

Rigging and Lifting	Document No.: RSW-SAF-029-DT	Approval Date: 2/24/2020	Page 1 of 11
	Revision No.: 27	Next Revision Date: 2/24/2025	
	Document Custodian: Environmental Safety and Security		

1.0 PURPOSE

- 1.1 To provide requirements necessary to ensure all crane lifts in the refinery are completed safely, loads are not lifted without a check of the lifting equipment being used, and equipment is being used within its design limits.

2.0 SCOPE

- 2.1 This procedure applies to all employees, visitors, and contractors working on Marathon Petroleum Company, LP (MPC), Michigan Refining Division (MRD) property.
- 2.2 Lifts of personnel in manbuckets or Boatswain's chairs are considered Critical Lifts and covered by RSW-SAF-005-DT, [Suspended Personnel Platforms](#) (Manbuckets).

3.0 PROCEDURE

LIFT CLASSIFICATIONS

Lift Classification	% Crane Capacity		Lift Weight (lbs)	Automatic Triggers	Other Requirements
Warehouse / Laydown Materials	≤ 75%	&	≤ 100,000	-Any lift above 100,000 lbs automatically becomes a critical lift- see below.	<ul style="list-style-type: none"> No lifts over process lines, buildings, energized electrical lines, instrument signal lines, or over any other areas which are occupied Pre-Lift Checklist for Warehouse/Laydown Material Lifts completed and signed Crane Capacity Charts in the crane
Maintenance/Construction / Demolition	≤ 75%	&	≤ 75,000		<ul style="list-style-type: none"> Operations Department notified if 'fall radius" of lift encompasses any operating line Crane Capacity Charts in the crane Applies only to areas of new construction & demolition
Heavy	> 75% - < 90%	&	>10,000 - ≤ 75,000		<ul style="list-style-type: none"> Heavy Lift Plan completed by the Engineer or Contractor Coordinator and turned in 2 weeks prior to lift date. Must include Plot Plan w/ crane placement, Swing Radius, Crane Capacity Chart, Lifting Devices, mat sizing, soil loading, and Slings Engineering or Maintenance Manager will review and sign Pre-Lift meeting required prior to lift Pre-Lift Checklist completed
Critical	> 75% - <90%	&	> 75,000	<ul style="list-style-type: none"> >10,000 lb lift over process areas, etc. Multi-crane lifts move booms or are mobile w/ load Personnel Lifts 	<ul style="list-style-type: none"> Critical Lift Plan completed by a Registered Professional Engineer for Contractors turned in 2 weeks prior to lift date. Must include Plot Plan w/ crane placement, Swing Radius, Crane Capacity Chart, Lifting Devices, mat sizing, soil loading, and Slings Engineering or Maintenance Manager will review and sign

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				<ul style="list-style-type: none"> ▪ Affected Department Determination – Value, Schedule Impact, Etc. ▪ Within 10' of aerial electric power lines 	<ul style="list-style-type: none"> ▪ All Contractor prepared plans will be stamped on each page and will be review by the Engineering Department ▪ Pre-Lift meeting required prior to lift ▪ Pre-Lift Checklist completed.
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3.1 RIGGING AND LIFTING PLAN

3.1.1 Warehouse / Laydown Materials Lifts

- Does not require the lift plans of this procedure be filled out.
- Personnel at the jobsite use the [Pre-lift Checklist for Warehouse/Laydown Materials Lifts](#) (attachment C) as the site safety checklist before making the lift.

3.1.2 Maintenance/Construction/Demolition Lifts

- Requires a copy of the crane capacity chart(s) be in the crane.
- If the “fall radius” of any lift encompasses any operating lines or equipment, the Operations Department is to be notified.
- These lifts apply to areas of maintenance, new construction, and demolition.
- Specific hazards related to rigging and lifting shall be addressed in the site specific safety plan. If a maintenance lift then hazards will be addressed in a lift specific JSA.

