Doc Custodian: Safety	**Marathon Petroleum Company LP Refining** **Rigging & Lifting Standard Practice**	Doc No.: RSW-0110-GV
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1.0 PURPOSE

1.1 The purpose of this standard practice is to establish uniform practices to be used whenever lifts are made at the Louisiana Refining Division.

2.0 SCOPE

2.1 This standard practice shall apply to all power operated equipment, with a capacity of greater than 1 ton that can hoist, lower or horizontally move a suspended load.

2.2 This standard practice applies to all Marathon and contract employees performing lifting or rigging activities.

3.0 IMPLEMENTATION

3.1 This standard practice shall be implemented on the effective date.

3.2 Section 7.1 of this standard practice shall become effective on November 10, 2014.

4.0 RESPONSIBILITIES

4.1 The Manager of Environmental, Safety and Security shall oversee the requirements of this standard.

4.2 It is the responsibility of the contractor(s) supervising and conducting lifting activities to ensure that all personnel and equipment involved are in compliance with the applicable regulations and requirements contained in this procedure

5.0 DEFINITIONS

5.1 Alky Unit Lift – A lift within the HF Alkylation Unit boundary limits, or where the fall radius of the crane boom could enter the HF Alkylation Unit boundary limits.

5.2 A/D (Assembly/Disassembly) Director – the person responsible for the supervision of the assembly/disassembly of a crane who meets the criteria for both a competent person and a qualified person.

5.3 Certified Rigger- is a person who has passed stringent written and practical exams related to rigging.

5.4 Competent Person – a person capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them.

5.5 Controlling entity – an employer that is a primary contractor, general contractor,

construction manager or any other legal entity which has the overall responsibility for the construction of the project--its planning, quality and completion.

5.6 Lifting Beam – Horizontal beam with an attachment point on the top side to connect to a crane and evenly spaced connections (lugs) on the underside to attach to the load (Figure 1). They can also have adjustable lifting points at fixed or variable increments (Figure 2). The design of a Lifting Beam will see load applied throughout the entire structure.

Figure 1

Figure 2

5.7 Lift Weight (load) – Weight below the hook (Not the same as Total Weight)

5.8 Load – The total superimposed weight on the load block or hook.

5.9 Modular Spreader Bar – Horizontal beams designed to spread the legs of a sling and provide expanded versatility while hoisting loads. Modular Spreaders can be comprised of end units/caps at each end and struts in the middle. They are meant to be able to adjust to fit the needs of the lift. The struts can be comprised of an adjustable bolt down option (Figure 3) or of a piece of piping, which can also be modified (Figure 4). The end units do see load whereas the struts only see a compression load and not a typical vertical load.

Figure 3

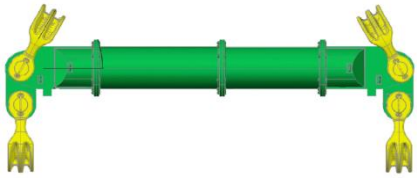


Figure 4

5.10 Qualified person – a person who possess a recognized degree, certificate, or professional standings or who by extensive knowledge, training and experience, successfully demonstrated the ability to solve/resolve problems relating to cranes.

5.11 Qualified Rigger- A person who by possession off a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, successfully demonstrated the ability to solve/resolve problems related to rigging.

5.12 Signal person – Qualified in the signaling of crane movements to the crane

operator. The signals may be either by hand, or by radio if the signal person is not visible. This person shall have a basic understanding of the equipment operation and limitations.

5.13 Spotter – Responsible for identifying and notifying the crane operator of potential hazards in the cranes path of travel (e.g. power lines, pedestrians, equipment, etc.).

5.14 Total Weight – This is the Lift Weight (load below the hook) plus the block and rigging components

5.15 Turnbuckle - A device consisting of two clevis ended bolts screwed into each end of a small metal frame, one with a left-hand threads and the other with a right-hand threads. The tension can be adjusted by rotating the frame, which causes both bolts to be screwed in or out simultaneously, without twisting the bolts or attached slings.

5.16 Capacity – refers to the capacity of a given crane at a specified working radius based off the 75% stability chart.

6.0 REQUIREMENTS

6.1 EQUIPMENT INSPECTION

6.1.1 Initial/Plant Entry Inspection

6.1.1.1 Annual inspection records for all mobile cranes (1 ton and greater) SHALL be reviewed by a qualified person. The qualified person shall be provided by the contract company bringing the crane onsite. The “Crane Checklist for Plant Entry” shall be completed and stored in the crane while the crane is on site(See RSW-110-FORM-05-GV).

6.1.1.2 The crane’s inspection records shall be maintained on site at all times and the annual “Crane Initial Site Inspection” decal must be displayed in the crane’s cab.

6.1.1.3 For cranes that need to be erected on site and cannot be fully inspected, the contract qualified person will check the crane’s paperwork (e.g. annual inspection records) at the gate prior to entry. Once the crane is erected the contract qualified person will inspect the crane filling out the “Crane Initial Site Inspection” prior to use.

6.1.2 Modified or Repaired Lifting Equipment

6.1.2.1 Any lifting equipment that has been modified repaired or replaced must be inspected by a qualified person, meet manufacturer equipment criteria and have been functionally tested prior to initial use, in accordance with 29CFR 1926.1434 and 1414.

6.1.2.2 Any modification to above and or below-the-hook lifting devices will require verification of a load test and current annual inspection data on the modified lifting equipment. (Examples of devices but not limited to; lifting beams, end caps, slings, etc).

6.1.2.3 Requirements for the struts on Modular Spreader Bars:

6.1.2.3.1 The struts of spreader bars are often fabricated to a specific length for particular lifts. Welding segments together to achieve the desired length is common. Spreader bars can have welds as long as the rigging/crane provider has a documented welding procedure with a documented QA/QC process/procedure to ensure quality welds. The QA/QC procedure must be available upon request to ensure its compliance.

6.1.2.3.2 Load test certifications, tags and weld NDE paperwork are not required if proper weld processes are in place at the crane/rigging fabrication shop.

6.1.2.3.3 Three or more welds on a single spreader bar requires the approval of an MPC Inspector or MPC Engineer to proceed. This approval can be documented by a simple signature or initial on either the pre-lift checklist or the critical lift paperwork rigging diagrams. This is to basically ensure the segments are eccentric and buckling concerns do not exist. If any weld appears to be flawed, a Zone inspector or MPC engineer can inspect the weld for integrity and approval to proceed.

6.1.2.3.4 No more than 5 welds are allowed on any length of a strut on a modular spreader bar.

6.1.2.4 The maintenance or repair contractor may only operate the equipment if operation is performed under direct supervision of the operator and operation is limited to those functions required for maintenance, inspection, or to verify performance.

6.1.3 Pre-shift Inspection

6.1.3.1 Each day, before being used, all mobile cranes, rigging and lifting equipment shall be inspected by a competent person. Any

equipment that is damaged, defective, does not meet the manufacturer's specifications, does not have a load capacity tag, does not have an up-to-date annual inspection, or is not in proper working condition shall be either destroyed/discarded or tagged "Do Not Use" and immediately removed from service.

