mph or manufacturers specifications (whichever is more stringent), the HEOS and Crane Operator shall stop to assess conditions, load and review the manufacturer's recommendations. The HEOS and the crane operator will agree on whether or not conditions are safe to complete the lift.

3.6.6.13 For lightning precautions, refer to the EPR-4 Lightning Precautions and RSW-0060-TC Lightning Protection procedure.

3.6.6.14 When traveling without a load, the empty hook will be secured so that it cannot swing freely.

3.6.6.15 When traveling with a suspended load, the ground speed shall not exceed 3 mph.

3.6.6.16 A crane, with or without a load, shall not travel with the boom so high that it can bounce back over the cab.

3.6.6.17 Crane speed should be kept to a minimum and shall not exceed 10 mph within GBR.

3.6.6.18 Cranes (35 tons and above) and all oversize loads will have a ground or vehicle guide to escort them so that travel can be conducted safely. A routing plan detailing the specific route, type of escort, and the number of personnel required to escort the transport safely to its destination within the site is also required. Escort personnel are to be assigned no other duties during this escort period. Escorts are to maintain radio contact between all personnel involved with the movement throughout the plant. Ground escorts are to have air horns or whistles.

3.6.6.19 Before moving the load, it shall be secured to prevent the release of stored energy.

3.6.7 Transporting Oversized Loads

HEOS or designee will be responsible for transporting oversized loads in/out and through GBR site. The designee will evaluate the following conditions:

3.6.7.1 Specifications of load and load-moving equipment.

3.6.7.2 Routes identified and security notified if needed.

3.6.7.3 Identification of contractor companies involved and verification that all contractor companies (including sub-contractors) are approved to perform this work.

3.6.7.4 Vehicle escorts will be used.

3.6.7.5 Identification of personnel (MPC and Contractor) involved and verification of qualifications.

3.6.7.6 Review of internal and external permits

3.7 Requirements for Hoisting Personnel Platforms

3.7.1 General Requirements

Personnel platform lifting shall be allowed only with appropriate permits and approvals. The use of personnel platforms will only be permitted when other conventional means of reaching the worksite, such as ladders or scaffolding, cannot be used or would be more hazardous than using a personnel platform.

3.7.2 Personnel Platform Construction

Personnel platforms shall be certified for use and construction shall meet all applicable code and standard requirements including guardrail protection which includes top rail, intermediate rail, lower barrier, and toe-board. These guards must can withstand a concentrated load of 300 pounds.

3.7.3 Qualifications and Training of Lifting Personnel

All individuals involved with the personnel lift shall be qualified and trained in accordance with all applicable personnel lifting codes and standards.

3.7.4 Applicable Permits

Prior to hoisting personnel, a Critical Lift Pre-Lift Checklist and a Critical Lift Plan will be completed.

3.7.5 Load Capacity or Maximum Intended Load

The personnel platform will not be loaded beyond its rated load capacity or maximum intended load. Additionally, the total weight of the loaded platform and its associated rigging cannot exceed 50% of the rated capacity for the radius and configuration of the crane. The weight of the intended load cannot exceed 50% of rigging's rated load capacity. The personnel platform must be marked with the weight of the platform and its rated load capacity.

3.7.6 Anti-Two Blocking Device

Cranes used for lifting personnel platforms shall be equipped with an operational anti-two blocking device to prevent contact between the ball and the boom tip.

3.7.7 Personnel Capacity

The maximum number of employees who can be out of the platform at any one time will be those necessary to complete the work. Each employee working out of the platform will wear a safety harness with lanyard attached to the platform ring in the overhead plate with no more than 6 feet of slack in the lanyard.

3.7.8 Communication during Lift

Employees being hoisted must remain in continuous sight of and in direct communication with the operator or signal person. Radio contact between the crane operator and the personnel in the platform must be maintained always. In the event either of these is not possible, then follow the appropriate procedure below:

3.7.8.1 One person in the platform will be appointed to use hand signals to communicate with the crane operator in the event of radio failure.

3.7.8.2 If the crane operator cannot see the personnel in the platform, then a Signal Person will be appointed and stationed in a position to have a clear view of the personnel platform and the crane operator.

