

Appendix L

Revised Onshore Blasting Plan



BLASTING PLAN

HOUNSFIELD WIND FARM PROJECT JEFFERSON COUNTY, NEW YORK

PREPARED FOR:

**UPSTATE NEW YORK
POWER CORPORATION**

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AUGUST 2009

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1.0 PROJECT DESCRIPTION

The Hounsfield Wind Farm Project is a commercial scale wind farm project proposed by the Upstate New York Power Corporation (Upstate Power). The project includes the construction and operation of up to 90 wind turbines, the installation and operation of associated collection lines, and related facilities including docking facilities, ship channel construction, helipad, living quarters, parking areas and operations and maintenance facilities on Galloo Island (the “Project”).

In addition to the construction activities associated with the project as set forth above, the transmission of the electricity will require construction and operation of an approximately 51.5-mile transmission line, together with interconnection facilities (substations) and other related facilities, linking Galloo Island with the New York State power grid. The construction and operation of the 51.5-mile transmission line is subject to the review jurisdiction of the New York State Public Service Commission (PSC) under Public Service Law Article VII. As such it is a Type II action under SEQRA (6 NYCRR §617.5(c) (35)) and therefore not subject to SEQRA review (6 NYCRR §617.5(a)) and is not included within the “Project”.

2.0 REQUIREMENTS FOR PROJECT

A desktop geotechnical assessment of the proposed Project site was completed as part of the SEQRA review process. The geotechnical analyses indicate that due to the depth and competency of bedrock encountered in the area, blasting will be required in order to construct the Project. In addition, blasting will be necessary for the excavation of a borrow pit that will provide the crushed stone for the construction of the service roads, crane pads, and laydown yards.

Exposed bedrock also underlies the underwater portion of the Project and, therefore, a portion of this Blasting Plan will address those special conditions. According to Article 2, Section 3, Subdivision 2 of the Public Lands Law, an easement from the New York State Office of General Services, which holds title to underwater lands in the state, is required. This Blasting Plan was prepared for not only the application for the easement, but to facilitate the other Project requirements listed above.

3.0 DRY LAND BLASTING OPERATIONS – GENERAL

When blasting is deemed necessary, all blasting operations will adhere to applicable New York State statutes and regulations governing the use of explosives. The State regulations are contained in 12 NYCRR Part 39 and in Industrial Code Rule 53, and include such requirements as licensing of operators; magazine (explosive storage) certification; and procedures for conducting operations in a safe manner. All pertinent safety regulations and standards shall be applied as required for safety, security and other related details for any blasting deemed necessary. Additional applicable safety regulations include:

- Code of Federal Regulations ATF Title 27.
- New York State Industrial Code Rule 53.
- Directive 495 standards of the National Fire Protection Association (NFPA).
- Occupation Safety and Health Administration (OSHA) standards, 29 CFR 1926.900 - 1926.914 and 1910.109.
- New York State Industrial Code Title 12- Part 39.
- Article 16 of the Labor Law of the State of New York.
- Blasting operations that are required for the excavation of the borrow pit shall adhere to the document entitled, *NYSDEC Guidelines for Evaluating Mining Applications that Propose to Use Blasting Including Best Management Practices (NYSDEC Division of Mineral Resources, June 2009)*.

It is noted that the principle focus of NYSDEC’s guidance discussing best management practices (BMPs) for blasting pertains to methods to minimize disturbance to adjacent properties and neighbors. With regard to the Hounsfield Wind Farm Project, and specifically regarding the blasting necessary for the borrow pit which would be covered under the guidance, it is important to keep in

mind that there is only one other landowner within one mile of the proposed borrow pit (State of New York). The State's land is approximately 1,200 feet from the anticipated location of blasting for the borrow pit. In addition, the nearest structure is approximately 800 feet away. Therefore, many of the BMP suggestions in the guidance are not applicable to this Project.

3.1 General Procedures

In addition to those general provisions identified in 29 CFR 1926.900, the following is a list of general procedures to be followed if blasting occurs during Project construction:

- Warning signs shall be provided at points of access to blasting areas.
- Operations involving the handling or use of explosive materials shall be discontinued and personnel moved to a safe area during the approach or progress of a thunderstorm or dust storm; controls will be established to prevent accidental discharge of electric blasting caps from extraneous electricity.
- Blasting operations immediately adjacent to overhead power lines, communications lines, utility services, or other structures shall not be initiated until the operators and/or owners have been notified and measures for safe control have been taken.
- All loading and firing shall be directed and supervised by one designated person who is licensed in New York State to handle explosives.
- Blasting machines shall be operated, maintained, tested, and inspected as prescribed by the manufacturer.
- Blasting machines shall be tested prior to use, periodically thereafter, and as prescribed by the manufacturer.
- No explosive materials shall be abandoned.

