MONTEREY COUNTY WATER RESOURCES AGENCY
AGREEMENT FOR PROFESSIONAL SERVICES
WITH SURVEYORS, ARCHITECTS, ENGINEERS AND/OR DESIGN PROFESSIONALS

This is an agreement ("Agreement") between the Monterey County Water Resources Agency, hereinafter called "Agency," and GEI Consultants, Inc., a California Corporation located at 180 Grand Avenue, Suite 1410, Oakland CA 94612 hereinafter called "CONTRACTOR".

In consideration of the mutual covenants and conditions set forth in this Agreement, the parties agree as follows:

1. Employment of CONTRACTOR. Agency hereby engages CONTRACTOR and CONTRACTOR hereby agrees to perform the services set forth in Exhibit A, in conformity with the terms of this Agreement. CONTRACTOR will complete all work in accordance with the **Scope of Work/Work Schedule set forth in Exhibit A**:

   (a) The scope of work is briefly described and outlined as follows:
   Nacimiento Dam 7th FERC Part 12D inspection and report, spillway focused PFMA

   (b) The CONTRACTOR shall perform its services under this agreement in accordance with usual and customary care and with generally accepted practices in effect at the time the services are rendered. The CONTRACTOR and its agents and employees performing work hereunder are specially trained, experienced, competent, and appropriately licensed to perform the work and deliver the services required by this Agreement.

   (c) CONTRACTOR, its agents and employees shall perform all work in a safe and skillful manner and in compliance with all applicable laws and regulations. All work performed under this Agreement that is required by law to be performed or supervised by licensed personnel shall be performed in accordance with such licensing requirements.

   (d) CONTRACTOR shall furnish, at its own expense, all materials and equipment necessary to carry out the terms of this Agreement, except as otherwise provided herein. CONTRACTOR shall not use Agency premises, property (including equipment, instruments, or supplies) or personnel for any purpose other than in the performance of its obligations hereunder.

2. Term of Agreement. The term of this Agreement shall begin on July 5, 2018 by CONTRACTOR and Agency, and will terminate on June 30, 2019, unless earlier terminated as provided herein.

3. Payments to CONTRACTOR; maximum liability. Subject to the limitations set forth herein, Agency shall pay to CONTRACTOR in accordance with the fee schedule set forth in Exhibit B. The maximum amount payable to CONTRACTOR under this contract is Ninety eight thousand nine hundred thirty dollars.

($ 98,930.00).

4. Monthly Invoices by CONTRACTOR; Payment.

(a) CONTRACTOR shall submit to Agency an invoice, in a format approved by Agency, setting forth the amounts claimed by CONTRACTOR, together with an itemized basis for such amounts, and setting forth such other pertinent information Agency may require. CONTRACTOR shall submit such invoice monthly or as agreed by Agency, but in no event shall such invoice be submitted later than 30 days after completion of CONTRACTOR's work hereunder. Agency shall certify the claim if it complies with this contract and shall promptly submit such claim to the Monterey County Auditor-Controller, who shall pay the certified amount within 30 days after receiving the invoice certified by Agency. It is understood and agreed that CONTRACTOR shall complete all work described in Exhibit A for an amount not exceeding that set forth above, notwithstanding CONTRACTOR's submission of periodic invoices.

(b) CONTRACTOR agrees that Agency may withhold five percent (5%) of the amount requested by CONTRACTOR from any progress payment, until such time as all goods and services are received in a manner and form acceptable to Agency.

(c) If, as of the date of execution of this Agreement, CONTRACTOR has already received payment from Agency for work which is the subject of this Agreement, such amounts shall be deemed to have been paid under this Agreement and shall be counted toward Agency's maximum liability set forth above.

(d) CONTRACTOR shall not be reimbursed for travel expenses unless expressly approved in writing in accordance with this Agreement.

5. Indemnification

5.1 For purposes of the following indemnification provisions ("Indemnification Agreement"), "design professional" has the same meaning as set forth in California Civil Code section 2782.8. If any term, provision or application of this Indemnification Agreement is found to be invalid, in violation of public policy or unenforceable to any extent, such finding shall not invalidate any other term or provision of this Indemnification Agreement and such other terms and provisions shall continue in full

force and effect. If there is any conflict between the terms, provisions or application of this Indemnification Agreement and the provisions of California Civil Code Sections 2782 or 2782.8, the broadest indemnity protection for the COUNTY under this Indemnity Agreement that is permitted by law shall be provided by CONTRACTOR.

5.2 Indemnification for Design Professional Services Claims: CONTRACTOR shall indemnify, ~~defend~~ and hold harmless COUNTY, its governing board, directors, officers, employees, and agents against any claims ~~that arise out of~~, or pertain to, or relate to the negligence, recklessness, or willful misconduct of the CONTRACTOR, its employees, subCONTRACTORs, and agents in the performance of design professional services under this Agreement, ~~excepting only liability arising from the sole negligence, active negligence or willful misconduct of COUNTY, or defect in a design furnished by COUNTY~~, but in no event shall the amount of such CONTRACTOR's liability exceed such CONTRACTOR's proportionate percentage of fault as determined by a court, arbitrator or mediator, or as set out in a settlement agreement. In the event one or more defendants to any action involving such claim or claims against COUNTY is unable to pay its share of defense costs due to bankruptcy or dissolution of the business, such CONTRACTOR shall meet and confer with the other parties to such action regarding unpaid defense costs.

TO THE EXTENT SUCH CLAIMS ARISE FROM
x WAR 6/25/18
x BB 7/19/18
x WAR 6/25/18
x BB 7/19/18

5.3 Indemnification for All Other Claims or Loss:
For any claim, loss, injury, damage, expense or liability other than claims arising out of the CONTRACTOR's performance of design professional services under this Agreement, CONTRACTOR shall indemnify, defend and hold harmless COUNTY, its governing board, directors, officers, employees, and agents against any claim for loss, injury, damage, expense or liability resulting from or alleging injury to or death of any person or loss of use of or damage to property, ~~arising~~ from or related to the performance of services under this Agreement by CONTRACTOR, its employees, subCONTRACTORs or agents, ~~excepting only liability arising from the sole negligence, active negligence or willful misconduct of the COUNTY, or defect in a design furnished by the COUNTY.~~

TO THE EXTENT SUCH CLAIMS ARISE
x WAR 6/25/18
x BB 7/19/18
x WAR 6/25/18
x BB 7/19/18

6. Insurance.

6.1 Evidence of Coverage:
Prior to commencement of this Agreement, the CONTRACTOR shall provide a "Certificate of Insurance" certifying that coverage as required herein has been obtained. Individual endorsements executed by the insurance carrier shall accompany the certificate. In addition the CONTRACTOR upon request shall provide a certified copy of the policy or policies.

This verification of coverage shall be sent to the Agency's Contact, unless otherwise directed. The CONTRACTOR shall not receive a "Notice to Proceed" with the work under this Agreement until it has obtained all insurance required and such, insurance has been approved by the Agency. This approval of insurance shall

neither relieve nor decrease the liability of the CONTRACTOR.

6.2 Qualifying Insurers:
All coverage's, except surety, shall be issued by companies which hold a current policy holder's alphabetic and financial size category rating of not less than A-VII, according to the current Best's Key Rating Guide or a company of equal financial stability that is approved by the County's Purchasing Manager.

6.3 Insurance Coverage Requirements:
Without limiting CONTRACTOR's duty to indemnify, CONTRACTOR shall maintain in effect throughout the term of this Agreement a policy or policies of insurance with the following minimum limits of liability:

Commercial general liability insurance, including but not limited to premises and operations, including coverage for Bodily Injury and Property Damage, Personal Injury, Contractual Liability, Broad form Property Damage, Independent CONTRACTORs, Products and Completed Operations, with a combined single limit for Bodily Injury and Property Damage of not less than $1,000,000 per occurrence.

☐ Exemption/Modification (Justification attached; subject to approval).

Business automobile liability insurance, covering all motor vehicles, including owned, leased, non-owned, and hired vehicles, used in providing services under this Agreement, with a combined single limit for Bodily Injury and Property Damage of not less than $1,000,000 per occurrence.

☐ Exemption/Modification (Justification attached; subject to approval).

Workers' Compensation Insurance, if CONTRACTOR employs others in the performance of this Agreement, in accordance with California Labor Code section 3700 and with Employer's Liability limits not less than $1,000,000 each person, $1,000,000 each accident and $1,000,000 each disease.

☐ Exemption/Modification (Justification attached; subject to approval).

Professional liability insurance, if required for the professional services being provided, (e.g., those persons authorized by a license to engage in a business or profession regulated by the California Business and Professions Code), in the amount of not less than $1,000,000 per claim and $2,000,000 in the aggregate, to cover liability for malpractice or errors or omissions made in the course of rendering professional services. If professional liability insurance is written on a "claims-made" basis rather than an occurrence basis, the CONTRACTOR shall, upon the expiration or earlier termination of this Agreement, obtain extended reporting coverage ("tail coverage") with the same liability limits. Any such tail coverage shall continue for at least three years following the expiration or earlier termination of this Agreement.

☐ Exemption/Modification (Justification attached; subject to approval).

6.4 Other Insurance Requirements.

All insurance required by this Agreement shall be with a company acceptable to the Agency and issued and executed by an admitted insurer authorized to transact Insurance business in the State of California. Unless otherwise specified by this Agreement, all such insurance shall be written on an occurrence basis, or, if the policy is not written on an occurrence basis, such policy with the coverage required herein shall continue in effect for a period of three years following the date CONTRACTOR completes its performance of services under this Agreement.

Each liability policy shall provide that the Agency shall be given notice in writing at least thirty days in advance of any endorsed reduction in coverage or limit, cancellation, or intended non-renewal thereof. Each policy shall provide coverage for CONTRACTOR and additional insureds with respect to claims arising from each subCONTRACTOR, if any, performing work under this Agreement, or be accompanied by a certificate of insurance from each subCONTRACTOR showing each subCONTRACTOR has identical insurance coverage to the above requirements.

Commercial general liability and automobile liability policies shall provide an endorsement naming the Monterey County Water Resources Agency and the County of Monterey, their officers, agents, and employees as Additional Insureds with respect to liability arising out of the CONTRACTOR'S work, including ongoing and completed operations, and shall further provide that such insurance is primary insurance to any insurance or self-insurance maintained by the County and that the insurance of the Additional Insureds shall not be called upon to contribute to a loss covered by the CONTRACTOR'S insurance. The required endorsement form for Commercial General Liability Additional Insured ***is ISO Form CG 20 10 11-85 or CG 20 10 10 01 in tandem with CG 20 37 10 01 (2000).*** *The required endorsement form for Automobile Additional Insured endorsement is* ***ISO Form CA 20 48 02 99.***

Prior to the execution of this Agreement by the Agency, CONTRACTOR shall file certificates of insurance with the Agency's contract administrator, showing that the CONTRACTOR has in effect the insurance required by this Agreement. The CONTRACTOR shall file a new or amended certificate of insurance within five calendar days after any change is made in any insurance policy, which would alter the information on the certificate then on file. Acceptance or approval of insurance shall in no way modify or change the indemnification clause in this Agreement, which shall continue in full force and effect.

CONTRACTOR shall at all times during the term of this Agreement maintain in force the insurance coverage required under this Agreement and shall send, without demand by Agency, annual certificates to Agency's Contract Administrator. If the certificate is not received by the expiration date, Agency shall notify CONTRACTOR and CONTRACTOR shall have five calendar days to send in

the certificate, evidencing no lapse in coverage during the interim. Failure by CONTRACTOR to maintain such insurance is a default of this Agreement, which entitles Agency, at its sole discretion, to terminate this Agreement immediately.

7. Maintenance of Records. CONTRACTOR shall prepare, maintain and preserve all reports and records that may be required by federal, State, and local rules and regulations relating to services performed under this Agreement. CONTRACTOR shall retain all such records for at least five years from the date of final payment, or until any litigation relating to this Agreement is concluded, whichever is later.

8. Right to Audit at Any Time. Agency officials shall have the right, at any time during regular working hours and on reasonable advance notice, to examine, monitor and audit all work performed and all records, documents, conditions, activities and procedures of CONTRACTOR or its subCONTRACTORs relating to this Agreement. Government Code Section 8546.7 provides that an audit by the State Auditor General may be performed up to three years after the final payment under any contract involving the expenditure of public funds in excess of $10,000.