3.7.8.3 Other than when giving hand signals, occupants of the platform must keep all parts of their bodies inside the platform during raising, lowering and positioning.

3.7.9 Material and Tools in Platform

Materials and tools in a personnel platform will be evenly distributed throughout the platform and will be secured to prevent displacement during raising, lowering and positioning.

3.7.10 Operator Control

The crane operator will remain at the crane's controls at all times when the platform is suspended.

3.7.11 Crane Load Lines and Winches

No lift will be made on another of the crane's load lines or winches while personnel are suspended in a platform.

3.7.12 Crane Movements during Lifts

All crane movements while lifting, lowering or positioning the platform will be slow, smooth and deliberate. Vertical line speeds are not to exceed 75' per minute during hoisting of personnel. Hoisting will be immediately discontinued upon any indication of unsafe conditions.

3.7.13 Crane Traveling Prohibition

Hoisting of employees while the crane is traveling is prohibited.

3.7.14 Material Hoisting Prohibition

Personnel platforms designed and constructed for hoisting personnel will be used only for lifting employees, their tools, and materials necessary to do their work. At any time during the job, personnel platforms will not be used to hoist only materials or tools without also hoisting personnel.

3.7.15 Pre-Lift Briefing

A pre-lift briefing will be held by the Personnel Lift Supervisor (Servicing Group Representative) and attended by the crane operator, signal person(s), personnel to be lifted, and the person responsible for the task to be performed. This briefing must be repeated for any personnel newly assigned to the job at the beginning of each shift.

3.7.16 Load and Boom Hoist Drum Brakes and Locking Devices

Load and boom hoist drum brakes and locking devices such as pawls or dogs (if so equipped) must be engaged when the occupied platform is in a stationary working position.

3.7.17 Uniform Level and Firm Footing

The crane used for personnel platform lifts must be uniformly level to within 1% of level grade and located on firm footing. All outriggers shall use matting under the pads.

3.7.18 Lifting Subject Matter Expert

The HEOS will act as subject matter expert and provide crane selection and crane operator selection prior to the job start and daily if the job is of longer duration. All appropriate approvals and permitting for the personnel platform permit must be in place for the lift to be conducted.

3.7.19 High Wind and Inclement Weather

Personnel platforms shall not be used when winds are in excess of 20 mph or manufacturers specification (whichever is more stringent), in electrical storms, snow, ice, sleet or other adverse weather conditions which could affect the safety of personnel.

3.7.20 Platform Construction and Rigging Standards

All personnel platform construction and rigging will meet the requirements of ASME B30.23.

3.7.21 Pre-Lift Safety Meeting

The following items address personnel platform pre-lift safety meetings:

3.7.21.1 Immediately prior to lifting anyone in a personnel platform, a pre-lift safety meeting will be conducted by the Personnel Lift Supervisor. It will include, at a minimum, the crane operator, personnel platform occupants, Personnel Lift Supervisor, tagline operator, HEOS, and a Safety Team Representative.

3.7.21.2 The purpose of the pre-lift safety meeting is to review the scope of the lift and to verify that all individuals taking part in the lift understand their roles and responsibilities as assigned by the responsible job representative.

3.7.21.3 The pre-lift safety meeting will be repeated each shift, each time the crane is moved to a new location, and each time a new individual is involved with the lift.

3.7.21.4 During the pre-lift safety meeting, a trial lift shall be conducted and witnessed by all pre-lift safety meeting attendees.

3.7.21.5 The crane operator, Safety Team Representative, Personnel Lift Supervisor shall sign the Critical Lift Pre-lift Checklist immediately following the pre-lift

safety meeting and the trial lift, indicating they have witnessed and/or participated in the trial lift and fully understand the purpose and scope of the lift and their roles and responsibilities, as noted below:

3.7.21.5.1 The crane operator will:

- 3.7.21.5.1.1 Verify proper equipment configuration (i.e., boom length/radius, boom attachments, jib angles, etc.).
- 3.7.21.5.1.2 Verify all necessary parts of the cable are present and capable of reaching the ground.
- 3.7.21.5.1.3 Verify proper footing exists.
- 3.7.21.5.1.4 Verify no overhead obstructions exist.
- 3.7.21.5.1.5 Verify proper rigging exists.
- 3.7.21.5.1.6 Verify anti-two blocking device is operational.
- 3.7.21.5.1.7 Verify overall lift conditions are acceptable.
- 3.7.21.5.1.8 Verify that wind speed does not exceed maximum of 20 mph or manufacturer's recommendations.