6.1.3.2 The following pre-shift inspections must be conducted for all mobile cranes and documentation, RSW-0110-Form 06-GV, shall be available for review:

6.1.4 Monthly Inspection

6.1.4.1 Monthly inspections must be conducted *and documented* for all mobile cranes as well as other lifting equipment such as shop cranes, overhead cranes, hydraulic lifts, floor jacks and davit cranes. Any equipment that is damaged, defective, does not meet the manufacturer's specifications, does not have a load capacity tag, does not have an up-to-date annual inspection, or is not in proper working condition shall be tagged "Do Not Use" and immediately removed from service.

6.1.4.2 The inspection for the mobile cranes shall at least include all items listed in Section 6.1.3.2.

6.1.4.3 The documentation shall be maintained for one year by the equipment owner.

6.1.5 Annual Inspection

6.1.5.1 Annual inspections must be conducted at least every twelve months *and documented* for all mobile cranes as well as other lifting equipment such as shop cranes, overhead cranes, hydraulic lifts, floor jacks and davit cranes.

6.1.5.2 The documentation shall be maintained for a minimum of five years by the equipment owner.

6.1.6 If any lifting equipment experiences severe service such that there is a reasonable probability of damage, the equipment shall be immediately inspected by a qualified person.

6.1.7 Sling periodic inspections

6.1.7.1 In addition to the pre-use inspections required by this section, all contractor-owned slings and lifting hardware shall be inspected by a competent person (e.g. tool room attendant / contractor) - on a frequency consistent with ASME B30 requirements. The inspections shall be conducted at least annually.

6.1.7.2 The inspection of MPC slings and hardware is governed by

Maintenance Procedures #5 “Lifting Equipment” and #25 “Sling Inspection”.

6.1.8 Contractors are responsible for obtaining “Load Testing Certificates” for all below-the-hook lifting devices except for shackles and struts used as part of a Modular Spreader Bar. Contractors shall furnish the certificates to MPC if requested.

6.1.9 The selection of replacement wire rope must be in accordance with the recommendations of the wire rope manufacturer, the equipment manufacturer and overseen by qualified person.

6.1.10 Sling length tolerance verification shall be made prior to all multi point lifts within the refinery. Acceptable sling length verification shall be identified through the manufacturer’s specification.

6.2 ASSEMBLY/DISASSEMBLY

6.2.1 Cranes shall be assemble and disassemble in accordance with manufacturer’s procedures.

6.2.2 The assembly/disassembly of a crane shall be supervised by the A/D Director, who must review the manufacturer’s procedures prior to beginning.

6.2.3 The A/D Director shall review the assembly/disassembly procedures with the crew before any activity.

6.2.4 The crew shall notify the crane operator when they are out of the operator’s view to protect the crew from movement of the equipment.

6.2.5 The boom suspension system must be rigged to maintain stability upon removal of the pin and the crew shall be cautious to prevent pinning or crushing, when working under the boom and jib.

6.2.6 Upon completion of assembly, the lifting equipment must be inspected by a qualified person to assure that it is configured in accordance with manufacturer equipment criteria.

6.3 GENERAL

6.3.1 The following safety devices are required on all mobile cranes operating within the LRD Refinery:

6.3.1.1 Crane level indicator;
6.3.1.2 Boom stops (except for derricks and hydraulic booms);
6.3.1.3 Jib stops;
6.3.1.4 Equipment with foot pedals must have locks;
6.3.1.5 Hydraulic outrigger jacks must have an integral holding

device/check valve;

6.3.1.6 Equipment on rails must have rail clamps and rail stops; and

6.3.1.7 Horns

6.3.1.8 An anemometer (or similar) is recommended for critical path/safety sensitive jobs. This needs to be requested by MPC.

6.3.2 All operational aids (i.e. boom hoist limiting indicator, anti two-blocking devices, etc.) equipped on mobile cranes shall be in proper working order. Cranes manufactured after November 8th, 2011, must have "anti – two blocking devices, automatic overloading devices for articulating cranes, and walkways provided on the boom for lattice boom cranes if a fall hazard exists.

6.3.3 Equipment must be equipped so as to provide safe access and egress between the ground and operator work station, including the forward and rear positions, by providing the operator with steps, handholds, ladders, and railing systems.

6.3.4 The operating procedures of the crane, including rated capacity (load charts), operating speeds, special hazard warnings, instructions, and operator's manual, must be maintained within the cab at all times for use by the operator.

6.3.5 A minimum clearance of 3 inches overhead and 2 inches laterally shall be provided and maintained between the overhead crane and any obstructions.

6.3.6 When a crane is taken out of service, a tag must be placed in the cab stating that the equipment is out of service and is not to be used.

6.3.7 If equipment adjustments or repairs are necessary, the operator shall notify his/her supervisor immediately of the issues.

6.3.8 Lifting equipment shall not be operated in excess of its rated capacity.

6.3.9 Both the rigger and the crane operator must be in agreement that the load weight is safely within the rated capacities of the rigging and crane. It is the responsibility of the crane operator to give final approval that the load being lifted is safely within the limitations of the crane, rigging, and the guidelines of this policy.

6.3.10 The use of equipment in which the boom is designed to free fall is prohibited in the refinery and tank farm.

6.3.11 Signals

6.3.11.1 A trained signal person is required for all lifting operations at LRD.

6.3.11.2 Signals to operators shall be by hand, voice or audible.

6.3.11.3 Hand signal charts (See Appendix F) shall be either posted on the equipment or in the visual vicinity of the hoisting equipment.

6.3.11.4 All personnel involved in lifting operations shall be trained on and use standard signaling practices when visual contact with crane operator is maintained.

6.3.11.5 When visual contact with the crane operator cannot be maintained, radio communication will be utilized. The radios shall be tested on site before beginning operations and shall be through a dedicated channel. The crane operator's radio must be a hands free device, allowing uninterrupted control of the operation of the crane.

6.3.11.6 The crane operator and signal personnel will discuss the voice signals if used. Voice signals will include function (hoist, boom, etc), direction; distance and/or speed; function, stop command.

6.3.11.7 All personnel involved must be able to communicate in the language used.

6.3.11.8 The crane operator is responsible for halting work if it is evident that the signal person is not qualified.

6.3.12 A personal fall arrest system must be properly worn and secured by anyone working at elevations of six feet or more above grade that are not protected by a temporary or permanent perimeter guardrail. (See the Fall Protection Standard Practice, RSW-01350GV)

6.3.13 Tag lines shall be used if necessary to prevent rotation of the load unless their use creates an unsafe condition.

6.3.14 The work area shall be properly barricaded. The entire tail swing radius (360 degrees) shall be barricaded. The swing zone under the boom area must also be barricaded. Only employees essential to the operation are permitted in the fall zone, but not directly under the load.

