



Health and Safety Plan

Appendix O

Noble Altona Windpark Health and Safety Plan

March 2006

The health and safety of Project personnel, the local community, and local residents is Noble's first priority. The development and implementation of plans for the safe design, construction, and operation of all of Project facilities is an integral part of Project design. The implementation of the Project Health and Safety Plan (HSP) is an ongoing process, from the first design effort, through procurement, then construction and operations. The HSP will be completed in phases using the tasks indicated below as information becomes available.

The four phases of the HSP development are as follows:

1. Design/Engineering Phase. During the design phase the elements of the Project will be defined and specific details confirmed. The detailed requirements for each of the elements will be depicted in specifications and drawings, including features required for fire safety and emergency response operations. These features ensure that:
 - a. The Project is secure from unauthorized access;
 - b. Public safety issues are addressed;
 - c. Protective devices are programmed in;
 - d. Health risks are minimized by exposure limitations or mitigation;
 - e. All laws, codes, and permits are strictly adhered to; and
 - f. State-of-the-art personnel safety devices are included.

During this phase Noble will develop a site-specific Emergency Preparedness and Fire Prevention Plan (EPFPP). This plan will detail the actions to be taken by the site manager and staff should any emergency occur, to include fire or disabled personnel working on the tower or nacelle. The EPFPP will be coordinated with the local fire departments and emergency response organizations and will set forth the lines of communication in the event of a fire, stranded or disabled personnel, or other emergency.

2. Procurement Phase. All equipment and materials will be purchased in complete accordance with documents prepared during the Design/Engineering phase. A check will be performed to ensure compliance with health and safety requirements and that any enhancements recommended by the suppliers are evaluated and added as appropriate. All contractors will be evaluated based on their safety records and any with a substandard record will be excluded from participating in the Project. Upon completion of the selection of specific suppliers, plans developed in the design phase shall be re-evaluated for any impacts, changes, and/or clarifications and re-issued.
3. Construction Phase. Prior to the start of construction, during the planning stages, a risk analysis (RA) will be completed in conjunction with the area first responders and other service providers to refine the EPFPP as necessary to address any newly identified risks. Based on this analysis all required actions and resources required shall be identified, availability confirmed and proper training provided for the construction phase risks.

4. Operations Phase. Prior to the initiation of commissioning and immediately after completion of the construction planning and finalization of equipment selection a complete review of the original Risk Analysis shall be completed in conjunction with the area first responders and other service providers to determine any modifications required to the EPFPP for any newly identified risks. All required actions and resources shall be identified in the revised EPFPP. The EPFPP will include a training plan and schedule to address the Operations Phase risks with local emergency responders.

Process

The first full pass through all phases of the RA and development of an EPFPP has already begun and will be completed prior to the start of any construction work. A second full review will be conducted after completion of the design and selection of all equipment to ensure that all potential impacts of the equipment selection have been evaluated. The second pass will be completed no later than the start of commissioning and operations of the facility. The second review will be combined with the first review if possible (all equipment must be selected) to simplify the process. The RA will place particular focus on the following areas, in addition to the more typical areas of an analysis of this type:

- Lightning protection
- Fire in machine head (nacelle) area
- Ice shedding
- Tower rescue and evacuation
 - Blasting
 - Chemical Rock Breaking applications

Development of “What If...?” Checklist.

Noble will develop a “What if...?” Checklist to identify potential health and safety issues that may arise at the site due to internal or external initiating events.

The health and safety scenarios to be considered in the development of the initial checklist will include foreseeable events that could result in injuries to workers or other persons in/near the wind farm, damage to the wind farm, or damage to the nearby surroundings.

The “What if...?” Checklist will include each health and safety scenario identified and the following information:

- Brief description of the scenario;
- Procedural and hardware safeguards included in the preliminary design;
- Potential frequency of occurrence (qualitative);
- Potential consequence of occurrence (qualitative);
- A cumulative risk ranking;
- Existing emergency response resources/procedures; and
- Recommendations for additional safeguards and/or emergency response resources/procedures.

A sample What if...? Checklist is included as Figure 1.

Conducting the Risk Analysis

Noble will facilitate a What if...? Analysis at a location within or near the jurisdiction of the emergency response organizations and other service providers who will be providing service to the Project. This analysis will be attended by personnel familiar with:

- The preliminary design of the wind farms (Noble);
- Operation and maintenance of wind farms (Noble);
- Police services (local);
- Fire and technical/industrial rescue services (local); and
- Emergency medical services (local).

Upon completion of this analysis, each identified health and safety scenario will have been reviewed to identify its:

- Potential frequency of occurrence (qualitative);
- Potential consequence of occurrence (qualitative);
- Cumulative risk ranking;
- Existing emergency response resources/procedures; and
- Recommendations for additional safeguards and/or emergency response resources/procedures, where necessary.

