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FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects
Division of Dam Safety and Inspections
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June 14, 2006

In reply refer to:
P-10482-NY - Swinging Bridge Dam
NATDAM ID No. NY00696

Mr. Kevin J. McLeod
Mirant NY-GEN, LLC
140 Samsondale Avenue
West Haverstraw, New York 10993

Dear Mr. McLeod:

This letter concerns the final remediation plan for the Swinging Bridge Dam Safety Remediation Project at the Swinging Bridge Project (No. 10482-NY) in Forestburgh, Sullivan County, New York. We are accepting the design elements of the final remediation plan that we expect will address the safety issues identified with as a result of the sinkhole that developed in the crest of the Swinging Bridge Dam on May 5, 2005. As discussed further below, the final plan calls for the construction of a filter and drainage system in the embankment dam, measures to rehabilitate the penstock and diversion tunnel and evaluate crest seepage, and the installation of crest wave protection for extreme flood events. Construction activities on the filter and drainage system will begin immediately, and are expected to be completed prior to the end of the year. Work to complete the grouting from with the penstock has begun.

Once the above work is completed authorization for a controlled refilling of the reservoir can be provided before the end of 2006. Comments concerning the currently revised reservoir refilling plan are included in Enclosure 2. The Division of Dam Safety and Inspections (D2SI) staff will remain closely involved in monitoring the project to ensure that the final remediation plan is implemented in accordance with the reservoir refilling plan and in a timely manner, and is safely accomplished.

More specifically, through this letter, you are authorized to proceed with remediation work included in Work Package 5 – Conduit Filter and Embankment Toe Drain submitted on October 11, 2005, and modified based on our comments provided in our October 17, 2005 letter. Updated drawings were submitted on June 1 and reviewed and revised at the June 2, 2006 BOC meeting. The work is authorized to proceed based on these drawings to be modified to incorporate comments from the meeting. Your submittal includes the Construction Quality Control Inspection Program and Instrumentation Monitoring and Response Plan (IMRP). The work under Phase I that included dewatering wells and sheetpile enclosure was authorized by our letter dated January 27, 2006. We understand that you are in the process of making the selection of the sub-contractor that will perform the construction. It is expected that this work will be completed by November, 2006.

Since the development of the sink hole, D2SI staff has been working closely with NY-GEN, along with outside expert assistance through the Board of Consultants, to investigate and analyze the cause of the sink hole in the dam. Work to remediate the dam embankment to date has included excavating a portion of the crest of the embankment and replacing the material removed with compacted embankment material, grouting from within the access tunnel that lies under the penstock, installing dewatering wells to maintain a lowered phreatic surface through the embankment dam, and grouting from within the penstock. The final steps needed to complete the remediation effort involve construction of a filter within the embankment and a series of blanket and toe drains to control seepage. Also included within the final plan will be work to perform a thorough assessment of the penstock to determine any potential additional remediation that may be required to correct deficiencies in the penstock. The monitoring of the dam performance will continue as discussed during the June 2nd Board of Consultants (BOC) meeting.

During the June 2nd BOC meeting and in response to a previous request from the BOC, Schnabel Engineering presented the design criteria for selection of the conduit filters, and bid drawings. These drawings were revised to respond to some of the comments included in our October 17, 2005 and January 27, 2006 letters. We have not received a response to our comments regarding the Technical Specifications and IMRP, however it was agreed during the BOC meeting that the filter layers should be revised to be no less than one foot-thick. Schnabel representatives indicated that they would be preparing a detailed response to our comments including comments discussed during the BOC meeting.

Enclosure 1 to this letter is a copy of our letter dated December 21, 2005 that provides information regarding construction reports and certification needed during and at completion of this work. Considering that the conduit filter includes excavation at the toe please submit a Temporary Emergency Action Plan before the work starts.

A *Draft* Reservoir Refilling Plan (RRP) was submitted by your consultant Mr. Adam Jones by email on April 28, 2006. Comments to the Draft RRP are included in Enclosure 2 of this letter. In addition, as discussed during the recent BOC meeting, the

RRP should include specific monitoring and an action plan for any seepage that could occur on the embankment above the top of the embankment core. Please revise and resubmit the RRP. Reservoir filling is not to begin until completion of the conduit filter and embankment toe filter, and you receive authorization from FERC. Close visual and instrumentation monitoring of the embankment dam, penstock, and access tunnel will continue. Once the penstock assessment and required remediation are completed, the frequency of instrumentation monitoring and visual inspections can be reviewed.