9. Confidentiality; Return of Records. CONTRACTOR and its officers, employees, agents, and subCONTRACTORs shall comply with all federal, State and local laws providing for the confidentiality of records and other information. To the extent permitted by applicable law and regulations, CONTRACTOR shall maintain confidentiality with respect to Agency 's well database and other water use data.

   CONTRACTOR shall not disclose any confidential information received from Agency or prepared in connection with the performance of this Agreement without the express permission of Agency. CONTRACTOR shall promptly transmit to Agency all requests for disclosure of any such confidential information. CONTRACTOR shall not use any confidential information gained through the performance of this Agreement except for the purpose of carrying out CONTRACTOR's obligations hereunder. When this Agreement expires or terminates, CONTRACTOR shall return to Agency all records, which CONTRACTOR utilized or received, from Agency to perform services under this Agreement.

10. Termination. Either party may terminate this Agreement by giving written notice of termination to the other party at least thirty (30) days prior to the effective date of termination, which date shall be specified in any such notice. In the event of such termination, the amount payable hereunder shall be reduced in proportion to the services provided prior to the effective date of termination. Agency may terminate this Agreement at any time for good cause effective immediately upon written notice to CONTRACTOR. "Good cause" includes, without limitation, the failure of CONTRACTOR to perform the required services at the time and in the manner provided herein. If Agency terminates this Agreement for good cause, Agency may be relieved of the payment of any consideration to CONTRACTOR, and Agency may proceed with the work in any manner, which it deems proper. Costs incurred by Agency thereby shall be

deducted from any sum due CONTRACTOR.

11. Amendments and Modifications. No modification or amendment of this agreement shall be valid unless it is set forth in writing and executed by the parties.

12. Non-Discrimination. Throughout the performance of this Agreement, CONTRACTOR will not unlawfully discriminate against any person because of race, color, religion, gender, national origin, ancestry, physical disability, medical condition, marital status, age older than 40, or sexual orientation, gender identity or any other status protected under federal, state or local law, either in CONTRACTOR's employment practices or in the furnishing of services to recipients. CONTRACTOR shall ensure that the evaluation and treatment of its employees and applicants for employment and all persons receiving and requesting services are free of such discrimination. CONTRACTOR shall comply fully with all federal, State and local laws and regulations which prohibit discrimination. The provision of services primarily or exclusively to any target population designated herein shall not be deemed prohibited discrimination.

13. Independent Contractor. In its performance under this Agreement, CONTRACTOR is at all times acting and performing as an independent CONTRACTOR and not an employee of Agency. No offer or obligation of employment with Agency is intended in any manner, and CONTRACTOR shall not become entitled by virtue of this Agreement to receive from Agency any form of benefits accorded to employees including without limitation leave time, health insurance, workers compensation coverage, disability benefits, and retirement contributions. CONTRACTOR shall be solely liable for and obligated to pay directly all applicable taxes, including without limitation federal and State income taxes and social security arising out of CONTRACTOR's performance of this Agreement. In connection therewith, CONTRACTOR shall defend, indemnify, and hold harmless Agency from any and all liability, which Agency may incur because of CONTRACTOR's failure to make such payments.

14. Delegation of Duties; Subcontracting. CONTRACTOR is engaged by Agency for its unique qualifications and abilities. CONTRACTOR may not, therefore, delegate any of its basic duties under this Agreement, except to the extent that delegation to CONTRACTOR's employees is contemplated herein. No work shall be subcontracted without the written consent of Agency, except as provided in this Agreement or its attachments. Notwithstanding any subcontract, CONTRACTOR shall continue to be liable to Agency for the performance of all work hereunder. CONTRACTOR shall not assign, sell, mortgage or otherwise transfer its interest or obligations in this Agreement without Agency 's prior written consent.

15. Agency's Rights in Work Product. All original materials prepared by CONTRACTOR in connection with its work hereunder -- including but not limited to computer codes, customized computer routines developed using proprietary or commercial software packages, reports, documents, maps, graphs, charts, photographs and photographic negatives -- shall be the property of Agency and shall be delivered to Agency prior to final payment. CONTRACTOR may utilize any existing materials developed by

CONTRACTOR prior to commencement of work under this Agreement, which materials shall remain the property of CONTRACTOR.

16. Compliance with Terms of Federal or State Grant. If any part of this Agreement has been or will be funded pursuant to a grant from the federal or State government in which Agency is the grantee, CONTRACTOR shall comply with all provisions of such grant applicable to CONTRACTOR's work hereunder, and said provisions shall be deemed a part of this Agreement as though fully set forth herein.

17. Conflict of Interest. CONTRACTOR warrants that it presently has no interest and shall not acquire any interest during the term of this Agreement, which would directly or indirectly conflict in any manner or to any degree with its full and complete performance of all services under this Agreement.

18. Governing Laws. This Agreement is entered into in the County of Monterey, State of California, and shall be construed and enforced in accordance with the laws of the State of California. The parties hereby agree that the County of Monterey shall be the proper venue for any dispute arising hereunder.

19. Compliance with Applicable Law. The parties shall comply with all applicable federal, state, and local laws and regulations in performing this Agreement.

20. Construction of Agreement. The parties agree that each party has fully participated in the review and revision of this Agreement and that any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not apply in the interpretation of this Agreement or any exhibit or amendment. To that end, it is understood and agreed that this Agreement has been arrived at through negotiation, and that neither party is to be deemed the party which prepared this Agreement within the meaning of Civil Code Section 1654. Section and paragraph headings appearing herein are for convenience only and shall not be used to interpret the terms of this Agreement.

21. Waiver. Any waiver of any term or condition hereof must be in writing. No such waiver shall be construed as a waiver of any other term or condition herein.

22. Successors and Assigns. This Agreement and all rights, privileges, duties and obligations hereunder, to the extent assignable or delegable, shall be binding upon and inure to the benefit of the parties and their respective successors, permitted assigns and heirs.

23. Contractor. The term "CONTRACTOR" as used in this Agreement includes CONTRACTOR's officers, agents, and employees acting on Contactor's behalf in the performance of this Agreement.

24. Interpretation of Conflicting Provisions. In the event of any conflict or inconsistency between the provisions of this Agreement and the Provisions of any exhibit or other attachment to this Agreement, the provisions of this Agreement shall prevail and control.

25. Time is of the Essence. The parties mutually acknowledge and agree that time is of the essence with respect to every provision hereof in which time is an element. No extension of time for performance of any obligation or act shall be deemed an extension of time for performance of any other obligation or act, nor shall any such extension create a precedent for any further or future extension.

26. Contract Administrators.

CONTRACTOR's designated principal responsible for administering CONTRACTOR's work under this Agreement shall be
Mr. William Rettberg

Agency's designated administrator of this Agreement shall be
Mr. Chris Moss

27. Notices. Notices required under this Agreement shall be delivered personally or by electronic facsimile, or by first class or certified mail with postage prepaid. Notice shall be deemed effective upon personal delivery or facsimile transmission, or on the third day after deposit with the U.S. Postal Service. CONTRACTOR shall give Agency prompt notice of any change of address. Unless otherwise changed according to these notice provisions, notices shall be addressed as follows:

TO AGENCY	**TO CONTRACTOR**
Name: Mr. Chris Moss	Name: Mr. William Rettberg
Address: P.O. Box 930, Salinas, CA 93902	Address: 180 Grand Ave, Ste 1410, Oakland, CA 94612
Telephone: 831-755-4860	Telephone: 510-350-2900
Fax: 831-424-7935	Fax: 510-350-2901
E-Mail: mossc@co.monterey.ca.us	E-Mail: wrettberg@geiconsultants.com

28. Electronic Deliverables. Where feasible, all reports, documents and other printed information provided to the Agency pursuant to this Agreement shall be submitted in both written and Electronic formats in accordance with the specifications listed in Exhibit C.

29. Non-exclusive Agreement. This Agreement is non-exclusive and both parties reserve the right to contract with other entities for the same or similar services.

30. Execution of Agreement. Any individual executing this Agreement on behalf of an entity represents and warrants that he or she has the requisite authority to enter into this Agreement on behalf of such entity and to bind the entity to the terms and conditions hereof. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same agreement.

31. Exhibits. The following Exhibits are attached hereto and incorporated by reference:
Exhibit A - Scope of Work/ Work Schedule
Exhibit B – Payment Provisions

32. Entire Agreement --As of the effective date of this Agreement, this document, including all exhibits hereto, constitutes the entire agreement between the parties, and supersedes any and all prior written or oral negotiations and representations between the parties concerning all matters relating to the subject of this Agreement.

MONTEREY COUNTY WATER RESOURCES AGENCY
AGREEMENT FOR PROFESSIONAL SERVICES
WITH SURVEYORS, ARCHITECTS, ENGINEERS AND/OR DESIGN PROFESSIONALS

IN WITNESS WHEREOF, AGENCY and CONTRACTOR execute this agreement as follows:

MONTEREY COUNTY WATER RESOURCES AGENCY:

BY: _____, DGM

David E. Chardavoyne
General Manager

FOR

Date: 7/19/18

CONTRACTOR: GEI CONSULTANTS, INC.

BY: _____

Type Name: WILLIAM A. RETTBERG

Title: SENIOR V.P.

Date: 6/25/18

BY: Mark Freitas

Type Name: Mark Freitas

Title: Vice President

Date: 6/25/18

* INSTRUCTIONS: If CONTRACTOR is a corporation (including limited liability and nonprofit corporations), the full legal name of the corporation shall be set forth together with the signatures of two specified officers. If CONTRACTOR is a partnership, the name of the partnership shall be set forth together with the signature of a partner with authority to execute this Agreement on behalf of the partnership. If CONTRACTOR is contracting in an individual capacity, the individual shall set forth the name of his or her business, if any, and shall personally sign the Agreement.

(Nacimiento 7th FERC Part 12D, Spillway focused PFMA)

Agreement/Amendment No # (Original Agreement)

* *

Approved as to form [1]:

Deputy County Counsel

Dated: 6-28-18

Approved as to fiscal provisions:

Administrative Analyst

Dated: 7-8-18

County Counsel – Risk Manager:

Dated: 7/17/18

Auditor-Controller [2]:

Dated: 7-6-18

[1] Approval by County Counsel is required, and/or when legal services are rendered

[2] Approval by Auditor-Controller is required

Exhibit A

Scope of Work and Work Schedule

Nacimiento Dam and Hydroelectric Project
7th Independent Consultant's Safety Inspection Report, and Spillway Focused Potential Failure Mode Analysis

for the
Monterey County Water Resources Agency
1441 Schilling Place – North Building
Salinas, California 93901

Background

The Monterey County Water Resources Agency (MCWRA) is required by CFR 18, Part 12, Subpart D of the Federal Energy Regulatory Commission (FERC) regulations to have an independent consultant (IC) conduct the 7th five-year dam safety inspection and safety evaluation report for the Nacimiento Dam and Hydroelectric Project (Project), FERC Project No. 6378-CA. MCWRA must submit the 7th Part 12D report to FERC by December 31, 2018.

Nacimiento Dam and Hydroelectric Project is owned and operated by MCWRA. The dam and hydroelectric plant are located on the Nacimiento River, in northern San Luis Obispo County, California. The project includes an embankment dam, inflatable spillway crest gates, high and low-level outlets, and power plant. Nacimiento Reservoir is a multi-use facility operated with consideration given to many factors including dam safety, flood protection, groundwater recharge, operation of the downstream Salinas River Diversion Facility, water supply, fish migration and habitat requirements, agriculture, and recreation. The MCWRA has adopted a Nacimiento Dam Operation Policy.

Critical Infrastructure – Distribution of Project Documents Prohibited

Nacimiento Dam is classified as "critical infrastructure" under Homeland Security Presidential Directive 7, and as further defined in FERC Order No. 630, issued February 21, 2003. Distribution of any Project documents to anyone outside the GEI Consultants work team for this Scope of Work, or for any use other than responding to this Scope of Work, is strictly prohibited. The Final 7th Part 12D Report will be marked "CEII – Critical Energy Infrastructure Information" per FERC requirements.