6.3.15 Crane operators shall not leave the cab of the crane with a load on the crane.

6.3.16 Weather conditions, such as wind, rain, and lightning, shall be observed and considered when making all lifts, wind velocities above 20 MPH sustained can create hazardous working conditions under various configurations of crane, load, and/or particular lift. If any such hazard is identified, the job should be halted, and the issue brought to the attention of MPC Maintenance supervision

immediately. When wind conditions exceed 20 MPH sustained per the LRD weather station, the Security Operations Center shall notify all personnel via radio and the plant wide notification system of high wind speeds.

6.3.16.1 The following Wind Speed Warning Announcement shall be communicated:

Attention All Personnel
Attention All Personnel
Sustained wind speeds are greater than 20 MPH
All lifting activities where booms are extended higher than 30' shall use caution and refer to the crane's operating manual!

Attention All Personnel
Attention All Personnel
Sustained wind speeds are now less than 20 MPH
All lifting activities may resume!

6.3.17 Softeners (protection pads) are to be used with metal slings to prevent slings from being damaged (e.g. cut, kinked) or shifting under load. Softeners shall always be used when lifting iron or structural steel with metal slings. Softeners shall also be used with nylon or synthetic slings where damage could occur from sharp or jagged edges.

6.3.18 The use of a "Christmas Tree" type sling configuration is prohibited. This involves the lifting of several objects from the same sling at the same time.

6.3.19 A round sling is a synthetic endless sling fabricated from load bearing core(s) of synthetic yarn(s). Round slings enclosed in a protective cover(s) which prevents the visual inspection of the load-bearing fibers are allowed onsite. Round slings that do not have a protective covering or have a device that allows inspection, such as a fiber-optic core of pull strings may also be utilized.

6.4 CRANE MOVEMENT, PLACEMENT, AND SET-UP

6.4.1 A vehicle entry permit must be obtained from the MPC Unit Operator before entering the unit.

6.4.2 All sewer and drain openings shall be covered with approved sewer covers.

6.4.3 The crane must be leveled on a firm supporting surface within one percent of level. Matting shall be utilized under the outrigger floats to spread the load to a larger bearing surface. All matting shall meet the recommended allowable Soil Bearing Pressure Values from the MPC geotechnical report.

6.4.4 Outriggers shall be fully extended with tires raised free of the crane's weight. Outrigger cylinder jacks must be in the locked position after leveling.

6.4.5 No attempt shall be made to drag a load horizontally on the ground in any direction.

6.4.6 Any crane being used to carry a load must have a spotter.

6.4.7 Cranes 15 tons and larger with jibs erected must have a spotter when moving from one location to another.

6.4.8 Cranes 35 tons and larger shall be escorted by a spotter at all times when moving from one location to another regardless of location.

6.4.8.1 Cranes 35 tons and larger in a process unit or congested area must have a walking flagger/spotter at all times.

6.4.9 Any crane moving in congested areas, process units, near power lines or off of designated roadways shall have a spotter at all times. A spotter shall also be required when the crane is in transit and the view in the direction of travel is obstructed. If you are unsure if your equipment requires a spotter, contact a safety professional.

6.4.10 Loads being carried on the crane's hook must be tied back to the crane to prevent swinging and must be escorted by a spotter. Contractor must ensure that the crane manufacturer approves the crane for travel while carrying a load.

6.4.11 Before moving a crane with a load, the competent person shall be responsible for determining and controlling safety. Decisions such as position of the load, boom location, ground support, levelness of the travel surface, travel route and speed of movement shall be established.

6.4.12 If a crane is to be left without an operator at the end of the work day or shift, the following procedures will be followed:

6.4.12.1 Hydraulic cranes will retract the boom to less than 30 feet height and shut down the crane.

6.4.12.2 If retracted boom is greater than 30 feet, the boom will be fully lowered or cradled.

6.4.12.3 Lattice boom cranes will be lowered to grade where possible. If the boom cannot be lowered (Trans lift, multiple boom crane), the load line will be tied to a permanent structure.

6.4.12.4 Propane cab heaters must be shut off whenever the operator is away from the crane.

6.4.13 Cranes that must be set up in a manner that blocks a roadway must have an approved Road Closure Permit per the Motor Vehicle Safety and Driving Standard Practice, RSW-0112-GV.

6.4.14 A minimum swing clearance of 2 feet between the counter-weight on the crane and any obstacles (i.e. structures, vessels, poles, etc.) shall be maintained.

6.4.15 Cranes should maintain a minimum of 10 feet of clearance from all railroad tracks. When this is not possible and either the crane, boom or suspended load must extend within 10 feet of the track, the maintenance coordinator will inform LRD Security who is to then obtain approval from the Railroad company prior to starting job.

6.5 Classification of Lifts

Lift Type	% Crane Capacity		Lift Weight (lbs)	Automatic Triggers	Requirements
Normal Lift	< 75%	and	≤ 75,000 lbs.	• Within non-operating unit • Within a unit under construction • Routine lifts (see Normal Lift definition)	• Normal Lift- All lifts that are less than 75% of the crane's rated capacity at the stated working radius and ware within the battery limits of a non-operating unit or a unit under construction and do not otherwise meet the criteria for a Critical Lift, or: • A lift within an operating unit that is "routine in nature. Routine lifts are those rigging operations normally performed as a maintenance function that may occur on a daily basis rather than rigging activities that occur in cooperation with construction and are less than 75% of the cranes capacity at the working radius and does not otherwise meet the criteria for a critical lift or: • Plant Entry Checklist • Pre-shift Inspection Checklist
Reviewed Lift	≥ 75% *See Note	Or	75,000 – 150,000 lbs.	• Assemble/Disassemble crane components • Away from process units – (see Reviewed Lift definition for all parameters)	• Reviewed Lift- A lift category between a Normal Lift and a Critical Lift and meets the following criteria: 1. Lifting crane components between 75,000 – 150,000 lbs. to assemble/disassemble a crane and supervised by crane contractor. 2. Lifting load(s) between 10,000 – 20,000 lbs. over live process lines or equipment (excluding the Alky Unit). 3. Lifting load(s) between 75,000 – 150,000 lbs. in a new construction area, storage areas, transfer areas, and laydown areas away from process units (i.e. fall radius of boom would not enter battery limits of the unit) • Plant Entry Checklist • Pre-shift Inspection Checklist • Reviewed Lift Plan • Reviewed Lift Pre-Lift Checklist (see RSW-110-FORM-07-GV) • Pre-Lift Meeting
			10,000 to 20,000 lbs.	• Over live process lines/equipment	
Critical Lift	≥ 75% ***See Note**	Or	>75,000 lbs.	• Near process units	Critical Lift- Lift that meets or exceeds 75% of the crane's working capacity at the stated working radius. Load exceeds 75,000 lbs. near process units or exceeds 150,000 lbs. anywhere. Lift weight is over 20,000 lbs. and the "load" is lifted over live process lines or equipment, including satellite buildings and breaker houses. The following utility systems are not considered live process lines: utility water, plant air, instrument air, potable water, and fire water. All other utility systems are to be considered live process lines. Any multi-crane lift. Exception: When a second crane is only to be used as the tailing crane to support equipment (i.e. long shaft pumps) and material (i.e. piping) in order for it to be up-right or laid horizontally and the lift does not exceed 75% of the cranes working capacity at the stated work radius. • Plant Entry Checklist • Pre-shift Inspection Checklist • Critical Lift Plan • Critical Lift Pre-Lift Checklist • Pre-Lift Meeting
			>20,000 lbs.	• Over live process lines/equipment • Lifts over satellite buildings and breaker houses	
			Any	• Safe distances to energized overhead power lines are NOT maintained (see 6.9)	
			>5,000lbs Over HF Acid Containing Equipment	• Lifting materials (where the load weight is greater than 5,000#) over equipment containing HF Acid	Lifts over HF Acid equipment where the load is greater than 5,000 pounds (Total Weight). • Plant Entry Checklist • Pre-shift Inspection Checklist • Critical Lift Plan • HF Alky Pre-Lift Checklist • Pre-Lift Meeting
			Any	• Multi-crane lift. See exception under the Critical Lift definition above.	• Plant Entry Checklist • Pre-shift Inspection Checklist • Critical Lift Plan • Critical Lift Pre-Lift Checklist • Pre-Lift Meeting
			Any	• Personnel Lifts	Personnel Lift – A lift in which a crane is used to hoist personnel on a personnel platform. • Plant Entry Checklist • Pre-shift Inspection Checklist • Critical Lift Plan • Suspended Personnel Platform Checklist • Pre-Lift Meeting