3.1.3 Heavy Lifts

- Requires the [Heavy lift plan](#) (attachment A) of this procedure be filled out completely and submitted to MRD for approval 2 weeks prior to the date of the lift.
- Requires a plot plan showing crane placement and swing radius.
- Requires the crane capacity chart for the crane being used.
- The Engineer or Contractor coordinating the lift prepares the lift plan for the crane, lifting devices, slings, and layouts.
- The Department Manager reviews the lift plan.
- Requires a Pre-Lift Meeting.
- Personnel at the jobsite complete the [Pre-Lift Checklist](#) (attachment B).
- The engineer specifies crane mats based upon the foundation surface arrangement for the area where the lift is to be performed. These mats are required for most critical & heavy lifts, as outrigger pads normally do not provide enough surface area to get soil or pad loading below allowables for the surface.

3.1.4 Critical Lifts

- Requires the [Critical lift plan](#) (attachment A) of this procedure to be filled out completely and submitted to MRD for approval 2 weeks prior to the date of the lift.
- Requires a plot plan showing crane placement and swing radius.
- Requires the crane capacity chart for the crane being used.
- The Registered Professional Engineer prepares the [Critical lift plan](#) (attachment A).
- The Department Manager (Maintenance or Engineering) reviews the plan and signs the forms.
- The Registered Professional Engineer prepares the lifting plan for critical lifts.
- Personnel at the jobsite complete the [Pre-Lift Checklist](#) (attachment B).
- Each page of the lift plan stamped by a Registered Professional Engineer.
- The Registered Professional Engineer specifies crane mats based upon the foundation surface arrangement for the area where the lift is to be performed. These mats are required for most critical & heavy lifts, as outrigger pads normally do not provide enough surface area to get soil or pad loading below allowables for the surface.

3.1.5 When developing the lift plan:

- Consider the accuracy of the load weight, and avoid using shipping documents to determine final weights for equipment formerly in service in the field as these may not include all as built concerns.
- Apply an appropriate safety factor for scale, sludge or other debris that may increase the weight of the load, and
- Remember that wet refractory, wet insulation, condensate when steaming out equipment, or wet scale deposits can make a dramatic increase in lift weight.
- Non-Destructive Testing (NDT) is required on lifting lugs on equipment in the field prior to lift.

3.1.6 Schedule all critical lifts to minimize interference with other work in the area.

3.1.7 Keep a copy of the lift plan with the copy of the Safe Work Permit at the jobsite. Copies of the lift plan shall be onsite. Refer to the Records Management section for more information.

3.1.8 "Heavy or Critical" Lifts require the Owing Department and the Safety Representative to meet before the lift for an explanation of the lift and work plans and to prepare any special operation procedures, instructions, or precautionary measures needed.

3.1.9 A "generic" lift plan for removal of a specific piece of equipment may be used to reinstall that item as long as:

- There are no changes in rigging or crane placement,
- 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.

3.1.10 No lift shall be permitted that meets or exceeds 90% of the rated working capacity of the crane.

3.2 WORK PERMIT

3.2.1 Notify Owing Department if the crane boom will be over process lines or pipe-racks.

3.2.2 The Planner or Coordinator notifies the appropriate Owing Department personnel at least eight (8) hours in advance of any "critical" lift to ensure:

- All nonessential personnel are safely outside the fall radius, and
- All nonessential work within the fall radius of the "critical" lift is at an absolute minimum or halted.

3.2.3 Owing Department implements any special instructions, procedures or precautionary measures before the load is lifted.

3.3 ELECTRICAL HAZARDS

3.3.1 When any part of the crane or load could contact or come within 20' of energized overhead electrical power lines whether insulated or un-insulated the following guidance shall be used:

- Option 1 – The power line shall be confirmed de-energized and is visible and properly grounded by the utility owner/operator.
- Option 2 – Maintain a 20' clearance from the power line and complete [Preventing Encroachment / Electrocutation Form](#)
- Option 3 – Maintain 1926.1408 Power Line Safety Table A Minimum Clearance Distances and complete [Preventing Encroachment / Electrocutation Form](#).
- Conduct planning meetings to include a Marathon Electrical Department Representative,

operations, maintenance, and contractors working in the area,

- Use non-conductive tag lines (if used),
- Follow the grounding requirements of lifting equipment,
- Consider the use of insulating barriers that are not a part of or an attachment to the crane,
- If the operator is unable to see the elevated warning line, a dedicated spotter shall be used in addition to one of the measures listed on the [Preventing Encroachment / Electrocutation Form](#).