Scope of Work

CFR 18, Part 12, Subpart D, of the Federal Energy Regulatory Commission's (FERC) regulations prescribes the scope of the Independent Consultant (IC) evaluations and field inspection, as well as the information that must be contained in the Report. Refer to letters from FERC to MCWRA dated January 10, 2018 and March 6, 2018 which are specific to the 7th Part 12D process for Nacimiento Dam and Hydroelectric Project.

Mr. William Rettberg and Mr. Chad Masching of GEI Consultants, Inc. will act as Co-Independent Consultants (IC's), as approved by FERC.

Tasks

1. Project Record Review
   The IC's will review pertinent Project background information and previous analyses to adequately prepare for the assessment of the Supporting Technical Information (STI) document, Project field inspection, and Potential Failure Mode Analyses review and Workshop. MCWRA will provide the IC's all necessary Project records and reports, including but not limited to, original construction drawings, reports, and photographs, three prior Part 12D reports, hydrology reports, inspection reports, Safety and Surveillance Monitoring Reports, Safety and Surveillance Monitoring Program, and Project modification records.

2. Supporting Technical Information (STI) document Assessment
   The IC's will assess contents of the existing Project STI document and determine both its completeness and appropriateness to the current standard of practice of dam safety as well as conformance with FERC Engineering Guidelines for the Evaluation of Hydropower Projects, Revised Chapter 14, Appendix H, Part 12D Safety Inspection Report Outline - Section 7.0, Assessment of Supporting Technical Information Document. The revised Appendix H clarifies items to consider when summarizing each section of the STI. In addition, it now contains example statements that are offered as general guidance for use by the IC when making a definitive statement regarding each section of the STI. It is also critically important that the IC review, evaluate and comment on the appropriateness and current validity of all previous analyses in the STI document.

   Revised Chapter 14, Appendix H, Section 7.0 may be found at:
   http://www.ferc.gov/industries/hydropower.asp

   Reformatting the entire STI document is not included in this scope. GEI Consultants will assist with updating STI document sections within cost limits for this Task. Additional reports or significant analysis that may be identified as needed to complete the STI document are not included in this scope.

   Deliverables:
   a. Draft pages to insert into the STI document (PDF version submittal)
   b. Final pages to insert into the STI document (PDF version submittal)
   c. STI document Revision Log

3. FERC Pre-Inspection Conference Call with IC and MCWRA
   The IC's and consultant's recorder will participate in this call. This conference call is briefly described on Page 2 of the letter from FERC to MCWRA dated March 6, 2018, and the Agenda for this conference call is found in Enclosure 5 of the same letter. This call is expected to occur in early July. This call is expected to last up to 1.5 hours. The IC is expected to at least have reviewed Attachments 1, 2 and 3 to this Scope of Work, the 6th Part 12D Report and discuss the status of its recommendations with MCWRA staff prior to this call.

   Deliverables:
   a. Copy of recorder's conference call notes

4. Part 12D Project Field Inspection
   The IC's will complete a Project field inspection jointly with FERC and MCWRA staff in accordance with FERC Engineering Guidelines Chapter 14 and the following:

a. The IC's will review Project drawings, previous Potential Failure Mode Analysis reports, Safety and Surveillance Monitoring Reports, the Safety and Surveillance Monitoring Program, previous inspection reports, and other Project documents considered necessary to becoming adequately familiar with Project history prior to the field inspection. FERC can and will cancel the field inspection if the IC's are not adequately prepared, which would be unacceptable to MCWRA.

b. The IC's, FERC inspector and MCWRA staff will meet prior to the field inspection to review project history, including any past or current deficiencies, completed remediation, previous special investigations, instrumentation, Potential Failure Modes, the Surveillance and Monitoring Program, and any other issues considered pertinent to the field inspection. The IC will also discuss dam and Hydro Plant operations with MCWRA maintenance and operations staff prior to the field inspection. These discussions are anticipated to occur at the dam site the morning of the field inspection.

c. The IC's will perform a field inspection to determine the condition of all safety aspects of the dam and power facilities, pursuant to FERC Engineering Guidelines Chapter 14.

d. MCWRA will provide access to the Project and its appurtenances. Access to the steep portion of the spillway chute (50% grade) may require personal harness and lifeline fall protection equipment. MCWRA has such safety equipment for its own staff only. The IC's will need to provide their own safety equipment for this portion of the spillway, if needed.

e. After the field inspection, the IC's, FERC inspector and MCWRA staff will determine if any additional potential failure modes (PFM's) were identified during the field inspection. Any new PFM's identified will be further considered at the Potential Failure Mode Analysis Workshop.

f. Schedule one full day in the field to complete the Project field inspection and discussions above. The field inspection is anticipated to occur the day before the PFMA Workshop.

Deliverables:

a. Health and Safety Plan ten (10) days prior to inspection date
b. Inspection field notes and photos

5. Potential Failure Mode Analysis & Workshop

a. The Part 12D Core Team and IC's will participate in a facilitated Potential Failure Mode Analysis (PFMA) and Workshop. Additional personnel selected by the IC, FERC, MCWRA and/or the Facilitator may also be requested to participate in the PFMA Workshop, such as subject matter experts and MCWRA operations staff. The consultant shall provide a PFMA Workshop Facilitator from outside their firm. The IC's will choose and distribute Project materials to be reviewed. The PFMA Workshop will be conducted in accordance with FERC Engineering Guidelines Chapter 14, Section 14.3 and Appendices A, B, C, D, E, F, and G.

b. FERC comments on the 6th Part 12D Report Potential Failure Modes included in the letter from FERC to MCWRA dated January 10, 2018 and Pages 3, 4 and 5 of the letter from FERC to MCWRA dated March 6, 2018 shall be considered during Project document review and addressed at the PFMA Workshop and in the PFMA Report.

Develop with MCWRA staff revisions to refine PFM descriptions to state loading conditions and details on the potential progression of the identified failure mode in conformance with FERC's Guidelines on developing PFMs.

c. Review any changes or new information since the last PFMA review that would result in the development of any new PFMs.

d. A portion of the PFMA Workshop shall be spillway focused, using the spillway field inspection and Spillway Condition Assessment Report to comply with FERC's May 1, 2017 letter to MCWRA. This portion of the PFMA must be incorporated into the 7th Part 12D Report as a readily identifiable Spillway section of the overall PFMA report.

e. Plan for two full days for the PFMA Workshop, to be scheduled in conjunction with the field inspection. MCWRA will provide a location near the dam for the PFMA Workshop.

Core Team Members

Each Core Team member is expected to review all background material chosen by the IC's. The MCWRA Chief Dam Safety Engineer will be responsible for supplying background material to the IC's and general coordination of activities. Core Team members are shown below.

- PFMA Workshop Facilitator – Christopher Hunt, PhD, PE, GE
- Part 12D Co-Independent Consultant – William Rettberg, PE
- Part 12D Co-Independent Consultant – Chad Masching, PE
- Engineering Geologist – Chris Slack, PG, CEG
- MCWRA Chief Dam Safety Engineer – Chris Moss, PE
- FERC Inspector
- FERC Project Engineer

Deliverables:

a. Draft Major Findings and Understandings (MFU's) from the PFMA Workshop, distributed via email to PFMA participants for review and comment. Comments will be considered by IC's for inclusion in the Draft PFMA Report.
b. Draft PFMA Report (editable WORD version and printable PDF version)
c. Final PFMA Report (Adobe Acrobat PDF version with section bookmarks and searchable text, which is generated from a native document and not simply scanned, and provide all original images of photos used in the report)

6. 7th Part 12D Report

a. The 7th Part 12D Report for the Project will be prepared in accordance with the latest revisions of FERC Engineering Guidelines Chapter 14. The IC shall certify the Report with specific statements required by FERC Engineering Guidelines.

b. The IC's shall address FERC comments on the 6th Part 12D Report in the letters to MCWRA dated January 10, 2018 and March 6, 2018.

c. The IC's shall address FERC comments regarding the first two bullets under Project Features in the letter from FERC to MCWRA dated March 6, 2018 on Pages 4 and 5, briefly summarized below:
   i. Provide an opinion regarding boils discovered in March 2017.

Project historical records, recent boil monitoring reports and logs are available for IC review regarding this item.

ii. Provide opinion on overall spillway condition pursuant to FERC letter to MCWRA dated May 1, 2017.
Project historical records, a recent Spillway Condition Assessment Report and a recent non-destructive evaluation report will be available for the IC's to review regarding this item.

d. Reports listed in the third bullet under Project Features in the letter from FERC to MCWRA dated March 6, 2018 on Page 4 will likely not be completed during this Part 12D process.

Note: FERC makes it clear in the March 6, 2018 letter to MCWRA that unresponsive Part 12D Reports will be rejected, which would be unacceptable to MCWRA.

Deliverables:

a. Draft Part 12D Report: Provide one (1) editable Microsoft WORD version and one (1) PDF version for MCWRA review and comment
   - Final Part 12D Report: Provide one (1) Microsoft WORD version and one (1) Adobe Acrobat PDF version of the entire report with section bookmarks and searchable text, which is generated from a native document and not simply scanned, and provide all original images of inspection photos used in the report. NOTE: per FERC requirements, label the Final 7th Part 12D Report "CEII – Critical Energy Infrastructure Information"

Meetings

The following meetings for the 7th Part 12D work are expected:

- A kick-off meeting or Webex/conference call to discuss roles and responsibilities, schedule, administrative matters, etc.
- A meeting or Webex/conference call with MCWRA staff to present and discuss Final Part 12D report findings, conclusions and recommendations, and potential plan and schedule options for addressing recommendations.
- Work status calls at least every two weeks with MCWRA Project Manager

Work Schedule

July 5, 2018	Commence work
September 2018 (three consecutive days)	Field Inspection and Potential Failure Mode Analysis Workshop (Dam & Spillway)
November 2018	Submit Draft Part 12D Report to MCWRA
December 2018	Submit Final Part 12D Report to MCWRA
By December 31, 2018	MCWRA submit Final Part 12D Report to FERC
By Feb 28, 2019	Present Part 12D Report conclusions and recommendations to MCWRA Board of Directors

Attachments

1. Copy of FERC letter dated May 1, 2017
2. Copy of FERC letter dated January 10, 2018
3. Copy of FERC letter dated March 6, 2018

20170615-0214 FERC PDF (Unofficial) 05/01/2017

ATTACHMENT 1

FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects
Division of Dam Safety and Inspections – San Francisco Regional Office
100 First Street, Suite 2300
San Francisco, CA 94105-3084
(415) 369-3300 Office – (415) 369-3322 Facsimile

May 1, 2017

In reply refer to:
Project No. 6378-CA
NATDAM No. CA00812

Mr. Brent Buche
Chief of Operations and Maintenance Division
Monterey County Water Resources Agency
P.O. Box 930
Salinas, CA 93902-0930

Subject: New Focused Spillway Assessments

Dear Mr. Buche:

Recent events involving the operation of spillways for the Oroville Dam in California have brought renewed attention to potential failure modes associated with both concrete chute spillways and unlined spillways at dams. As a result, FERC is requiring detailed assessments of similar spillways to be completed this year at high and significant hazard dams. We have identified specific dams within your inventory that should receive a focused spillway assessment by December 31, 2017. In addition, we will require a focused PFMA to be completed in addition to or during our annual dam safety inspection. Please coordinate with us ahead of the inspection in order to ensure all necessary participants will be available. Also, please make any arrangements necessary and coordinate any special personal safety requirements to allow our inspector access to complete a thorough close visual inspection of the spillway(s) during the annual inspection at the following dam:

- Nacimiento

20170615-0214 FERC PDF (Unofficial) 05/01/2017

As part of the spillway assessment, we are requesting that you perform a detailed review of all design, construction, inspection, foundation information, and monitoring documentation available for the spillway(s); and perform a close visual inspection of the entire spillway.

Relevant information for your review should include information such as general foundation rock/soil composition and quality, geotechnical investigation reports, underdrain system details, inspection reports, performance monitoring, and construction photographs. Areas of focus for the visual inspection should include typical potential failure modes associated with concrete spillways. These typically include conditions that could result in cavitation and/or slab-jacking such as: cracking or other evidence of subsidence, 'sounding' the spillway slab with a hammer or rod for voids underneath, construction joint conditions for spalling concrete or cavitation, adverse joint offsets, and condition of joint filler and waterstops, or any other mechanisms unique to the spillway being evaluated. Uniformity of slab thickness may also be evaluated non-destructively, where feasible. Conditions at the downstream end of any concrete chute spillway or the entire length of any unlined spillway should be evaluated for potential head-cutting conditions that may progress upstream. Gate operation procedures should be reviewed to evaluate the effect of mis-operation or gate failure.