3.7.21.5.2 The Personnel Lift Supervisor(s) will:

- 3.7.21.5.2.1 Verify the purpose and scope of work to be conducted from the platform.
- 3.7.21.5.2.2 Verify radio contact with the Equipment Operator.
- 3.7.21.5.2.3 Verify understanding of hand signals to be used in the event of radio failure.
- 3.7.21.5.2.4 Verify affected employees understand the travel path of the platform.
- 3.7.21.5.2.5 Use taglines for motion control of suspended platforms unless there use creates an unsafe condition.
- 3.7.21.5.2.6 Verify all personnel fully understand the job to be performed.
- 3.7.21.5.2.7 Verify all personnel have performed their assigned roles and responsibilities.
- 3.7.21.5.2.8 Verify all safety concerns have been addressed.
- 3.7.21.5.2.9 Verify job site is ready for lifting.

3.7.21.5.3 The Safety Team Representative will review the purpose and scope of the lift and verify that all safety concerns of those involved in the lift have been addressed beforehand

3.7.21.5.4 The HEOS will

- 3.7.21.5.4.1 Verify the crane configuration and capacities
- 3.7.21.5.4.2 Verify communication.
- 3.7.21.5.4.3 Verify frequent inspection has been conducted.

3.7.21.5.4.4 Verify taglines.

3.7.21.5.4.5 Verify the crane operator has met continuous work fatigue requirements.

3.7.21.5.4.6 Perform pre-lift personnel platform inspection.

3.7.22 Trial Lift Standards

3.7.22.1 All personnel platform trial lifts shall comply with ASME B30.23 requirements.

**4.0 Definitions**

4.1 ***Critical Lift*** **–** Any lift where:

General:

- the load weight is greater than 75% of the crane capacity,
- multiple cranes are used to support the load, and the load of either crane is greater than 75% of capacity, or
- >100,000 lbs. over live process
- there is a lift of personnel

4.2 ***Critical Lift Plan*** – A document (Critical Lift Plan) providing appropriate approvals and information regarding a crane's critical lift operations. This plan is included with the Pre-Lift Checklist and attached to the Safe Work Permit.

4.3 ***Fall zone*** – The area (including but not limited to area directly beneath the load) in which it is reasonably foreseeable that partially or completely suspended materials could fall in the event of an accident.

4.4 ***Fixed Lifting Equipment*** – Stationary or immobilized equipment designed for the purpose of performing lifting operations. Some example of these types of equipment are but not limited to: Overhead cranes, Monorail Cranes, Gantry Cranes, Pedestal Cranes, Under Hung Cranes, Jib Cranes, Wall Cranes, Hand Chain hoist, Electric or air powered hoist, overhead hoist, manually operated lever hoist.

4.5 ***HEOS*** – HEO Supervisor or Servicing Group equivalent that will be fulfilling the ASME B.30.5 role of Lift Director/Site Supervisor.

4.6 ***Lift Director (Assembly/Disassembly Director)*** – Qualified, Competent, Knowledgeable person to oversee lifting & rigging operations.

4.7 ***Oversized Loads*** – Any load that must be permitted per DOT requirements

4.8 ***Permit for Mobile Equipment Work Near Energized Overhead Power Lines (Attachment D)*** – Permit required for any lift that passes within 20 feet of unprotected energized line. This permit included with the Critical Lift Plan and Pre-Lift Checklist (if applicable) and shall be attached to the SWP.

4.9 ***Personnel Lift Supervisor*** - (Servicing Group Representative) Responsible for directly overseeing the personnel lift, obtaining the crane operator's signature on crane lift plan, and also signing Critical Lift Pre-lift Checklist

4.10 ***Qualified Person*** – A person who, by possession of a recognized degree in an applicable field or certificate of professional standing or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

4.11 ***Standard Lift*** – Any lift that does not meet the criteria as a Critical Lift and it has been determined

that the load handling activity can be accomplished through standard procedures, and the load handing activity personnel can execute using common methods, materials, and equipment*. All hazards associated with the lift will be covered by a JSA.*

4.12 ***Suspended Personnel Platform*** – Platform used for Personnel lifts attached to hoisting equipment using wire rope, chain, or jointed attachment that has no installed motion controls for the platform itself.