The penstock and tunnel rehabilitation was discussed during the June 2, 2006 BOC meeting. It was agreed that a schedule for the condition assessment of the penstock would be submitted within two weeks from the date of the BOC meeting. The penstock and tunnel will remain open for monitoring during reservoir refilling, and their remediation should be reassessed at the time when the reservoir is filled based on the dam's response to filling. Based on the conclusions from the condition assessment, a determination will be made as to what repairs are necessary to restore the penstock for power generation or for the installation of a low level outlet. We concur with the BOC that the penstock condition assessment should proceed immediately and a decision regarding any additional remediation of the penstock and access tunnel should be made in connection with the refilling of the reservoir and without any unnecessary delay. Your schedule should provide for the timely resolution of this issue.

In summary, the major elements of the final remediation plan include:

- *Conduit Filter* – A filter and drain will be constructed at the downstream end of the conduit. The conduit filter will consist of installation of filter material in a braced excavation that will extend to a level at or below the base of the conduit. The excavation will require dewatering and retention measures to maintain a stable excavation. The underside of the conduit will be grouted.

- *Embankment Toe Filter* – A filter and drain will be constructed along the toe of the right and left embankment sections. The filter will be installed in an unbraced excavation at the toe of the slope. In addition, a localized filter will be installed on the west side of the powerhouse.

- *Penstock and Diversion Tunnel Rehabilitation* – The penstock and diversion tunnel will remain open for access and monitoring during the refilling of the reservoir and the stabilization of the dam. Additional repairs of the tunnel and penstock will be undertaken depending on the final intended use of the penstock and the assessment is completed.

- *Crest Seepage and Crest Wave Protection* -- Crest wave protection will be provided by adding parapet rock on the upstream side of the crest road. Crest seepage will be evaluated as part of the reservoir refilling operation.

- *Filling of the Reservoir* – The refilling of the reservoir will begin upon completion of the construction of the conduit filter and embankment toe filter, and after we authorize Mirant to do so.

Finally, we note that the flood studies submitted by NY-GEN's experts have been reviewed and our comments are included in a letter to you dated June 13, 2006. As explained in that letter, based on the comprehensive evaluation of the hydrology and hydraulics of the Mongaup River Basin, FERC staff have determined that the NY-Gen project dams in the Mongaup River system satisfy the Commission's requirements for handling a major flood event, so long as the final remediation plan required for the Swinging Bridge Dam is implemented. More specific details are provided in the June 13, 2006 letter.

This letter should be forwarded to the BOC members. Please revise the specifications and drawings for construction as cited and as discussed during the BOC meeting and submit them within 15 days of the date of this letter.

Sincerely,

Constantine G. Tjoumas

Constantine G. Tjoumas, P.E.
Director, Division of Dam Safety & Inspections

Enclosures

cc: Debra Raggio Bolton
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In Reply Refer To:
P-10482-NY
NATDAM ID NY00696

Swinging Bridge Dam

Reports During Construction

December 21, 2005

Mr. Elliot Neri, Plant Manager
Mirant Bowline LLC
140 Samsondale Avenue
West Haverstraw, New York 10993

Dear Mr. Neri:

Please note that we require monthly construction reports following mobilization for construction. Please use the attached construction report format as applicable.

In addition to the monthly construction reports, special reports should be prepared and documented with photographs, describing problems encountered during construction. These problems should be described in detail showing the location where the problem occurred on plan and section drawings. The special reports should be submitted to the entire Swinging Bridge e-mail list by e-mail as soon as possible after the incident/discovery, but no later than within 12 hours. The special reports should then be incorporated into the following monthly construction report.

Also, note that at the completion of construction of each work package, and at the end of construction, you are to submit to this office a letter with the following certifications:

- A certification by the Design Engineer that the project was constructed in accordance with the design intent.
- A certification by the Quality Control Manager that the results of the inspection and testing program results in a conclusion that the project was constructed in accordance with the plans and specifications.

