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U.S. Army Corps of Engineers
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Regulation
No. 1130-2-510

31 July 2022

Project Operation
HYDROELECTRIC POWER OPERATIONS AND MAINTENANCE POLICIES

1. Purpose. This regulation establishes the policies that must be adhered to by each major subordinate command (MSC) with hydropower facilities for hydropower generation data collection and reporting, hydropower operations, maintenance of and investment in U.S. Army Corps of Engineers (USACE) hydropower facilities, Power Review of Operations and Maintenance (PRO&M), and the hydropower craft training program.
2. Applicability. This regulation applies to all USACE commands having responsibility for federal hydropower facilities.
3. Distribution Statement. Approved for public release; distribution is unlimited.



JAMES J. HANDURA
COL, EN
Chief of Staff

*This regulation supersedes ER 1130-2-510, dated 13 December 1996.

SUMMARY of CHANGE

ER 1130-2-510

United States Army Corps of Engineers (USACE)

HYDROELECTRIC POWER OPERATIONS AND MAINTENANCE POLICIES

This administrative revision, dated 24 June 2022—

- Updates the Acting Chief of Staff.
- Adds the supersession statement on footer of signature page.
- Revises formatting as specified by technical editors.
- Revises text as specified in ER 25-30-1. Spelled out terms, added abbreviations in parentheses following the fully defined term if used more than once in the publication.
- Revises text as specified in ER 25-30-1. Used abbreviations when term was previously fully defined in the publication.
- Revises text as specified in ER 25-30-1. Spelled out introductory phrases in parentheticals rather than using abbreviations.

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Chapter 1 Introduction

1-1. Purpose. This regulation establishes the policies that must be adhered to by each major subordinate command (MSC) with hydropower facilities for hydropower generation data collection and reporting, hydropower operations, maintenance of and investment in U.S. Army Corps of Engineers (USACE) hydropower facilities, Power Review of Operations and Maintenance (PRO&M), and the hydropower craft training program.

1-2. Applicability. This regulation applies to all USACE commands having responsibility for federal hydropower facilities.

1-3. Distribution Statement. Approved for public release; distribution is unlimited.

1-4. References.

a. Public Law (PL) 93-275 (Federal Energy Administration Act of 1974), Sec. 13(b), 5(a), 5(b), 5. <https://www.congress.gov/bill/93rd-congress/house-bill/11793/text?r=9&s=1>

b. PL 95-91, Section 302, 95th Congress, (91 Stat. 565), Department of Energy Organization Act, 4 August 1977. <https://www.govinfo.gov/content/pkg/STATUTE-91/pdf/STATUTE-91-Pg565.pdf>

c. PL 102-486 (Energy Policy Act of 1992), Sec. 1015. <https://www.govinfo.gov/content/pkg/STATUTE-106/pdf/STATUTE-106-Pg2776.pdf>

d. PL 116-260, Water Resources Development Act of 2020, 27 December 2020. <https://www.congress.gov/116/plaws/publ260/PLAW-116publ260.pdf>

e. Public Law 534, Section 5, 78th Congress, (58 Stat. 889), Flood Control Act of 1944, 22 December 1944. <https://www.usbr.gov/power/legislation/flcncnra.pdf>

f. Executive Order 13327, Federal Real Property Asset Management. <https://www.govinfo.gov/content/pkg/FR-2004-02-06/pdf/04-2773.pdf>

g. Army Regulation 190-13, Army Physical Security Program. <https://irp.fas.org/doddir/army/ar190-13.pdf>

h. Engineer Regulation (ER) 10-1-53, Roles and Responsibilities, Hydroelectric Design Center. https://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_10-1-53.pdf

i. ER 385-1-31, The Control of Hazardous Energy. https://www.publications.usace.army.mil/portals/76/publications/engineerregulations/er_385-1-31.pdf

