

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

April 9, 2021

In reply refer to:
Project No. 5737-CA

Christopher Hakes
Deputy Operating Officer
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

Re: Anderson Dam Tunnel Project – Phase 1 Construction Authorization

Dear Mr. Hakes:

This is in response to your letters dated November 12, 2020, December 18, 2020, February 5, 2021, March 24, 2021, March 26, 2021, and March 31, 2021, that submitted the proposed phased construction and supporting construction documents for the Anderson Dam Tunnel Project (ADTP) for the Anderson Dam Project, FERC No. 5737. The submittals that Commission staff reviewed are listed in Enclosure 1.

You are authorized to proceed with the ADTP Phase 1 construction that includes the following construction items:

Item 1 Site Preparation Activities

- 1a Mobilization
- 1b Staging Areas
- 1c Fencing
- 1d Clearing and Grubbing
- 1e Disposal Area
- 1f Access Roads
- 1g Phase 8 Drilling Program Plan (DPP) – Diversion Outlet Borings (OW-31, OW-32, OW-33, OW-34, OW-35, OW-36, OW-37, OW-38, OW-39, VW-1DP, VW-2DP, IN-1DP, IN2-DP, IN-3DP, and IN4-DP)

NOTE: Borings LS-29, OW-28, OW-29, and OW-30 are included in this DPP, but are NOT authorized as part of this letter as they have been moved

to a subsequent phase of construction and will be considered for authorization at a later time.

Item 2 Tunneling – High Level Outlet Works Drop Shaft

Based upon our review, we have provided comments, listed in Enclosure 2, that must be addressed as soon as possible, but no later than 30 days before the proposed start date of construction Item 1g – Drilling Program Plan (DPP) Phase 8 (downstream of dam) and Item 2 - Tunneling of the High Level Outlet Works Drop Shaft. We do not consider any of the comments in Enclosure 2 to be of such complexity that would preclude Santa Clara Valley Water District (Valley Water) from addressing them in the time allotted. Failure to adequately address our comments at least 30 days before the start of these activities may require a suspension of all work until the comments are addressed.

During construction, Valley Water should submit monthly construction reports, which should address the applicable items listed in Enclosure 3. Within 90 days of completion of construction, a final construction report, which addresses the applicable items in Enclosure 4, should be submitted.

Within 90 days of completion of all ADTP construction, as authorized by this, and subsequent letters, you must file for Commission approval, revised Exhibits A, F, and G, as applicable, to describe and show those project facilities as constructed. If you determine that previously approved exhibits reflect the as-built facilities and no revisions are necessary, you must file a letter stating the approved exhibits reflect the as-built project facilities. To assist Commission staff in the review of any revised Exhibit A, we strongly recommend that you file a revised Exhibit A, **in its entirety**, in two forms:

1. A strikethrough format (*i.e.*, strikethrough items to be removed, and underline or **bold** items to be added to the exhibit), and
2. A final, clean copy incorporating the changes (*i.e.*, without the strikethrough, underline, and bold notations).

You must separate Exhibit F drawings from the other project exhibits, and **label and file them as Critical Energy Infrastructure Information (CEII) material under 18 CFR § 388.113**. The submission should consist of, as applicable: 1) a public portion consisting of a cover letter and the Exhibits A and G; and 2) a CEII portion containing only the Exhibit F drawings.

The Commission strongly encourages electronic filing. Please file the exhibits using the Commission's eFiling system at <http://www.ferc.gov/docs-filing/efiling.asp>. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov, (866) 208-3676 (toll free), or (202) 502-8659 (TTY). In lieu of electronic filing, you may submit a paper copy. Submissions sent via

the U.S. Postal Service must be addressed to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426. Submissions sent via any other carrier must be addressed to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 12225 Wilkins Avenue, Rockville, MD 20852. Your filing must include a cover letter that identifies the project number and the reason for the submittal.

