

FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects
Division of Dam Safety and Inspections – Portland Regional Office
1201 NE Lloyd Blvd, Suite 750
Portland, Oregon 97232
(503) 552-2700

12/3/2024

In reply refer to:
P-12107

VIA Electronic Mail

Ms. Blanche McLure
Chairperson, Granite County Commission
P.O. Box 925
220 N. Sansome St.
Philipsburg, MT 59858
bmclure@co.granite.mt.us

Subject: Fourth Part 12D Report, for a Comprehensive Assessment of the Georgetown Development, Flint Creek Hydroelectric Project, is due by January 1, 2027

Dear Ms. McLure:

This letter is to inform you that the Fourth Part 12D Independent Consultant's Safety Inspection Report (Part 12D Report) for the Georgetown Development of the Flint Creek Hydroelectric Project, FERC No. 12107, is due to be submitted to this office by January 1, 2027.

This letter contains important information about the required scope and contents of the Part 12D Report and reflects changes to the Commission's regulations that were implemented by Order 880 and went into effect on April 11, 2022. We encourage you to read this letter in its entirety, as well as the regulations and associated Guidelines.

General Requirements

Code of Federal Regulations (CFR) Title 18, Part 12, Subpart D establishes the Commission's Independent Consultant (IC) Inspection Program, also referred to as the Part 12D Program, and prescribes the scope of inspections, reports, qualifications of Independent Consultant Team (IC Team) personnel, and related procedures.¹ The Part

¹ <https://www.ecfr.gov/on/2022-04-11/title-18/chapter-I/subchapter-B/part-12/subpart-D>

12D Program is implemented by the Commission's Office of Energy Projects, Division of Dam Safety and Inspections (D2SI). Chapter 16 of the Commission's Engineering Guidelines for the Evaluation of Hydropower Projects (Engineering Guidelines) provides additional information related to the Part 12D Program.²

The list below shows several key components and deliverables that are required for this inspection:

- For the Fourth Part 12D Inspection, the IC Team must perform a **Comprehensive Assessment** (CA) as defined in 18 CFR § 12.31(f) and described in 18 CFR § 12.37.
 - The scope of a CA includes a **Potential Failure Modes Analysis** (PFMA) conducted in accordance with the guidance in Chapter 17 of the Engineering Guidelines.³
 - The scope of the CA also includes a **Level 2 Risk Analysis** (L2RA) conducted in accordance with Chapter 18 of the Engineering Guidelines.⁴
- You must provide a **Part 12D Inspection Plan** in advance, including an **IC Team Proposal**, and obtain written approval from the Director, D2SI in advance of the Part 12D Inspection, as described in 18 CFR § 12.34.
- The IC Team must prepare a preliminary report, referred to as a **CA-Pre-Inspection Preparation Report** (CA-PIPR). The CA-PIPR must be submitted at least 30 days in advance of the first IC Team activity, as described in 18 CFR § 12.42. Appendix 16-E of the Engineering Guidelines provides an outline for the CA-PIPR.
- The IC Team must document their findings in a final Part 12D Report, specifically a **Comprehensive Assessment Report** (CAR), which is described in 18 CFR § 12.38. The CAR must be submitted by January 1, 2027. Appendix 16-D of the Engineering Guidelines provides an outline for the CAR.
- The IC Team is to present their findings to Licensee and Commission staff during a **CA Review Meeting**, as described in Section 16-7.5 of the Engineering Guidelines.
- You must provide a **plan and schedule for corrective measures** to address the IC Team's recommendations, as required by 18 CFR § 12.41 and further described in Section 16-7 of the Engineering Guidelines.

² https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20230329-3010

³ https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20211216-3086

⁴ https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20211216-3088

Project Development(s) Requiring Inspection

The applicability of 18 CFR Part 12, Subpart D is based on project developments as defined in 18 CFR 12.3(b)(7). A project development comprises “an impoundment and its associated dams, forebays, water conveyance facilities, power plants, and other appurtenant facilities.” For this CA, the following project developments require inspection:

- Georgetown Development

Timeline of Activities

The table below shows the timing of some major milestones in the CA process. Shortly after issuance of this letter, Commission staff will contact you to schedule the initial coordination call; Enclosure 1 provides an agenda for that call.