- j. ER 500-1-1, Natural Disaster Procedures.
https://www.publications.usace.army.mil/portals/76/publications/engineerregulations/er_500-1-1.pdf
- k. ER 1110-2-1200, Engineering and Design – Plans and Specifications.
https://www.publications.usace.army.mil/portals/76/publications/engineerregulations/er_1110-2-1150.pdf
- l. ER 1130-2-500, Partners and Support (Work Management Policies).
https://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1130-2-500.pdf?ver=2013-09-08-233436-167
- m. ER 1130-2-551, Hydropower Operations and Maintenance Policy Bulk Power System Reliability Compliance Program.
https://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1130-2-551.pdf
- n. ER 1130-2-554, USACE Condition Assessment.
https://www.publications.usace.army.mil/Portals/76/Users/182/86/2486/ER%201130-2-554.pdf?ver=-QW0hSNrmnHJLrWa98G_Eg%3d%3d
- o. Engineer Pamphlet (EP) 1130-2-510, Hydropower Operations and Maintenance Guidance and Procedures.
https://www.publications.usace.army.mil/Portals/76/Publications/EngineerPamphlets//ep_1130-2-510.pdf
- p. EP 1130-2-500, Partners and Support (Work Management Guidance and Procedures).
https://www.publications.usace.army.mil/Portals/76/Publications/EngineerPamphlets/EP_1130-2-500.pdf?ver=2013-08-22-104517-637
- q. EP 1130-2-551, Hydropower Operations and Maintenance Policy Implementation of Bulk Power System Reliability Compliance Program.
https://www.publications.usace.army.mil/Portals/76/Publications/EngineerPamphlets/EP_1130-2-551.pdf
- r. Engineer Manual 385-1-1, Safety and Health Requirements.
https://www.publications.usace.army.mil/portals/76/publications/engineermanuals/em_385-1-1.pdf
- s. North American Electric Reliability Corporation (NERC) Regulation, COM-003-1.
https://www.nerc.com/pa/Stand/Project%2000702%20Operating%20Personnel%20Communications/COM-003-1_White_Paper_May%202012.pdf

1-5. Records Management (Recordkeeping) Requirements. The records management requirement for all record numbers, associated forms, and reports required by this regulation are addressed in the Army Records Retention Schedule-Army (RRS-A). Detailed information for all related record numbers are located in Army Records Information Management System (ARIMS)/RRS-A at <https://www.arims.army.mil>. If any record numbers, forms, and reports are not current, addressed, and/or published correctly in ARIMS/RRS-A, see Department of the Army (DA) Pamphlet 25-403, Guide to Recordkeeping in the Army.

1-6. Responsibilities. Headquarters, U.S. Army Corps of Engineers (HQUSACE) is responsible for the oversight and implementation of this regulation, and the Power Reviews program established in Chapter 5 will serve as the compliance assessment framework. The responsibility for adhering to the policies delineated in this regulation generally resides with the MSC unless otherwise designated.

1-7. Definitions.

a. **Abnormal operations:** Abnormal events are nonemergency situations where operations are outside of normal expectations (for example, beyond certain operating limits) requiring systematic corrective action to avoid personnel injury, damage to plant equipment, and loss of generation.

b. **Corrective maintenance:** The repair of an item which has failed or is about to fail. In a mature maintenance organization, this corrective maintenance work is frequently identified during the performance of preventive maintenance work and corrected before an unplanned failure occurs.

c. **Criticality:** Criticality is used as a measure of the importance of an asset to the delivery of the USACE mission, with the level of criticality being correlated to the degree to which the mission relies on the correct operation of the asset.

d. **Emergency Action Plan (EAP):** The EAP outlines emergency action procedures for each facility. The EAP will be used to coordinate activities with state and local emergency operations centers (EOCs).

e. **Emergency maintenance:** A type of corrective maintenance that is immediately required to mitigate a hazard or ensure reliable operation of the facility.

f. **Emergency operations:** Emergency operating procedures are for the protection of on-site personnel and assets, and must provide specific direction for operating equipment and systems during facility emergencies.

g. **Hydropower facilities:** The power-producing dams of the USACE federal hydropower program that house hydropower generating units.