Also, within 90 days of completion of all ADTP construction, Valley Water should submit the following construction certifications, which must be verified in accordance with Title 18, Section 12.13 of the Code of Federal Regulations (18 CFR 12.13):

1. A certification by the Design Engineer that the project was constructed in accordance with the design intent.
2. A certification by the Quality Control Manager that the inspection and testing program resulted in the conclusion that the project was constructed in accordance with the plans and specifications reviewed by the Commission.
3. A certification by the Licensee/Exemptee (Valley Water) that the project was constructed in accordance with the design intent and in accordance with the plans and specifications reviewed by the Commission
Sample certifications are given in Enclosure 5.

If the plans and specifications are revised during the construction process, it is Valley Water's responsibility to ensure that these changes are properly and timely coordinated between the Design Engineer, the Resident Engineer, the Project Manager, the Commission, and you, prior to proceeding with the changes. Also, you are reminded that no changes may be made to the operation or design of the project without first coordinating those proposed changes with the Commission.

Environmental Considerations and Permitting

Through a letter filed with the Commission on April 8, 2021, Valley Water stated that Phase 1 work does not include work in Waters of the United States, Waters of the State, or in steelhead critical habitat. Valley Water provided documentation of consultation on the scope of Phase 1 work with the National Marine Fisheries Service, U. S. Fish and Wildlife Service, California Department of Fish and Wildlife, State Water Resources Control Board, and the San Francisco Water Quality Control Board. These agencies presented no concerns regarding Valley Water proceeding with Phase 1 work. Valley Water is responsible for ensuring completion of all necessary environmental coordination with resource agencies and appropriate entities, such as Santa Clara County Parks, as well as the procurement of any federal, state, or local permits and approvals required for the work.

If a previously undiscovered cultural resource site is discovered during surveys performed ahead of or during Phase 1 work, you should cease all work at the site and immediately contact the Commission, the California State Historic Preservation Officer, and any tribes that may attach religious or cultural significance to the discovered cultural resource to determine what steps need to be taken to evaluate the discovery, pursuant to the requirements of the project's approved Programmatic Agreement and Cultural Resources Work Plan.

Please address all of our comments within the timeframe noted above. We appreciate your continued efforts in this aspect of the Commission's dam safety program. If you have any questions, please contact me at (415) 369-3318.

Sincerely,

A handwritten signature in blue ink that reads "Frank L. Blackett". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Frank L. Blackett, P.E.
Regional Engineer

Enclosures (5)

cc:

Ms. Sharon Tapia, Chief
Division of Safety of Dams
P.O. Box 942836
Sacramento, CA 94236-0001

List of Submitted Project Documents
ADTP Phase 1 Construction
FERC No. 5737

Enclosure 1

Title of Document	Date Submitted
Interim Emergency Response Plan	November 12, 2020
Temporary Construction Emergency Action Plan	December 18, 2020
Construction Potential Failure Mode Analysis, Quality Control Inspection Plan and Surveillance Monitoring Plan	February 5, 2021
Phased DSOD/FERC-D2SI Approval Process	March 24, 2021
Final Version ADTP QCIP	March 26, 2021
Final Version ADTP CSMP	March 26, 2021
Excerpt from FERC Comment Tracking Log	March 26, 2021
Final ADTP Construction Potential Failure Mode Analysis Report	March 31, 2021