Noble will prepare a Draft Risk Analysis Report for review and distribution to appropriate agencies. Additional meetings will be conducted as required to resolve any questions and/or concerns that may surface during the review of the draft plan.

After comments have been received from all of the involved agencies, Noble will issue a Final EPFPP to all involved response agencies.

Figure 1

Location: Nobel Environmental Power, LLC		Unit:		Study Date:				
P&ID No.:		P&ID Title:		P&ID Revision Date:				
Section/Node No.:		Description:						
Design Intention:								
WHAT-IF...?	POTENTIAL CONSEQUENCES	EXISTING SAFEGUARDS & PROCEDURES (SAFEGUARDS)	EXISTING RESPONSE RESOURCES/ PROCEDURES	F	C	R	NO	FINDINGS
... a maintenance mechanic suffers a disabling injury while working in the turbine nacelle?								
...a maintenance mechanic slips or trips while working in the turbine nacelle?								
... a fire occurs in a turbine nacelle?								
...ice forms on the blades of the turbine?								
...ice forms on the turbine nacelle?								

F = Frequency Ranking
 C = Consequence Ranking
 R = Risk Ranking (F X C)

P

Blasting Plan

Appendix P
Blasting Plan

NOBLE ALTONA WINDPARK, LLC

March 2006

1 INTRODUCTION

The purpose of this Blasting Plan is to provide the basic guidelines and requirements for the safe storage and use of blasting materials required on a limited basis to construct specific WTG platforms or excavate sections of electrical collection line trench in shallow, resistant rock for the Altona Wind Park Project. Specific sites requiring blasting will be designated by Noble Altona Wind Park, LLC (Noble) upon completion of geotechnical surveys. In the event a section of trench with shallow, resistant rock may cross or be adjacent to other existing utility lines, Noble will place further restrictions on blasting by requiring use of other mechanical methods to loosen and remove rock such as with pneumatic hammers or rock saws. This Blasting Plan is intended to insure safety of personnel and nearby facilities and resources. In addition, the construction Contractor is responsible for preparing a site-specific blasting plan for Nobles review and approval prior to implementation.

Blasting-related operations including obtaining, transporting, storing, handling, loading, detonating, and disposing of blasting material, drilling, and ground-motion monitoring shall comply with applicable federal, state, and local regulations, permit conditions and the construction Contract. Adherence with regulations will include the requirements of OSHA 1910.109 “Explosives and Blasting Agents,” ATF PS5004.7 “Explosives Law and Regulations,” and current edition of the Blasters Handbook, in addition to the specific Contractor licensing and permitting requirements. .

Blasting operations shall be conducted by or under the direct supervision of experienced Contractor personnel legally licensed and certified to handle and use the particular types of explosives in this project area. Blasting licenses in New York State are issued by the Commissioner of the Department of Labor. The blasting contractor will provide documentation of such experience and licenses and permits prior to moving and storing explosive material in the project area. Before blasting, a site-specific blasting plan will be prepared.

Drilling and blasting shall be done with a Noble Inspector present. Noble’s Inspector’s approval is required to proceed prior to each blast. Approval does not relieve Contractor from responsibility or liability.

2 GENERAL BLASTING PROCEDURES

The following list of steps will be performed in all cases where blasting is utilized. These steps represent minimum requirements and given in general order to the blasting procedure:

- Notification of landowners and tenants, including owners of adjacent utilities or structures as well as County or Town Highway Departments if in proximity to roads and potential for public traffic requiring control and need for signage and flagman;
- A safety meeting will be held prior to any blasting activities. Everyone who is involved with the blasting in any form must attend. Safety rules and signaling should be reviewed;
- Warning signs will be erected;

- Lightning detectors will be set up;
- Drilled holes will be measured accurately for depth and location;
- Locations and distances to any nearby above ground or below ground structure, utilities, and water wells or springs (aboveground or below ground) suspected of being less than 300 feet from the blast shall be verified measured;
- Seismic equipment will be set-up to measure peak particle velocities (PPVs) at above or below ground structures, utilities and water wells or springs 150 feet or less from the blast locations;
- The blasting affected zone will be cleared, and two-way radios turned off as required;
- Give the warning signal;
- Give the blast signal;
- Detonate the blast;
- Inspect blast site for misfires, and initiate procedures for removal of live explosives or re-blast where required. In all cases, the site will be secured once the explosives are loaded and will be blasted or removed that day and not left overnight;
- After blaster has checked for misfires and given the “ALL CLEAR” signal, Contactor and Noble Representative will visually inspect any aboveground or underground facilities, utilities, and springs or other improvements that were are within 300 feet of the blast. Any rock or debris that may have been moved off-site will be promptly cleaned up and utilized as fill or disposed of at an approved upland site or permitted construction and demolition waste landfill;
- Complete the Noble Blasting Log Report Form (to be developed); and
- Initiate post-blasting inspections and monitoring of adjacent structures, utilities and water wells and springs.