3.3.2 Prior to work near transmitter towers where an electrical charge can be induced in the equipment or materials being handled, de-energize the transmitter or conduct a test to determine if electrical charge is induced on the crane. Take the following precautions when necessary to dissipate induced voltages:

- Provide equipment with an electrical ground directly to the upper rotating structure supporting the boom, and
- Attach ground jumper cables to material being handled by boom equipment when electrical charge is induced while working near energized transmitters, and
- Provide crews with non-conductive poles equipped with large alligator clips or other similar protection to attach the ground cable to the load.

3.3.3 If work must be conducted closer than the distances listed in the table, the following precautions shall be in place:

- Show that staying outside the table distances is infeasible,
- Show that de-energizing and grounding are infeasible,
- The owner of the power line sets the minimum approach distance, and
- Conduct a planning meeting and information documented in a plan covering the following:
 - 3.3.3.1 Dedicated spotters,
 - 3.3.3.2 Elevated warning line barricades,
 - 3.3.3.3 Insulating links/devices,
 - 3.3.3.4 Nonconductive rigging,
 - 3.3.3.5 Range limiter (if equipped),
 - 3.3.3.6 Nonconductive tag lines (if used),
 - 3.3.3.7 Barricades a minimum of 10 feet from equipment,
 - 3.3.3.8 Limited access to essential workers,
 - 3.3.3.9 Prohibition of non-operator workers from coming in contact with above insulating link,
 - 3.3.3.10 Follow grounding requirements of lifting equipment,
 - 3.3.3.11 Deactivation of automatic re-energizer, and
 - 3.3.3.12 Insulating line cover-ups installed.

3.4 RIGGING

- 3.4.1 Design slings with a safety factor of five.
- 3.4.2 Design shackles and lifting lugs in accordance to American Society of Mechanical Engineers (ASME) B30 standards.
- 3.4.3 Drill, machine, or punch out the holes in lifting lugs. Cutting holes with a torch is prohibited.
- 3.4.4 Permanently tag all slings utilized with a load rating.
- 3.4.5 Inspect all slings for broken or damaged wire rope. For rigging inspection requirements see [Equipment Inspection for Mobile and Maintenance Equipment](#).
- 3.4.6 Permanently stamp all shackles and applicable rigging components in accordance with ASME B30 standards.

- 3.4.7 Do not use shackles and rigging components shall not be used if manufactured in China. Use only approved manufacturers for rigging and lifting (e.g. Crosby, CM, Van Beest, etc.).
- 3.4.8 Mark the safe working load of spreader bars on the equipment. Provide documentation of load testing or capacity certification for fabricated spreader bars and attach it to the lift plan.
- 3.4.9 When workers must be in the fall zone to handle a load, a Qualified Rigger rigs the load.
- 3.4.10 Taglines shall be used on all suspended loads when performing overhead lifts (i.e. greater than 7 feet) and/or the load has the potential to rotate, unless the Qualified Rigger and Crane Operator agree that it would create a greater hazard (i.e. entanglement). While traveling with a suspended load, a tagline or restraint line shall be utilized.
- 3.4.11 Workers should avoid placing their hands on a suspended load whenever possible. However, if greater precision is required during final positioning (i.e. final few inches) then the use of alternative tools should be considered (e.g. come-along, finger saver, etc.). If a worker must place their hands on the suspended load, then they must be mindful of their hand placement to avoid pinch points.