General Comments

1. The submittals pertaining to Phase 1 construction contain revisions to select construction documents since the last Board of Consultant's (BOC) No. 13 meeting, which was originally intended to be the FINAL meeting prior to construction. These revised documents have not been officially provided to the BOC per the BOC process for their comment and/or concurrence on the proposed phases of construction, and particularly Phase 1. With all the changes that have been made and will likely be made moving through the different phased approach, a final BOC meeting to review all final design documents would be typical. Due to the urgency of this construction, we are waiving the normal process and requesting that all revisions to construction documents since the last BOC meeting, along with the proposed construction phases, be formally provided as a complete package to the BOC for their review and comment and/or concurrence with Phase 1. This same process will be allowed for each future phase of construction.
2. We understand that SCVWD has emphasized in addenda to the bidding documents, the critical nature of contractor submittals being complete and thorough before being submitted for review. We emphasize the point that these documents must be initially reviewed by SCVWD and the designers for completeness, prior to submitting them for our review, to prevent delays during construction.
3. Prior to starting construction, you must evaluate the possibility of construction being interrupted from the COVID-19 pandemic. This is particularly a concern in the close areas associated with excavating the shaft and future tunneling work. You must explain if construction delays or the absence of key workers (such as field personnel, quality control staff, designers, etc.) could leave the project in a compromised position and, if so, what contingencies will be in place to prevent this from happening. You must provide a written description of these contingencies at least 30 days prior to beginning the shaft construction.
4. Although not all of the comments in the letter are applicable to Phase 1, you must respond to our March 30, 2021 letter providing comments on BOC No. 13 comments.
5. Please submit the "errata" document that has been discussed in our weekly meetings that summarizes the design changes to Phase 1 activities. This is a supplement to the Design Technical Memorandum.

6. As a reminder from our March 30, 2021 letter, please formally submit all the addenda issued to the contractors during the bidding process for our review and comment.

Revised Phase 8 Drilling Program Plan

7. Borehole LS-29, although not one of the borings authorized by this letter, was added to the lake tap borings for environmental testing of lake sediments for PCBs, mercury content, and moisture content. If feasible, consider extending the boring depth for LS-29 to natural ground (indicated as a dashed line on Figure 3-1 in the DPP) to determine the full sediment thickness in the area and confirm the design dredging/excavation.
8. Table 5-1. We note that the referenced ASTM G57 is for the field measurement of soil resistivity using the Wenner four-electrode method. Since it appears that all corrosion testing will be performed in the laboratory, please use the appropriate laboratory test method, which we believe to be ASTM G187 - 12 Standard Test Method for Measurement of Soil Resistivity Using the Two-Electrode Soil Box Method.
9. Although a table of staff assigned to the project is enclosed and numerous resumes are included, the specific field personnel and drillers are not clearly listed that will be on-site performing the drilling. Please identify the precise staff who will be performing the drilling and the logging of the borings.
10. Many of the resumes do not clearly indicate sufficient time and experience with direct field experience for logging and drilling in embankment dams. Supervision and direction of drilling does not explicitly imply direct field experience. Upon designation of the field staff, revise their resumes to clearly indicate they have sufficient time and direct experience of drilling in and around embankment dams.

Quality Control Inspection Plan

11. A.3 Description of Structures and Types of Construction. The QCIP description of the tunneling sequence must be updated to match all modifications to the project, which includes items such as the work starting from the HLOW drop shaft and proceeding to the diversion portal first. Update the QCIP to match the final design.
12. B.3. Table B1: QCIP Staff Duties and Responsibilities. John Roadifer is listed as the Design Engineer with stop-work authority but is not included in the

Organization Chart, Appendix K as having stop-work authority. Please review the QCIP for completeness and revise appropriately.