The document review and assessments should be completed as soon as practicable and a summary of the results should be submitted to our office. Please provide a plan and schedule to complete the assessment to this office within 30 days of the date of this letter. If your review of project documents and detailed spillway assessment indicate insufficient information to fully evaluate the stability and performance of your spillway(s), please provide a second plan and schedule not later than July 14, 2017 to this office for our review and comment.

A fully operational and functional spillway is critical to safe dam operation. We appreciate your cooperation in this area of dam safety. If you have any questions, please contact me at (415) 369-3318.

Sincerely,

Frank L Blackett

Frank L. Blackett, P.E.
Regional Engineer

ATTACHMENT 2

FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects
Division of Dam Safety and Inspections – San Francisco Regional Office
100 First Street, Suite 2300
San Francisco, CA 94105-3084
(415) 369-3300 Office – (415) 369-3322 Facsimile

January 10, 2018

In reply refer to:
Project No. 6378-CA
NATDAM No. CA00812

Mr. Brent Buche
Chief of Operations and Maintenance Division
Monterey County Water Resources Agency
P.O. Box 930
Salinas, CA 93902-0930

Re: Sixth Independent Consultant's Safety Inspection Report for Nacimiento Dam

Dear Mr. Buche:

We have completed our review of the Sixth Independent Consultant's Safety Inspection Report (CSIR) and updates (dated July 2014) to the Supporting Technical Information Document (STID) for Nacimiento Dam, which is part of the Nacimiento Project, FERC No. 6378. The CSIR was submitted with your July 30, 2014 cover letter.

Our review concludes that the scope and contents of the Sixth CSIR generally fulfill the requirements of Part 12, Subpart D, of Title 18 of the Code of Federal Regulations. Our comments on your plan and schedule for addressing the report recommendations are included in the Enclosure. No further action is necessary regarding the Sixth Part 12 report. The Seventh CSIR is due by December 31, 2018.

Within 30 days of the date of this letter, please provide a response to our comments or a plan and schedule to address our comments. We appreciate your cooperation in this aspect of the Commission's dam safety program. If you have any questions, please contact Mr. Michael Vail at (415) 369-3346.

Sincerely,

Frank L. Blackett

Frank L. Blackett, P.E.
Regional Engineer

Enclosure

1. A supplement regarding the presence of potentially liquefiable foundation soils was requested in our letter dated July 20, 2008 regarding the review of the Fifth Part 12D Report. By letter dated March 11, 2014, we requested a brief summary and description of the basis for MCWRA's finding regarding the presence/absence of loose sand layers in the foundation alluvium, the liquefaction potential and seismic deformations of the dam be provided by April 8, 2014. Per Table 1 in the Dam Safety Surveillance and Monitoring Report (DSSMR) transmitted with your cover letter dated May 29, 2014, the request was projected to be completed by June 2014. Submit the requested information or an updated plan and schedule to address the request.

2. The Independent Consultants documentation of their review and assessment of the engineering analyses in Chapter 7 of the CSIR was lacking. This is a reminder to ensure that, in all future CSIR submittals, that the Independent Consultant includes definitive statements that comply with the Commission's Guidelines - as re-stated in our letter dated March 12, 2013 Part 12 reminder - "*Section 7 of the report will contain the consultant's assessment of the STID. The studies that form the basis for his or her conclusions should be summarized. When the consultant bases conclusions on the content of previous reports and studies, he or she must provide a clear and comprehensive statement of concurrence or non concurrence with the methodology, assumptions, and conclusions of those studies. Reasons for non-concurrence must be explained and may require an analysis by the consultant to show the effects on the factors of safety of the structures.*" We have also revised Appendix H of Chapter 14 of our Engineering Guidelines, which should be referenced for the next Part 12D inspection and report.

3. In general, the descriptions and list of potential failure modes do not meet our current guidelines. For the next PFMA:
    a. Individual and separate PFMs should be identified for each structural element, loading condition, and failure mode pathway. For example, PFMs 2 and 4 have multiple structural elements and pathways identified within each PFM description. These should be separated out in the future.
    b. There were a few PFMs that were developed for a specific loading condition, i.e. static, that should be expanded to other loading conditions such as seismic. Determine if the identified PFMs can be expanded for other loading conditions.
    c. The information provided in the rationale for not carrying a PFM forward should be reviewed, fact checked and verified. The outcome of this fact checking/verification should be reviewed to confirm or revise the status of these excluded PFMs.
    d. The following PFMs have not been previously considered and should be evaluated at the next PFMA:

i. Sliding of the spillway crest structure along a weak plane in the foundation under normal, flood, and seismic loading conditions,
ii. Concentrated leak erosion of the embankment materials in contact with the spillway structure
iii. Seismic loading and overstressing of structural members of the spillway gates.
iv. Scour and headcutting of the spillway channel.

e. The PFM categories should be reviewed and revised accordingly based on more recent guidance.

4. We disagree with the recommendation to install piezometers to monitor for PFM 4. Piezometers are not typically a good means to monitor for the initiation of internal erosion, unless the piezometers just so happen to be located in the direct pathway of the subsurface erosion. Instead, additional review of design and construction records should be performed to identify particular vulnerabilities within the embankment and foundation; typical gradations of the various materials should be identified to evaluate filter compatibility; and identifying seepage exit points and monitoring of those locations. Only after these tasks have been completed should consideration be given to an investigation program and installation of piezometers.

5. The following information should be added to the STID:

   a. Include the analyses of the stresses of the Obermeyer gates under seismic loading.

   b. Include Table 5-1 referenced in Section 5.2.2, in the STID.

   c. Include the stability of the spillway chute walls in the STID.

   d. Include failure of the butterfly valve at the intake in 2011 and failure of the low level outlet valve immediately upstream of the powerhouse in 2013 in Section 3.0 of the STID.

   e. Include the figures referenced in Section 8.0, in the STID.

ATTACHMENT 3

RECEIVED
MAR 12 2018
By MONYLA

FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects
Division of Dam Safety and Inspections – San Francisco Regional Office
100 First Street, Suite 2300
San Francisco, CA 94105-3084
(415) 369-3300 Office – (415) 369-3322 Facsimile

March 6, 2018

In reply refer to:
Project No. 6378-CA
NATDAM No. CA00812

Mr. Brent Buche
Chief of Operations and Maintenance
Monterey County Water Resources Agency
P.O. Box 930
Salinas, CA 93902-0930

Subject: Seventh Independent Consultant's Safety Inspection Report for the Nacimiento Hydroelectric Project

Dear Mr. Buche:

Three copies of the Seventh Independent Consultant's Safety Inspection Report (Report) for the Nacimiento Hydroelectric Project, FERC No. 6378, were to be submitted to this office by January 23, 2018. As of the date of this letter, we have not yet received this required report, and thus your submission of this report is now overdue. As a courtesy, we are granting you a one-time extension until December 31, 2018 to submit three copies of this report to our office. However, please note that this extension of time will not impact the due date for future reports, and the Eighth Part 12D report will be due on January 23, 2023. As a reminder, it is your responsibility to prepare and submit the Part 12D report in a timely manner and by the required due date in accordance with 18 CFR Section 12.38(a).

CFR 18, Part 12, Subpart D, of the Commission's regulations prescribes the scope of the Independent Consultant (IC) evaluations and field inspection, as well as the information that must be contained in the Report. An electronic version of the report in a searchable format should also be included with the submission. **To ensure that the Report will not be rejected you are encouraged to take time and review these responsibilities and our guidance as some requirements have changed.** Enclosure 1 is a bulleted list highlighting the changes in the Part 12D process discussed in this letter. Your responsibilities as the Licensee, as well as those for your IC, are discussed in more

detail in Enclosure 2; and the Report outline to be used by the IC is included as Enclosure 3. We recently posted an update to Chapter 14 – Dam Safety Performance Monitoring Program, Appendices H, J, and K; and encourage you to review these updated Engineering Guidelines located at:

http://www.ferc.gov/industries/hydropower.asp

We have noticed a disturbing trend within the industry regarding the lack of attention to some of the Part 12D requirements. The FERC will participate in two calls with you during the process of developing the Part 12D report to go over our expectations for the Report and that of your IC. The first call will occur shortly after you receive this letter. Having this call early in the Part12D process should help you frame the scope of work entered into with your IC. The second call will occur at least 90 days before the Potential Failure Modes Analysis (PFMA) review discussed below and will be conducted with your IC also participating.

You are reminded that failure to conform to the requirements of the Part 12D process will result in rejection of the Report.

Potential Failure Modes Analysis Update Requirements

Section 1 of your Supporting Technical Information Document (STID) should be a PFMA report completed during a previous submittal under the Part 12D process. During a recent FERC-wide reevaluation of Potential Failure Modes (PFMs), we discovered that many still do not meet the expectations that we have for complete PFMs. You should be aware that it is likely that many of the existing PFMs may require revision to more fully describe the actual mode of failure. Each PFM must have a specific loading condition, mode of failure, defined consequence to public safety, and category. To that end, we are requiring you to set up a telephone conference or a face-to-face meeting at least 90 days prior to the PFMA review with your independent consultant to discuss our expectations for the PFMA review. During this meeting, we will review the level of effort required for the PFMA review, as discussed in our first telephone call. Enclosure 4 provides an outline of the topics to be discussed during the initial call with this office. Enclosure 5 provides an outline for additional topics to be discussed during this second call/meeting between your IC, your staff, and the FERC.

For more information on how to complete well-developed PFMs, please refer to the D2SI website at:

http://www.ferc.gov/industries/hydropower/safety/initiatives/pfms.asp

For additional information regarding the entire PFMA process, please reference Chapter 14 of our Engineering Guidelines, which are available at:

http://www.ferc.gov/industries/hydropower/safety/guidelines/eng-guide.asp

As stated in our January 10, 2018 letter, the PFMA report for Nacimiento Dam does not conform to our current PFMA requirements and will need to be revised as part of this Seventh Part 12D process. Our January 10, 2018 letter identified the following primary changes that will need to be made to the PFMA report:

1. Individual and separate PFMs should be identified for each structural element, loading condition, and failure mode pathway. For example, PFMs 2 and 4 have multiple structural elements and pathways identified within each PFM description. These should be separated out in the future.

2. There were a few PFMs that were developed for a specific loading condition, i.e. static, that should be expanded to other loading conditions such as seismic. Determine if the identified PFMs can be expanded for other loading conditions.

3. The information provided in the rationale for not carrying a PFM forward should be reviewed, fact checked, and verified. The outcome of this fact checking/verification should be reviewed to confirm or revise the status of these excluded PFMs.

4. The following PFMs are examples of PFMs that have not been previously considered and should be evaluated at the next PFMA, but should not be considered an exhaustive list of new PFMs to be developed during the PFMA review:

    a. Sliding of the spillway crest structure along a weak plane in the foundation under normal, flood, and seismic loading conditions;

    b. Concentrated leak erosion of the embankment materials in contact with the spillway structure;

    c. Seismic loading and overstressing of structural members of the spillway gates: and

    d. Scour and headcutting of the spillway channel.

5. The PFM categories should be reviewed and revised accordingly based on more recent guidance.

In addition to these items that were identified in our January 10, 2018 letter, a focused spillway PFMA session has not yet been performed for Nacimiento Dam as required by our May 1, 2017 letter. A focused spillway PFMA session should thus be

held as part of this required PFMA review and update. Sufficient time and budget should be provided in the IC's scope of work to allow for the focused spillway PFMA session and overall PFMA review and update. To assist you, we will discuss the anticipated level of effort for the PFMA review with you both during the initial call, and during the 90-day call with your IC.

Project Features

Commission Regulations require that the project works of a development subject to Part 12, Subpart D, of the Commission's Regulations be inspected and analyzed periodically by an IC. This includes Nacimiento Dam and all associated appurtenant water retaining structures at your project.