h. Modernization: The upgrade of major equipment to expand the capacity and extend the lifespan of existing hydropower facilities. Modernization of electrical, mechanical, and civil systems can improve efficiency and generation, increase system and grid reliability, enable new value propositions, and ensure critical infrastructure security.

i. Nonroutine maintenance: Maintenance activities that are expected to be accomplished outside of the annual preventive maintenance budget. The goal of nonroutine maintenance is to avoid excessive preventive maintenance and repairing or replacing components or equipment before it fails in service.

j. Normal operations: Normal operations are when equipment, functions, and systems are performing as prescribed in Standard Operating Procedures (SOPs).

k. Operator aids: Reference materials that aid the operator in making operational decisions and responding to events.

l. Project Maintenance Management Plan (PMMP): The PMMP identifies all assets requiring maintenance at each civil works project and lists maintenance activities for those assets, then defines the level of performance desired for each asset and aligns the maintenance activities and frequency with that level of performance.

m. Predictive maintenance: A type of preventive maintenance that uses a condition-based approach where the equipment is monitored and measured to determine when maintenance is needed. It includes evaluation of equipment history, monitoring, analysis, documentation, and benchmark testing to determine imminent equipment operational degradation and the implementation of appropriate repair/replace evaluation. The goal of predictive maintenance is to avoid excessive maintenance while detecting impending failures and repairing or replacing components or equipment before it fails in service.

n. Preventive/routine maintenance: The systematic care, servicing, inspection, and documentation of condition of assets, facilities, equipment, and components for the purpose of detecting and correcting incipient failures and accomplishing minor corrective maintenance. The frequency of preventive maintenance is generally less than one year, although some major hydropower components may have intervals greater than one year (for example, transformers and turbine runners).

o. Rehabilitation: The process of reestablishing equipment performance decreased by several years of operation through equipment replacement or refurbishment.

p. Three-part communications: Requires three oral exchanges between a sender and a receiver to promote a reliable transfer of information and understanding.

Chapter 2 Hydropower Data Collection and Reporting

2-1. Purpose. This chapter establishes the policy for collecting and reporting USACE hydropower data and statistics to ensure that each project, District, MSC, and Headquarters Hydropower Business Line Manager (BLM) has access to information on the operations, maintenance, and performance of the hydropower facilities.

2-2. Policy. It is USACE policy that the following data be collected and reports prepared and submitted as specified within the requested timeframe.

a. Performance reporting. Each MSC is responsible for ensuring that their Districts and projects having hydropower facilities collect, input, and maintain data on unit status, generation output, and operations and maintenance costs, as required by each appropriate and currently recognized database. Monthly data must be input into the currently recognized database no later than the 6th day of the following month. Reference Chapter 2 of EP 1130-2-510 for guidance on data collection for performance reporting.

(1) Each MSC is responsible for the accuracy and completeness (such as QA/QC) of the data entered into the currently recognized database.

(2) The Headquarters Hydropower BLM will ensure that the currently recognized database is communicated to the MSCs and Districts and is capable of accurately performing any necessary calculations for the required hydropower statistics.

b. Energy Information Administration (EIA) Reporting. Each MSC must ensure that all necessary monthly and annual data and information is collected in order to properly complete all applicable reports for the U.S. Department of Energy (DOE). These forms will be submitted directly to the EIA of the DOE in the appropriate timeframe. Specific guidance for the preparation of these forms is provided on the U.S. Energy Information Administration's website: <https://www.eia.gov/Survey/>, as well as in Chapter 2 of EP 1130-2-510.

c. Capacity Changes. Each MSC Hydropower BLM will inform the Headquarters Hydropower BLM and the applicable Power Marketing Administration (PMA) when a hydropower generating unit's capacity has been increased or decreased, and of installation of new generating units. Each MSC is responsible for ensuring that capacity changes are input into the currently recognized database for each District having hydropower facilities.

d. NERC Reporting. The USACE will support the goals of the North American Electric Reliability Corporation (NERC) and strive to meet its reliability standards. For more information regarding data collection and reporting to NERC/Generating Availability Data System, please reference ER 1130-2-551, Hydropower Operations and Maintenance Policy Bulk Power System Reliability Compliance Program, as well as EP 1130-2-551, Hydropower Operations and Maintenance Policy Implementation of Bulk Power System Reliability Compliance Program.

