



Environment

Prepared for:  
National Grid  
Brooklyn, New York

Prepared by:  
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August 2010

# **Health and Safety Plan Amendment**

## **Remedial Investigation**

**Metropolitan Former MGP Site**

**Brooklyn, New York**

**NYSDEC Site No.: 224046**

**Order on Consent Index #: A2-0552-060**



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Date

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## 1.0 Introduction

This is an amendment to the Health and Safety Plan for the Remedial Investigation of the dated Metropolitan Former MGP site is located at 124 -136 2nd Avenue in Brooklyn, Kings County, New York. May 2009. The amendment to the plan is necessary to capture the health and safety requirements for work not addressed in the HASP dated May, 2009.

## 2.0 Scope of Work

A crane is required to hoist a drill rig into an inaccessible location of the site between the Pathmark warehouse and the Gowanus Canal. The drill rig will be used for the advancement of subsurface soil borings to varying depths {maximum 70 feet below ground surface (bgs)}. Subsurface soil borings will be used to collect soil samples and for conversion into groundwater monitoring wells.

Details regarding the Scope of Work can be found in the project Work Plan.

## 3.0 Potential Hazards

The crane to be used on this project was selected by the AECOM's drilling subcontractor Boart Longyear who contracted with Bay Crane of Long Island City New York to supply the crane and operator. It is anticipated that a 110 ton hydraulic crane will be used to hoist the drill rig and associated equipment into position.

The potential hazards associated with crane usage include but are not limited to:

- Upset/turnover;
- Overloading;
- Contact with power lines;
- Boom failure from two-blocking;
- Struck by crane load;
- Loss of load;
- Struck by the rotating superstructure of the crane and counter weights; and
- Protection of the public.

## 4.0 Critical Actions

It is the responsibility of the crane owner to have the necessary permits, certifications, inspections, licenses, qualified personnel, etc. as required by the New York City Building Department or other Departments within New York City or within the Borough.

The crane operator is responsible for the safe operation of the crane. Because of this responsibility, whenever there is reasonable cause to believe that the lift might be dangerous or unsafe, the operator has full authority to stop the operation.

## 4.1 Inspection

Prior to mobilization, the AECOM site representative will verify that cranes and crane operators are certified and that a Crane Pre-Operational Inspection Checklist (See Attachment 1) or equivalent is completed by the operator or qualified person prior to each use/shift. The lift supervisor/rigging foreman from Bay Crane will act as the qualified person for this lift.

- In accordance with New York City Department of Buildings (NYC DOB) and all federal, state, and local regulations.

**Stop crane operations if an unsafe condition is discovered.**

## 4.2 Upset/turnover

- To prevent upset or turnover of the crane the ground must be compact and stable. Crane mats should be used at all times.
- All outriggers must be fully extended horizontally and all tires must be off the ground.
- Outrigger pads at minimum of 3 times the area of the outrigger footplate.
- The crane must be level before making a pick.
- Lift radius must be identified and not over extended.
- Crane shall have a boom angle indicator that is visible to the operator. An electronic boom angle indicator shall be provided on all hydraulic cranes exceeding 15 tons rated capacity or a 60 feet boom length.
- Telescoping booms shall be equipped with a device to clearly indicate the boom's extended length.
- Electronic warning devices must not be bypassed or deactivated.
- All lifts and crane configurations shall be consistent with the manufacturer's requirements and load charts.

**Stop crane operations if an unsafe condition is discovered.**

## 4.3 Overloading

- Before a lift is made, the Qualified Person or the Lift Supervisor from Bay Crane is responsible for determining the exact weight of the load and for relaying this information to the crane operator.
- The proper load chart for the crane's configuration needs to be posted in the crane cab and visible to the operator at all times.
- No crane shall be operated in wind speeds that exceed 30 mph per NYC DOB regulations. When the surface area of material being lifted creates a sail effect, the crane may be required to cease operating at even lower wind speeds.
- All lifts and crane configurations shall be consistent with the manufacturer's requirements and load charts.
- Safety devices shall not be disabled or circumvented.

- A load movement indicator (LMI) shall be on all load lines in use on mobile cranes that exceed 50 tons rated capacity or 200 feet of boom.

**Stop crane operations if an unsafe condition is discovered or observed.**

#### 4.4 Contact with power lines

- Per NYC DOB, no crane may be operated within 15 feet of power lines. Afterwards, the following OSHA calculations apply:
- The safe clearance distance for overhead power line is 50 kV or less, stay at least 10 feet away. For voltages above 50 kV, stay at least 35 feet away. The following formula can be used to determine actual clearance:

Minimum safe distance=Length of the boom & attachment + 1/2 the width of the load + minimum line clearance

- Contact the power company to determine actual voltage and safe clearance distance or if lines need to be moved, grounded or insulated.