6.5.1 Reviewed Lift

6.5.1.1 The “Marathon Reviewed Lift Pre-Lift Checklist” (see RSW-110-FORM-07-GV) must be completed, signed, and dated for all reviewed lifts. The checklist will be maintained with the permit.

6.5.1.2 Reviewed lifts require a “Pre-Lift Meeting” to be held at the site of the lift to review the rigging and lift plan. The Rigging Supervisor (e.g. contractor or shop), Project/Maintenance Coordinator, Operations Representative, and an MPC Safety Representative shall attend the meeting. The meeting shall be conducted after all rigging is complete and just prior to making the lift.

6.5.1.3 In the event that the Reviewed Lift continues into the next shift the upcoming crew must review and initial the “Marathon Reviewed Lift Pre-Lift Checklist” The initial will indicate that each individual has reviewed and understood the work scope and hazards.

6.5.1.4 One Reviewed Lift Plan may be used for multiple lifts if the worst-case scenario is accounted for and the subsequent lifts are noted on the Reviewed Lift plan.

6.5.1.5 One Reviewed Lift Pre-Lift Checklist may be used for multiple lifts during the same shift if the following are adhered to:

6.5.1.5.1 The rigging stays the same
6.5.1.5.2 The rigging stays connected to the crane
6.5.1.5.3 The lifts are performed on the same shift

6.5.2 Critical Lifts

6.5.2.1 The “Marathon Critical Pre-Lift Checklist” (see RSW-110-FORM-01-GV) must be completed, signed, and dated for all critical lifts. The checklist will be maintained with the permit.

6.5.2.2 Critical lifts require a “Pre-Lift Meeting” to be held at the site of the lift to review the rigging and lift plan. The lifting company supervisor, crane operator, Maintenance / Engineering Supervisor, Operations or Product Control Supervisor and an MPC Safety Representative shall attend the meeting. The meeting shall be conducted after all rigging is complete and just prior to making the lift.

6.5.2.3 In the event that the critical lift continues into the next shift the upcoming crew must review and initial the “Marathon Pre-

Lift Checklist" The initial will indicate that each individual has reviewed and understood the work scope and hazards.

6.5.2.4 Subsequent critical lifts can be conducted with one critical lift plan as long as the worst-case scenario is accounted for and the subsequent lifts noted on the lift plan.

6.5.2.5 Multiple lifts in the same shift under the same lift plan may be done with one Pre-Lift Checklist as long as the following are adhered to:

6.5.2.5.1 The rigging stays the same
6.5.2.5.2 The rigging stays connected to the crane
6.5.2.5.3 The lifts are performed on the same shift

6.5.2.6 Lifts that are greater than 100% of the crane's capacity at the stated working radius are prohibited unless specifically approved with a Safety Procedure Variance Form *in addition* to the other required critical lift documents.

6.5.2.7 Additional work permit signatures are required for critical lifts as outlined in Section 11, "Work Permits".

6.5.3 Personnel Lifts

6.5.3.1 **The use of a crane to hoist employees on a personnel platform is prohibited, except when the erection, use, and dismantling of conventional means of reaching the worksite (i.e. ladder, stairway, scaffold) would be more hazardous or is not possible due to structural design or worksite conditions.**

6.5.3.2 Personnel lifts are a subset of critical lifts; all critical lift requirements apply in addition to the specific requirements of this section.

6.5.3.3 **The "Marathon Suspended Personnel Platform Checklist" (see RSW-110-FORM-03-GV) must be completed by the contractor lifting supervisor and MPC Project Coordinator prior to all personnel lifts. The checklist must be maintained with the permit.**

6.5.3.4 No live boom cranes shall be used to lift personnel baskets.

6.5.3.5 Cranes must have boom angle indicator.

6.5.3.6 Cranes must have boom length or working radius indicator.

6.5.3.7 Cranes must have a mechanical swing lock capable of being set at any swing position.

6.5.3.8 Cranes must have an anti-two blocking device, having lock-out capabilities of those control functions that may cause a two-blocking condition.

6.5.3.9 The hoist drum shall have a system or device on the power train, other than the load hoist brake, which regulates the lowering rate of speed of the hoist mechanism to control load lowering (No free fall).

6.5.3.10 Main boom lengths shall be restricted to the minimum length needed to reach the desired working height.

6.5.3.11 The direct attachment of a personnel lift to a luffing jib is prohibited.

6.5.3.12 Jib lengths shall be restricted to the minimum length needed to reach the desired working height.

6.5.3.13 Jib shall be used at the minimum offset.

6.5.3.14 All load handling devices and other boom attachments, must be removed from the main boom prior to handling personnel.

6.5.3.15 The load hook shall be the type that can be closed and locked.

6.5.3.16 The safety factor on all rigging equipment must not be less than five times the maximum intended load.

6.5.3.17 All outriggers shall be fully deployed following manufacturer's specifications with the tires raised freely off the ground.

6.5.3.18 The crane shall be located on firm footing, and shall be level within one percent of level grade.

6.5.3.19 Only personnel platforms constructed to comply with 29 CFR 1926.1431(e) shall be utilized.

6.5.3.20 The total weight of the loaded personnel platform, including rigging must not exceed 50 percent of the chart-rated capacity for the expected radius, configuration and 50 percent of the hoist rated line pull, including the 125 percent test loading of the pre-lift test. The capacity of the personnel platform must be conspicuously posted on the platform.