In addition to the required PFMA review discussed in the previous section, we recommend that your IC pay special attention to the following items:

- We understand that the sand boils that were discovered in the low-flow channel downstream from the powerhouse in March 2017 are being monitored. The IC should evaluate and comment on the available monitoring data and engineering reports related to the observed sand boils and provide an opinion regarding the potential cause(s) of the sand boils. The IC should comment on if the boils appear to be related to a PFM and/or represent a potential dam safety concern, and make appropriate recommendations regarding the need for any future investigations, modifications, or other corrective actions that may be warranted.

- As required by our May 1, 2017 letter, we understand that MCWRA is in the process of performing a detailed assessment of the spillway. We understand that the first phase of the work will be to use non-destructive testing methods such as ground penetrating radar (GPR) to determine if there may be voids or other discontinuities beneath the spillway slab, and that this investigation is scheduled to be completed later in 2018. The IC should review any information that is available from the spillway investigation and assessment and provide an opinion regarding the adequacy and overall condition of the spillway as it relates to spillway-related PFMs or other potential dam safety concerns, and make recommendations as appropriate regarding the need for any further investigations, modifications, or other corrective actions related to the spillway.

- We understand that you are planning to hire a consultant during your next fiscal year (beginning in July 2018) to perform geotechnical investigations at the dam site to assist with evaluating the liquefaction susceptibility of the embankment and foundation soils, as requested in our July 20, 2008 letter and subsequent letters. In addition, we understand that following these investigations, seismic stability and deformation analyses will be performed. To the extent that these investigations

and analyses have been completed prior to the report due date, provide the results to the IC for his/her review and comment.

IC Approval

You must obtain approval of your proposed IC(s) prior to the initiation of the field inspection. You should send three copies of your letter requesting approval of the IC (together with the proposed IC's detailed résumé) to:

Mr. David Capka, P.E., Director
Division of Dam Safety and Inspections
Federal Energy Regulatory Commission
Office of Energy Projects
888 First Street, N.E., Room 6N-01
Washington, D.C. 20426

One copy of the letter and résumé should also be sent to this office. By regulation, the request for the approval of the IC and the résumé are to be filed at least 60 days prior to the initiation of the safety inspection. In order to allow your IC adequate time to inspect your project and prepare the Report, we request that you submit the request letter and résumé at least six months before the Report is due; that is, by June 30, 2018.

The first Report for newly constructed projects or projects where a major dam safety remediation has recently been completed may be done by the design engineer or an engineer from the design engineer's firm. The next Report must be completed by a different engineer not associated with either the design or construction firm. Subsequent Reports may be completed by an engineer associated with the design, construction, or remediation work. However, an engineer or engineers from the same firm will not be approved as the IC for more than two consecutive Reports for any project. We will be contacting you shortly after your receive this letter to coordinate a teleconference or meeting prior to selecting an IC. This meeting will serve to coordinate any outstanding issues, studies, discuss the condition of the existing PFMA, and otherwise gain an understanding of our expectations for the inspection. This will enable you to better develop a complete scope of work for the IC.

Once the IC has been approved, it is your responsibility to provide the IC with copies of, or access to, all project files well in advance of the field inspection. You should include file review in your scope of work and strongly encourage the IC to adequately prepare for the field inspection by adequately reviewing all the pertinent background information for the project in advance. Inadequate preparation of your IC may result in the need to reschedule the inspection until they are properly prepared to perform a thorough inspection.

Report

It is critically important that the IC review, evaluate, and comment on the appropriateness and current validity of all the previous analyses in the STID. Section 7 of the Report should contain your IC's detailed assessment of the STID including the PFMA report. (See Chapter 14, Appendix H, Section 7.0.) Acceptable technical criteria are prescribed in FERC's Engineering Guidelines. If needed, this publication can be downloaded from our website at:

http://www.ferc.gov/industries/hydropower/safety/guidelines/eng-guide.asp

The Report outline to be used by the IC is also included as Enclosure 3 and a copy of 18 CFR 12D can be obtained from the following link:

http://www.ferc.gov/industries/hydropower/safety/guidelines/part12-regs.pdf

Report Follow-Up

If the IC makes specific recommendations in the Report, Section 12.39 of the Code of Federal Regulations requires you to submit to us, within 60 days of the date the Report is filed, your plan of action and schedule to satisfy these recommendations. It is also necessary to confirm your agreement with the IC's recommendations to continue any ongoing measures (e.g., annual settlement survey) specifically identified in the Report. Your plan of action may include any proposal, including taking no action, that you consider a preferable alternative to any corrective measures recommended by the IC in the Report. However, any proposed alternative must be supported by complete justification and detailed analysis and evaluation in support of that alternative.

Unresponsive Reports Will Be Returned

We have noted several instances lately within the industry where an IC did not make "*a clear statement that they have reviewed the pertinent analyses and evaluations along with the underlying assumptions and that they have concluded that the assumptions and methods of analysis or evaluation were appropriate for the structure, were applied correctly and are appropriate given current guidelines and the state of dam safety practice*" as is required by the Commission's Guidelines. A general statement is not acceptable. The Report should indicate in each section that this review and concurrence has been completed. Please ensure that the Report fulfills this requirement, as unresponsive Reports received by this office will be returned for resubmittal.

The Commission's dam safety program is a cooperative process that includes the licensee, the IC, and the FERC. The most important of the three elements is the licensee, as they operate the dam, see the dam on a regular basis, and are responsible for the

surveillance and monitoring plan used to determine if a potential failure mode is developing. It is the licensee's responsibility to submit the IC's Report to the FERC and ensure that the Report meets the requirements of the Commission's Regulations and Guidelines before it is submitted. The Report is a FERC requirement and a valuable resource for you as the dam owner. Enclosure 2 provides a more complete discussion of the requirements of the Commission's Regulations and Guidelines.

If you have questions regarding this letter or Enclosures, please do not hesitate to call me at (415) 369-3318. Your support is critically important and I am available to discuss any concerns or comments that you may have.

Sincerely,

Frank L. Blackett

Frank L. Blackett, P.E.
Regional Engineer

cc:
Chris Moss
Senior Water Resources Engineer
Monterey County Water Resources Agency
P.O. Box 930
Salinas, CA 93902-0930

Enclosures:

1. Changes to Part 12D Process
2. Licensee and Independent Consultant Responsibilities
3. Part 12D Safety Inspection Report Outline
4. Initial Conference Call Agenda
5. 90 Day Pre-Meeting Conference Call Agenda

Changes to Part 12D Process

- Page 1, Paragraph 1 - An electronic version of the consultant's Part 12D report, in a searchable format, is required.

- Page 1, Paragraph 1 - Chapter 14 of our Guidelines: Appendices H, J, and K have been updated and contain new requirements.

- Page 2, Paragraph 1 - Two teleconferences with D2SI staff and management are required: 1) After you receive this letter, with your staff, to discuss our expectations of your consultant and help you develop the scope of work, and 2) At least 90 days before the Potential Failure Modes Analysis (PFMA) review, with your staff and consultant, to discuss our expectations for the PFMA review and documentation.

- Page 2, Paragraph 3 - Note paragraph(s) summarizing specific deficiencies in initial PFMA or specific PFMs that need to be re-developed, and list of outstanding studies that need to be reviewed by and incorporated into the consultant's Part 12D report.

- Page 5 – Unresponsive Reports will be returned

  Reminder: The PFMA review and documentation must be thorough and complete. The consultant's Part 12D report must contain specific statements about their independent review and agreement with the analyses, evaluations, and assumptions described in the Supporting Technical Information Document (STID); and must confirm the analyses and evaluations meet current guidelines and are in accordance with current dam safety practice. *The Part 12D report will be rejected if all requirements are not met.*

Licensee and Independent Consultant Responsibilities

The FERC dam safety process encompasses three distinct and separate entities each with their own responsibility in assuring dam safety; the dam owner, the Independent Consultant, and the FERC Division of Dam Safety and Inspections (D2SI). The triad of dam owner, Independent Consultant, and D2SI was put in place to provide three independent assessments of a dam's suitability for safe and reliable operation.

First and foremost is the dam owner. The Federal Power Act, under Section 10, places full and complete liability for the safe operation of the project on the owner; 16 U.S.C. Section 803c states that:

> "the licensee shall maintain the project works in a condition of repair adequate for the purposes of navigation and for the efficient operation of said works in the development and transmission of power, shall make all necessary renewals and replacements, shall establish and maintain adequate depreciation reserves for such purposes, shall so maintain, and operate said works as not to impair navigation, and shall conform to such rules and regulations as the Commission may from time to time prescribe for the protection of life, health, and property. ***Each licensee hereunder shall be liable for all damages occasioned to the property of others by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto***, constructed under the license and in no event shall the United States be liable therefore." (Emphasis added)

The owner is also liable under United States common law (see Legal Liability for Dam Failures, Denis Binder, 2009 and Liability for Water Control Structure Failure Due to Flooding, Edward A. Thomas, 2006).

The second entity, for dams which fall under the requirements of the 18CFR12D of the Commission's Regulations (Regulations – copy attached), is the Independent Consultant. The Regulations specify that dams that meet the requirements outlined in 18CFR12D be:

> "... periodically inspected and evaluated by or under the responsibility and direction of at least one independent consultant, who may be a member of a consulting firm, to identify any actual or potential deficiencies, whether in the condition of those project works or in the quality or adequacy of project maintenance, surveillance, or methods of operation, that might endanger public safety." (18CFR12.32)

The Consultant's report is submitted to the FERC by the licensee. It is the licensee's responsibility to assure that the report meets the requirements of the Commission's Regulations and Guidelines before it submitted to FERC. Although the report is required

by the FERC under the statutes noted above, the report is also a valuable resource for the dam owner, especially those that do not have the staff necessary to assure the safe and reliable operation of the dam.

The FERC is the third entity involved in assuring the safety of dams under Commission regulation. As the regulator, the FERC is responsible for assuring that the requirements of the Commission's Regulations and Guidelines are met and to check licensee's submissions for apparent errors or omissions. FERC's acceptance of a report is recognition that the report, at the time it was submitted, met the Commission's Engineering Guidelines. It does not imply that the report will continue to meet the Guidelines into the future as our Guidelines may change due to evolution in the practice of dam safety; loadings may change due to a better understanding of the seismic or hydrologic regime in which the dam is located, or deterioration of the dam itself.

Chapter 14 of the Commission's current Engineering Guidelines (Guidelines) requires the owner to prepare a Supporting Technical Information Document that is intended to include summaries of "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" related to the safety of the dam. Chapter 14 of the Guidelines also includes the outline for the Independent Consultant's Report. The outline requires

> "in each section, where appropriate, the Independent Consultant shall make a clear statement that they have reviewed the pertinent analyses and evaluations along with the underlying assumptions and that they have concluded that the assumptions and methods of analysis or evaluation were appropriate for the structure, were applied correctly and are appropriate given current guidelines and the state of dam safety practice."

This statement is intended to fulfill the requirement in 18CFR12.37 for the report to "Analyze the safety of the project works and the maintenance and methods of operation of the development fully in light of the independent consultant's reviews, field inspection, assessments, and evaluations described in §12.35".

When the Consultant fails to "make a clear statement that they have reviewed the pertinent analyses and evaluations along with the underlying assumptions and that they have concluded that the assumptions and methods of analysis or evaluation were appropriate for the structure, were applied correctly and are appropriate given current guidelines and the state of dam safety practice." the Consultant is failing to meet both the requirements of 18CFR 12.37 to "Analyze the safety of the project works and the maintenance and methods of operation of the development fully in light of the independent consultant's reviews, field inspection, assessments, and evaluations described in §12.35" and the requirements of Chapter 14 of the Guidelines. When a

Consultant justifies the adequateness of a section in the Supporting Technical Information document by stating that the FERC conducted its own study or that the FERC had previously accepted a report submitted by the licensee, the Consultant is, in essence, attempting to delegate their responsibility to the FERC.

The necessary three parts of the dam safety process provided for assuring the safe and reliable operation of FERC-regulated dams is effectively reduced to only two when a Consultant does not "analyze the safety of the project works and the maintenance and methods of operation of the development fully in light of the independent consultant's reviews, field inspection, assessments, and evaluations described in §12.35." This is unacceptable to the FERC and should be unacceptable to any dam owner with an appreciation of their responsibility and liability.

Reports that fail to meet the requirements of the Regulations and/or Guidelines may be considered patently deficient and will not be accepted until they meet the requirements.