3 PRE-BLASTING REQUIREMENTS

3.1 Contractor will acquire all required federal, state, and local permits relating to transportation, storage, handling, loading, and detonation of explosives and make this documentation available to Noble.

3.2 Contractor will furnish a site-specific Blasting Plan (including a blasting log form to be utilized) at least five working days prior to any proposed blasting-related activity. Contractor shall obtain Noble's approval in writing prior to drilling in preparation for blasting.

4 Site-Specific Blasting Plan

The Site-Specific Blasting Plan to be completed by the Contractor and approved by Noble. The blasting plan will include comprehensive procedures or specifications for the safe transportation, handling, storage, loading and detonating explosives, fire prevention, inspections and monitoring, flyrock and noise prevention, accidental-detonation procedures, pre-blast notifications, signage and flagman, warning signaling and clearances prior to or following each blast, misfires, post-blasting inspection and monitoring, and disposal of waste blast material.

- Locations of turbine sites and electric line trench segments requiring blasting;
- Geologic structure and rock type;
- Explosive type, product name and size, weight per unit, and density;
- Procedures for transporting and storing explosives on site, including locations and types of explosives magazines and detonating caps, magazine types, signage and security.
- Delay type (no more than one shot per delay), sequence, and minimum time delay (ms).
- Minimum frequencies to be caused by the detonations (Hz):
- Initiation method (i.e. detonating cord, blasting cap, or safety fuse);
- Stemming material and tamping method;
- Hole depth, diameter, and pattern;
- Explosive depth, distribution, and maximum weight per delay;
- Estimates of Peak Particle Velocites (PPVs) expected; which shall not exceed 2 inches/sec at any adjacent above or below ground structure, utility, water well or spring.
- Number of holes per delay;
- Use of blasting mats as required in addition to maintaining native soil cover to prevent flyrock and debris from spreading off-site;
- Distance and direction to nearest aboveground or below ground structures, utilities, and water wells or springs (seismic monitoring is required at any of these features located 150 feet or less from the blasting site(s));

- The need for blasting under water is not anticipated, in the case where a trench section may cross a small surface waterbody. If this were required, the plan will include procedures for in-water blasting.
- Notification procedures for landowners, County and Town Highway Departments as necessary, and other utility owners.
- Seismograph company, names, equipment and sensor location;
- Copies of all required federal, state, and local permits;
- Contractors and personnel statement of qualifications and copy of license(s).

5 Monitoring

5.1 General Monitoring Requirements

The Contractor will provide and operate seismic equipment to measure the peak particle velocity (PPV) of all blasts in the vertical, horizontal, and longitudinal directions at blast locations. Seismic monitoring can only be discontinued as authorized by the Noble Representative or an authorized on site inspector, but not where the blasting site is 300 feet or less from any above or below ground structure, utility, or water well or spring.

A visual inspection will be made by the Contractor, Noble Representative, and in cooperation with the landowner, of any adjacent structure, above ground utility and spring 300 feet or less from the blast location within 24 hours of clearing the site for blasting. The purpose of this pre-blast inspection is to document existing conditions to compare with post-blast conditions to verify damage attributed to blasting has not occurred or establish the basis for compensation in the likelihood damage may have occurred. Videotapes and/or photographs will document the visual inspections taken prior to blasting operations. This will provide actual records of the inspections and will help with settling disputes concerning potential damage claims.

Contractor shall measure the PPV at any water wells, potable springs, and at any above ground structure within 150 feet of the blasting. These monitoring data will be provided to the Noble Representative. In the event, any changes in conditions are documented attributed to the blast, the specific circumstances will be further evaluated and the owner compensated.

Contractor shall complete a Blasting Log Report Form immediately after each blast and submit a copy to the Noble Representative.

Within 24 hours of the blast, the Contractor, Noble Representative, in cooperation with the landowner, and any on site inspector will complete a visual inspection of above ground structures and utilities and springs 300 feet or less from the blast to note post-blast conditions compared to the pre-blast conditions.

5.2 Monitoring of Water Wells

Monitoring of water wells will be performed by Noble with the approval and cooperation of the landowner where blasting is done 150 feet or less of potable water wells. The sampling will consist of measurement of yield in gallons/minute with certain analysis for select water quality parameters including turbidity, total suspended solids, conductivity, iron, chlorides and other parameters of concern.

Pre and Post-construction monitoring will be performed within 72 hours respectively of the blasting. If the water well is found damaged and water quality adversely effected, the owner will be compensated, the existing well refurbished, or a new well installed.