6.5.3.21 The platform shall be attached to the hook, not the load line.

6.5.3.22 A separate safety sling (choker) shall be attached to the platform and above the load hook.

6.5.3.23 **Personnel occupying the platform must wear a full body**

harness with a twin lanyard SRL that is securely attached at all times. Personnel shall keep all body parts inside of the platform during raising, lowering, and positioning operations. Platform must be landed or secured before any employees can enter or exit.

6.5.3.24 The rigging for the platform must have only been used for personnel lifts and the eyes are equipped with thimbles.

6.5.3.25 After positioning of the personnel platform, all brakes and locks on the crane shall be set before personnel perform any work.

6.5.3.26 The crane operator shall remain at the controls at all times when the crane engine is running and the platform is occupied.

6.5.3.27 Hoisting of personnel shall be promptly discontinued upon indication of any dangerous weather conditions (Such as: winds in excess of 20 mph, lightning, sleet, ice, etc.).

6.5.3.28 All slings, rings, master links and other rigging components must be rated for no less than 5 times the maximum intended load. When rotation resistant rope is used, the slings must be capable of supporting without failure at least ten times the maximum intended load.

6.5.3.29 Cranes cannot be “traveled” while hoisting occupied personnel platforms for any reason.

6.5.3.30 Personnel platforms shall be used only for employees, their tools and material necessary to do their work, and shall not be used to hoist only materials or tools when not hoisting personnel.

6.5.3.31 A trial lift with the unoccupied personnel platform loaded to 125% of its rated capacity shall be made from ground level or any other location where employees will enter the platform, to each location at which the platform is to be hoisted and positioned. This trial lift shall be performed immediately prior to placing personnel in the platform. The operator shall determine that all systems, controls, and safety devices are activated and functioning properly, that no interferences exist, and that all configurations necessary to reach those work locations will allow the operator to remain under the 50 percent limit of the crane’s rated capacity.

The trial lift shall encompass the entire swing radius for the intended work. In addition, the trial lift shall be repeated prior to hoisting personnel whenever the crane is moved and set up in a new location or is returned to a previously used

location. Also, the trial lift shall be repeated when the lift route is changed.

6.5.3.32 A visual inspection of the crane, rigging, personnel platform, and the crane base support or ground shall be conducted immediately after the trial lift to determine whether the testing has exposed any defect or produced any adverse effect upon any component or structure.

6.5.3.33 While the personnel platform is in use, one person is to be assigned to maintain control of the tag line for the platform. The person manning the tag line cannot be a fire watch for the same job.

6.5.3.34 Records shall be maintained on all personnel platforms indicating that annual inspections have been completed and passed within one year prior to use.

6.5.4 Alky Unit Lifts

6.5.4.1 The "Marathon HF Alky Pre-Lift Checklist" (see RSW-110-FORM-03-GV) must be completed for all Alky Unit Lifts (see definition), in addition to any other required checklists. The completed checklist will be maintained with the permit. This checklist is required to analyze the potential hazard that could lead to the release of HF acid. This checklist is *not* required after the unit has been de-inventoried and neutralized such as in turnaround and shutdown scenarios.

6.5.4.2 Lifting heavy materials where the load weight is greater than 5,000# over equipment containing HF Acid should be avoided. If the lift cannot be avoided, the lift shall meet all practices as mentioned in API 751, 3.5.10 and be considered a critical lift.

6.5.4.3 The use of synthetic slings is prohibited in the HF Alky Unit unless a variance is completed for one job duration and discarded after the job is complete. The slings must stay in the Alky Unit for the entire duration of the job.

6.5.4.4 Only steel slings shall be used to lift objects that have been in HF Acid service. This includes exchanger bundles at the refinery's bundle cleaning pad.

6.5.4.5 When crane placement is near an area of HF Acid use or storage, the boom shall not be positioned, when not in use, over piping or equipment that contains HF Acid.

6.6 LIFTING PLANS

6.6.1 A completed "Marathon Critical Lift Plan" (See RSW-110-FORM-04-

GV) is required for all Critical lifts, to include Personnel and critical Alky Unit Lifts. A completed Marathon "Reviewed Lift Plan (See RSW-110-FORM 08-GV) is required for all Reviewed Lifts.

6.6.2 Marathon Critical Lifts plans shall be completed and reviewed by LRD project managers. When deemed necessary by LRD project managers critical lifts performed by contractors shall have lifting plans prepared by a registered professional engineer. Each page of the lift plan must be stamped by a registered professional engineer, if the critical lift was developed by non-MPC personnel. It shall be submitted to the MPC project engineer or Maintenance Supervisor for review at least forty-eight hours prior to the proposed lifting date. Any deviations from the approved lift plan including any changes to the lift weight, crane, lifting hardware, crane placement, or any other changes to the lifting plan shall require that the lift plan be resubmitted for approval and subsequently redistributed. All earlier lift plan revisions are to be collected and replaced.

6.6.3 The lifting plan shall provide the following data:

6.6.3.1 Copy of crane load chart.

6.6.3.2 If using a hydraulic crane, the Critical Lift Plan must state the boom configuration for each boom section.

6.6.3.3 Weight of load, including rigging gear. Note: An appropriate safety factor must be applied for scale, sludge or other debris which will increase the weight of the load. Wet refractory, wet insulation or wet scale deposits can make a dramatic increase in lift weight.

6.6.3.4 A multi-crane lift requires the center of gravity to be noted on the critical lift plan. For objects where the center of gravity may not be known (e.g. long pipe spools with several branches), best judgment will need to be used.

6.6.3.5 All below the hook lifting devices shall have the following:

6.6.3.5.1 Size and rated capacity
6.6.3.5.2 Load Testing Certificates (Except for shackles and struts as part of a Modular Spreader Bar)
6.6.3.5.3 Inspection Data

6.6.3.6 Crane's capacity at working radius and rigging configuration.

6.6.3.7 Verification that the throat of the block and shackles have been checked for excessive deformation.

6.6.3.8 All lifting lugs require a qualified person to inspect/approve and must ask for additional testing (e.g. NDE) when necessary. MPC may ask for additional testing regardless of the inspection.

6.6.3.9 A Critical Lift shall have a Plot Plan indicating affected ground area with boom in horizontal position.

6.6.3.10 Documentation of mat size used for the crane's outriggers against the provided allowable Soil Bearing Values from the MPC geotechnical report.

6.6.4 Upon the completion of a Critical Lift Plan and Reviewed Lift Plan, the lift plans shall be sent to the Turnaround Planning Engineer, Turnaround Planning Department for the retention of the documents.

6.6.4.1 Lift plans will be maintained for a period of three years according to REF.01.07 of the ERCS.

6.7 LIFTING/RIGGING EQUIPMENT REQUIREMENTS

6.7.1 **Slings that are frayed or have damaged or broken wire ropes or where the rating on the slings cannot be read SHALL NOT BE USED.**

6.7.2 All lifting equipment (e.g. slings, shackles, hooks, spreader bars, etc.) shall be permanently tagged / marked with its rated capacity, manufacturer and identification number.