**Stop crane operations if an unsafe condition is discovered or observed.**

#### 4.5 Boom failure from two-blocking

- Crane must be equipped with a function anti-two block device to prevent contact between the block and boom tip.

**Stop crane operations if an unsafe condition is discovered or observed.**

#### 4.6 Struck by load

- All workers not directly involved with the lift should remain outside the swing radius of the lifting equipment and position themselves to be away from the path of travel for the suspended load so that should an incident occur, the potential to be impacted by falling equipment and airborne debris/projectiles will be minimized.
- No loads shall be lifted over personnel.
- Taglines shall be used on loads unless their use creates an unsafe condition. When a tagline is used in the vicinity of power lines, an insulated link shall be installed between the load and tagline.
- The lifting area must encompass the area that the boom is likely to swing over during the lift. This area should be clear of any person who is not directly involved with the lifts being performed.

**Stop crane operations if an unsafe condition is discovered or observed.**

#### 4.7 Loss of load

Below the hook, rigging equipment shall comply with the requirements of 29 CFR 1926, Subpart H. Each day before being used, the competent person from the crane service shall inspect all slings, fastenings and attachments of rigging equipment for damage or defects. In addition, the rigging equipment shall be inspected during use to ensure it is safe. Defective equipment shall be removed from service. Additional rigging precautions are as follows:

- A designated signalperson shall provide direction to the operator using the standard hand signals or radio communications that are common to the industry.
- Safety latches on hooks shall not be deactivated or made inoperable.
- Only synthetic or wire rope slings shall be used. Synthetic and wire rope slings shall be properly marked. The markings shall be legible during the life of the appliance.
- Job-fabricated rigging hardware or specialized hardware is prohibited unless designed and certified by a professional engineer qualified in this field, and tested at twice the rated load capacity. Testing must conform to American National Standards Institute (ANSI) B30.9 for rigging hardware.
- Slings shall always be protected from being cut by sharp corners, sharp edges, protrusions or abrasive surfaces.
- Slings shall not be shortened or lengthened by knotting or other methods not approved by the sling manufacturer.
- Slings shall not be pulled from under a load when the load is resting on the sling.
- Portions of the body shall be kept from between the rigging and the load, and from between the rigging and hoist hook.
- Personnel shall be kept clear of loads about to be lifted and or suspended loads. Personnel shall not work under suspended loads or place body parts under suspended loads.
- Where personnel maybe endangered by a rotating or swing load, use one or more tag lines to prevent unintentional motion.
- Rigging and hardware not in use shall be properly stored.

**Stop crane operations if an unsafe condition is discovered or observed.**

#### **4.8** Struck by the rotating superstructure of the crane and counter weights

- The swing radius of the crane shall be barricaded or labeled with HAZARD signs at potential pinch points.
- No water jugs, lunch boxes, clothing, etc. shall be stored on the crane or within the swing radius. The crane shall not serve as a break area for personnel other than the operator.

**Stop crane operations if an unsafe condition is discovered or observed**

#### **4.9** Protection of the public

Steps shall be taken to safeguard the public from the hazards associated with the use of the crane, recommended precautions are as follows:

- Barricade the area around the lift radius of the crane to prevent the public from entering the lifting zone.
- Detour pedestrian traffic.
- Close off parking spots or lots.
- If lifting over an occupied structure make arrangements to temporarily evacuate the area where the lift will take place.

## **Attachment 1**

### **Crane Planning/Inspection**

**CRANE  
PLANNING/INSPECTION**

Project: \_\_\_\_\_ Lift date: \_\_\_\_\_

Load weight: \_\_\_\_\_ Crane size: \_\_\_\_\_ Radiuses of lift: \_\_\_\_\_

Type/model of crane to be used: \_\_\_\_\_

Name of company operating crane: \_\_\_\_\_

**Before Lift Considerations**

Yes No N/A

- Is the crane large enough to make the lift safely?
- Does the crane have an annual inspection/certification?
- Does the crane have current proof load test documentation?
- Will the lift be a critical lift? \*
- Will an anti-two-block device be used?
- Will a load movement indicator (LMI) be used?
- Is the crane operator qualified and experienced to operate the crane safely?
- Is the rigger qualified and experienced to perform rigging safely?
- Is there adequate room to transport buildup and operate the crane safely away from overhead power lines, utilities, structures, excavations, traffic, airport clearance, etc?  
If any of these or other hazards are present, list what they are and what safety controls will be used?
- Is the ground/lift base capable of safely supporting the crane/lift?