13. A.3.3 Construction of HLOW Drop Shaft. The size of the HLOW listed here (40 feet) has been reported to have been modified (reduced). Update the QCIP to match the final configuration.
14. D.3.1 Monthly Progress Reports. The report should also include the status of any Non-Conformance Reports (NCR's) and their resolution.
15. D.4 Maintenance of Records. Please grant D2SI-SFRO staff access to the Document Control System in order to assist in our reviews. We will provide the names of selected staff by separate correspondence.
16. F.5 Adequacy of Off-Site Laboratory. Update this when the contractor is selected and has provided their off-site laboratory company.
17. K.1 Organizational Chart. Emmanuel Aryee is included as the Contract Manager with stop-work authority. Mr. Aryee's technical resume should be submitted for our review. The resumes should clearly describe the duration and extent of direct hands-on experience as it relates to their direct responsibilities for overseeing the work assigned to them.
18. Table B-1 QCIP Duties and Responsibilities. We note that the participation by Santa Clara Valley Water District staff is limited to Mr. Aryee. Verify whether this is the case or whether there will be additional participation of the District personnel, particularly those with a technical knowledge of the project during key construction activities and construction inspections. Update the QCIP as appropriate by describing their roles and responsibilities and include their resumes.
19. F.1 Testing Schedule. The testing table is incomplete and does not contain any frequency or quantity of testing. This table appears to be tied to and dependent upon the contractor and the project specifications, which should not be the case since the contractor will be doing the QC. The QCIP testing schedule is intended to demonstrate a detailed list and frequency of independent testing to be performed by or on behalf of the owner that supports the Engineer of Record and SCVWD program to ensure the quality of the constructed project.
20. K.3 QCIP Personnel Resumes. This section provided resumes for some people and companies that were not identified elsewhere in the QCIP. Verify that the

individuals with resumes provided in Section K.3 is part of the QCIP team and if so, Section B of the QCIP should be updated to discuss the titles, duties, and responsibilities of those individuals.

21. All resumes are deficient in showing sufficient detailed technical duration and direct experience of the duties assigned to them as part of the QCIP team. Revise all the resumes to clearly indicate they have adequate direct experience to perform the duties they are assigned.
22. The roles and responsibilities of stop work authority, including who has the authority to stop work based upon work not meeting projects and specifications, is conflicting and confusing. Please clarify all portions of the document regarding who is assigned stop work authority. Detailed technical resumes are required for all with stop work authority.

Construction Surveillance and Monitoring Plan

23. Section 4 Instrumentation Monitoring Program. The program includes several construction activities such as dewatering, blasting, diversion portal/outlet structure, tunnel excavation and initial support, and tunnel shaft excavation and initial support. The instrumentation is not currently reflected on Drawing Sheet C-300, which should be updated. Also, the monitoring program should include the existing outlet works.
24. Section 4.4.3 Threshold/Action Levels. Final threshold and action levels are indicated to be determined when the contractor is on board, in consultation with the contractor. Table 4-3 is the values listed at this point. If these values are modified in consultation with the contractor, the SMP shall be revised and resubmitted to FERC for review. However, it is unclear what role the contractor plays in setting these levels as they should be developed by the designer and Valley Water.
25. Table 4-4: Monitoring Frequency for Tunnel Shaft Excavation. Prior to Construction, two baseline readings, once every 7 days, are planned. Consider doubling the frequency (i.e. double it to twice a week for two weeks) as two readings may not provide enough baseline information.
26. Section 4.5.3 Threshold/Action Levels. We understand that the contractor is expected to develop Action Plans to be executed when the threshold/action levels are met or exceeded. These Action Plans must be submitted to FERC for review and acceptance.

27. Instrumentation data collected as part of the SMP are to be documented in monthly construction reports. Please refer to Enclosure 3 for additional information. We also request that the data be provided informally on a weekly basis via email to Mr. Edgar Salire.

Potential Failure Mode Analysis Report

28. Perform a review of the PFMs with the Contractor and original PFMA team once the contractor has been selected and has assessed the Construction PFMA report. The FERC and DSOD should be invited to participate in this review.

Temporary Construction Emergency Action Plan

29. Identify the location of safety devices and escape routes.
30. Provide the action levels, based on the Construction PFMA, when the plan will be activated and when evacuation will occur.

MONTHLY CONSTRUCTION REPORTS FROM EXEMPTEE

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

We typically inspect project construction on a monthly basis and attempt to time our inspections to coincide with important phases of construction. It would be appreciated if you would notify us in advance of such phases of construction.

The following items should be included in the monthly construction reports. In those cases where there is nothing to report under a specific heading, a statement of non-applicability will suffice.