6.7.3 All alloy steel chain slings, wire rope slings with welded end attachments, or metal mesh slings shall be proof tested by the sling manufacturer or equivalent entity per the requirements of OSHA 1910.184. The contractor shall retain a copy of the proof test and shall, upon request, make it available for examination.

6.7.4 All lifting equipment shall meet OSHA Standards 1910.179/180/184 (Cranes & Slings) and ANSI B30.1 thru .29 (Cranes & Lifting Devices).

6.7.5 All rigging and lifting hardware (shackles, slings, spreaders, hooks, master links, etc.) shall be made of alloy steel.

6.7.6 All terminations on headache balls or load blocks shall have "Crosby Terminator" wedge socket or CM piggy back clips (or equivalent technology) properly installed.

6.7.7 Rope clips attached with U-bolts shall have the U-bolts on the dead

or short end of the rope. Spacing and number of all types of clips shall be in accordance with the clip manufacturer's recommendation.

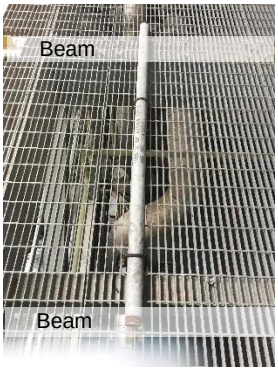
6.7.8 The lifting contractor must have available the documentation of load testing and capacity certification for any spreader bars or other below-the-hook lifting devices. The rated capacity must be marked on the spreader bar/device and must have a documented 12-month inspection.

6.7.9 No rigging and lifting hardware (shackles, slings, hooks, master links, spreaders, etc.) shall be individually loaded beyond 90% of its rated load capacity.

6.7.10 Repairs to any damaged wire rope or synthetic slings must be made by the manufacturer or an equivalent entity.

6.7.11 Any slings, eye bolts, shackles, or hooks that have been cut, welded, brazed, or otherwise modified from their original form shall not be used.

6.7.12 In temporary cases when there is no direct overhead location to rig to, it is permitted to rig to a piece of free-standing pipe if it meets the following requirements:



6.7.12.1 The piping is a minimum of a schedule 40 piece of steel piping (anything thicker such as schedule 80 is also sufficient).

6.7.12.2 The free-standing pipe being rigged to must span across TWO structural supports (I-Beams).

6.7.12.3 The free-standing pipe being rigged to must be a minimum of 4 inches in diameter.

6.7.12.4 The free-standing pipe must be wired down to prevent movement or shifting.

6.7.12.5 The weight of the load being supported/lifted must comply with the following structural beam span distances.

Structural Beam Span	Weight Capacity
≤ 6-foot span	Up to 5,000 lbs
> 6 - 10-foot span	Up to 1,000 lbs

NOTE: Scaffold bar is not permitted to be used.

6.7.12.6 Any configuration outside of this table must be submitted to LRD Safety and approved by an LRD Engineer and Safety Rep.

6.8 WORK PERMIT

6.8.1 In addition to the normal signatures required for the hot work permit, a work permit for any critical lift must also be signed by either the Project Manager, Maintenance Manager, Engineering Manager, Division Manager or their designated representative.

6.9 ELECTRICAL HAZARDS

6.9.1 At least one electrocution hazard warning sticker shall be conspicuously placed in the cab of all cranes and at least two on the outside of the equipment.

6.9.2 During the assembly/disassembly of a crane, no part of the crane shall be closer than 20 feet to a power line.

6.9.3 A crane in transit or under load capable of having its structure or load elevated near or above energized overhead power lines must be operated to maintain the following clearances:

TABLE A—MINIMUM CLEARANCE DISTANCES

Voltage (nominal, kV, alternating current)	Minimum clearance distance (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

Note: The value that follows "to" is up to and includes that value. For example, over 50 to 200 means up to and including 200kV.

6.9.4 When it is difficult for the operator to maintain clearance by visual means, a spotter must be assigned to observe clearance of the equipment and be in continuous contact with the operator.

6.9.5 If it is determined that a lift will not maintain the minimum clearance specified, the following steps must occur:

6.9.5.1 The lift will be considered a critical lift.

6.9.5.2 The Electrical Supervisor must be contacted. The Electrical Supervisor will advise if the lines can be de-energized, if they are insulated, or if a proper barrier can be installed.

6.9.5.3 The Electrical Supervisor will then determine whether the minimum clearance can safely be reduced.

6.10 Overhead and Gantry Cranes

6.10.1 General

6.10.1.1 All new overhead and gantry cranes constructed and installed on or after August 31, 1971, shall meet the design specifications of the American National Standard Safety Code for Overhead and Gantry Cranes, ANSI B30.2.0-1967.

6.10.1.2 A daily inspection shall be performed on all overhead cranes following OSHA 1910.179 frequent inspection criteria.

6.10.1.3 The rated load marking of the crane shall be plainly marked on each side of the crane and this marking shall be legible from the ground or floor.

6.10.1.4 Pendant control boxes shall be clearly marked with the proper identification of movement functions.

6.10.1.5 Maintenance or repairs of equipment will be done following the LRD Energy Isolation and Work Permit Standard Practice.

6.10.2 Operation

6.10.2.1 A minimum clearance of 3 inches overhead and 2 inches laterally shall be provided and maintained between the crane and any obstructions.

6.10.2.2 No load is to be lifted overhead of any personnel.

6.10.2.3 Prior to making a lift where other personnel maybe working, a warning notification must be made communicating intended actions and ordering affected personnel to clear out of the area.

6.10.2.4 Personnel operating an overhead crane must be fully trained in its operation and familiar with all approved ANSI / OSHA standard hand signals.

6.10.3 Inspection

6.10.3.1 Prior to initial use all new and altered cranes shall be inspected to insure compliance with OSHA 1910.179 and ANSI B30.2.0-1967.

6.10.3.2 A monthly inspection shall be performed with a certification record which includes the date of the inspection, the signature of the person who performed the inspection and the serial number or other identifier of the overhead crane, following OSHA 1910.179 periodic inspection criteria.

6.10.3.3 An annual inspection shall be performed on all overhead cranes following the OSHA 1910.179 periodic inspection criteria. All annual inspections shall be done by an authorized third-party representative and those inspection reports shall be made readily available upon request.

6.11 Excavation Equipment

6.11.1 General

6.11.1.1 Lifts made with excavation equipment shall be performed in

accordance with all manufacture's specifications.

6.11.1.2 The load charts shall be specific for the equipment performing the lift and in the cab.

6.11.2 Operation

6.11.2.1 The operator must be trained and show competence in using the excavation equipment to perform lifts.

6.11.2.2 The rigger must be qualified to rig the load to be lifted.

6.11.2.3 No load is to be lifted overhead of any personnel.

6.11.2.4 Prior to making a lift where other personnel maybe working, a warning notification must be made communicating intended actions and ordering affected personnel to clear out of the area.

