APPENDIX C
MAINTENANCE STANDARDS FOR GENERATING ASSET AND ENERGY STORAGE SYSTEM OWNERS

Maintenance Standards (MS) 1 through 18 apply to each covered generating asset and energy storage system. (*See* GO 167, §§ 3 and 6.) A separate document containing guidelines may be obtained from the Commission's Safety and Enforcement Division (or successor entity). (*See* GO 167 § 14.2.) The guidelines are intended to assist each GAO and ESSO in determining how it may comply with these MS.

1. MS 1 – Safety

The protection of life and limb for the work force is paramount. The company behavior ensures that individuals at all levels of the organization consider safety as the overriding priority. This is manifested in decisions and actions based on this priority. The work environment, and the policies and procedures foster such a safety culture, and the attitudes and behaviors of individuals are consistent with the policies and procedures.

2. MS 2 - Organizational Structure and Responsibilities

The organization with responsibility and accountability for establishing and implementing a maintenance strategy to support company objectives for reliable facility operation is clearly defined, communicated, understood, and is effectively implemented. Reporting relationships, control of resources, and individual authorities support and are clearly defined and commensurate with responsibilities.

3. MS 3 – Maintenance Management and Leadership

Maintenance managers establish high standards of performance and align the maintenance organization to effectively implement and control maintenance activities.

4. MS 4 – Problem Resolution and Continuing Improvement

The company values and fosters an environment of continuous improvement, timely and effective problem resolution, and problem prevention. This can be accomplished by applying industry best practices, lessons learned, and proven safety measures for the safety and reliability of both the GA and ESS.

5. MS 5 - Maintenance Personnel Knowledge and Skills

Maintenance personnel are trained and qualified to possess and apply the knowledge and skills needed to perform maintenance activities that support safe and reliable facility operation.

6. MS 6 - Training Support

A systematic approach to training is used to achieve, improve, and maintain a high level of personnel knowledge, skill, and performance.

7. MS 7 – Balance of Maintenance Approach

The maintenance program includes the proper balance of the various approaches to maintenance, *e.g.*, preventive, predictive, or corrective. The approach is adequately documented with consideration of economics and reliability of equipment or components, and their effect on reliable operation of the unit. Operating experience is factored into the program. Maintenance procedures and documents should include the generation and/or ESS equipment, and all components owned and operated by the ESSO/GAO directly connected to the plant. All integral parts of delivering power to the grid (*e.g.* fuel supply systems, electrical switchyards, transmissions lines, control systems, penstocks, flumes, heating and cooling systems, exhaust system, communications systems, etc.) are included.

8. MS 8 – Maintenance Procedures and Documentation

Maintenance procedures and documents are clear and technically accurate, provide appropriate directions, and are used to support safe and reliable facility operation. Procedures must be current to the actual methods being employed to accomplish the task and are comprehensive to ensure reliable energy delivery to the transmission grid.

9. MS 9 – Conduct of Maintenance

Maintenance is conducted in an effective and efficient manner, so equipment performance and material condition effectively support reliable facility operation.

10. MS 10 – Work Management

Work is identified and selected based on priority to maintaining reliable facility operation. Work is planned, scheduled, coordinated, controlled, and supported with resources for safe, timely, and effective completion.

11. MS 11 – Facility Status and Configuration

Station activities are effectively managed, so facility status and configuration are maintained to support safe, reliable, and efficient operation.

12. MS 12 – Spare Parts, Material and Services

Correct parts and materials are in good condition and are available for maintenance activities to support both forced and planned outages. Procurement of services and materials for outages are completed on time to ensure materials will be available without impact to the schedule. Storage of parts and materials support maintaining quality and shelf life of parts and materials.

13. MS 13 - Equipment Performance and Material Condition

Equipment performance and material condition support reliable facility operation.

This is achieved using a strategy that includes methods to anticipate, prevent, identify, and promptly resolve equipment performance problems, corrosion, and degradation.

14. MS 14 – Engineering and Technical Support

Engineering and technical support activities are conducted such that equipment performance is optimized for reliable facility operation. Engineering and technical support implements industry best practices, lessons learned, proven safety measures, and technical information necessary for the facility to be operated and maintained within the operating parameters defined by facility design.

15. MS 15 – Chemistry Control

Chemistry controls optimize chemical conditions during all phases of facility operation and system non-operational periods.

16. MS 16 – Regulatory Requirements

Regulatory compliance is paramount in the operation of the facility. Each regulatory event is properly identified, reported and appropriate action is taken to prevent recurrence.

17. MS 17 – Equipment History

Maintenance standards or procedures clearly define requirements for equipment history for the systems and equipment, including, what information or data to collect, how to record data, and how the data are to be used.

18. MS 18 – Maintenance Facilities and Equipment

Facilities and equipment are adequate to effectively support maintenance activities.

(END OF APPENDIX C)