Milestone	Timing
Initial Coordination Call <i>(Licensee and FERC)</i>	Within approximately 30 days of the date of this letter
Submit the Part 12D Inspection Plan to the FERC	180 days in advance of the first IC Team activity (field inspection or PFMA/L2RA)
Second Coordination Call <i>(Licensee, IC Team, and FERC)</i>	Within approximately 6 weeks after approval or conditional approval of the IC Team
Submit the CA-PIPR to FERC	At least 30 days before the first IC Team activity (field inspection or PFMA/L2RA)
Field inspection, PFMA, and L2RA <i>(Licensee, IC Team, and FERC)</i>	<i>Dates as scheduled in the Part 12D Inspection Plan</i>
Submit the CAR to FERC	January 1, 2027
CA Review Meeting	Within 60 days after the CAR is submitted
Submit the plan and schedule to address the IC Team’s recommendations	Within 60 days after the CAR is submitted

Approval of the Independent Consultant Team and the Part 12D Inspection Plan

You are required to submit a Part 12D Inspection Plan at least 180 days in advance of the first IC Team activity; since you are to perform a Comprehensive Assessment, the first activity may be either the site inspection or PFMA/L2RA.⁵ The Part 12D Inspection Plan must describe the scope and schedule of the inspection activities and include an IC Team Proposal, which must:

⁵ 18 CFR § 12.34(b)

- Identify the required technical disciplines for IC(s) and supporting team members;
- Identify the proposed IC(s) and demonstrate that they meet the requirements of 18 CFR § 12.31(a);
- Identify any facilitator(s) for the PFMA and L2RA;
- Demonstrate that the IC Team collectively has the required “experience and expertise with dam design, construction, and in the evaluation and assessment of the safety of existing dams, commensurate with the scale, complexity, and relevant technical disciplines of the project and type of review, inspection, and assessment being performed;”⁶ and
- Address any potential conflicts of interest that may exist, specifically in regard to the requirement in 18 CFR § 12.34(b)(3), which prohibits any member of the IC Team from reviewing their own previous work.

You are required to obtain written approval of the proposed IC Team from the Director, D2SI prior to the performance of the Part 12D Inspection.⁷ File the Part 12D Inspection Plan, including the IC Team Proposal, using the Commission’s eFiling system with the following address block on your transmittal letter:

Mr. David Capka, P.E., Director
Division of Dam Safety and Inspections
Federal Energy Regulatory Commission
Office of Energy Projects

You can access the Commission’s eFiling system at <https://www.ferc.gov/ferc-online/overview>. During eFiling make the following menu selections: Hydro: Dam Safety; Washington, DC; and Independent Consultant Approval Request. The cover page of the filing must indicate that the material was eFiled. For assistance with eFiling, contact FERC Online Support at FERCOnlineSupport@ferc.gov, (866) 208-3676 (toll free), or (202) 502-8659 (TTY).

Section 16-3.3 of the Engineering Guidelines provides additional information related to the Part 12D Inspection Plan and IC Team Proposal. Please note that you may provide the name(s) and resume(s) of any supporting members of the IC Team in the Pre-Inspection Preparation Report (discussed below) instead of the IC Team Proposal, which provides flexibility for assigning subject matter experts closer to the inspection and PFMA/L2RA dates.⁸

⁶ 18 CFR § 12.31(b)

⁷ 18 CFR § 12.34(a)

⁸ 18 CFR § 12.34(b)(4)

Review of Prior Reports

The IC Team must “review and consider all relevant reports on the safety of the development made by or written under the direction of Federal or state agencies, submitted under Commission regulations, or made by other consultants,” and “must perform sufficient review to have, at the time of the [inspection], a full understanding of the design, construction, performance, condition, downstream hazard, monitoring, operation, and potential failure modes of the project works.” As the licensee, you are responsible for “[providing] to the independent consultant team all information and reports necessary” to fulfill these requirements. For a CA, the IC Team must also possess an understanding of the risk associated with the project works, though this requirement will be minimal for an initial CA unless prior risk studies have been performed for the project.

When determining whether a completed study requires review by the IC Team, the status of the FERC review is irrelevant. The IC Team must review all current completed studies (i.e., those have been or are ready to be submitted to the FERC and have not been superseded). The IC Team may be requested to review in-progress studies (i.e., those that have not been submitted to the FERC) on a case-by-case basis. Generally, the IC Team will only be required to review studies completed by the date of FERC approval of the IC Team.