6.11.3 Inspection

6.11.3.1 A pre-lift inspection shall be performed on the excavation equipment, all rigging, and special lifting attachments prior to each lift.

6.12 Drum Hoist/ Winches

6.12.1 General

6.12.1.1 All drum hoists shall be constructed to comply with ASME B30.7 – 2011.

6.12.1.2 Maintenance or repairs of equipment will be done following the LRD Energy Isolation and Work Permit Standard Practice.

6.12.1.3 Drum hoists that have been idle for a period of one month or more, but less than six months, shall be given an inspection equivalent to a one month inspection before use.

6.12.1.4 Drum hoists that have been idle for a period of over six months shall be given an inspection equivalent to a annual inspection before use.

6.12.2 Operation

6.12.2.1 Only trained and authorized personnel shall operate winches/ drum hoist cranes.

6.12.2.2 Before leaving the drum hoists unattended the operator shall land or stabilize the load, engage the drum brake, and place

the controls in the off or neutral position.

6.12.3 Inspection

6.12.3.1 Daily inspection

6.12.3.1.1 A daily inspection and operational test must be performed before use.

6.12.3.1.2 Daily inspection shall be performed in accordance with ASME B30.7 – 2.1.3

6.12.3.2 Monthly Inspection

6.12.3.2.1 The monthly inspection shall be documented and performed in accordance with ASME B30.7 – 2.1.4.

6.12.3.2.2 Monthly inspections shall be maintained for a period of three months.

6.12.3.3 Annual inspection

6.12.3.3.1 The annual inspection shall be documented and performed in accordance with ASME B30.7 – 2.1.4.

6.12.3.3.2 Annual inspections shall be maintained for a period of one year.

7.0 TRAINING

7.1 Operator of mobile cranes 1 ton or larger

7.1.1 Crane operators that will use cranes for maintenance related activities must be trained to safely operate cranes, according to training content developed by the site maintenance, training and safety department per OSHA 1910.179 & 1910.180. This training must be consistent with manufacturer's recommended training criteria, and must include at a minimum:

a) General operation, moving parts, functions and controls,
b) Load chart application, boom angle and lift capacities,
c) Wire rope configuration, associated equipment, inspection and use,
d) Safety devices and tests to be performed,
e) Inspection, maintenance and shutdown,
f) Transportation
g) Set up procedures,
h) Rigging and hand signals, and
i) Area Hazards

7.1.2 Crane operators that will use cranes for construction related activities must be trained to safely operate cranes, per the OSHA Construction Crane Requirements in 1926.1400 by one of the following means:

7.1.2.1 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.

7.1.2.2 Qualification: Qualified by an audited employer training program. The knowledge and skills test for this option must be (1) developed by an accredited crane operating testing organization, or (2) be audited and approved by a certified auditor using nationally recognized auditing standards. This training program must be audited at least every 3 years. Crane operator qualification by this method is not portable and good for 5 years.

7.1.3 Crane operators shall maintain documentation of training on site for MPC review. Operators must have documentation showing current training on their person.

7.2 Operators of other lifting equipment

7.2.1 The training of MPC personnel and contractors operating lifting equipment (i.e. shop cranes) shall be documented and maintained on site for review.

7.3 Riggers

7.3.1 All personnel whose duties involve rigging shall be qualified riggers. Proper methods of rigging shall always be practiced. The following qualified rigger training requirements shall include at a minimum:

7.3.1.1 Proper rigging inspection
7.3.1.2 Hazards associated with rigging and load dynamics
7.3.1.3 Various sling hitches
7.3.1.4 Calculation of sling/choker stress
7.3.1.5 Load angle factors
7.3.1.6 Calculation of load weight and center of gravity

7.3.2 All contractor rigging activities at a minimum will be deemed safe for lifting/hoisting by a Certified Intermediate Rigger as deemed through the NCCER or equivalent nationally accredited 3rd party. The Certified Intermediate Rigger shall work as part of the work crew and oversee all rigging activities.

Note:
MPC Technicians are exempt to the intermediate 3rd party certification. The training that MPC Technicians receive is equivalent to the certified 3rd party.

Certified rigger requirement is not required for hooking a fixed bridal to a crane (i.e. skid pan, flow bin, super sack) and if the load weight is less than 2,000 lbs.

7.3.3 Loads that will be left suspended more than 24 hours must meet the following requirements:

7.3.3.1 Piping/equipment shall be secured with pipe lashing with a minimum of 3 clamps per choke.

7.3.3.2 Be marked with high visibility flagging to ensure the overhead hazard is easily identified.

7.3.3.3 Piping left suspended shall be inspected by a Certified Rigger daily.

7.3.3.4 Nylon slings shall not be used to suspend loads that will be left suspended longer than 24 hours.

7.4 Signal Person

7.4.1 All personnel whose duties involve signaling must meet the requirements of 29 CFR 1926.1428.

7.4.1.1 The signal person must be trained in hazard recognition, all forms of signaling that may be used, (hand signaling, radio signaling, etc.) and the understanding of the training must be documented by a qualified evaluator. This documentation shall remain on site for the duration of employment.

7.4.1.2 If at any time the signaling person displays a lack of knowledge during signaling duties, the individual shall not perform signaling activities until retrained and reassessed by a qualified evaluator.

7.4.1.3 Signal Person must be trained in safe operation near power lines.

7.5 Equipment Inspections

7.5.1 All personnel assigned responsibility to inspect rigging and lifting equipment shall be trained in proper inspection techniques and the responsibility to remove defective or damaged equipment from service.

8.0 REFERENCE

API 751 – Safe Operation of Hydrofluoric Acid Alkylation Units

ASME B30.1 through .29 as applicable (Cranes and Lifting Devices)
LRD Maintenance Procedure #5 – Lifting Equipment
LRD Maintenance Procedure #25 – Sling Inspection
OSHA 29 CFR 1910.179 – Overhead and Gantry Cranes
OSHA 29 CFR 1910.180 – Crawler Locomotive and Truck Cranes
OSHA 29 CFR 1910.184 – Slings
OSHA 29 CFR 1926.550 – Cranes and Derricks (personnel lifts)
DOC. LIB. NO.: 311.10