- All refuse from explosive loading such as empty box paper, and fiber packing shall be burned at an approved location.
- For blasting of the borrow pit, the best management practices identified in the NYSDEC guidance mentioned in Section 3.0 will be implemented to the extent practicable and will include implementing the following requirements:
 - Blasts and blast sequences shall be designed to minimize ground vibrations, air blasts, flyrock, and dust and gas emissions.
 - A record of each blast will be made, retained by the operator for at least three years, and will contain the following information:
 - Name of the operator and/or contractor conducting the blast.
 - The location, date and time of the blast.
 - Name, signature and identification number of the blaster (certificate of competency number, as issued by the Department of Labor).
 - Type of material to be blasted.
 - Diagram of shot including number of holes, depth of holes, diameter of holes, burden, spacing, and face orientation.
 - Location and distance of nearest non-company owned structure.
 - A record of the shot including amount of subdrilling, decking, stemming height and type, quantity and type of explosive, quantity and type of detonator, weather conditions (including wind speed and direction), type of initiation system and all delay periods progressively, in milliseconds.

- A drill log reviewed and signed by the licensed blaster and company supervisor including date, time, location, shot number, number of holes, hole depth, average face height, burden, spacing, diameter and any potential problem areas such as seams, cracks, voids and water.
- Calibrated seismograph recordings showing relationship in Peak Particle Velocity (in/sec) and Frequency (Hz.) to chart from USBM. Report No. 8507 recorded at or as near as possible and in direct line with the nearest inhabited structure.
- Calibrated Seismograph recording showing air blast levels recorded at or as near as possible and in direct line with the nearest inhabited structure.
- Blasting shall be carried out in a manner and sequence that minimizes disturbance to any nearby residences (not directly applicable, but efforts will be made to minimize disturbances).
- A minimum horizontal distance of 500 feet shall be maintained between blasting operations and any existing structures, including roads and underground utilities, not owned or controlled by the operator (not directly applicable, no known structures within 500 feet not owned or controlled by the operator).

4.0 UNDERWATER BLASTING OPERATIONS– GENERAL

When blasting is deemed necessary, all blasting operations will adhere to applicable New York State statutes and regulations governing the use of explosives. The State regulations are contained in 12 NYCRR Part 39 and in Industrial Code Rule 53, and include such requirements as licensing of operators; magazine (explosive storage) certification; and rules for conducting operations in a safe manner. All relevant regulations and standards shall be applied as required for safety, security and other related details for blasting. Additional applicable safety regulations include:

- Code of Federal Regulations ATF Title 27.
- New York State Industrial Code Rule 53.
- Directive 495 standards of the National Fire Protection Association (NFPA).
- Occupation Safety and Health Administration (OSHA) standards, 29 CFR 1926.900 - 1926.914 and 1910.109.
- New York State Industrial Code Title 12- Part 39.
- Article 16 of the Labor Law of the State of New York.

4.1 General Procedures

In addition to those general provisions identified in 29 CFR Subpart U, the following is a list of general procedures to be followed if underwater blasting occurs during Project construction:

- Blasting activities will be scheduled to avoid timeframes when there are high numbers of fish spawning and using the area for a nursery.

- The work will be located, to the extent practicable, outside of significant spawning and nursery areas.
- Confined blasting will be used. Explosives will be placed into boreholes that are drilled into the bottom. The hole is then backfilled with stemming materials up to the substrate/water interface. The stemming materials are generally uniform, crushed, angular stone.
- Time-delays will be used to reduce the overall detonation pressures to a series of smaller explosions.
- Initiation of the explosive charge will use a minimal length of detonation cord.
- A licensed blaster shall conduct all blasting operations, and no shot shall be fired without their approval.
- Loading tubes and casings of dissimilar metals shall not be used because of possible electric transient currents from galvanic action of the metals and water.
- Only water-resistant blasting caps and detonating cords shall be used for all marine blasting. Loading shall be done through a nonsparking metal loading tube when tub is necessary.
- No blast shall be fired while any vessel under way is closer than 1,500 feet to the blasting area. Those on board vessels or craft moored or anchored within 1,500 feet shall be notified before a blast is fired.
- No blast shall be fired while any swimming or diving operations are in progress within 1,500 feet of the blasting area. If such operations are in progress, signals and arrangements shall be agreed upon and assure that no blast shall be fired while any person is in the water

- Blasting flags shall be displayed.
- When more than one charge is placed under water, a float device shall be attached to an element of each charge in such a manner that it will be released by the firing.

The jurisdiction of the US Coast Guard (USCG) is under evaluation by the USCG Buffalo Office. Pending the results of the review, necessary actions will be performed to comply with USCG requirements.