Pre-Inspection Preparation Report

At least 30 days prior to the first in-person IC Team activity (field inspection, PFMA, or RA), you are required to submit a preliminary report (the CA-PIPR) documenting the initial findings from the IC Team’s review of project documentation, instrumentation data, and other information.⁹ We will review the CA-PIPR to evaluate whether the IC Team has an adequate understanding of project features and determine whether the inspection activities can proceed as scheduled. If the name(s) and resume(s) of any supporting members of the IC Team were not provided in the Part 12D Inspection Plan, they must be provided in the letter transmitting the CA-PIPR. Section 16-4 of the Engineering Guidelines contains additional information regarding PIPRs.

If you do not submit the CA-PIPR in a timely manner, or if the CA-PIPR does not clearly demonstrate that the IC Team has performed the necessary level of preparation, we may require postponement of the in-person IC Team inspection activities. Regional Office staff will review the CA-PIPR and determine whether it is acceptable, generally acceptable, or unacceptable, as described in Section 16-4.1 of the Engineering Guidelines. If the CA-PIPR is acceptable or generally acceptable, the Part 12D Inspection may proceed as scheduled, though we may request follow-up action(s) to

⁹ 18 CFR § 12.42

be completed prior to the first activity. If the CA-PIPR is unacceptable, the Part 12D Inspection will be postponed, and that postponement will not constitute good cause for an extension to submit the CAR. If the Regional Engineer does not issue a letter within two weeks after the CA-PIPR is submitted, the CA-PIPR will be deemed acceptable by default.

Field Inspection

The scope of any Part 12D Inspection includes “a physical field inspection of accessible project works, including galleries, adits, vaults, conduits, earthen and concrete-lined spillway chutes, the exterior of water conveyances, and other non-submerged project features that may require specialized access to facilitate inspection.” Section 16-6.7.1 of the Engineering Guidelines contains additional details regarding inspection of the reservoir rim and spillway chutes; observation of gate operations; the review of special inspection reports; and the inspection of typically inaccessible features.

You must provide a schedule for the field inspection to the Regional Office in advance of the inspection. If the IC Team intends to split into smaller groups to inspect multiple project features simultaneously, you must inform us well in advance. Typically, Regional Office staff will accompany the IC Team during the field inspection, and we will need to ensure that we send sufficient personnel to observe the project features with the IC Team. Any special access procedures and safety equipment should be identified ahead of time so that everyone attending the field inspection can prepare accordingly.

Potential Failure Modes Analysis

You are required to perform a completely new Potential Failure Modes Analysis (PFMA) as part of this Comprehensive Assessment¹⁰. Chapter 17 of the Engineering Guidelines contains additional information about the PFMA process and requirements for performance, documentation, and follow-up, and you should review the chapter in detail to have a complete understanding of the process. Sections 16-6.6.2 and 16-6.6.4 of the Engineering Guidelines provide information that is specific to the performance and documentation of a PFMA during a CA, which is significantly different from the “PFMA reviews” that were performed under the previous Guidelines. **Please note the following significant changes to our PFMA process:**

- The definition of the term ‘failure’ has been revised to include not only the loss of the reservoir, but also the inability of the project features or components to perform their intended function and the project features or components performing in an impaired or compromised fashion. This includes misoperation of project elements.

¹⁰ 18 CFR § 12.37(f)

- Prior to identifying project potential failure modes, the PFMA team must develop a complete understanding of the physical project features, components, and elements and the interactions, relationships, and dependencies of those physical elements in a systems context. This understanding must include the identification of potential backup systems and redundancies as well as operational protocols, standard operating procedures, lines of communication, feedback, and authorities and responsibilities of project personnel.
- The brainstorming session should be performed in a structured manner through project features, loading conditions, and failure mechanisms to help ensure that the team does not miss or overlook candidate PFMs (Section 17-4.7.5 of the Engineering Guidelines).
- The PFMA must include consideration of the potential contribution and influence of human and organizational factors, such as organizational culture and decision-making authority and practices, and how these factors can contribute to failure. The propensity toward failure is determined by the balance of factors that contribute to failure versus safety.
- When classifying candidate Potential Failure Modes (PFMs), you should use the PFM screening process described in Chapter 17 of the Engineering Guidelines (Section 17-4.7.8 and Figure 17-1). The Commission no longer uses numbered categories.
- PFMs should be documented in a consistent format. Appendix 17-G in the Engineering Guidelines provides a suggested PFM template. The PFM labels should be logical and provide an indication of what the PFM covers; Table 17-1 shows an example of a preferred nomenclature.
- Licensee staff are prohibited from serving as the facilitator (Section 17-4.3.2 of the Engineering Guidelines).