3.5 TRAINING

- 3.5.1 Train all personnel appropriately whose duties include:
- Rigging and lifting,
 - Overhead power lines, and
 - Working with equipment, keeping clear of holes, crush/pinch points, and the hazards in the work area.
- 3.5.2 Operator Qualification/Certification must be through an accredited crane operator testing organization and include the following training criteria:
- Written test showing knowledge in:
 - 3.5.2..1 Controls/performance characteristics,
 - 3.5.2..2 Calculating capacity,
 - 3.5.2..3 Preventing power line contact,
 - 3.5.2..4 Ground conditions and equipment support, and
 - 3.5.2..5 Locating and using information in the operating manual.
 - Practical test showing equipment operation skills in the field.
 - Bundle extractors or special equipment shall require servicing company to provide training documentation for operators of equipment.
- 3.5.3 Signal Person Qualification/Certification must include the following training criteria:
- Knowledge and understanding of signals,
 - Competency in using signals,
 - Basic understanding of crane operation,
 - A verbal or written test, and
 - Practical test.
- 3.5.4 All contractor personnel must present proof of training upon request.
- 3.5.5 Assembly and Disassembly Director:
- 3.5.6 The Director conducts assembly and disassembly, reviews the specific procedures, understands the crane specific procedures, and verifies that each crew member understands their tasks.
- 3.5.7 Follows all manufacturer's prohibitions during assembly and disassembly.
- 3.5.8 Assembly director can be the Lead operator or designee appointed by the company.

3.6 NOTE: THE ASSEMBLY DIRECTOR SHALL UTILIZE THE HAZARD ANALYSIS DURING ASSEMBLY AND DISASSEMBLY. SEE ATTACHMENT F : [Crane Assembly and Disassembly Checklist, RSW-SAF-029-Form-06-DT](#)

3.7 WEATHER CONDITIONS

3.7.1 In the event of wind conditions of 20 mph or greater but less than 31 mph, unless restricted by the specific crane manufacturer's restrictions, any crane working with a boom tip height greater than 30 feet will suspend hoisting and retract boom (if hydraulic) to less than 30 feet. If retracted boom is greater than 30 feet, the crane will lower the boom to grade or will cradle the boom. To document the Manufacturer's specifications for a crane, refer to the [Crane Use Plan-Manufacturer's Requirements](#) (attachment D).

3.7.1..1 Restrict crane operations during inclement wind conditions. After wind conditions have become less than 20 mph for a duration of 15 minutes, crane activity may proceed as normal.

3.7.1..2 If a crane is equipped with a wind detection meter or anemometer, it can serve as the device to measure wind speed for the area that the crane is performing work.

3.7.1..2.1 The MPC Safety Representative approves utilization of a fixed or handheld anemometer to supersede refinery wind monitoring devices.

3.7.1..2.2 When using hand held anemometer, readings must be made at an elevation equal to the tip of the crane boom.

3.7.1..2.3 All refinery wind restrictions still apply when this is approved.

3.7.1..2.4 Documentation must support approved monitoring of wind speeds.

3.7.2 Lattice type cranes will suspend hoisting and address the high winds by, tail, and boom from the wind and tie off the load and block/ball to a stationary object (A-frame, foundation, pillar, etc.), weathervane the crane, review wind forecasts, and follow all manufacturer's recommendations and requirements. Tying the boom to the carrier is not acceptable.

3.7.3 In the event of wind conditions of 31 mph or greater, all cranes will cease operations. Hydraulic cranes will retract and lower booms to grade or cradle the boom. Lattice boom cranes follow requirements in 3.6.2.

3.7.3..1 Ceased crane operations due to wind conditions must be adhered to until wind conditions have become less than 31 mph for a duration of 15 minutes. At this time adhere to the wind restrictions noted in 3.6.1 of this procedure.

3.7.4 Wind restrictions may be summarized using the following table:

Wind Speed (sustained or gusts)	Restriction
Less than (<) 20 mph	No restrictions. Normal operations may proceed.
Greater or equal to (≥) 20 mph but less than (<) 31 mph	May proceed if all boom tips are lowered below 30 ft. Restrictions must be adhered to until wind conditions are less than 20 mph for a duration of 15 minutes.
Greater or equal to (≥) 31 mph	All cranes will cease activity Ceased crane operations will be adhered to until wind conditions are less than 31 mph for a duration of 15 minutes.

- 3.7.5 Wind speed information may be obtained at the following elevations with the information provided in the table below.