Part 12D Safety Inspection Report Outline

Table of Contents

The Table of Contents must show the initial page numbers for each section. If any subsection is not applicable, include the subsection with a statement of "Not Applicable" and an explanation of the reason(s) why.

For licensed projects that include multiple independent dam and powerhouse developments, separate Part 12D reports should be published for each development.

1. **Findings and Recommendations**
2. **Project Description**
3. **Discussion of Potential Failure Modes Analysis Report**
4. **Surveillance and Monitoring with Respect to Potential Failure Modes**
5. **Field Inspection**
6. **Operation and Maintenance Programs Relative to Potential Failure Modes**
7. **Assessment of Supporting Technical Information Document**

List of Tables (with location)

List of Figures (with location)

List of References

Appendices for Part 12D Inspection Report

A. **FERC Letter Requiring Part 12D Inspection**

B. **FERC Letter Approving Part 12D Consultant** - Include date of current report outline provided by FERC. Use report outline provided with FERC letter, not latest revision.

C. **Project Figures**

Only provide general overview drawings necessary to understand the project and items discussed in the report. If figures are placed in Section 2, provide a statement that figures may be found in Section 2. Optionally, if the STI document is bound with the Part 12D report provide a statement that figures may be found in the STI document; duplicate drawings from the STI document do not need to be included in the Part 12D report.

Detailed drawings should be included in the Supporting Technical Information document.

D. Instrumentation Monitoring Data Plots

List each figure and drawing included in the report. Optionally, instrumentation plots may be placed in Section 4 of the report and a statement included in Appendix D that the plots may be found in Section 4.

E. Inspection Photographs

Optionally, some or all of the photographs may be included in the appropriate sections of the report. If photographs are included within the report, provide a list of the photographs and the corresponding page number in Appendix E.

F. Inspection Checklists and/or Field Notes (Optional)

G. Operation and Maintenance Documentation (If required)

1.0 Findings and Recommendations

This Section includes a summary of the Part 12D Independent Consultant's findings and assessments and the Part 12D Independent Consultant's conclusions and recommendations.

1.1 Findings

1.1.1 Summary assessment of the PFMA report

1.1.2 Summary assessment of the Surveillance and Monitoring Plan

1.1.3 Summary of Field Inspection Findings

1.1.4 Summary of O&M status

1.1.5 Summary Assessment of "Supporting Technical Information" document

Note: Specifically identify any new calculations prepared subsequent to the previous Part 12D Report.

1.2 Conclusions

The conclusions of the Independent Consultant regarding the condition and suitability for continued safe and reliable operation of the project and specific conclusions regarding the information in each Section of this Part 12D report.

1.2.1 Conclusions regarding the suitability of the Project for continued safe and reliable operation.

1.2.2 Conclusions regarding the Project Description

1.2.3 Conclusions regarding the Potential Failure Modes Analysis Report

1.2.4 Conclusions regarding the Surveillance and Monitoring Plan

1.2.5 Conclusions regarding the Field Inspection

1.2.6 Conclusions regarding the Operation and Maintenance Programs

1.2.7 Conclusions regarding the "Supporting Technical Information" document.

1.3 Recommendations

The recommendations of the Independent Consultant to improve or maintain the condition and suitability for continued safe and reliable operation of the project and specific recommendations regarding the information in each Section of this Part 12D report.

1.3.1 Recommendations regarding the suitability of the Project for continued safe and reliable operation.

1.2.2 Recommendations regarding the Project Description

1.3.3 Recommendations regarding the Potential Failure Modes Analysis Report

1.3.4 Recommendations regarding the Surveillance and Monitoring Plan

1.3.5 Recommendations regarding the Field Inspection

1.3.6 Recommendations regarding the Operation and Maintenance Programs

1.3.7 Recommendations regarding the "Supporting Technical Information" document

1.4 Certification

Note: By signing this document, the Part 12D Independent Consultant is stating that the entire report has been developed by and under the direction of the undersigned. The Part 12D Independent Consultant shall make a clear statement that he/she generally concurs with the assumptions, methods of analyses, and results of all studies documented in the report.

The Part 12D Independent Consultant is thus taking responsibility for the Part 12D report content as a Professional Engineer.

1.4.1 List of all field inspection participants

1.4.2 Reference to FERC Order 122 dated March 1, 1981, and paragraph 12.37 (c) (7).

1.4.3 Signature(s) of Part 12D Independent Consultant(s) and PE Stamp

See Appendix A: FERC Letter Requiring Part 12D Inspection

See Appendix B: FERC Letter Approving Part 12D Consultant - (Include date of current report outline provided by FERC)

2.0 Project Description

2.1 Brief Project Description

For each major element and ancillary structure, provide a brief description of the type of structure, general dimensions, etc. The detailed project description will be in the "Supporting Technical Information" document.

For multi-project or development licenses, include a brief outline of how this site fits with the other projects.

Include a short paragraph with very brief project history. When constructed, when modified, any incidents.

2.2 Hazard Potential Classification.

Based on views from the dam, other project works inspected and discussion with the licensee, document any changes in upstream or downstream conditions that might affect the Hazard Potential Classification. Review with the licensee the methods and assumptions used to develop the IDF. If the IDF is less than the PMF, the IC should confirm that the IDF is still valid based on an assessment of the downstream conditions as noted above.

2.3 Summary of Standard Operating Procedures

2.3.1 Purpose of Project (Run of river, storage, flow augmentation, flood surcharge storage, control reserve, pumped storage, etc.)

2.3.2 Reservoir rule curves by season (include seasonal reservoir level operating levels and restrictions of reservoir level due to safety concerns, if any)

2.3.3 Standard gate operation procedures (lead and following gates, emergency power systems, etc.)

2.4 Modifications Conducted for Project Safety

Document any modifications to project works since the last Part 12D inspection that have been done to improve project safety. (i.e.: spillway gates reinforced, seepage drain, berm added, crest raised, post-tensioned anchors installed, foundation drains or relief wells cleaned, etc.). In the next Part 12D Safety Inspection Report, these items will become part of Section 2.1. This information should be fully described in the updated "Supporting Technical Information" document submitted with the Part 12D report.

Do not include routine maintenance such as unit overhaul, gate painting, etc. Note that generators, transformers, and transmission facilities are excluded from the Part 12D program under 18CFR subsection 12.35.

2.5 Flood History

2.5.1 Flood of Record, PMF, IDF

2.5.2 Zero freeboard spillway capacity

2.5.3 Peak spillway discharge during last five year period

2.5.4 Peak reservoir elevation during last five year period

See Appendix C: Project Figures (Note: If the STI document is bound with this report, do not duplicate figures)

3.0 Discussion of Potential Failure Modes Analysis Report

Do not include security issues in the Part 12D report. For licensed projects that include multiple independent dam and powerhouse developments, separate PFMA studies and reports should be made for each development.

3.1 General

Identify the Core Team members, and their affiliations, who developed the comprehensive Potential Failure Modes Analysis (PFMA) or its update. Note that the process was in accordance with FERC "Engineering Guidelines for the Evaluation of Hydropower Projects," Chapter 14.

3.2 Assessment of Potential Failure Modes Analysis Report

Assess the viable potential failure modes identified in the PFMA report. These would generally be Category 1 through Category 3 PFMs. Provide an assessment of the reasonableness and completeness of the failure mode scenario and whether the PFMs identified have a real possibility of occurrence. Potential Failure modes should be listed in order of importance. Each PFM assessment should include:

- A description that includes the sequence of conditions and events that would lead to the potential failure mode;
- An assessment of the risk reduction opportunities for each PFM; and
- An assessment of the Surveillance and Monitoring Plan for each PFM.

For example, the report would be formatted as follows.

3.2.1 PFM 1. (i.e. internal erosion, piping)

3.2.1.1 Description of PFM (may be taken from PFMA report)

3.2.1.2 Assessment of Risk Reduction Opportunities

3.2.1.3 Assessment of Surveillance and Monitoring Plan

3.2.2 PFM 2. (i.e. Seismic induced deformation)

3.2.2.1 Description of PFM (may be taken from PFMA report)

3.2.2.2 Assessment of Risk Reduction Opportunities

3.2.2.3 Assessment of Surveillance and Monitoring Plan

Etc.

3.3 Are there new potential failure modes that have been identified and addressed in this report or that should be assessed? If so, include the appropriate Description of the PFM, Assessment of mitigation actions and Assessment of the SMP as discussed above.

See "Supporting Technical Information" document: **Potential Failure Modes Analysis Study Report** (Update as appropriate)

4.0 Surveillance and Monitoring with Respect to Potential Failure Modes

Note: Review and assessment of Surveillance and Monitoring Plans must always be done from the point of view of potential failure modes. Although the primary assessment is with respect to the potential failure modes identified in the PFMA study, the Independent Consultant must determine if there are potential failure modes not previously addressed or not adequately considered.

For the purposes of this section, a Threshold Level is the value used in the analysis or design, or is established from the historic record. An Action Level is the instrument reading that triggers increased surveillance or an emergency action.

4.1 Operator's Surveillance Program

Daily and weekly operator's inspections and reports.

4.2 Active Instrumentation: Include a schematic figure showing location of instrumentation (not detailed or cross section).

This will vary by project. Discuss only the instruments actually at the project. Is instrumentation in accordance with Chapter IX of the FERC "Engineering Guidelines for the Evaluation of Hydropower Projects?" Is the instrumentation functioning properly? Examples of instrumentation to be included:

- Piezometers
- Weirs
- Settlement/alignment monuments
- Crack gages
- Upstream river and/or rain gage stations
- Headwater/tailwater (alarm systems)

4.3 Threshold and Action levels

For each instrument, or group of instruments as appropriate, provide a table of Threshold and Action levels as defined above.

4.4 Reading procedures/frequency

For each instrument, or group of instruments as appropriate, discuss:

- Data acquisition procedures (manual/automated)
- Data evaluation procedures (process; is data evaluated in a timely manner by a qualified engineer; are readings compared to Threshold and Action levels defined for each instrument)
- Spurious readings (are spurious readings confirmed or explanations provided)

4.5 Assessment of Instrumentation Data and Surveillance and Monitoring Plans Relative to Potential Failure Modes.

Include newly identified potential failure modes

5.0 Field Inspection

5.1 Field Inspection Observations

For each element of the project (i.e.: spillway, earthfill embankment, gravity section, intake, powerhouse, conveyance system, etc.), observe and report visual observations of the following issues as appropriate. Include pictures to document significant project features and observations. If an inspection checklist is used, include a copy of the checklist Appendix F. A site-specific inspection checklist should be formatted to include specific visual surveillance items identified in the PFMA.

The intent of this section is to highlight changed conditions for the report reviewer, not to document unimportant or minor details.

The report should be in text format by structure or element addressed individually. For each structure or element of the project, the Part 12D Independent Consultant should consider the following items as appropriate:

- Settlement
- Movement – including abutments (cracks or other signs of distress or change)
- Erosion
- Seepage/Leakage
- Cracking
- Deterioration
- Spillway gate Operation/Standby Power (At a minimum, the Part 12D Independent Consultant needs to review the licensee's annual certificates of spillway gate operation and interview project operating staff to assure that emergency backup systems work and that operating personnel know how to use them. At least one spillway gate should be operated at least one foot during the Part 12D inspection using the standby generator.)
- Outlet/Sluice Gate Operation

- Water conveyance systems (canals / flumes / penstocks / tunnels / surge chambers, emergency bypass or closure systems, etc.)
- Foundation Drain/Relief Well Operation
- Evidence of high artesian or uplift pressures (structures / foundations / abutments)
- Observations of sediment transport (piping evidence)
- Observations of seeps, wet areas, springs, green grass
- Other Pertinent Observations

5.2 Status of Response(s) to Recommendation(s) in Last Part 12D Report.

5.3 Field Observations with Respect to Potential Failure Modes

Document field observations pertinent to each potential failure mode noted in Section 3

5.4 Adequacy/Operation of Public Alert Systems

Note: Are upstream spillway warning buoys, and downstream sirens and lights operable?

See Appendix E: **Inspection Pictures** (Optionally, some or all of the pictures may be included in the appropriate sections of the report. If pictures are included within the report, provide in Appendix E a list of the pictures and the corresponding page number)

See Appendix F: **Inspection Check List** (optional)

6.0 Operation and Maintenance Programs Relative to Potential Failure Modes

Do not include security issues in the Part 12D inspection report. If observations of significant O&M issues are made, include in report for possible new potential failure mode analysis.