## 5.0 References

5.1 29 CFR 1926.1400-1501, OSHA Construction Standard for Cranes and derricks

5.2 29 CFR 1910.180, OSHA General Industry Standard for Crawler locomotive and truck cranes

5.3 29 CFR 1910.179, OSHA General Industry Standard for Overhead and gantry cranes.

5.4 46 CFR 107.258, USCG - Crane certification

5.5 46 CFR 107.259, USCG - Crane inspection and testing

5.6 ASME B30.5 Mobile and Locomotive Cranes

5.7 ASME B30.23 Personnel Lifting Systems Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Sling

5.8 ASME B30.2, B.30.4, B.30.11, B.30.20, B.30.26, B30.28

5.9 ASME P30.1-2014 Planning for Load Handling Activities

5.10 RSP-1129-000 HF Alky Unit API RP 751 Requirements

5.11 RSP-1162-000 Electrical Safe Work Practices

5.12 MPC Interim Guidance IG 33 Crane Operator Training

5.13 MPC GBR EQ-13 Rigging Operations

5.14 MPC GBR ME-1 Motor Vehicle and Driving Safety

## 6.0 Attachments

6.1 Attachment A: Critical Lift/HF Alky Lift– Pre-meeting Checklist

6.2 Attachment B: Critical Lift Plan/HF Alky Lift Plan

6.3 Attachment C: Lift Assessment

6.4 Attachment D: Crane Operator Evaluation

6.5 Attachment E: Hand Signaling

6.6 Attachment F: OSHA Crane & Derrick Personnel Training Applicability

## 7.0 Revision History

| Revision Number | Description of Change | Written by | Approved by | Revision Date | Effective Date |
|---|---|---|---|---|---|
| 0 | Original issue. Integrated site procedure that Replaces GBR-HESS-PR-20 and RSW-0047-TC under MOC 60813. | M. A. Hernandez | V. J. Meeks | 4/23/2019 | 5/15/2019 |
| 1 | Clarified lifting classifications, added Fall Zone definition, clarified verification of wind speed, added instructions and moved initial questions in Attachment A, and added HF analysis/mitigation questions to Attachment C under 63988. Replaced Attachment D Permit for Mobile Equipment Work Near Energized Uninsulated Overhead Power Lines under MOC 64980. | M. A. Hernandez | V. J. Meeks | 8/9/2019 | 9/30/2019 |
| 2 | Added caution statements to lifting classifications table to address API 751 Audit finding. | E. S. Streacker | E. R. Kaysen | 3/3/2021 | 3/5/2021 |
| 3 | Clarified that annual inspection will be made per OSHA requirements, crane counterweight requirements, and instructions on Attachment C for multi-crane lifts to address audit recommendations. | E. S. Streacker | E. R. Kaysen | 9/15/2021 | 9/21/2021 |
| 4 | Added HF Alky Lift requirements to align with API 751 and RSP-1129-000 and current PR-20 forms to address audit recommendation. | J. W. Verm | H. F. Sheard | 2/13/2025 | 2/28/2025 |
| 5 | Updated management signature requirement for HF Alky Lift Plans based on auditor recommendation review. | J. W. Verm | H. F. Sheard | 4/9/2025 | 4/9/2025 |