Instrument	Elevation	Contact Information
Wind Speed – 14SI0701 Wind Direction - 14SZ0702	20'	This information is available on the Detroit Refinery Website. http://roadmap.det.mapllc.com/home.html
Wind Speed – 14SI0517 Wind Direction - 14SZ0518	110'	Call the Complex 4 control room at x4494 and give them the tag number listed.
Wind Speed – 14SI0703 Wind Direction - 14SZ0704	225'	Call the Complex 4 control room at x4494 and give them the tag number listed.

- 3.7.6 Do not perform lifts during lightning storms. See [RSW-SAF-001-DT General Safety Rules](#) for more information.

3.8 IDLED CRANES

- 3.8.1 If a crane is to be without an operator, following the guidelines below:

- Hydraulic cranes will retract the boom to less than 30 feet and shut down the crane.
- Retracted boom is greater than 30 feet, the boom will be lowered to grade or cradled.
- Lattice boom cranes will be lowered to grade where possible.
- If the boom cannot be lowered (Translift, multiple boom crane), the load line will be tied to a permanent structure, weathervane the crane, review wind forecasts, and follow all manufacture's recommendations and requirements.
- Shut off propane cab heaters whenever the operator is away from the crane.

3.9 CRANES AND DERRICKS

- 3.9.1 Conduct assembly and disassembly of cranes and derricks to meet the following requirements:

- The Director conducts assembly and disassembly, reviews the specific procedures, understands the crane specific procedures, and verifies that each crew member understands their tasks.
- Follow all manufacturer's prohibitions during assembly and disassembly.
- The Qualified Rigger completes all rigging work.
- When using outriggers during assembly and disassembly, fully extend or deploy per the manufacturer's load chart.

- 3.9.2 Cranes and Derricks shall be inspected prior to use. See [Equipment Inspection for Mobile and Maintenance Equipment](#).

- 3.9.3 Hoist in a slow, controlled, and cautious manner with no sudden movement of the crane or derrick.

- 3.9.4 The crane must be as level as practical and located on firm ground. Cranes with outriggers must have them extended in accordance with manufacturer's directions.

- The Registered Professional Engineer specifies crane mats based upon the foundation surface arrangement for the area where the lift is to be performed. These mats are required for most critical & heavy lifts, as outrigger pads normally do not provide enough surface area to get soil or pad loading below allowables for the surface.

Note: Asphalt and concrete paving between the road and process equipment may not support the same loads as roads. Many crane accidents have occurred when the outrigger pad broke through the paving as the load was being swung. Provide sufficient ground conditions for crane use. Equipment users and operators are made aware of all known underground hazards

including voids, utilities, etc. in the work area.

- 3.9.5 Equip cranes and derricks with variable angle booms with a boom angle indicator, readily visible to the operator.
- 3.9.6 Equip cranes with telescoping booms with a device to clearly indicate to the operator, at all times, the boom's extended length or an accurate determination of the load radius to be used during the lift shall be made prior to lifting.
- 3.9.7 Equip all cranes with an anti-two-blocking device.
- 3.9.8 Equip the crane hook with a safety catch or other device that eliminates the hook throat opening.
- 3.9.9 The Crane or Derrick Operator remains at the controls at all times when the crane engine is running.
- 3.9.10 The Operator or Signal person maintains continuous visual contact with the load.
- In situations where direct visual contact is not possible, use radio communication.
- 3.9.11 In situations where communication stops, is interrupted, or fails, halt the lift until communication is restored and safe movement is ensured.
- 3.9.12 All non-Marathon mobile cranes shall have a [Crane Checklist for Plant Use](#) (Attachment E) completed by a knowledgeable party (crane operator, equipment manager, crane inspector, etc.) located in the crane cab while on MRD grounds. Checklists are to be completed before crane is utilized onsite. Checklists are to be updated at least yearly and every time a crane re-enters the facility from another job.

3.10 PRE-LIFT MEETING

- 3.10.1 A Pre-Lift Meeting is held prior to each lift at each new work location and repeated for any newly assigned employees to the operation to review lift preparations, crane checks, and details of the job, including the following attendees where possible:
- Crane or derrick operator,
 - Contractor representative,
 - Rigging crew or signal person,
 - Safety representative,
 - Operations representative,
 - Maintenance Foreman,
 - Project and/or Turnaround Coordinator, and
 - Engineering representative.

