**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

March 11, 2009

Heather Sullivan, Chief
Regulatory Division, Operations Directorate
U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742

RE: Public Notice 2008-410 Granite Reliable Power

Dear Ms. Sullivan:

Granite Reliable Power (GRP) proposes to fill 14 acres of wetlands, including 8 vernal pools; alter 200 acres of upland; and clear an additional 100 acres of wetland and upland to build a 100 megawatt wind energy facility in Coos County, New Hampshire. The wetland impacts are primarily from expanding existing logging roads (19 miles) and building additional dirt roads (12 miles). Impacts would also result from the construction of 33 windmills that would stand 400 feet tall; staging areas; substations; and transmission lines (6 miles). The site resides on 80,000 acres of land owned by three commercial logging companies.

Wetland and upland impact areas would include 94 acres of high elevation habitat (above 2,700 feet), which is rare in the state and important to several uncommon wildlife species such as Canada lynx, pine marten, Bicknell's thrush, and three-toed woodpecker. Some of these impacts would occur in old growth forest. The four turbine strings would span 6 miles of ridge line. The four ridge lines include Dixville Peak, Mt. Kelsey, Owlhead and Fishbrook; currently, Kelsey and a large part of Dixville have little or no road access.

The proposed compensatory mitigation plan consists of both wetland and high elevation components. The wetland portion would protect over 550 acres of land, improve culverts for many streams, and create several vernal pools. The high elevation plan has been worked on extensively in recent weeks with the help of the NH Department of Fish and Game (NHF&G). It consists of protecting over 2,400 acres of high elevation habitat and providing funds to NHF&G to monitor wildlife species in the area and protect additional lands.

Overall, the applicant and its consultants have done a good job of working with EPA wetlands staff. They held numerous meetings and have been generally responsive to our comments. Principal challenges with reviewing this project include the overall extent and complexity of the proposal (over 140 different maps to review); the fact that different people are preparing different parts of the plan; and the timing of when the information has been available. For example, we now have four different vernal pool reports, all with

different levels of information, and we received the most recent version just a few weeks ago. Also, we have asked several times for an off-site alternatives analysis and finally received it on February 24th, providing very little time to review it before our comments are due. Some information was still arriving as we prepared this letter.

Environmental Setting

The wetlands to be filled by the proposed project drain to several tributaries that flow into the headwaters of the Connecticut and Androscoggin rivers. Most of the drainage from the main road system drains into Phillips Brook (Connecticut basin), while the northern portion drains into the West Branch Clear Stream (Androscoggin basin). Both streams support high value cold water fisheries. The wetlands in the study area can be grouped into the following categories: 1) lower elevation (1,200 - 2,200 feet) where the primary logging road is located; 2) middle elevation (1,700 - 2,400 feet) where there are more secondary logging roads; and 3) high elevation (above 2,400 feet), where few roads exist.

The report provided by the applicant states that the wetlands provide the following principal functions and values: sediment and toxicant retention; wildlife habitat; and recreation. The study area contains a variety of wetlands (including vernal pools), and intermittent and perennial streams. Most of the wetlands are forested and often underlain by a hardpan of shallow bedrock. The ground water commonly perches on these hardpans and water flows downhill just below the surface. In general, the streams at higher elevations are high energy systems that flow seasonally and fast.

The high elevation wetlands and uplands are the most sensitive natural systems at the site. This habitat is generally rare in New Hampshire, and in the case of Mt. Kelsey, Owlhead, and most of Dixville Peak, these systems are part of a much larger, mostly unfragmented habitat block. Unfragmented habitat blocks, especially those that occur at high elevations, are becoming much less common in New Hampshire. These habitat blocks support numerous wildlife species, such as marten, fisher, Northern waterthrush and numerous warblers and vireos, that depend on their extensive, unfragmented nature. Some of these areas are also considered old growth forests that have not been logged in several decades. Several uncommon and rare species are found in this region of the state, including pine marten, Bicknell's thrush, and three-toed woodpecker.

The study area also contains vernal pools, which are breeding habitat for several species of amphibians and are utilized by other wildlife, including turtles and waterfowl, as feeding areas. Most of the identified pools are productive and have an important influence on the ecology of the larger landscape. The amphibian productivity of the pools provides much energy in the form of biomass (individual salamanders and wood frogs) to the greater landscape. Some of this energy is transferred out of the pools when predators feed on the protein rich eggs. Also, a large amount of energy departs the pools in the form of young-of-the-year amphibians that disperse in late summer or autumn into adjacent upland systems. These individuals are an important component of terrestrial food web.