Level 2 Risk Analysis (L2RA)

You are required to perform a risk analysis as part of this Comprehensive Assessment.¹¹ Chapter 18 of the Engineering Guidelines contains additional information about the risk analysis process and requirements for performance, documentation, and follow-up, and you should review the chapter in detail to have a complete understanding of the process. Sections 16-6.6.3 and 16-6.6.4 of the Engineering Guidelines provide information that is specific to the performance and documentation of an L2RA during a CA. Please note the following highlighted items regarding the L2RA process:

¹¹ 18 CFR § 12.37(g)

- Section 18-5 of the Engineering Guidelines identifies the qualifications of the risk analysis team, including those of the risk analysis facilitator.
- The following risk measures should be included in the risk analysis:
 - Societal incremental life safety risk
 - Non-breach life safety risk
 - Annual probability of failure

Where appropriate, economic and other consequences such as environmental, cultural, etc. should also be considered.

- Probabilistic loading estimates for hydrologic and seismic loads are required to perform the risk analysis. These estimates must be prepared in advance of the risk analysis session so that information is available for the risk analysis.
- Likewise, consequence estimates (life loss and others as appropriate) are required to perform the risk analysis. These estimates must be prepared in advance of the risk analysis session so that information is available for the risk analysis.
- Screening of potential failure modes for the risk analysis should be performed in accordance with the process described in Section 18-7.2 of the Engineering Guidelines.
- Risk estimates should be portrayed using the risk matrices provided in Section 18-11 of the Engineering Guidelines.
- Similar to the development and documentation of potential failure modes for the PFMA, potential failure modes for the risk analysis should be documented in a consistent format. Appendix 18-C of the Engineering Guidelines provides a suggested template.

Comprehensive Assessment Report

By the due date shown above, you are to submit the IC Team's CAR to this office. Section 16-6 of the Engineering Guidelines contains additional information about the documentation required in each section of the CAR. Please note the following specific requirements that are important for you and the IC Team to fully understand:

- Incorporation by Reference. The regulations implemented by Order 122 (January 28, 1981) permitted the incorporation by specific reference to a previous Part 12D Report if the conditions, assumptions, and available information had not changed. **This is not permitted under the regulations that were implemented by Order 880 and which went into effect on April 11, 2022.** The IC Team must document their own interpretation and evaluation in each section of the CAR, where required.

- **Evaluation of Performance.** The evaluation of the performance of project works must be an independent interpretation based on the IC Team’s visual observations and review of instrumentation data and surveillance reports. The IC Team may not rely entirely on previous interpretations or state that a particular condition or instrumentation data does not indicate a potential issue simply because it is not changing over time. The evaluation must clearly address the identified PFMs as well as whether any previously unidentified PFMs may be active or developing.
- **Specific Evaluation.** The IC Team must evaluate the adequacy of spillways, as described in 18 CFR § 12.39; the structural adequacy and stability of structures under all credible loading conditions; the potential for internal erosion and/or piping of embankments, foundations, and abutments.¹²
- **Review of Design Basis and Construction.** The IC Team must review historical construction documents in order to evaluate “the design and construction practices used during original construction and subsequent modifications, in comparison with the industry best practices in use at the time of the [CA].”¹³ Additional information is provided in Section 16-6.3 of the Engineering Guidelines.
- **Review of Analyses of Record.** The IC Team must review and evaluate the studies and analyses of record and specifically address the accuracy, relevance, and consistency with the current state-of-the-practice of dam engineering. Additional information regarding this component of a CA is provided in Section 16-6.4 of the Engineering Guidelines. If the IC Team is unable to review any particular analysis of record; or if they disagree with the assumptions, methods, calculations, results, or conclusions; the IC Team must recommend that the Licensee complete a new analysis.¹⁴
- **Recommendations.** For each corrective measure the IC Team provides in the CAR, they are also required to provide their recommendation of a reasonable time for the Licensee to carry out the corrective measure.