6.1 Summary of PFMA identified O&M issues (from PFMA report)

6.2 Operation and Maintenance Procedures

6.2.1 Communication/Response

Address adequacy and reliability of remote monitoring, communication and control systems (Operations / Instrumentation / Telemetry – Do the systems provide adequate reliability and redundancy? Can a specific spillway gate, valve or other project component be operated remotely on demand?)

6.2.2 Electrical/Mechanical Systems

- Spillway Gate Motors (line/line voltage, amperage draw, motor name plate rating information)
- Standby and Redundant Power Sources
- Manual/Remote/Automatic Operation of Gates and Valves
- Gate Operation Sequence
- Icing protection (heaters/bubblers/reservoir level restriction)

6.2.3 Human Factors

- Adequate Staff for Emergency Response (Multiple Sites)
- Reliable Access Routes (winter/storm conditions)
- Training
- Electricians/Mechanics/Laborers
- Adequate Time to Respond
- Call Out Systems (time for crew to reach site after call out)

6.3 Assessment of O&M Procedures Relative to Potential Failure Modes

See Appendix G: **Operation and Maintenance Documentation**

7.0 Assessment of Supporting Technical Information Document

The purpose of this section of the Part 12D Report is for the Part 12D Independent Consultant (IC) to assess the contents of the "Supporting Technical Information" (STI) document compiled by the licensee and determine both its completeness and appropriateness to the current standard of the practice of dam safety. The STI document should be considered an executive summary that includes general, yet critical summary information needed to fully understand the design, construction, operation, and performance of the project. It should also contain sufficient information to summarize and confirm the underlying assumptions and the conclusions of the analyses of record supporting the assessment of the safety of the Project.

For each section of the STI, the Independent Consultant shall make a clear statement regarding their assessment of the completeness and appropriateness of that specific section of the STI. They must make an assessment of the assumptions, methods of analysis and/or evaluations as to their appropriateness and proper application for the structure, and whether they are appropriate given current guidelines and state of dam safety practice. The IC must perform sufficient review and/or independent analysis to document their rationale to support the required statement.

This must include a brief summary (bullet form acceptable) of the parameters, methodologies, and results used that document their decision.

Listed below are non-all-inclusive items to consider when summarizing each section of the STI. The IC's summary is not intended to be a detailed discussion of the STI Sections, but a summary list of the most important parameters used by the IC to reach their conclusion. This might be best accomplished by a bullet list. In addition, this section of the Part 12D report is not intended to repeat the STI verbatim, but to summarize key components used by the IC to make their assessment and conclusions regarding the completeness of the STI.

7.1 Potential Failure Modes Analysis Study Report (Include a statement referring to Section 3 for a detailed discussion of the Potential Failure Modes Analysis)

- Adequacy of the summary of current PFMA Report
- Changes in PFMA during current review, including any new PFMs
- Any changes in category for any PFM

7.2 Description of Project

- Summarizes major components of the project, including all those listed in the project Order
- Review description for accuracy and completeness (elevations, capacities, etc.)

7.3 Construction History

- Summarized procedures/methods used for construction
- Includes construction difficulties that could influence long-term performance of the project.
- Summarize any design changes in the project during construction and any modifications since originally constructed
- Construction photographs

7.4 Standard Operating Procedures

- Summary of key operating procedures for dam safety
- Include procedures/sequence for passing flows (gate/powerhouse/flashboard/fuseplug, etc. operation)
- Does the SOP include all the necessary requirements to safety operate the project?

- Summarize any changes that have been made in the operation of any component of the project that is different than originally designed and if there is any impact resulting from the change.

7.5 Geology and Seismicity

- Geology
  - Adequacy of the summary of regional and local geologic conditions
  - Geologic conditions that could impact dam safety performance
  - Any geologic conditions that are important for monitoring the project
- Seismicity
  - Summary of seismic analysis, including key parameters
  - Date of recent analysis and applicability to current studies
  - Design PGA and recurrence interval (if available)

7.6 Hydrology and Hydraulics

- Hydrology
  - Summary of IDF/PMF, including key assumptions and rainfall/runoff parameters used
  - Applicability of flood to current methods, HMR, etc
  - Specifically identify the studies of record
- Hydraulics
  - Summary of key issues and assumptions, including review of rating curve for spillway
  - Summarize routing of IDF/PMF through spillway(s), peak reservoir elevation, and residual freeboard

7.7 Surveillance and Monitoring Program

- Status of current DSSMP and DSSMR
- Applicability of program to PFMs
- Determine if any changes to program are required and recommend those changes
- Summarize the appropriateness of current threshold and action levels

7.8 Stability and Stress Analyses of Project Structures – This section should have an introductory summary of the analysis of record for each analysis. Other prior analyses can be briefly summarized if they are thought to be of significance.

- Summary of methods, procedures, critical elements, assumptions, input/design parameters, etc… for each structure analyzed
- Resulting factors of safety and comparison to FERC guidelines
- List of all analysis of records and any supplemental studies currently in process or completed

7.9 Spillway Gates

- Category of gates and appropriate requirements
- Date and brief conclusion of most recent detailed gate inspection
- Date and brief conclusion of most recent test operation

7.10 Pertinent Correspondence Related to Safety of Project Works

- Completeness of documents required to be included in the STI

7.11 Status of Studies in Process and Outstanding Issues

- Summarize any ongoing analyses, studies, etc.

7.12 References

- Completeness of the list of references and the attached electronic files, if applicable

7.13 Conclusions

- Overall assessment of the condition of the STI

General Statements

The following example statements are offered as general guidance for use by the IC when making definitive statement regarding each section of the STI, **in addition** to the discussion indicated above. The Positive statements are examples of when the STI is acceptable. The Negative statements are examples where the STI does not meet minimum requirements and must be improved upon. There are intended only as examples to be used for the section indicated. *Copying these examples verbatim into the IC's assessment of each section of the STI may result in the rejection of the Part 12 D report; the assessment should be specifically customized for the project under review.*

7.1 PFMA Review

Positive

The PFMA was reviewed for completeness during a PFMA review conducted in conjunction with the Part 12 inspection. I/we reviewed the following items (itemize here) and as a result, consider the PFMs to be, fully developed and appropriately separated by load case and location, well documented, and complete relative to the project information.

Negative

I/we reviewed the following items (itemize here). PFM Number XX was not fully developed and a recommended revision is included in the recommendation section of this report. After review and concurrence by FERC, the revised PFM should be adopted. The other PFMs are considered to be well written, well documented, and complete relative to the project information.

7.2 Project Description

Positive

The description of the project is correct and adequately summarizes the major components of the project and provides a good executive review level discussion about the project.

Negative

The project description is inadequate. It is recommended that the description of the project included in the STI be enhanced to include a more detailed description of the spillway gate operators, as noted in the recommendation section of this report.

7.3 Construction History

Positive

The construction history is adequately described, including all significant construction issues documented during the construction which include the following key points that could potentially impact the operation and performance of the project features. All available construction photographs are included on the accompanying CD and were reviewed to ensure there are no other previously unidentified defects from the original construction or later modifications.

Negative

The construction history is generally adequately described. However, the construction history did not include the modifications made to the project in 1999, which included (describe the modifications). A recommended revision is included in the recommendation section of this report.

7.4 Standard Operating Procedures

Positive

The Standard Operating Procedures are adequately summarized in the STI and include (list here) that are of specific interest regarding the continued safe operation of the project. The SOP includes all the necessary requirements to safety operate the project.

Negative

The SOP does not account for changes in gate operation to accommodate flow releases required for environmental purposes in 2004. It is recommended that the SOP be rewritten to account for this change.

7.5 Geology and Seismology

Positive

The geology and seismology of the project are adequately summarized and highlight specific issues that could impact the operation and performance of the project and include (summarize here). Our/my review of the seismicity indicates that site seismicity was developed using the most current data and approach available.

The assumptions, methods, and use of the data and its application to this project meet the current guidelines and the state of dam safety practice.

Negative

The Geology section of the STI is adequate with the following exceptions:

- The geology does not contain a description of the problematic areas encountered in the foundation during construction. Nor does the geology summarize the actual geology of the site, but only includes a broad regional summary of the area.
- The seismology section of the STI is inadequate. The most current seismic hazard evaluation is not adequately summarized and the design Peak Ground Acceleration is not listed.
- The Geology and Seismology sections of the STI must be enhanced in accordance with the recommendations contained elsewhere in this report.

7.6 Hydrology and Hydraulics

Positive

The hydrology of the project is adequately described in the STI. My/our assessment of the hydrology included a review/analysis of (list studies/reports here). The key assumptions and parameters include (summarize here) and are considered appropriate to the current methodologies, data, and state of dam safety practice for evaluating the hydrologic safety of a dam. The PMF inflow of xxxx cfs is appropriate for this project.

The hydraulics of the project are adequately described in the STI. The spillway and tailwater rating curve(s) are correct and adequately represents the current spillway hydraulics. The project spillway(s)/outlets can pass the PMF/IDF with xx feet of freeboard on the dam. This freeboard is adequate for predicted wind and wave run-up at the dam.

Negative

I/we do not concur with the PMF analysis of record for this project. The PMF was based on PMP developed using HMR43, which was superseded by HMR57 in 1994. It is recommended that the PMF analysis be updated using the updated PMP values from HMR57.

The hydraulics of the project are not properly described in the STI. The rating curve used for the spillway is incorrect and needs to be recalculated.

7.7 Surveillance and Monitoring Program

Positive

The Surveillance and Monitoring Program is adequately described in the STI. My/our review of the DSSMP indicate the most critical elements of the monitoring include (summarize here) and contain appropriate threshold and action levels for each instrument. During the PFMA review, the need for additional surveillance for the project with respect to both identified PFMs and general health was discussed. It is my opinion that existing monitoring program is adequate and no changes are recommended at this time.

Negative

My/our review indicated that several key elements of the project instrumentation are missing (list here). Thus the SMP is inadequate and needs to be revised.

7.8 The Stability and Stress Analyses of Project Structures

Positive

I have reviewed the pertinent analyses and evaluations along with the underlying assumptions and that have concluded that the assumptions and methods of analysis or evaluation were appropriate for the structure, were applied correctly and are appropriate given current guidelines and the state of dam safety practice. I also performed an independent check of the stability calculations and my results agree with the analysis of record. The following project structures are thus found to be safe for continued operation:

- Main embankment
- West diversion dam
- Integral power house
- (List all)

Negative

The STI is inadequate with regards to a summary of the stability and stress analyses for the project structures. The design assumptions are missing for the (xxxx) structural analysis. In addition, the resulting factors of safety on the recently

submitted stability analysis do not meet the FERC minimum guidelines and must be reviewed with regards to dam safety concerns.

7.9 The Spillway Gates

Positive

I have reviewed the pertinent inspection reports and stability and stress analyses (if applicable) and have determined that the spillway gates are safe for continued operation.

Negative

I have reviewed the pertinent inspection reports and stability and stress analysis for the spillway gates. The analyses do not properly account for the bent strut on Gate No. 1 that I observed during my field inspection. Thus, before I can determine if the spillway gates are safe for continued operation, the stress analyses need to be redone to account for this issue with Gate No. 1.

7.10 The Pertinent Correspondence Related to Safety of Project Works

Positive

The Pertinent Correspondence Related to Safety of Project Works is complete and adequate in accordance with the requirements of the FERC. This correspondence includes the following items of specific note that are most important regarding the continued safety of the project:

1. Example item 1
2. Example item 2
3. Etc.

Negative

The Pertinent Correspondence Related to Safety of Project Works is incomplete with regards to the requirements of the FERC. The following documents are missing and my/our recommendation is included to obtain and include the following documents in the STID:

- Past three years of the FERC Annual Dam Safety Inspection Reports
- Etc... (detail all accordingly)

7.11 Status of Studies in Process and Outstanding Issues

The Status of Studies in Process and Outstanding Issues include the following:

List specifics and summarize the issue

OR

There are no outstanding studies in process or outstanding issues with the project that are in process or need to be initiated resulting from my/our conclusions of this Part 12D review and inspection.

7.12 References

Positive

The References included in the STI and associated electronic files enclosed with the STI are complete and accurate and are formatted for easy reference.