## Attachment A Critical Lift/HF Alky Lift– Pre-Lift Checklist

Link: Critical Lift – Pre-Lift Checklist

## Attachment B – Critical Lift Plan/HF Alky Lift Plan

Link: Critical Lift Plan

## Attachment C – Lift Assessment

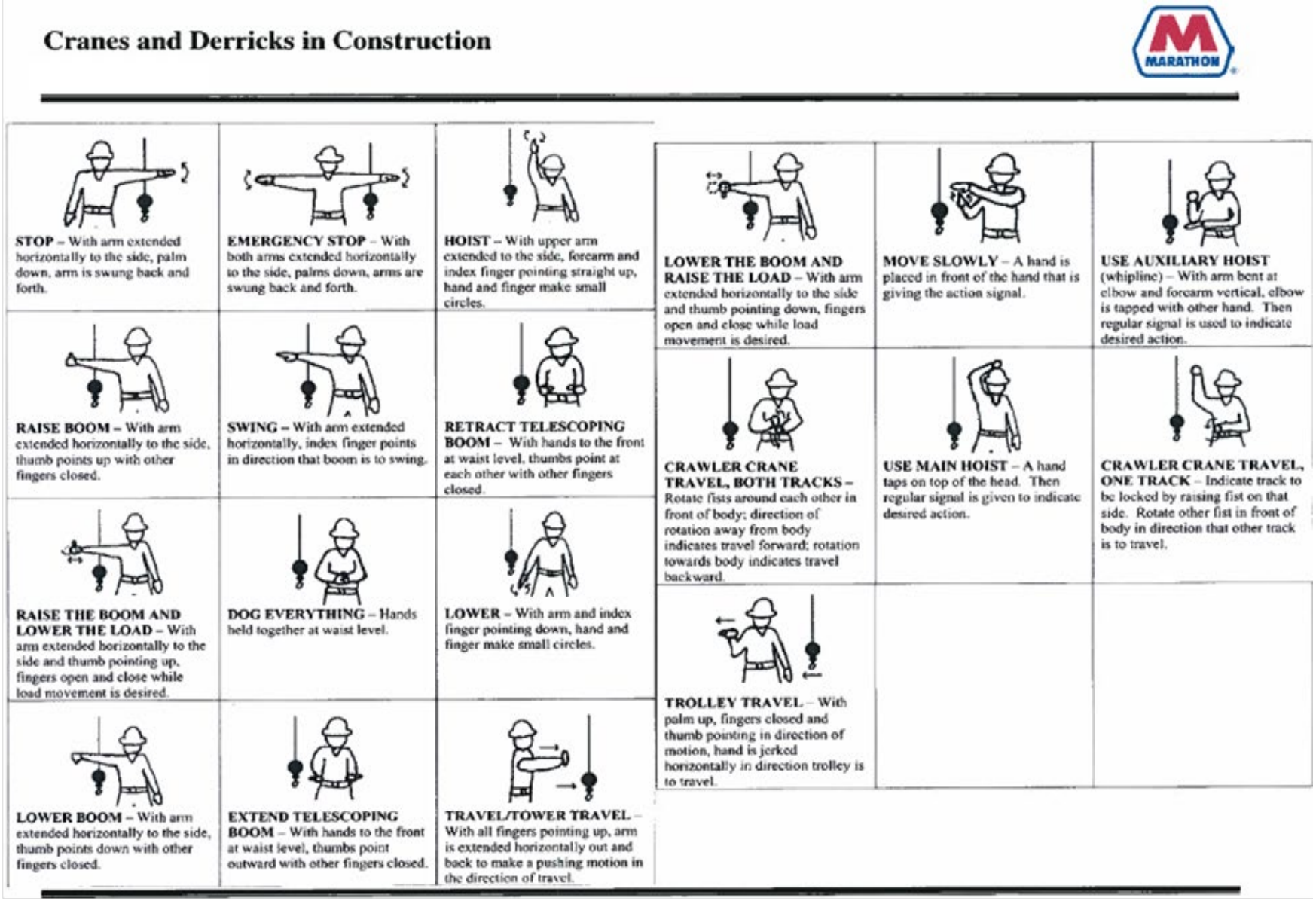
Link: Lift Assessment

## Attachment D – Crane Operator Evaluation

Link: Marathon GBR Crane Operator Evaluation

**Attachment E – Hand Signaling**

## Cranes and Derricks in Construction



**STOP** – With arm extended horizontally to the side, palm down, arm is swung back and forth.

**EMERGENCY STOP** – With both arms extended horizontally to the side, palms down, arms are swung back and forth.

**HOIST** – With upper arm extended to the side, forearm and index finger pointing straight up, hand and finger make small circles.

**LOWER THE BOOM AND RAISE THE LOAD** – With arm extended horizontally to the side and thumb pointing down, fingers open and close while load movement is desired.

**MOVE SLOWLY** – A hand is placed in front of the hand that is giving the action signal.

**USE AUXILIARY HOIST** (whipline) – With arm bent at elbow and forearm vertical, elbow is tapped with other hand. Then regular signal is used to indicate desired action.