Although wetland systems are essential for wetland dependent species, the quality of the nearby upland landscape greatly influences the ecological integrity of the aquatic resources. An intact wetland/upland matrix is especially important for the vernal pool species. Some of these species disperse several hundred feet from their breeding ponds into the adjacent upland habitat. For example, the spotted salamander typically travels up to 750 feet from its breeding pond, while the red-spotted newt may travel as far as 2,000 feet.

The applicant identifies 36 pools within 200 - 400 feet of the proposed roadway, along with egg mass counts, and 6 of these are located at high elevation levels. The report divides the identified vernal pools into a) natural (6 pools); b) man-made mature, pools that developed in a logged forest (now a mature forest) (18 pools); and c) man-made recently, pools that developed in a recently logged forest (9 pools). EPA considers all of these to be vernal pools, and we factor in both egg mass counts and how recently it was created in determining the value of the pool and the significance of the anticipated impacts upon the pool. Overall productivity appears to be average to below average as compared to vernal pools across the New England region, with some of the largest numbers being found in two of the natural pools (#13 wood frog – 100 egg masses; spotted salamander – 50 egg masses; #17 wood frog – 200 egg masses; spotted salamander – 50 egg masses). The high elevation pools generally have lower egg mass numbers and most are man-made mature.

Alternatives

EPA's §404(b)(1) guidelines (40 CFR 230) set forth the environmental standards which must be satisfied in order for a §404 permit to issue. The guidelines generally prohibit the discharge of dredged or fill material if there exists a practicable alternative which causes less harm to the aquatic ecosystem. A discharge of dredged or fill material is prohibited if there "is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem so long as the alternative does not have other significant adverse environmental consequences." [40 CFR 230.10(a)]. This fundamental requirement of the §404 program is often expressed as the regulatory standard that a permit may only be issued for the "least environmentally damaging practicable alternative" or LEDPA. Furthermore, where (as here) the project is not water dependent and involves fill in wetlands and other special aquatic sites, practicable and less environmentally damaging alternatives are presumed to exist unless clearly demonstrated otherwise by the applicant.

While there have been several coordination meetings for this proposed project, the applicant just recently submitted an off-site alternatives analysis via email. Five potential sites were identified. However, the analysis appears to be incomplete. Among other deficiencies, it is unclear how the applicant chose the five sites; that is, there is no explanation of what factors were considered in selecting the sites. Importantly, it is unclear if and how the presence of and potential for adverse impacts to aquatic resources were considered.

The analysis also lacks an evaluation of alternative designs that would explain whether it is practicable to build a project that could avoid or reduce the adverse impacts to the unfragmented portions of the high elevation wetlands and uplands. The applicant appears to assume that building larger turbines in fewer locations would impact less land and therefore cause less impact to aquatic resources. While that assumption is generally true, it may not be in this case. As explained above, the ridge lines that would be affected contain some of the most uncommon and rare communities on the site; avoidance and minimization must be thoroughly documented because of the nature and extent of anticipated adverse impacts to aquatic resources. The applicant should consider options that include building combinations of smaller and larger turbines in less sensitive locations, with particular focus on avoiding or greatly reducing adverse impacts on the unfragmented high elevation areas. We also request clarification of why 100 MW is the target for this facility; that is, would 75 MW, for instance, provide a viable project.

Impacts to Aquatic Resources

The proposed project would fill 14 acres of wetlands, including 8 vernal pools. Destruction of wetland acreage correlates with loss of functions and values including habitat destruction, reduced primary and secondary productivity, and alteration of hydrological functions (e.g., flood storage, low flow maintenance, nutrient and toxicant transformation, sediment trapping, groundwater discharge and recharge).

Most of the impacts would be to forested wetlands and most would be small, with over 400 individual impact locations being less than 1,000 square feet in size. All the expected impacts would be less than 20,000 square feet, with four exceeding 10,000 square feet. The road network would cross 15 perennial streams, though almost all of these streams currently have dirt roads crossing them. For the most part, the applicant would be replacing the existing culverts with improved structures that are more supportive of the aquatic environment.