What is the soil bearing capacity? \_\_\_\_\_

- Will there be enough room for at least a minimum two-foot swing clearance between the counterweight and any obstacles?

Note (\*): A critical lift is defined as hoisting operations in which a critical item or load is hoisted or moved, or in which a non-critical item is hoisted or moved in an area where critical items could be affected.

Critical lifts are lifting operations that exceed 75% of the crane's rated capacity, or any activity involving a part, component, assembly, or piece of equipment ("item") whose dropping, upset, or collision could cause or result in the following:

- Damage that would result in serious economic consequences.
- Damage that would result in unacceptable delay to schedule or other significant deleterious programmatic impact (such as loss of vital data).

- Undetectable damage that would jeopardize future operations or safety of a facility.
- Significant release of hazardous material to the environment or create an undesirable condition.
- Personnel injury or significant adverse health impact, either onsite or offsite.

Based on the above, the lifting operations for the Metropolitan site would be considered a Critical Lift. AECOM will therefore request a copy of Bay Crane's Critical Lift Plan in advance of the work being performed.

A critical lift plan checklist as found in Attachment 2 or equivalent checklist must be completed prior to conducting a critical lift.

**CRANE**

**PLANNING/INSPECTION**

**Pre-operation Inspection**

Check “yes” if the items are satisfactory and “no” if they are unsatisfactory.

**Stop crane operations if an unsafe condition is discovered or observed**

Yes No N/A

- Safe clearance distance from poles and power lines.
- Inspect wire rope for signs of wear, tear, bird caging, cracks, and broken wires.
- Inspect nylon slings for tears, rips, burns, chemical damage, etc.
- Inspect lifting devices such as spread bars, sheets, and coils for defects and damage.
- Check the boom brake and operating mechanism on the jaw-type clutch boom hoist.
- Check the hoist brakes and limit switch/anti-two-block switch.
- Check to see if the boom raises and lowers smoothly.
- Rotate the upper works; check the swing lock to make sure it engages properly.
- Check all fluid levels.
- Ensure that a charged fire extinguisher is on the crane.
- Crane level.
- Outriggers fully extended/off rubber.
- Crane load tested. Raise test load to clear ground and hold for 10 minutes.
- Ensure that the operation manual and load chart specific to the crane is in the operator’s cab.
- Swing radius barricaded.

Verified by\* \_\_\_\_\_  
Name (print) Signature

Date \_\_\_\_\_

\* = Verification must be signed by Qualified Person/Lift Supervisor (Bay Crane).

## Critical Lift Checklist

A critical lift is any lift that exceeds 75% of the crane's rated capacity, involves more than one crane, involves unusual or severe hazards, or any lift the PM identifies as Critical