**RAISE BOOM** – With arm extended horizontally to the side, thumb points up with other fingers closed.

**SWING** – With arm extended horizontally, index finger points in direction that boom is to swing.

**RETRACT TELESCOPING BOOM** – With hands to the front at waist level, thumbs point at each other with other fingers closed.

**CRAWLER CRANE TRAVEL, BOTH TRACKS** – Rotate fists around each other in front of body; direction of rotation away from body indicates travel forward; rotation towards body indicates travel backward.

**USE MAIN HOIST** – A hand taps on top of the head. Then regular signal is given to indicate desired action.

**CRAWLER CRANE TRAVEL, ONE TRACK** – Indicate track to be locked by raising fist on that side. Rotate other fist in front of body in direction that other track is to travel.

**RAISE THE BOOM AND LOWER THE LOAD** – With arm extended horizontally to the side and thumb pointing up, fingers open and close while load movement is desired.

**DOG EVERYTHING** – Hands held together at waist level.

**LOWER** – With arm and index finger pointing down, hand and finger make small circles.

**TROLLEY TRAVEL** – With palm up, fingers closed and thumb pointing in direction of motion, hand is jerked horizontally in direction trolley is to travel.

**LOWER BOOM** – With arm extended horizontally to the side, thumb points down with other fingers closed.

**EXTEND TELESCOPING BOOM** – With hands to the front at waist level, thumbs point outward with other fingers closed.

**TRAVEL/TOWER TRAVEL** – With all fingers pointing up, arm is extended horizontally out and back to make a pushing motion in the direction of travel.

## Attachment F – OSHA Crane & Derrick Personnel Training Applicability

**OSHA Crane & Derrick Personnel Training Applicability**

| Training Topic | Standard Reference | Crane Operators | Maintenance/ Repair Personnel | Signal Persons | Riggers | Spotters | Personnel Hoisted by Crane | Personnel Working On or Near Equipment |
|---|---|---|---|---|---|---|---|---|
| Work Area Hazards (Swing radius, crush/pinch points) (Keeping Clear of loads) *(training evaluation required)* | 1926.1424 1926.1430(e) 1926.1425 | X | X | X | X | X | X | X |
| Power Line Safety *(training evaluation required)* | 1926.1407 1926.1408 1926.1430(a) | X | X | X | X | X | | |
| Fall Protection | 1926.1423 1926.500 &.502 | X | $X_1$ | | | | X | |
| Crane Signaling *(oral or written & practical test required)* | 1926.1419 1926.1420 1926.1421 1926.1422 1926.1428 1926.1430(b) | X | | X | | | | |
| Tag-out / Startup System *(training evaluation required)* | 1926.1430(f) 1926.1417(f)&(g) | X | $X_2$ | | | | | |
| Crane Operator Qualification *(written & practical test required)* | 1926.1427 1926.1430(c)(2) | X | | | | | | |
| Exempted Crane Operators *(training evaluation required)* | 1926.1417(f)&(g) 1926.1427(a)(3) 1926.1430(c)(3) | | | | | | | |
| Function-specific, Competent and/or Qualified (training objectives not specified in standard or covered elsewhere) | | | X | | X | X | | |

**NOTE: Qualified and/or competent personnel must be training per the applicable sections of the crane final rule standard.**

1 *This item applies to personnel exposed to fall hazards during work on cranes.*

2 *This item applies to personnel authorized to start/energize or operate controls during maintenance or repair on cranes.*

CBT/WTB training delivery for personnel affect by Work Area Control (Hazards) and Power Line Safety requirements.

Personnel to be hoisted by cranes will be training on PFAS and be trained as part of the pre-planning meeting and safety review prior to personnel lifts taking place.

Signal personnel training to be done by (1) and employer qualified evaluator, or (2) a third-party qualified evaluator (demonstrated competency for evaluating skills)

Site specific training to cover (1) tagging system, procedure, etc., for maintenance/repair work on crane equipment, (2) fall protection requirements of new standard (to build upon fall protection training already in place).

Maintenance/repair and rigging personnel must be trained and qualified to perform their specific function. Spotters must be properly trained to perform their function.