- A certification from the Licensee that the construction fulfills the design intent and was constructed in accordance with the plans and specifications reviewed by FERC

If during the design and construction process the plans and specifications are revised it is your responsibility to assure these changes are properly coordinated between the design engineer, the quality control manager, FERC and yourself. Also, if any changes are made that requires a change in the operation of the project it is your responsibility to assure these changes are properly coordinated with FERC. You are reminded that no changes to operation of the project can made to the project until it is authorized by FERC.

If there are any questions on the above matter, please contact Mr. Jerry Cross of this office at (212) 273-5911.

Sincerely,

Anton J. Sidoti
Regional Engineer

CONSTRUCTION REPORTS FROM LICENSEES

When mobilization for construction commences, we will require monthly reports to provide timely information on construction progress. Each report should contain, as a minimum, the information described below. If certain sections are not yet applicable on the date of a particular report, so indicate. It is important to supplement each report with pertinent photographs. We would like to receive the reports, in duplicate, including all attachments, not later than the middle of the month following the month for which the report is written.

We will inspect the project construction at least monthly. Whenever possible, we prefer to time our inspections to conform to important phases of construction. It would be appreciated if you would notify us in advance of such phases of construction.

The following items shall be included in monthly (or other periodic) construction reports to be submitted by the Licensee. In those cases where there is nothing to report under a specific heading, a statement of non-applicability will suffice. Some items require a one-time report. In these cases make reference to the report where the data was provided.

1. Progress of Work. Provide a brief narrative description of construction activities and related events during the reporting period. Report major items of work which reflect overall progress, rather than detailed statistical information.

2. Status of Construction. Describe the status of progress, as related to the original schedule and quantity estimates of items such as: (1) excavation for tunnels, structures, and roadways; (2) embankment, concrete, and other materials placed; (3) installation of machinery and equipment; (4) reservoir clearing; (5) necessary relocations; and (6) installation or construction of recreation, fish, and wildlife facilities. Furnish construction schedules and progress charts. Report the status of construction in terms of percent physically complete and percent of contract time elapsed. Provide an appraisal as to whether work is proceeding at such a rate as to indicate completion within the specified contract time. If not, give the reasons why and estimate a revised completion date.

3. Construction Difficulties. Describe unanticipated construction difficulties which could significantly increase project costs and/or affect job progress such as latent conditions, serious job accidents, floods, labor difficulties, quantity overruns, material shortages, and similar events.

4. Contract Status. Identify principal contractors and subcontractors engaged on the work. Describe any special expertise or equipment possessed by contractors.

5. Critical Events and Dates. Report important items and events such as dates of river diversion, start and completion of construction, tunnel closure, initial unit testing, and date of initial commercial generation for each unit.

6. Reservoir Filling. Prior to filling, provide the anticipated schedule and procedures for filling. During filling, note the date of initiation of reservoir filling, filling progress, and the performance of instrumentation installed to reflect structural conditions as affected by reservoir level, such as weir measurements of seepage and flows from wet spots. Report the date maximum normal reservoir level is attained.

7. Foundations. Report specifically on foundation conditions, foundation preparations, the type of material and conditions of placement. Include photographs and descriptions of the foundation areas that have been uncovered. Uncovering of foundation areas may reveal faults, cracks, and other conditions which require special treatment. In such cases, comment on the corrective measures utilized. Include with the construction report copies of any special reports on the foundations or treatment thereof. During excavation for major structures such as dams, powerhouses and tunnels, foundations shall be mapped for record purposes by the Licensee. Submit a copy of this map to the Regional Engineer.

8. Sources of Major Construction Materials. Provide information on the sources from which major construction materials and equipment are being obtained. Include all materials and equipment that may have an important bearing on the safety and efficiency of the project works, such as: aggregate cement, hydraulic control equipment, turbines and generators, etc. A plan of the project area showing the location of borrow areas and/or quarries shall be included.

9. Materials Testing and Results. Include periodic summaries of tests on concrete specimens and results of all tests. Field control tests that fail to meet specifications and as a result of which an area was reworked, shall be reported. Tests will be referenced to ASTM or other applicable standards.