9.0 REVISIONS HISTORY

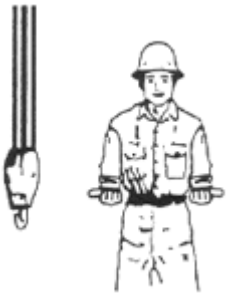
Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
0	**Change procedural format**	**Safety**	**Refinery Management Team**	**9/1/2008**	**9/1/2008**
1	**Deleted the section regarding written approval from crane manufacturing on the crane at all times. & Appendice C – deleted same thing and added Crane has an anti-two blocking device.**	**Safety**	**Refinery Management Team**	**12/10/2008**	**12/10/2008**
2	**7.11 Changed referencing Road Closure Permit**	**Safety**	**Refinery Management Team**	**5/1/2009**	**5/1/2009**
3	**Added on Attachment E – 2A requesting exp. date of annual inspection certificate.**	**Safety**	**Refinery Management Team**	**6/18/2009**	**6/18/2009**
4	**Add Section 7.10**	**Safety**	**Refinery Management Team**	**11/16/09**	**11/16/09**
5	**Add Section 9.4**	**Safety**	**Refinery Management Team**	**4/01/10**	**4/01/10**
6	**Revision to Section 5.1 and Attachment E**	**Safety**	**Refinery Management Team**	**5/07/10**	**5/07/10**
7	**Section 5.3 & 5.4 were changed.**	**Safety**	**Refinery Management Team**	**5/11/10**	**5/11/10**
8	**3 Year Revision to entire standard practice to include requirements from OSHA 1926 Subpart CC**	**Safety**	**Refinery Management Team**	**5/22/2012**	**5/22/2012**

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
9	Changed the attachments to the correct forms	Safety	Safety	10/24/2012	10/24/2012
10	Added provision to section 6.19 to allow round slings to be used on site if they allow a means of inspection.	Safety	Refinery Management Team	12/27/2012	12/27/2012
11	Changed operator's training requirements to align with corporate standard.	Safety	Safety	6/24/2013	6/24/2013
12	Updated record retention requirements for critical lift plans.	Safety	Safety	8/19/2013	8/19/2013
13	In section 6.3.16 removed the word below and added above	Safety	Safety	1/10/2014	1/10/2014
14	Clarified difference between spotter and signal person. Updated each section accordingly.	S. Kumpar	RLT/VPP	11/20/2014	11/20/2014
15.	1.) Removed Maintenance/Engineering Manager's signature required on the Pre-Lift Checklist. 2.) Added the need for emergency plans to be discussed to the Pre-Lift Checklist prior to Critical Lifts	Safety	VPP/RLT	10/29/2015	10/29/2015
16.	In section 6.3.19 removed the word "not" to allow round slings to be used on site.	Safety	Safety	2/29/16	3/01/16
17.	3 Year review. Many Changes throughout. Sections: 5.0, 6.1, 6.3, 6.4, 6.5, 6.5.4, and 6.6.3	Safety	VPP/RLT	9/1/2016	9/1/2016
18.	Inclusion of rigging to free-standing pipe Section: 6.7.12	Safety	VPP/RLT	8/27/18	8/27/18
19.	Included language for the cable pull capacity for personnel platform lifts Sections 6.5.3.20 and 6.5.3.28	Dustin Landry	VPP/RLT	9/6/2018	9/6/2018

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
20.	**Included Reviewed Lift (5.13), defined lift weight versus total weight (5.7 & 5.16), removed Reclassified Process, updated Classification Table (6.5), added Reviewed Lift Plan, added Reviewed Lift Pre-Lift Checklist** **MOC #: 58204**	**Al Morales**	**VPP 2/20/2019** **RLT 2/28/2019**	**2/28/2019**	**2/28/2019**
21	**Routine triennial review, no changes**	**Mike Babin**	**Safety**	**9/11/2019**	**9/11/2019**
22	**Included definitions for certified and qualified rigger, requirements and expectation of training for rigger, safe practice for suspended piping over 24 hrs and added sling length tolerance verification**	**Nick Martin**	**VPP – 4/21/2020** **RLT – 5/7/2020**	**5/20/2020**	**6/1/2020** ***Certified Rigger- 1/1/2021**
23	**Updated escort requirement for a crane 35t and larger**	**Nick Martin**	**VPP and RLT**	**10/1/2020**	**10/1/2020**
24	**Exclusion for MPC Tech.**	**Nick Martin**	**VPP and RLT**	**10/19/2020**	**10/19/2020**
25	**Removed not of not exceeding 90% of crane capacity.**	**Ryan Gonzales**	**VPP and RLT**	**11/17/21**	**11/17/2021**
26	**Increased Alky Critical Lift Threshold and Aligned Lifts Over Substations and Satellite Buildings**	**Nick Martin** **Byran Hicks** **Jonathon Jones** **Bao Dao**	**VPP and RLT**	**7/18/2022**	**7/25/2022**

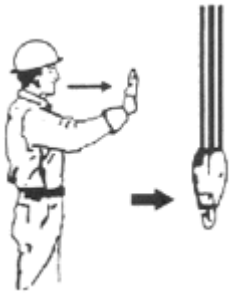
APPENDIX A

Signaling and General Rules for the Safe Operation of Cranes

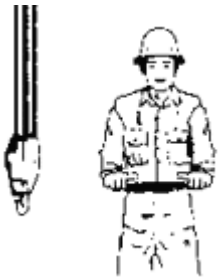


EXTEND BOOM

DOG EVERYTHING



TRAVEL



RETRACT BOOM

EXTEND BOOM (ONE HAND)

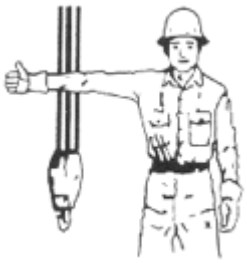
RETRACT BOOM (ONE HAND)

HOIST

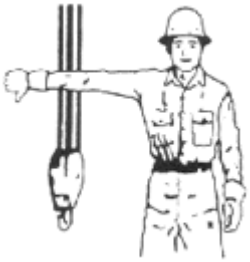
LOWER

USE MAIN HOIST

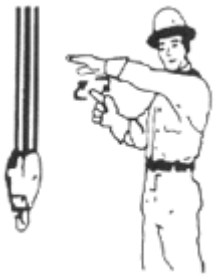
USE WHIP LINE



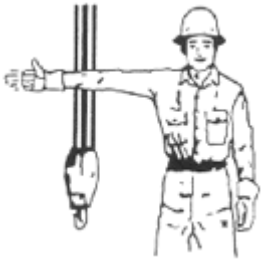
RAISE BOOM



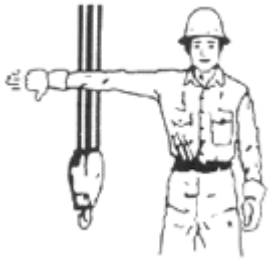
LOWER BOOM



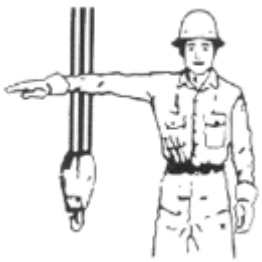
MOVE SLOWLY



RAISE THE BOOM & LOWER THE LOAD

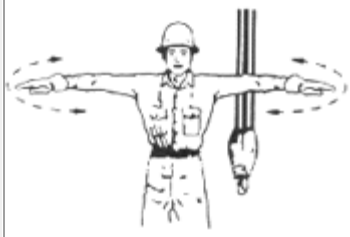


LOWER THE BOOM & RAISE THE LOAD



SWING

STOP



EMERGENCY STOP