Approximately 35% of the wetland impacts would be to drainage ditches, relatively low value wetlands, which were formed mostly by the old logging road network that the current project proposes to expand. After construction there would be relatively little use of the road network, so some of the usual indirect impacts of roads (road kill, pollution runoff, human use, and noise) would not likely be a concern. Also, it does not appear that the road network would induce additional growth and development given the remote location and lack of access to any electrical power (though the road network could provide somewhat better access for logging and hunting.) Therefore, the overall direct and indirect impacts to the affected aquatic resources would be somewhat less than what we would normally expect from a project of this scale and extent.

Still, the road network and the turbines would break apart the currently intact high elevation areas, and cause additional fragmentation to already affected parts of the project area. The table below summarizes some of the overall impacts from the road network

(the numbers are approximate and do not equal 100% because turbines and other impacts are not listed). As shown below, even though only 5 miles of new roads would be constructed and comprise a modest amount of the overall disturbance, the adverse impacts would be disproportionately large because of the greater amount of wetland and high elevation habitat loss.

| Road Type | Miles | Acres of wetland and upland alteration | Acres and % wetland impact | High Elevation |
|---|---|---|---|---|
| Expand existing roads | 19 | 40 | 5 (36%) | 5% |
| Upgrade small roads | 7 | 30 | 1 (7%) | 20% |
| Mostly new roads | 5 | 20 | 6 (43%) | 45% |

Since at least half of the turbines would be built along the unfragmented ridge lines, it would create substantial breaks to the forest cover in these sensitive areas. Given the high winds and exposure to extreme weather, these openings would likely lead to additional loss of forest cover from tree blow-downs. Species that depend on these forest blocks and high elevation habitat, such as pine marten and Bicknell's thrush, would be affected the most. Bicknell's thrush may be even more vulnerable since its mating rituals could cause this species to be more frequently hit by the turbine blades. We encourage the Corps to work closely with staff from the U.S. Fish and Wildlife Service and the NHF&G on these important issues.

The project would fill 8 vernal pools, reducing the overall wildlife productivity of the area and adversely affecting the food chain of the area. Several of these pools are located at high elevation areas. In addition to the vernal pools that would be filled directly, other pools that are a relatively short distance from the proposed roadway would be affected as well. There are an additional 18 pools located within 100 feet of the proposed roadway, and the remaining 18 pools are located within 400 feet of the roads. These pools would be impacted indirectly (through temperature increases, roadway runoff, and removal of over wintering habitat), further reducing overall productivity and compounding the food chain affects. Moreover, several of the amphibian populations breeding in the pools that are located within 100 feet of the roads could be completely lost over time. For example pool #17 (the most valuable pool) appears to be within 30 feet of the expanded road.

While the largest impacts would be to wildlife habitat and high elevation natural communities, the project could also cause some adverse impacts to recreation and water quality functions. The wind towers would be visible on one of New Hampshire's highest ridges and largest remaining open space areas, including from the 100-mile Cohos Trail.

We encourage the Corps to work with others more knowledgeable in visual impacts to judge the extent of this effect. Also, despite the effort made to replace culverts, the project would add additional sediment to wetlands and streams, mostly from road construction. This would be especially true in high elevation areas in early spring when culverts may be frozen/blocked by ice, and runoff is rapid.

Minimization and Compensatory Mitigation

Notwithstanding the eventual selection of the least environmentally damaging practicable alternative, we recognize that the applicant has made a solid effort to minimize adverse impacts to aquatic resources on this site for this proposed design, especially by bridging and slight alignment shifts to reduce impacts to streams and vernal pools. These efforts include: 1) use of existing logging roads as much as possible; 2) replacing culverts on 16 perennial streams with box culverts; 3) improving 100 undersized culverts on seasonal streams; 4) building rock sandwiches on and under the new roads which would allow surface and ground water to flow from one side to the other without being forced into ditches; and 5) relocating switchyards and staging areas to avoid impacts.

The overall proposed compensation plan includes preserving 3,000 acres of land near protected areas; creating several vernal pools; enhancing aquatic habitat; upgrading numerous culverts; and, providing funds for monitoring and additional land protection.

