



CRITICAL LIFTS

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Approval By:	Tim Stastny@BP.com	11/19/2007	BPAE- EA

THE PROCEDURES LISTED IN THIS SECTION IS TO BE USED IN CONJUNCTION WITH THE BP ALTERNATIVE ENERGY HSSE PLAN AND PROCEDURES.

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1.0 SCOPE

This procedure outlines the specific planning and execution requirements for lifting loads that are considered critical to the facility or project.

2.0 DEFINITIONS

“**Live Equipment**” means equipment that is operating or any non-operating equipment containing liquids and/or gases.

“**Proximity**” means any distance within the radius of the combined length of the crane boom and length of the load fully extended horizontally.

“**Critical Lift**” - See Section 4.1

3.0 GENERAL



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- 3.1** The Contractor and Operation Personnel shall submit a Critical Lift Plan for review and acceptance by BP Alternative Energy Representative at least fifteen (15) working days prior to performing any lift that is covered by this Project Procedure.
- 3.2** This Critical Lift Plan will be returned to the Contractor accepted, accepted with comments, or not accepted within seven days (7) working days.
- 3.3** The contractor or Operation Personnel shall have critical lifts plans reviewed and approved by a qualified engineer acceptable to state in which the work is being performed. All lift plans shall be complete with, details, load calculations, crane certification and rigging. Critical Lift Plans shall be stamped by a licensed Professional Engineer.
- 3.4** No lift is allowed if it exceeds 95% of the chart for any given configuration of the crane. Site Manager Approval is required for all Critical Lifts.
- 3.5** Personnel are not allowed in the shadow of the boom's arc while a critical lift is in progress.

4.0 REQUIRED CRITICAL LIFT PLANS

- 4.1** Critical Lift Plans are required for all lifts with a mobile crane, where one or more of the following conditions are present:
- 4.1.1 The weight of the item to be lifted exceeds 50,000 pounds;
 - 4.1.2 The lift is within an operating facility and the weight of the item to be lifted exceeds 20,000 pounds.
 - 4.1.3 The total load to be lifted exceeds 75% of the chart for the lift configuration of the crane;
- OR
- 4.1.4 Any other lift that is deemed as a "critical lift" by BP Alternative Energy that would impact either plant operability, environmental compliance start –up or reputation.
 - 4.1.5 All multi pick loads.
 - 4.1.6 Any lift that will occur over transmission lines and substation.

5.0 CRITICAL LIFT PLAN COMPONENTS



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The Critical Lift Plan shall include, as a minimum, the following:

- 5.1** A completed Project Critical Lift Permit. See Attachment 1.
- 5.2** An **Elevation View** showing:
- 5.2.1 Crane manufacturer's document of make and model of the crane with boom, boom length, radius and crane capacity for the configuration used.
 - 5.2.2 Rigging accessory information to identify and show capacity of sling, shackles, spreader beams, blocks, etc.
 - 5.2.3 Tabulation of weights of all items that constitute load on the crane boom, lifted load, load lines, load blocks, spreaders, slings, shackles, jib, headache ball, etc.
 - 5.2.4 Lifted equipment information to include weight, height, and diameter, point of support, center of gravity and degree of dress-out.
 - 5.2.5 Calculation of tailing load.
 - A horizontal loading diagram will be drawn to show the initial tailing crane load on the elevation view.
 - The equipment center of gravity is to be obtained from the vendor.
 - 5.2.6 Any obstructions or interferences to the lift from existing equipment, structure, etc.
 - 5.2.7 Details of the supporting mats or foundation under the lifting crane and tailing crane with notation indication of the bearing capacity of the sub soil and the calculated applied load.
 - 5.2.8 Ratio of the lifted load to each crane's chart capacity as configured.
 - 5.2.9 Crane boom to load clearances.
- 5.3** The **Plan View** should show, on an overlay of the area plot plan:
- 5.3.1 The lift and tailing crane location at the beginning of the lift, any travel and the final location.
 - 5.3.2 Initial horizontal position of equipment to be lifted.
 - 5.3.3 Layout and specifics for all required matting.

Note: Crane mats are required whenever the crane outrigger or crawler tracks soil bearing pressure is equal or greater than 2,000 pound/square foot (lb/ft²).
 - 5.3.4 The plot layout should show any existing area and any new construction that will be in place when the lift occurs.



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- 5.3.5 Special note should be made of any underground lines or if the lift will pass over any operating condition, i.e.: pipe rack, equipment, tank, electrical, building, etc.
- 5.3.6 Special note should be made if any portion of the lifting configuration will, at any time during the lift, pass within ten (10) feet of any exposed live electrical component.
- 5.3.7 The area under the boom's arc that shall be "off-limits" to all personnel not associated with the lift.