10. Instrumentation. When instrumentation of the structures is required by the license or the Regional Engineer, the report shall include the schedule for installation and the program for reading the instrumentation during construction. Before filling the reservoir, the Licensee shall develop and furnish a schedule for monitoring the instrumentation.

11. Photographs. At the outset of construction, establish several photographic vantage points from which periodic progress photographs can be taken to document progress. These photographs shall be supplemented by an appropriate

number of detailed photographs to record significant elements of the work. All photographs shall be dated, captioned, and identified as to the report they accompany.

12. Erosion Control and Other Environmental Measures. The report shall include a discussion of erosion control and other measures and their effectiveness. The report should also include a discussion of any instances where sediments or other construction discharges entered the stream(s), the extent of the discharges, an assessment of any damage to the stream(s) and corrective actions taken, including measures to prevent further problems.

13. Other Items of Interest. Note here events not reported elsewhere in the inspection report. Typical items are meeting of boards of consultants, matters requiring continuing or follow-up action, public relations, job safety, important visitors, changes in job management, environmental problems, abnormal weather events, etc.

Report significant events involving relationships with interested government agencies such as the U. S. Forest Service, Fish and Wildlife Service, Corps of Engineers, State and county highway and health authorities, State and Federal industrial safety enforcement organizations, and recreational and conservationist groups.

FINAL CONSTRUCTION REPORTS FROM LICENSEES

The Licensee should submit a final construction report within 90 days from the completion of work. This report should include all information pertinent to the dam safety in a concise form, should be included by the Licensee in the project file and it should be given to the independent consultant for his safety inspection and analyses, if applicable.

As such, the report should contain a summary of information in each of the applicable sections indicated below (the information was previously presented in the monthly reports). Tabular form for test result presentation with indication of applicable standard is recommended for conciseness. If certain sections are not applicable, skip them. Include construction difficulties under sections where it applies.

1. General. Briefly present the reason for construction and description of work with dates of beginning and end of construction. Include reservoir drawdown and filing dates, any findings regarding the original structure.

2. Foundations. Present specifically condition of foundation (faults, etc.) When uncovered, and foundation treatment. Attach foundation mapping.

3. Embankments. Describe the equipment, type of materials used in filters and fills, attach gradation and compaction requirements and all test results.

4. Concrete work. Describe equipment and materials, include all concrete and grout test results, describe surface treatments.

5. Anchors. Present summary of drilling operation including boring logs; results of water pressure tests; anchor design calculations, design loads, specification; results of grout test; results of proof and performance tests; and summary of acceptance criteria.

6. Instrumentation. Present plots of existing instrumentation readings during the construction, if the readings are affected. Include details, compete schedule, plan of calibration/reading of all new instrumentation.

7. Drawings. Attach as-built drawings reduced in size to 8.5"x11" or 11"x17". The drawings should include plan, section and details

Reservoir Refilling Plan - Comments.

- *Section 2 page 3 last paragraph* indicated that the pumps shall be turned off for a minimum of 1 week prior to initiating reservoir refill. We recommend that you confirm that the piezometers have stabilized before the refilling process begins in order to be able to use the existing correlation curves during refill.

- *Section 4.2 page 17 last paragraph* refers to existing and new instrumentation. Please prepare an updated instrumentation submittal to include plan, sections, tables and instrumentation details of all instrumentation installed at the dam.

- *Section 4.2 page 18 first paragraph*. Settlement monuments shall be installed at all sinkholes previously identified.

- *Section 4.2 page 18 first bullet*. Plot the readings taken during refill with different symbols versus the historical readings on the correlation curves. If there is a notable difference an interpretation and explanation are needed.

- *Section 4.2 page 19 last bullet*. The existing correlation curves are based on historical readings. Should there be a need to restart the dewatering wells (DWs) during the refilling, the correlation curves will not be applicable because some of the foundation piezometers will be drawn down significantly during dewatering. Please prepare a second set of correlation curves for the scenario when the DWs are in use. Use only readings taken between the moment when DW rehabilitation is completed and piezometers stabilize, and when pumps are stopped for refill. Should a flood occur during this period of time, piezometer readings should be taken for every two foot increments of reservoir level as discussed previously.

- *Tables 3 and 4 pages 12 and 13* need to be updated consistent with the time beginning with completion of construction (approximately November 2006, time frame)