Review Meeting and Presentation

Within 60 days of submitting the Part 12D Report, the IC Team is to present a summary of their findings, conclusions, and recommendations to the Licensee and Commission staff in a CA Review Meeting. The draft review meeting presentation should be provided to all participants in advance. The meeting may be in person, virtual, or hybrid. Refer to Section 16-7.5 of the Engineering Guidelines for additional information related to the review meeting. It may be helpful to conduct this meeting between 30-45 days after submittal of the Part 12D Report so the Licensee can ask

¹² 18 CFR § 12.38(b)(1) through (3)

¹³ 18 CFR § 12.38(b)(4)

¹⁴ 18 CFR § 12.38(c), § 12.36(d)(2)

questions before submitting their plan and schedule to address the IC Team's recommendations.

Corrective Measures – IC Team Recommendations and Licensee Plan and Schedule

Within 60 days of submitting the Part 12D Report, you must submit your plan and schedule for addressing any recommendations provided by the IC Team.¹⁵ Your plan may include any proposal, including taking no action, that you consider a preferred alternative to any corrective measures recommended by the IC Team, and you may not concur with the IC Team's recommended time to complete each corrective measure. However, it is your responsibility to provide complete justification in support of your preferred alternative, and the Regional Engineer may require modifications to your proposed plan and schedule.¹⁶ You must submit an annual report documenting the status of the corrective measures until all have been completed.¹⁷

If during the course of their inspection, the IC Team discovers any condition for which emergency corrective measures are advisable, the IC Team must notify you immediately and you must notify the Regional Engineer pursuant to 18 CFR § 12.10(a).¹⁸

Closing

The Commission's dam safety program is a cooperative process that includes the Licensee, the IC Team, and the FERC. The most important of the three elements is the Licensee, as you operate the project, see the project on a regular basis, and are responsible for the performance monitoring program used to determine if any potential failure modes are developing. It is your responsibility as the Licensee to submit the Part 12D Report to the FERC and ensure that the Part 12D Report meets the requirements of the Commission's Regulations and the Engineering Guidelines before it is submitted. The Part 12D Report is a FERC requirement but is also a valuable resource for you as the dam owner.

Except for the Part 12D Inspection Plan, which is discussed above, file the Part 12D Report and other related submittals using the Commission's eFiling system at <https://www.ferc.gov/ferc-online/overview>. When eFiling, select Hydro: Dam Safety and Portland Regional Office. If you are also filing an STID and Digital Project Archive (DPA), both the STID and DPA must be eFiled by selecting Hydro: Dam Safety and Portland Regional Office. You must also submit one hard copy of the STID to this office. Both the electronic and hard copy must be entire copies of the STID, do not send individual pages or sections. If the DPA cannot be eFiled, contact the project engineer to

¹⁵ 18 CFR § 12.41(a)(1)(i)

¹⁶ 18 CFR § 12.4(b)(2)(iii)(C)

¹⁷ 18 CFR § 12.41(a)(2)

¹⁸ 18 CFR § 12.41(b)

discuss options for transmitting the DPA to the Commission. For more information on transmitting the DPA, see Chapter 15 of the Engineering Guidelines here: <https://www.ferc.gov/industries-data/hydropower/dam-safety-and-inspections/eng-guidelines>. The cover page of the filing must indicate that the material was eFiled. For assistance with eFiling, contact FERC Online Support at FERCOnlineSupport@ferc.gov, (866) 208-3676 (toll free), or (202) 502-8659 (TTY).

If you have any questions regarding this letter or Enclosures, please do not hesitate to call me at 503-552-2715. Your support is critical for ensuring the safety of your project and I am available to discuss any concerns or comments that you may have.