Negative

The references in the STI are incomplete and inadequately contain all the information contained in the STI. It is recommended that all studies and reports listed below be transferred to a disk and included in the end of the STI.

7.13 The Conclusions

Positive

The overall STI document is complete, well organized, and adequately addresses all of the requirements of the FERC but more importantly provides a complete executive summary document that is useful to all those associated with this project.

Negative

The STI document is inadequate. Rather than summaries of the necessary information, the document contains random copies of studies, project information, and incomplete information that does not allow the user to obtain a general overview of the entire project. Specifically, Sections (list sections) are particularly poor in content and must be completed in accordance with our recommendations.

APPENDICES

List of Tables (with location)

List of Figures (with location)

List of References

A. FERC Letter Requiring Part 12D Inspection

Note: May include specific FERC concerns to be addressed by Part 12D Independent Consultant.

B. FERC Letter Approving Consultant

Note: Include date of report outline provided by FERC.

C. Project Figures

This Appendix should include the following figures as appropriate. All Figures should be consecutively numbered. Figures should be general without excessive detail so as to be clearly legible. Figures should include documentation of significant changes since last Part 12D report. If STI document to be directly bound in this report, do not duplicate the figures. FERC Exhibit and relicensing drawings can be used.

- Location map with project facilities located including conveyance systems and access routes from main roads and nearest town
- Plans of project facilities
- Typical sections and profiles of key project features (dams, spillways, powerhouses, intakes, emergency/fuse plug spillways, chute profiles, etc.)
- Profiles and typical sections of water conveyance systems (canals, tunnels, penstocks, flumes, surge chambers, etc)
- Satellite or aerial picture of project and downstream area
- Spillway and tailwater rating curves

D. Instrumentation Monitoring Data Plots

Note: Plans and cross-sections with locations of each instrument, including design phreatic surface or uplift pressure profile, and tabulated data for each instrument are included in the "Supporting Technical Information" document only. See Chapter IX, Instrumentation and Monitoring, of the FERC Engineering Guidelines for the Evaluation of Hydropower Projects for additional information. Only time versus reading graphs are included here as NEW information. Tables of data should be provided on a CD bound into the Part 12D report

If data plots are included in Section 4 of the Part 12D report, a statement should be provided here directing the reader to Section 4 for the information.

- Time versus Reading data plots
- Plot all data to date, not just last five years (alternative is to plot last 15 years and note historic range for each unit)
- Do not put too many instruments on one plot
- Try to put all instruments from one section or profile on the same plot
- Mark tip elevation, unscreened length, ground elevation and top of piezometer elevation for each piezometer on the data plot. This information can be provided in a Table to enhance legibility of the graph.
- Use symbols and/or different line types for each unit, not just colors (colors do not reproduce in black and white and some people are color blind - Note that yellow and blue do not reproduce on certain copiers)
- Include headwater and tailwater levels on each plot
- Force all time scales to show full year cycles from January through December
- For multiple plots for the same project, force vertical and horizontal scales on all plots of the same type to have the same scale or total range so plots can be directly overlaid
- Mark threshold values
- Show monthly precipitation on one sheet
- Mark action levels requiring emergency response

E. Inspection Pictures

F. Inspection Checklist (optional)

G. Operation and Maintenance Documentation (if required)

Initial Conference Call Agenda

The purpose of the initial call is to discuss with the licensee/exemptee what level of effort we anticipate will be required for the Part 12D inspection and help them frame the scope of work for the Independent Consultant (IC). This will help the licensee/exemptee prepare their request for proposal (RFP) for an IC. This will hopefully prevent the number of extension of time requests during the process because there was a lack of understanding on the part of the licensee/exemptee as to the level of work required. The initial call should address the following:

1. Review and Discuss Part 12D process and issues we have had:
    a. Discuss the reason and purpose for these phone calls.
        i. Purpose is noted above.
        ii. Do not have attitude that there have been several P12's prior to this one so everything is correct.
        iii. IC's proposing inconsistent or inadequate work because of confusion over the scope of work to be performed during the Part 12D process.
        iv. Reports being returned by the FERC because they are not sufficient and/or do meet all our guidelines.
        v. Need to provide documents with ample review time.
        vi. Consider line item in contract for document review time.
        vii. The FERC can and will cancel the inspection if the IC is not adequately prepared.
        viii. Coordinate scheduling inspection with the FERC.

2. Discuss contents of P12 Reminder letter.
    a. Discuss date of Part 12 report
    b. Specific requirements to be discussed below

3. Discuss each section of the report, as needed: (discuss ONLY if specific items related to the Scope of Work)

    a. Findings and Recommendations
        i. Discuss findings from last report
        ii. Discuss outstanding recommendations from last report.

    b. Project Description
        i. Confirm that it is correct and do not just copy and paste.
        ii. Any errors in previous Part 12 Report?
        iii. Don't simply copy and paste.

    c. Discussion of PFMA Report

i. Discuss FERC's assessment of the existing PFMA report and discuss what level of effort is anticipated to complete the PFMA review. Provide an estimate of how much time the PFMA review may require.
ii. Discuss how much documentation is available and the important about providing this to the IC early
iii. Discuss the completeness of the PFM descriptions
iv. Discuss the PFM Categories and point out that this will be discussed in much more detail during the Second call (90-day call).
v. Discuss time frame for IC inspection and PFMA review as FERC staff will like to be present.

d. DSSMP/DSSMR with Respect to PFM
   i. General discussion about instrumentation and the new table that associates instrumentation to PFMs
   ii. Discuss requirement for new statement by CDSE/CDSC

e. Field Inspection
   i. Discuss what project features need to be inspected (all of them, but emphasize this).
   ii. Discuss status of inspections on inaccessible features
   iii. Discuss any special inspection requirements (boat, harnesses, confined spaces, etc.).
   iv. Discuss any special safety requirements and lockout/tag out, if required

f. Operation and Maintenance Program Relative to PFMs
   i. Discuss mechanical and electrical systems
   ii. Human factors
   iii. Systems/Operational PFMs

g. Assessment of STID
   i. Biggest problem section
   ii. Discuss "clear statement"
   iii. Need statement in EACH section, not a general statement
   iv. Discuss examples of statements
   v. Status of analyses
      1. Structural/stability analyses
      2. Seismic studies
      3. Hydrologic Studies
   vi. Spillway Rating curve – check, don't copy and paste

Appendices

Not a lot to discuss here during initial call

90 Day Pre-Meeting Conference Call Agenda

1. Purpose of call
    a. To discuss what is expected from the Owner.
    b. To discuss what is expected from the P-12 Consultant.
    c. To discuss what is expected during the PFMA review.
    d. To discuss outstanding studies and items of special interest.
2. Owner
    a. The Owner should provide a copy of the STI, 3 past Part 12D Reports and any items of special interest to the IC well in advance of the inspection.
    b. All portions of the site must be readily assessable and cleared of excessive vegetation. If a complete visual inspection cannot be completed the IC will need to re-inspect before the Part 12D Report is submitted.
3. P-12 Consultant
    a. Must review the STI including the PFMA report and the past Part 12D Inspection Reports prior to the inspection.
4. Discussion of the PFMA Report
    a. FERC to review and provide clarification as to the PFM categories.
    b. Discuss current PFMs and the level of effort that may be expected to review. This may range from a review of the PFMA report to a complete revision of the PFMA process including a facilitator and full document review.
5. Items of special interest
    a. Outstanding studies.
    b. Past Part 12D recommendations that have not been fulfilled.
    c. Schedule for inspection.
    d. Any other items of interest.

Exhibit B

Payment Provisions

GEI Consultants, Inc. will perform work described in Exhibit A, and will be paid on a time and expense basis up to the not-to-exceed total amount of **$98,930.** Total cost will not exceed this amount so long as the Scope of Work is not changed. Hourly billing rates will be paid per the Fee Schedule below and expenses will be paid as described below.

FEE SCHEDULE

Personnel Category	*Hourly Billing Rate* $ per hour
Staff Professional – Grade 1	$ 113
Staff Professional – Grade 2	$ 125
Project Professional – Grade 3	$ 137
Project Professional – Grade 4	$ 154
Senior Professional – Grade 5	$ 181
Senior Professional – Grade 6	$ 206
Senior Professional – Grade 7	$ 245
Senior Consultant – Grade 8	$ 275
Senior Consultant – Grade 9	$ 335
Senior Principal – Grade 10	$ 335
Senior CADD Drafter and Designer	$ 137
CADD Drafter / Designer and Senior Technician	$ 125
Field Professional	$ 103
Technician, Word Processor, Administrative Staff	$ 102
Office Aide	$ 80

Above rates are billed for both regular and overtime hours in all categories. The Fee Schedule herein shall be valid for a twelve-month period, beginning July 1, 2018. Hourly billing rates and other direct costs chargeable to the project may be modified as agreed by Agency and GEI Consultants, Inc. after said period of time. The parties shall agree to any modification in writing as an Amendment to the Agreement.

EXPENSES

Expenses are identifiable costs necessarily incurred by GEI Consultants, Inc. to complete the Scope of Work. Expenses include, but are not limited to, travel and subsistence expenses, document reproduction costs, and postal costs. Expenses shall be accounted for in each invoice by submittal of receipts for such costs and a description of their necessity. Monterey County Travel Policy requires hotel, meals, and incidentals be billed at U.S. General Services Administration (GSA) rates, no mark-up; mileage is billable at IRS allowable rate at time of travel, no mark-up. Sub-consultant, postal and materials costs may be marked-up 10%.

Nacimiento Dam and Hydroelectric Project 7th FERC Independent Consultants Safety Inspection Report and Spillway Focused PFMA
PROJECT COST

Task No.	Description	Masching Sr. Professional GR 6 Co-IC / Project Manager Hours	Rate $ 206.00	Rettberg Sr. Consultant GR 8 Co-IC / Principal-In-Charge Hours	Rate $ 275.00	Gutierrez Sr. Consultant GR 8 Quality Control Hours	Rate $ 275.00	Slack Sr. Professional GR 6 Geologist Hours	Rate $ 206.00	Miyamoto / Misgen Project Professional GR 4 Recorder / Assistant to IC's Hours	Rate $ 154.00	Jaeger, PhD Sr. Professional GR 6 Geotechnical Review Hours	Rate $ 206.00	Admin Technician / Admin Document Production Hours	Rate $ 102.00	Subtotal Hours	Subtotal Labor	Other Direct Costs	Total
1	Project Record Review	26	$ 5,356.00	16	$ 4,400.00	0	$ -	10	$ 2,060.00	16	$ 2,464.00	24	$ 4,944.00	0	$ -	92	$ 19,224.00	$ -	$ 19,224.00
2	STID Document Assessment	12	$ 2,472.00	6	$ 1,650.00	4	$ 1,100.00	4	$ 824.00	16	$ 2,464.00	0	$ -	0	$ -	42	$ 8,510.00	$ -	$ 8,510.00
3	FERC Pre-Inspection Conference Call	2	$ 412.00	2	$ 550.00	0	$ -	0	$ -	4	$ 616.00	0	$ -	0	$ -	8	$ 1,578.00	$ -	$ 1,578.00
4	Part 12D Project Field Inspection	8	$ 1,648.00	4	$ 1,100.00	0	$ -	8	$ 1,648.00	8	$ 1,232.00	0	$ -	0	$ -	28	$ 5,628.00	$ 2,200.00	$ 7,828.00
5	PFMA Analysis & Workshop	28	$ 5,768.00	20	$ 5,500.00	0	$ -	26	$ 5,356.00	46	$ 7,084.00	0	$ -	8	$ 816.00	128	$ 24,524.00	$ 13,700.00	$ 38,224.00
6	Part 12D Report Preparation	20	$ 4,120.00	20	$ 5,500.00	6	$ 1,650.00	10	$ 2,060.00	52	$ 8,008.00	0	$ -	14	$ 1,428.00	122	$ 22,766.00	$ 800.00	$ 23,566.00
	TOTALS:	**96**	**$ 19,776.00**	**68**	**$ 18,700.00**	**10**	**$ 2,750.00**	**58**	**$ 11,948.00**	**142**	**$ 21,868.00**	**24**	**$ 4,944.00**	**22**	**$ 2,244.00**	**420**	**$ 82,230.00**	**$ 16,700.00**	**$ 98,930.00**