1. Progress of Work. Provide a brief narrative description of construction activities and related events during the reporting period, report major items of work which reflect overall progress, rather than detailed statistical information.
2. Status of Construction. Describe the status of construction progress, as related to the original schedule and to quantity estimates of items such as: (1) excavation for tunnels, structures, and roadways; (2) embankment, concrete, and other materials placed; (3) installation of machinery and equipment; (4) reservoir clearing; (5) necessary relocations; and (6) installation or construction of recreation, fish, and wildlife facilities. Furnish construction schedules and progress charts. Report the status of construction in terms of percentage of physical completion and percentage of elapsed contract time. Provide an appraisal as to whether the work is proceeding at such a rate as to indicate completion within the specified contract time. If it is likely that the work will not be completed during that period, provide the reasons and a revised completion date.
3. Construction Difficulties. Describe unanticipated construction difficulties which could significantly increase project costs and/or affect job progress such as latent conditions, serious job accidents, floods, labor difficulties, quantity overruns, material shortages, and similar events.
4. Contract Status. Identify the principal contractors and subcontractors that are performing the work. Describe any special expertise or equipment possessed by the contractors.

**Items to be Addressed in Monthly Construction Report for
Anderson Dam Tunnel Project Phase 1 Construction
FERC No. 5737**

Enclosure 3

5. Critical Events and Dates. Report important items and events such as dates of river diversion, start and completion of construction, tunnel closure, initial unit testing, and initial commercial generation for each unit.
6. Reservoir Filling. Prior to filling, provide the anticipated schedule and procedures for filling. During filling, note the date of initiation of reservoir filling, filling progress, and the performance of instrumentation installed to reflect structural conditions as affected by reservoir level, such as weir measurements of seepage and flows from wet spots. Report the date on which the maximum normal reservoir level is attained.
7. Foundations. Report specifically on foundation conditions, foundation preparations, the type of material and the conditions of placement. Include photographs and descriptions of the foundation areas that have been uncovered. Uncovering of foundation areas may reveal faults, cracks, and other conditions which require special treatment. In such cases, comment on the corrective measures used. Include with the construction report copies of any special reports on the foundations or on their treatment. During excavation for major structures such as dams, powerhouses, and tunnels, foundations shall be mapped for record-keeping purposes.
8. Sources of Major Construction Materials. Provide information on the sources from which major construction materials and equipment are being obtained. Include all materials and equipment that may have an important bearing on the safety and efficiency of the project works, such as aggregate cement, hydraulic control equipment, turbines, and generators. A plan drawing of the project area showing the locations of borrow areas and/or quarries shall be included.
9. Materials Testing and Results. Include periodic summaries of tests performed on concrete specimens along with the test results. Field control tests that fail to meet specifications and as a result of which an area was reworked, shall be reported. Tests will be referenced to ASTM or other applicable standards.
10. Instrumentation. When instrumentation of the structures is required, include the schedule for installation and the program for reading the instrumentation during construction. Before filling the reservoir, submit a revised DSSMP (if applicable) that includes a schedule for continued monitoring with the newly-installed instrumentation after the completion of construction.
11. Photographs. At the outset of construction, establish several photographic vantage points from which periodic progress photographs can be taken to document progress. These photographs shall be supplemented by an appropriate number of detailed

**Items to be Addressed in Monthly Construction Report for
Anderson Dam Tunnel Project Phase 1 Construction
FERC No. 5737**

Enclosure 3

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

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

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

FINAL CONSTRUCTION REPORTS FROM EXEMPTEE

The Final Construction Report should be submitted within 90 days of completion of the work. This report should include all information pertinent to dam safety in a concise form. It should be included in the project file and should be given to the independent consultant for his or her safety inspection and analyses, if applicable. As such, the report should contain a summary of information in each of the applicable sections indicated below (the information was previously presented in the monthly reports). Construction difficulties should be reported under the appropriate sections. For conciseness, test results should be presented in a tabular format, with an indication of the applicable standards. Finally, in those cases where there is nothing to report under a specific heading, a statement of non-applicability will suffice.