Sincerely,

Douglas L. Johnson, P.E.
Regional Engineer

Enclosures:

1. Initial Coordination Call Agenda
2. Second Coordination Call Agenda
3. Outline for the CAR and CA-PIPR

Initial Coordination Call Agenda

1. General Requirements
 - a. Regulations
 - b. Guidelines
 - c. Scope of inspection

2. Overview of Changes to Part 12D Inspections
 - a. Detailed review of prior information
 - b. Specific evaluation of design basis, construction, analyses/studies of record
 - c. Inspection observations and review of instrumentation data and surveillance reports
 - d. Incorporation by reference – **not permitted**
 - e. PFMA and L2RA procedures

3. Licensee's Role
 - a. Internal processes to scope the Part 12D Inspection
 - b. Prepare and submit Part 12D Inspection Plan and IC Team Proposal
 - c. Provide required information/documentation to IC Team
 - d. Coordinate logistics (to be discussed in detail during Second Coordination Call)
 - e. Submit IC Team's CA-PIPR to FERC
 - f. Attend inspection and PFMA/L2RA
 - g. Submit IC Team's CAR to FERC
 - h. Participate in CA Review Meeting
 - i. Review IC Team's recommendations; develop plan and schedule to address the recommendations and submit to FERC

4. Project-Specific Discussion
 - a. Outstanding issues/concerns
 - b. Initial thoughts – potential technical disciplines required
 - c. Estimated timeframe for inspection and PFMA/L2RA

Second Coordination Call Agenda

1. General Requirements

- a. Regulations
- b. Guidelines
- c. Scope of inspection

2. IC Team's Responsibilities

- a. Detailed review and evaluation of prior information
 - i. Design basis and construction
 - ii. Analyses/studies of record
 - iii. Instrumentation data and surveillance reports
- b. Prepare CA-PIPR and provide to the Licensee
- c. Perform inspection; participate in PFMA/L2RA
- d. Prepare CAR and provide to the Licensee
 - i. Include recommendations and reasonable timeframe for the Licensee to complete each
- e. Prepare and present findings at CA Review Meeting
- f. Incorporation by reference – **not permitted**

3. PFMA and L2RA Procedures

- a. Revised definition of failure
- b. Preparation
- c. Brainstorming
- d. PFM screening process
- e. Documentation

4. Preliminary Logistics

- a. Field inspection
- b. PFMA/L2RA

Enclosure 3: Outline for the CAR and CA-PIPR

The outline on the following pages can be used for both the CAR and CA-PIPR. For sections that do not require content in the CA-PIPR, the IC Team can leave the heading in place and add a note that the section is retained as a placeholder for use in the CAR. Refer to Appendices 16-D and 16-E of the Engineering Guidelines for additional details regarding the required contents of each section for a CAR and a CA-PIPR, respectively.

SECTION 1: FINDINGS AND RECOMMENDATIONS

- 1.1 General Conditions and Evaluation of Performance**
- 1.2 Review and Evaluation of Design and Construction**
- 1.3 Review and Evaluation of Previous Analyses**
- 1.4 Review and Evaluation of Dam and Public Safety Programs**
 - 1.4.1 Owner's Dam Safety Program**
 - 1.4.2 Dam Safety Surveillance and Monitoring Program**
 - 1.4.3 Hazard Potential Classification**
 - 1.4.4 Emergency Action Plan**
 - 1.4.5 Public Safety Plan**
 - 1.4.6 Operations and Maintenance**
 - 1.4.7 Spillway Adequacy**
 - 1.4.8 Supporting Technical Information Document**
- 1.5 Potential Failure Modes Analysis, Risk Analysis, and Dam Safety Risk Classification**
 - 1.5.1 Potential Failure Modes Analysis**
 - 1.5.2 Level 2 Risk Analysis**
 - 1.5.3 Dam Safety Risk Classification**
- 1.6 Recommendations**

SECTION 2: DESCRIPTION OF PROJECT FEATURES AND OPERATIONS

2.1 Location and Purpose

2.2 Description of Project Features

2.3 Summary of Operations

SECTION 3: REVIEW AND EVALUATION OF DESIGN BASIS AND CONSTRUCTION

- 3.1 Engineering Geology**
 - 3.1.1 Regional Geology**
 - 3.1.2 Site Geology**
 - 3.1.3 Foundation Explorations**
 - 3.1.4 Geologic Hazards**
- 3.2 Dam**
 - 3.2.1 Design Considerations**
 - 3.2.2 Foundation Excavation and Treatment**
 - 3.2.3 Materials and Placement**
 - 3.2.4 Construction Details**
 - 3.2.5 Modifications**
- 3.3 Spillway**
- 3.4 Outlets**
- 3.5 Powerhouse**
- 3.6 Other Structures**
- 3.7 Mechanical**
 - 3.7.1 Spillway**
 - 3.7.2 Outlets**