5.0 STORAGE OF EXPLOSIVES

The storage of explosives shall be in accordance with applicable requirements of the United States Bureau of Alcohol, Tobacco, and Firearms (ATF) and New York State Department of Labor. The storage area of all explosive materials shall be located on the site at a location approved by the supervising blasting engineer of the blasting subcontractor. Caps or other detonating devices will not be stored with Class A explosives.

An accurate running inventory of all explosives and blasting agents stored at the Project shall be maintained: two copies shall be maintained - one at the magazine (storage area) and one in the main Project construction office which shall be at least 50 feet from the magazine.

The designated storage site, explosive transporting vehicles, and areas where explosives are being used shall be clearly marked and will display the required warning signs. A daily tally of all explosives delivered, used and stored will be maintained at the main Project construction office.

6.0 TRANSPORTATION OF EXPLOSIVE MATERIALS

All vehicles transporting explosive materials shall display all placards, lettering, and/or numbering required. Only authorized persons will transport and handle the explosives as designated by the authority of those licensed for this purpose, vehicles transporting explosive materials shall not be left unattended.

7.0 HANDLING OF EXPLOSIVE MATERIALS

There shall be no smoking, open lights, or fire of any kind within 50 feet of any area where explosives are being handled. No source of ignition, except necessary means to light fuses or fire electric detonators, shall be permitted in an area containing loaded holes.

Containers of explosive materials shall be opened only with non-sparking tools or instruments. Metal slitters may be used for opening fiberboard boxes, paper bags or plastic tubes.

After loading of a blast is completed, all excess explosive materials and detonators shall be removed to a safe location or returned at once to the storage area, observing the same rules as when being conveyed to the blasting area.

8.0 VIBRATION AND DAMAGE CONTROL

Blasting operations in or adjacent to residences, buildings, structures, utilities or other facilities shall be carefully planned with full consideration for all forces and conditions involved. With the exception of the Fog Horn Building and former Coast Guard Station, all facilities will be owned by the Project developer. The minimum amount of blasting material shall be used to effectively fracture the competent rock for the excavation depth.

Since the construction is proximate to the Galloo Island Lighthouse, vibration monitoring will be required for that structure. Independent monitoring of vibration and air concussion levels shall be carried out by the contractor during all blasting operations.

9.0 DRILLING AND LOADING

All drill holes shall be sufficiently large to freely allow for the insertion of the explosives. Drilling and loading operations shall not be carried on in the same area. Drilling shall be separated from loaded holes by at least the depth of the loaded hole but in no case less than 50 feet.

The loading or loaded area shall be kept free of any equipment, operations, or persons not essential to loading; no vehicle traffic shall be permitted over loaded holes; the blast site shall be guarded or barricaded and posted with danger signs to restrict unauthorized entry.

No holes shall be loaded except those to be fired in the next round of blasting; after loading, all remaining explosive materials and detonators shall be immediately returned to an authorized magazine; no explosive materials or loaded holes shall be left unattended at the blast site at any time. Cartridges shall be primed only in the number required for a single round of blasting.

10.0 FIRING

Prior to the firing of a shot, all persons in the danger area shall be warned of the blast and ordered to a safe distance from the area. Blasts shall not be fired until it is certain that every person has retreated to a safe distance and no one remains in a dangerous location.

Prior to the firing of a shot, a competent flag person shall be posted at all access points to danger areas.

All blasting operations shall use the following safety signals:

WARNING SIGNAL: A one-minute long series of long audible signals five minutes prior to blast signal;

BLAST SIGNAL: A series of short audible signals one minute prior to the shot; and

ALL CLEAR SIGNAL: A prolonged audible signal following the inspection of blast area.

Prior to blasting, necessary precautions for the protection of persons and adjoining property will be established. Such precautions shall include the following:

- A blasting mat will be placed over the blasting surface. The blasting mat will remain in place until all shots are fired in the blasting zone.
- Appropriate signs will be erected in the area of blasting activities.
- Notification of blasting at the site will be published in newspapers prior to the blasting schedule.
- A storm alert monitoring device will be used by the blasting contractor to detect any electrical build-up in the atmosphere at the blast area while using electrical caps.

- Special care will be taken with detonating cords and connectors to protect from the impact of falling rocks or other impeding objects.
- Vehicles equipped with radio transmitters and portable 2-way radios will not be permitted within 100 feet of blasting operations.

11.0 INSURANCE

Upstate Power will carry sufficient insurance during the blasting operations. The insurance shall be in place to cover unintended property damage directly occurring from blasting. The Project sponsor shall maintain and pay for the following levels of insurance:

- General liability insurance with limits of not less than \$1,000,000 per occurrence and \$2,000,000 aggregate.
- Excess liability insurance with a limit of not less than \$5,000,000 in the aggregate, in each case for injury to any person and for damage to property.