1. **General.** Briefly present the reason for construction and description of the work with dates of the beginning and end of construction. Include reservoir drawdown and filing dates, and any findings regarding the original structure.
2. **Foundations.** Discuss the condition of the foundation (faults, etc.) and the treatment of the foundation. Attach a foundation mapping.
3. **Embankments.** Describe the equipment and the types of materials used in filters and fills. Attach gradation and compaction requirements and all test results.
4. **Concrete work.** Describe the equipment and the types of materials used in all concrete work. Include all grout test results and describe any surface treatments.
5. **Anchors.** Present a summary of any drilling operations, including boring logs; results of water pressure tests; anchor design calculations, design loads, and specifications; results of grout tests; results of proof and performance tests; and a summary of the acceptance criteria.
6. **Instrumentation.** Present plots of existing instrumentation readings taken during construction if the readings are affected by the work. Include a plan and schedule for calibration of all new instrumentation.
7. **Drawings.** Attach as-built drawings reduced in size to 8.5"x11" or 11"x17". The drawings should include plan and section views, and details of the structures affected by the new work. The plan and section views should show any new instrumentation that was installed as part of the work.

Enclosure 5
CERTIFICATION
By Design Engineer

CERTIFICATION OF CONSTRUCTION PAGE 1 OF 3

FERC Project No. _____

Construction Project Description: _____

Design Drawings/Specifications:

Quality Control and Inspection Program (QCIP) dated: _____

This is a certification by the Design Engineer that the project was constructed in accordance with the design intent.

VERIFICATION

STATE OF CALIFORNIA]

COUNTY OF _____], SS:

The undersigned, being first duly sworn, states that he/she has read the above document and knows the contents of it, and that all of the statements contained in that document are true and correct, to the best of his/her knowledge and belief (per 18CFR Part 12, Paragraph 12.13).

Design Engineer (Print Name)

Signature

[STAMP]

Sworn to and subscribed before me

this _____ day of _____, 20__

NOTARY PUBLIC

[SEAL]

Enclosure 5
CERTIFICATION
By Quality Control Manager

CERTIFICATION OF CONSTRUCTION PAGE 2 OF 3

FERC Project No. _____

Construction Project Description: _____

Design Drawings/Specifications:

Quality Control and Inspection Program (QCIP) dated: _____

This is a certification by the Quality Control Manager that the inspection and testing program resulted in the conclusion that the project was constructed in accordance with the plans and specifications reviewed by the Commission.

VERIFICATION

STATE OF CALIFORNIA]

COUNTY OF _____], SS:

The undersigned, being first duly sworn, states that he/she has read the above document and knows the contents of it, and that all of the statements contained in that document are true and correct, to the best of his/her knowledge and belief (per 18CFR Part 12, Paragraph 12.13).

Quality Control Manager (Print Name)

Signature

[STAMP]

Sworn to and subscribed before me

this _____ day of _____, 20____

NOTARY PUBLIC

[SEAL]

Enclosure 5
CERTIFICATION
By Licensee or Exemptee

CERTIFICATION OF CONSTRUCTION PAGE 3 OF 3

FERC Project No. _____

Construction Project Description: _____

Design Drawings/Specifications:

Quality Control and Inspection Program (QCIP) dated: _____

This is a certification by the Licensee or Exemptee that the project was constructed in accordance with the design intent and in accordance with the plans and specifications reviewed by the Commission.

VERIFICATION

STATE OF CALIFORNIA]

COUNTY OF _____], SS:

The undersigned, being first duly sworn, states that he/she has read the above document and knows the contents of it, and that all of the statements contained in that document are true and correct, to the best of his/her knowledge and belief (per 18CFR Part 12, Paragraph 12.13).

For Licensee or Exemptee (Print Name)

Signature

[STAMP]

Sworn to and subscribed before me

this _____ day of _____, 20__

NOTARY PUBLIC

[SEAL]

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