The wetland portion of the compensation plan consists of:

* preserving 550 acres of land adjacent to other protected lands. The site is 22% wetland and buffers 2 miles of streams (Hedgehog and Annis Brooks) that drain into Phillips Brook, a cold water fishery. The NH Wildlife Action Plan shows this to be a high value wildlife habitat, including 160 acres of high elevation lands;

* creating 8 vernal pools off-site, mostly in the 550 acre protected parcel;

* replacing all perennial stream culverts with box culverts or bridges;

* upgrading and replacing 100 seasonal stream crossings;

* restoring the banks on 24 streams; and,

* using many best management practices, including rock sandwiches, on new roads to allow drainage to flow more or less in an unrestricted fashion.

The high elevation portion of the compensation plan consists of:

* protecting more than 2,300 acres of land above 2,700 feet, including on Mt. Kelsey (1,600 acs), Long (163 acs), Whitcomb (390 acs), Muise (27 acs) and Baldhead (152 acs) mountains;

* conserving land by easement or fee (landowner option) with timber harvest restricted to no-cut or only as specified by NHF&G to sustain high elevation habitat. The easement areas will be closed to motorized recreational vehicles, but open to the public on foot. If conservation easements are used, GRP will provide up to $100,000 as an easement monitoring endowment;

* providing $250,000 to NHF&G to conserve additional lands, focused on marten habitat (spruce/fir at high and/or low elevation); and,

* providing $200,000 to NHF&G for post-construction studies on, among other topics, marten, Bicknell's thrush, and Mt Kelsey.

The proposed compensation plan would create 8 pools for the 8 pools that will be filled. However, we believe that a greater number of pools should be created if suitable locations can be found, for the following reasons:

1) the current compensatory mitigation plan contains little wetland creation or restoration;
2) as with any attempt to create vernal pools, there is a high risk that several of the created pools could fail in whole or in part over time, so the greater number would account for anticipated loss; and,
3) the project would cause substantial indirect impacts to numerous other vernal pools, and those impacts would be partly addressed by the greater number as well.

We agree with GRP's recommendation that this creation work take place in locations that can be easily accessed with equipment. We also recommend that the pools be constructed in areas where most of the surrounding upland can be protected long-term. At the same time, we believe that several of the created pools should be located as near to the impact areas as possible while maintaining a sufficient distance from the main roads. We make the following specific recommendations:

* create 16 - 24 pools, preferably in small clusters of 3 pools per area, with most located in well protected areas, some at high elevations, and some near the impact sites;

* construct some large, deep pools (e.g., 50 feet x 100 feet, 2- 4 feet depth), and some smaller and shallower. Variation in size and depth should help account for natural variations in the hydrologic regimes caused by seasonal and annual variations in rainfall/snowfall; and,

* monitor the created pools biannually (egg mass counts; emergence/metamorphs) for at least 5 years, then biennially for an additional 6 years. Suitable monitoring metrics and success standards should be developed.

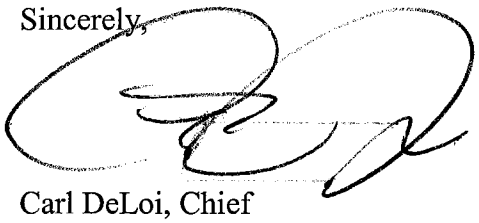
Summary

The applicant proposes to build part of this project in a sensitive and valuable area. The off-site and on-site alternatives analyses are incomplete and do not comply with section 230.10(a) of the section 404(b)(1) guidelines. In addition, the Corps should work carefully with the U.S. Fish and Wildlife Service and NHF&G to address the adverse impacts at high elevation to wildlife, and the compensatory mitigation plan should add additional vernal pool creation.

As EPA staff have said in previous discussions with the Corps, we believe the scale of the project, the extent of road building and affected land area, the extensive impacts to wetlands and vernal pools, and the sensitivity of the high altitude habitat are all factors that would support a Corps decision now to prepare an environmental impact statement under the National Environmental Policy Act (NEPA). If the Corps decides instead to prepare an environmental assessment to help inform the decision on whether an EIS should be required, it will be important for the EA to be comprehensive and to be made available for public and agency review prior to a final NEPA and permit decision.

Until these issues are adequately addressed, EPA recommends that a permit not be issued for this project. Thank you for your careful consideration of our comments. If you have any further questions please call Mark Kern of my staff at (617) 918-1589.

Sincerely,



Carl DeLoi, Chief
Wetlands and Information Branch

cc: V. Lang, FWS (electronically)
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