5.4 Attachments to the rigging study should include any item that will make the review more efficient and complete. Required items are:

- 5.4.1 Equipment weight information from the Equipment Manufacturer.
- 5.4.2 Equipment weight verification - this can be either scale weight tickets or independently calculated weight.
- 5.4.3 Cut sheets from the Crane Vendor's capacity chart indicating the appropriate configuration.
- 5.4.4 Cut sheets from the manufacturer of the rigging attachments showing capacity and weight.
- 5.4.5 Outrigger or crawler track soil bearing pressure chart or calculations.

6.0 REVIEW MEETINGS

At the option of BP Alternative Energy, a formal rigging review meeting may be scheduled. As a minimum, this meeting shall be attended by the Contractor's site representative and, where appropriate, the rigging engineer and superintendent for the Heavy Lift Subcontractor.

7.0 EMERGENCY ACTION PLAN

The HSSE supervisor shall be notified and emergency action plan shall be reviewed prior to the lift plan.

8.0 REVIEW REQUIREMENT

No critical lift may proceed without a Critical Lift Permit signed and accepted by BPAE Representative.



BPAE WIND-US LIFT PROCEDURE



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Attachment 1

Attachment 1 is shown on the next page.

CRITICAL LIFT PERMIT

For Critical Non-Repetitive Lift

Issue Date: _____ / _____ / _____

1. Project Name/Plant	2. Contractor	3. Lift Date and time	4. Lift Location
5. Crane Manufacturer	6. Model Number	7. Serial Number	8. Total Boom/Boom Ext and/or Jib Lgth (ft) @ time of Lift
9. Max. radius during Lift (pick, swing, and set)	10. Swing Dir. & Degrees of swing	11. Lift Elevation (ft) Max. _____ Min. _____	12. Boom Angle Pick _____ Set _____
13. Will Jib and/or Boom Ext be used? Yes _____ No _____ Erected _____ Stowed _____ If Yes: Length (ft) _____ Weight (lb) _____		14. Mfg. rated capacity from chart as outlined in Blocks 8 - 13	
15. Component Weights: Jib / Boom Extension: Wt. _____ Headache Ball Size: _____ Wt. _____ Load Block Size: _____ Wt. _____ Auxiliary Boom Head: Wt. _____ Weight of Cable (Load Fall): Wt. _____ Slings, Rigging, Shackles, & Etc: Wt. _____ Lifting Beam or Bars: Wt. _____ Allowance for Unaccounted Material and Equipment Wt. _____ Other Wt. _____ Total Weight _____		16. Load Description and Weight	
		17. Who determined weight of Load and Lift? Name: _____ How: _____	
		18. Total Lift Load (Block 15 + 16)	19. Load % of Crane Capacity (Divide Block 18 by 14)
		20. Rigging Safety factor 5 to 1? Yes _____ No _____	21. Rigging accessories size and condition: Slings: _____ Shackles: _____ Other: _____
22. Tag Line Required Yes _____ No _____	23. Parts of Wire Rope on Block and Single-Line Capacity of Wire Rope	24. Soil Conditions? Poor _____ Good _____ Calculations? Required _____ Not Required _____ Compaction? Required _____ Not Required _____ Crane Mats? Required _____ Not Required _____	
25. HAZARDS: Electrical? Yes _____ No _____ If Yes, Explain: Rain? Yes _____ No _____ If Yes, Explain: Overhead? Yes _____ No _____ If Yes, Explain: Wind Speed Yes _____ No _____ If Yes, Explain: (If wind speed > 35 mph (56 kph), lift is prohibited.) Underground? Yes _____ No _____ If Yes, Explain: Others? Yes _____ No _____ If Yes, Explain:			26. Inspection/Testing: Load Test Date: _____ Periodic Insp. Date: _____ Test Lift: Remote Area _____ Lift Location _____ (Block 4) _____
27. Pre-lift meeting: To be held? yes _____ no _____ Date: _____	28. Attach: "Plan View" "Elevation View" "Other Attachments"	29. Employee Training verified. Yes _____ No _____	
30. Signatures:			
_____ Representative of company making lift		_____ BP Alternative Energy Construction Manager	
_____ Contractor rigging supervisor		_____ BP Alternative Energy Project Manager	
_____ Contractor Site Manager		_____ BP Safety Representative	
31. Immediate Approval to Proceed with Lift. Set up is in accordance with the lift plan without deviation and the lift may proceed.			
_____ BP Alternative Energy Rigging Consultant		_____ BP Alternative Energy Site Manager	