<b>ADMINISTRATIVE INFORMATION:</b>	
<b>PROJECT NAME:</b>	
<b>PROJECT MANAGER (PM):</b>	<b>DATE:</b>
<b>SUBCONTRACTOR NAME:</b>	<b>SUBCONTRACTOR PM:</b>
<b>SUPERVISOR IN CHARGE:</b>	<b>CRANE OPERATOR:</b>
<b>SIGNAL PERSON 1:</b>	<b>SIGNAL PERSON 2:</b>
<b>CRITICAL LIFT REQUIREMENTS:</b>	
<b>1. LIFT CONDITIONS:</b> a. Crane pad level, firm & stable..... <input type="checkbox"/> Yes <input type="checkbox"/> No b. Has longest lift radius been identified ..... <input type="checkbox"/> Yes <input type="checkbox"/> No c. Have special hazards been identified ..... <input type="checkbox"/> Yes <input type="checkbox"/> No i. Power lines ..... <input type="checkbox"/> Yes <input type="checkbox"/> No ii. Obstructions in lift path ..... <input type="checkbox"/> Yes <input type="checkbox"/> No iii. Location of utilities and structures ..... <input type="checkbox"/> Yes <input type="checkbox"/> No iv. Weather conditions ..... <input type="checkbox"/> Yes <input type="checkbox"/> No d. Has a lift sequence been established and reviewed..... <input type="checkbox"/> Yes <input type="checkbox"/> No e. Are personnel clear of lift area ..... <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>2. LOAD CONDITIONS:</b> a. Is exact load weight known ..... <input type="checkbox"/> Yes <input type="checkbox"/> No _____ Pounds b. Is weight of rigging known ..... <input type="checkbox"/> Yes <input type="checkbox"/> No _____ Pounds c. Is the weight of the load block and line known ..... <input type="checkbox"/> Yes <input type="checkbox"/> No _____ Pounds d. Has the center of gravity of the load been established ..... <input type="checkbox"/> Yes <input type="checkbox"/> No e. Is rigging adequate and in good condition ..... <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>3. COMMUNICATIONS:</b> a. Have hand signals been reviewed ..... <input type="checkbox"/> Yes <input type="checkbox"/> No b. Has location of spotters been established ..... <input type="checkbox"/> Yes <input type="checkbox"/> No c. If radios are used: ..... <input type="checkbox"/> Yes <input type="checkbox"/> No i. Have they been tested from location of use ..... <input type="checkbox"/> Yes <input type="checkbox"/> No ii. Is frequency clear of other radio traffic ..... <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>4. CONDITION OF CRANE (CHECKED BY OPERATOR):</b> a. Is pad blocking adequate and substantial..... <input type="checkbox"/> Yes <input type="checkbox"/> No b. Is the crane level..... <input type="checkbox"/> Yes <input type="checkbox"/> No c. Are ropes and pendants in good condition ..... <input type="checkbox"/> Yes <input type="checkbox"/> No d. Are adequate parts of line being used ..... <input type="checkbox"/> Yes <input type="checkbox"/> No e. Is line revved properly ..... <input type="checkbox"/> Yes <input type="checkbox"/> No f. Are controls in good working condition to insure smooth operation ..... <input type="checkbox"/> Yes <input type="checkbox"/> No g. Is the load within chart limits for the above conditions ..... <input type="checkbox"/> Yes <input type="checkbox"/> No  h. What is the boom length ..... _____ i. What is the maximum boom angle ..... _____ j. What is the maximum load radius..... _____	
<b>5. PRE-LIFT MEETING:</b> Has a pre-lift meeting been conducted with all persons involved to review this information <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>6. LIFT DIAGRAM (INCLUDE CRANE SETUP, RADIUS, LOAD, ETC.):</b>          	
<b>APPROVAL SIGNATURES:</b>	
<b>SUBCONTRACTOR SUPERVISOR IN CHARGE:</b>	<b>SUBCONTRACTOR PM:</b>
<b>AECOM PROJECT MANAGER</b>	<b>AECOM SAFETY REPRESENTATIVE:</b>

## Critical Lift Checklist

A critical lift is any lift that exceeds 75% of the crane's rated capacity, involves more than one crane, involves unusual or severe hazards, or any lift the PM identifies as Critical

<b>ADMINISTRATIVE INFORMATION:</b>	
<b>PROJECT NAME:</b>	
<b>PROJECT MANAGER (PM):</b>	<b>DATE:</b>
<b>SUBCONTRACTOR NAME:</b>	<b>SUBCONTRACTOR PM:</b>
<b>SUPERVISOR IN CHARGE:</b>	<b>CRANE OPERATOR:</b>
<b>SIGNAL PERSON 1:</b>	<b>SIGNAL PERSON 2:</b>
<b>CRITICAL LIFT REQUIREMENTS:</b>	
<b>1. LIFT CONDITIONS:</b> a. Crane pad level, firm & stable..... <input type="checkbox"/> Yes <input type="checkbox"/> No b. Has longest lift radius been identified ..... <input type="checkbox"/> Yes <input type="checkbox"/> No c. Have special hazards been identified ..... <input type="checkbox"/> Yes <input type="checkbox"/> No i. Power lines ..... <input type="checkbox"/> Yes <input type="checkbox"/> No ii. Obstructions in lift path ..... <input type="checkbox"/> Yes <input type="checkbox"/> No iii. Location of utilities and structures ..... <input type="checkbox"/> Yes <input type="checkbox"/> No iv. Weather conditions ..... <input type="checkbox"/> Yes <input type="checkbox"/> No d. Has a lift sequence been established and reviewed..... <input type="checkbox"/> Yes <input type="checkbox"/> No e. Are personnel clear of lift area ..... <input type="checkbox"/> Yes <input type="checkbox"/> No	
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<b>5. PRE-LIFT MEETING:</b> Has a pre-lift meeting been conducted with all persons involved to review this information <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>6. LIFT DIAGRAM (INCLUDE CRANE SETUP, RADIUS, LOAD, ETC.):</b>          	
<b>APPROVAL SIGNATURES:</b>	
<b>SUBCONTRACTOR SUPERVISOR IN CHARGE:</b>	<b>SUBCONTRACTOR PM:</b>
<b>AECOM PROJECT MANAGER</b>	<b>AECOM SAFETY REPRESENTATIVE:</b>