Note: If the "fall radius" of the lift encompasses operating lines, equipment, or buildings, identify these at this time.

3.11 CRITICAL LIFT CHECKLIST

- 3.11.1 The Critical [Lift Checklist](#) (attachment B) is only a guide and minimum check of preparations, procedures, and equipment so all involved know their tasks and are ready. Other checks should be made as required by the job.
- 3.11.2 The Crane Operator is responsible for the following:
- All systems, controls, and safety devices are activated and functioning properly,
 - No interference exists,
 - All moves necessary to reach work locations will allow the operator to remain under limit of the crane's rated capacity, and
 - The crane set up matches the lift plan

- Refusal to lift any load he deems is unsafe.

3.11.3 Repeat the Pre-Lift Meeting and [Lift Checklist](#) (attachment B) whenever the crane is moved and set up in a new location or returned to a previously used location.

3.11.4 Turn the completed "Pre-Lift Checklist Heavy & Critical Lifts" in with the closed Safe Work Permit for retention.

3.12 OVERHEAD & GANTRY CRANES

3.12.1 A pre-use inspection shall be performed on all overhead cranes following OSHA 1910.179 frequent inspection criteria prior to use.

- See [Equipment Inspection for Mobile and Maintenance Equipment](#)

3.12.2 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.

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

3.12.4 Maintenance and repairs of equipment shall be down following RSW's for energy isolation and safe work permit.

3.12.5 No loads shall be lifted overhead of any personnel.

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

3.12.7 Personnel operation an overhead crane must be fully trained in its operation and familiar with OSHA standard hand signals.

3.13 DOCUMENTS

3.13.1 The documents associated with a lift consist of lift plans, pre-lift checklists, drawings, plot plans, boom charts, capacity charts, and calculations. These documents should be available to those planning the lift and then filed with the other records of the lift.

3.13.2 Shift, monthly, annual, modification, repairs, post assembly inspection reports for all equipment and shift, monthly, and annual inspection reports for wire rope must be available upon request.

3.13.3 Operator qualification / certification must be available upon request

3.13.4 Signal person qualifications / certification must be available upon request

3.13.5 Rigging person qualification / certification must be available upon request

3.13.6 Records of repairs or adjustments of the equipment must be available upon request

3.14 RECORDS MANAGEMENT

3.14.1 The original of the Lift Plan and associated documents and drawings should be kept in the Engineering central files for one year. The records may then be archived for another four years, for a total of five years retention.

3.14.2 The original of the Checklist shall be turned in with the Safe Work Permit. Checklists will be retained according to the Safe Work Permit records retention. See [RSW-SAF-006-DT Safe Work Permits](#).