3.7.3 Powerhouse

SECTION 4: REVIEW AND EVALUATION OF PREVIOUS ANALYSES

4.1 Geology

4.2 Seismicity

4.3 Hydrology and Project Hydraulics

4.3.1 Precipitation and Snowmelt

4.3.2 Flood Loading and Routings

4.3.3 Dam Breach Studies

4.4 Analyses of Project Features

4.4.1 Analyses of [Project Feature 1]

4.4.1.1 Static Analyses of [Project Feature 1]

4.4.1.2 Seismic Analyses of [Project Feature 1]

4.4.1.3 Hydraulic and Overtopping Analyses of [Project Feature 1]

4.4.1.4 Other Analyses of [Project Feature 1]

4.4.2 Analyses of [Project Feature 2]

4.4.2.1 Static Analyses of [Project Feature 2]

4.4.2.2 Seismic Analyses of [Project Feature 2]

4.4.2.3 Hydraulic and Overtopping Analyses of [Project Feature 2]

4.4.2.4 Other Analyses of [Project Feature 2]

4.4.3 Analyses of [Project Feature 3, 4, etc.]

SECTION 5: PROJECT STATUS

- 5.1 Modifications to Project Works**
- 5.2 Modifications to Project Operations**
- 5.3 Recommendations of Previous Independent Consultants**
- 5.4 Outstanding/Ongoing Studies**
- 5.5 Completed Studies**
- 5.6 Summary of Operations and Maintenance Programs**

SECTION 6: FIELD INSPECTION OBSERVATIONS AND INTERPRETATION OF MONITORING DATA

6.1 General

6.2 [Name of Project Feature 1]

6.2.1 Field Inspection Observations

6.2.2 Review and Evaluation of Instrumentation Data and Surveillance

6.2.3 Evaluation with Respect to Potential Failure Modes

6.2.4 Conclusion

6.3 [Name of Project Feature 2]

6.3.1 Field Inspection Observations

6.3.2 Review and Evaluation of Instrumentation Data and Surveillance

6.3.3 Evaluation with Respect to Potential Failure Modes

6.3.4 Conclusion

6.4 [Name of Project Feature 3, 4, etc.]

6.5 Overall Interpretation of Instrumentation Data

SECTION 7: PFMA AND RISK ANALYSIS

7.1 General

7.2 Probabilistic Hydrologic Loading

7.3 Probabilistic Seismic Loading

7.4 Consequences

7.5 PFMA

7.6 Risk Analysis and Summary

SECTION 8: REVIEW AND EVALUATION OF DAM AND PUBLIC SAFETY PROGRAMS

- 8.1 Owner's Dam Safety Program**
- 8.2 Dam Safety Surveillance and Monitoring Program**
- 8.3 Hazard Potential Classification**
- 8.4 Emergency Action Plan**
- 8.5 Public Safety Plan**
- 8.6 Operations and Maintenance**
- 8.7 Spillway Adequacy**
- 8.8 Supporting Technical Information Document and Digital Project Archive**
 - 8.8.1 Potential Failure Modes Analysis and Risk**
 - 8.8.2 Project Description**
 - 8.8.3 Construction History**
 - 8.8.4 Standard Operating Procedures**
 - 8.8.5 Geology, Seismicity, and Geotechnical Data**
 - 8.8.6 Hydrology and Hydraulics**
 - 8.8.7 Dam Safety Surveillance and Monitoring Plan**
 - 8.8.8 Stability, Stress, and Other Analyses of Dams and Water Conveyances**
 - 8.8.9 Gates, Valves, and Other Water Level Control Valves**
 - 8.8.10 Pertinent Correspondence Related to the Safety of Project Works**

8.8.11 References

Enclosure 3: Outline for the CAR and CA-PIPR

APPENDICES FOR THE COMPREHENSIVE ASSESSMENT REPORT

Appendix A: FERC Letter Requiring Part 12D Inspection

Appendix B: FERC Letter Approving Part 12D Inspection Plan and IC Team

Appendix C: Project Figures

Appendix D: Instrumented Monitoring Data Plots

Appendix E: Inspection Photographs

Appendix F: Inspection Checklists and/or Field Notes

Appendix G: Operation and Maintenance Documentation

Appendix H: Potential Failure Modes Analysis Report

Appendix I: Risk Analysis Report

Appendix J: Independent Calculations