4.0 DEFINITIONS

- 4.1 **Warehouse/Laydown Lift** – A lift that unloads equipment or materials from trucks, or loads equipment or materials onto trucks, under all of the following criteria:
- 4.1.1 The material/equipment being lifted is less than or equal to 100,000 lbs.
 - 4.1.2 The lift and fall areas under the crane boom are not over process lines, buildings, energized electrical lines, instrument signal lines, or over any other areas which are occupied.
 - 4.1.3 The crane can swing as required to perform lift with no counterweight interference.
 - 4.1.4 The load is less than or equal to 75% of the capacity listed on the crane chart.
 - 4.1.5 Multi-crane if booms are not moved (extended/retracted, raised/lowered, or turned) and the cranes' positions are not changed while load is in the air.
- 4.2 **Maintenance/Construction/Demolition Lift** – Any lift at less than or equal to 75% of the rated crane capacity at the stated working radius and within the battery limits of a unit. When any of the “critical” lift criteria are met for this category, then it becomes a “critical” lift.
- 4.3 **Heavy Lift** – Any lift exceeding the criteria for a “Maintenance/Construction/Demolition lift, “warehouse/materials laydown” lift, is not routinely made or meets any of the following criteria:
- 4.3.1 Any lift exceeding 75% but less than or equal to 90% of the rated capacity of the equipment used for the lift as determined from the load chart for the specific crane.
 - 4.3.2 New construction or demolition within an operating unit or tank dike for loads of more than 10,000 pounds but less than or equal to 75,000 lbs.
- 4.4 **Critical Lift** – Any lift exceeding the criteria for a “normal”, “warehouse/laydown materials”, “construction”, “heavy” lift, is not routinely made or involves unusual risk to personnel or to equipment. “Critical” lifts include, but are not limited to, the following criteria:
- 4.4.1 Any lift exceeding 75,000 pounds (100,000 pounds for “warehouse/materials laydown” lift).
 - 4.4.2 Any lift of more than 10,000 pounds over process lines, equipment or buildings.
 - 4.4.3 Any multi-crane lift in which either crane requires movement.
 - 4.4.4 Any lift in which any part of the crane or load approaches within ten feet of an aerial electric power line.
 - 4.4.5 Any “construction” lift exceeding 75% of the rated capacity of the equipment used for the lift as determined from the load chart for the specific crane.
 - 4.4.6 Any lift may be classified as a “critical lift” by the affected Department.
- Note:** If there is any question, whatsoever, as to which type of lift is being planned, then use the more conservative classification of lift.
- 4.5 **Qualified Person** – A person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, successfully demonstrates the ability to solve/resolve problems relating to the subject matter, the work, or the project.
- 4.6 **Process Line** – Any line in the refinery containing hydrocarbons or toxic or flammable materials. Water, cooling water, and plant air lines for this procedure are not considered process lines unless loss of these lines will result in a plant or unit outage. This means that in most cases cooling tower fan motors and gearboxes, reloading sand and salt filters, and catalyst replacement will not be “critical” lifts. Operations and Products Control can work out boundary areas for these situations with Maintenance.
- 4.7 **Lift Coordinator** – The Maintenance Foreman, Project/Turnaround Coordinator, or Engineering Coordinator supervising the personnel making the lift who determines when all preparation is complete, making the decision when to start the lift.
- 4.8 **Fall Radius** – The area under the crane’s boom swept during the particular lift.
- 4.9 **Wind Conditions** – Any wind velocities measured as sustained or gusts of wind.
- 4.10 **Overhead Crane**- A crane with a moveable bridge carrying a movable or fixed hoisting mechanism and traveling on an overhead fixed runway structure.

5.0 REFERENCES

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5.1 SAF-005, Suspended Personnel Platforms

6.0 ATTACHMENTS

6.1 Attachment A: [Lift Plan \(Used for Heavy and Critical Lifts\), RSW-SAF-029-Form-01-DT](#)

6.2 Attachment B: [Pre-Lift Checklist, RSW-SAF-029-Form-02-DT](#)

6.3 Attachment C: [Pre-lift Checklist for Warehouse/Laydown Materials Lifts, RSW-SAF-029-Form-03-DT](#)

6.4 Attachment D: [Crane Use Plan – Manufacturer’s Requirements, RSW-SAF-029-Form-04-DT](#)

6.5 Attachment E: [Crane Checklist for Plant Use, RSW-SAF-029-Form-05-DT](#)

6.6 Attachment F: [Crane Assembly and Disassembly Checklist, RSW-SAF-029-Form-06-DT](#)

6.7 Attachment G: [Preventing Encroachment / Electrocutation Form](#)

7.0 REVISION HISTORY

Revision number	Description of change	Written by	Approved by	Effective date
23	Update on language for tag line use	J. Stefko	J. Rabideau	2-21-18
24	Added Requirement for Overhead and Gantry Cranes. Added verification of training requirements for bundle extraction equipment.	W. Merrifield	Safety Steering	8/14/19
25	Added Crane Assembly/Disassembly Checklist	B. Dibert	Safety Steering	10/25/19
26	Scheduled review, no updates	T. Brown	A. Morales	01/30/20
26	Revised guidance for working around overhead power lines, added Preventing Encroachment / Electrocutation Form	T. Brown	Safety Steering	2/24/20