Chapter 3 Hydropower Operations

3-1. Purpose. This chapter establishes the policy for safe and reliable operations of USACE hydropower facilities.

3-2. Policy. It is USACE policy that each MSC ensure that personnel associated with the hydropower program adhere to the following requirements associated with operating hydropower equipment and systems.

3-3. Operating Procedures. Each facility and control center must have current and readily accessible operating procedures sufficiently detailed so that the required actions can be undertaken without direct supervision. Guidance on operating procedures can be found in Chapter 3 of EP 1130-2-510. Operating Procedures must, at a minimum define the following:

a. Normal Operations. Normal operations are when equipment, functions, and systems are performing as prescribed in SOPs. SOPs include, but may not be limited to:

(1) Operating limits. Operating limits consist of, but may not be limited to, generator capability curves, operating memos, special conditions, design parameters, and maintenance history. Equipment and systems should not be operated outside approved operating limits.

(2) Alarm response procedures. Alarm response procedures identify all inputs that initiate annunciator or trouble alarms and the respective response actions.

(3) Control center and control room operations. The appropriate Commander(s) or assigned designee must establish and document a security plan (site or physical) to control physical access to the control center and control room. The plan must conform to current Critical Infrastructure Protection standards. Guidance on controls and operations duties, as well as control room security guidance, can be found in Chapter 3 of EP 1130-2-510.

(4) Hazardous energy control (HEC) programs. HEC programs must conform to ER 385-1-31, The Control of Hazardous Energy.

(5) Hydropower facility security. For guidance on hydropower facility security, coordinate with the security office at the District level and reference AR 190-13, Army Physical Security Program.

(6) Power plant inspections. Power plant inspections must be performed at a frequency and level of detail sufficient to ensure that the status of equipment is known. Power plant personnel must conduct a thorough inspection of all areas within their responsibility and report and document all deficiencies per facility requirements. Inspection sheets will provide guidance on the extent to which equipment and areas should be inspected, and will assist power plant and operations staff during shift turnover. Inspection sheets must include acceptable parameters to assist the power plant and operations staff in identifying abnormal conditions.

(7) Equipment labeling. Label information must be consistent with the information found in facility procedures, drawings, and other documentation. Labels must be permanently attached and have easy-to-read information. The label should use common names of facility systems and equipment, along with a number designator. Guidance on what should specifically be labeled in hydropower facilities can be found in Chapter 3 of EP 1130-2-510.

b. Emergency Operations.

(1) Emergency operating procedures (EOP) are for the protection of on-site personnel and assets and must provide specific direction for operating equipment and systems during facility emergencies. Mitigation actions for credible emergency conditions, such as fires, flooding, loss of power, security events, atmospheric and environmental events must be in place and coordinated with facility evacuation strategies for the protection of facility personnel.

(2) The EAP is for the protection of the health and safety of the general public. EOPs and the EAP are separate strategies that may or may not coexist. EOPs combat the event up to evacuation. The EAP outlines emergency action procedures for each facility. The EAP must include detection of an event, decision-making, notification, response levels, expected actions, and emergency termination. The EAP must cover events such as earthquakes, fires, floods, and dam failures. The EAP will be used to coordinate activities with state and local EOCs.

c. Abnormal Operations. Abnormal Operating Procedures are a subset of the EOP and may be used as independent guidance should the initiating event not meet the threshold for entry into the EOP. Abnormal events are nonemergency situations where operations are outside of normal expectations (for example, beyond certain operating limits) requiring systematic corrective action to avoid leading to personnel injury, damage to plant equipment, and loss of generation. Abnormal Operating Procedures will be maintained consistent with the guidance prescribed in Chapter 3 of EP 1130-2-510.

d. Spill Prevention Control and Countermeasures Plan (SPCC). The SPCC must include the procedures to prevent and control oil spills from the facility into or upon the waters below or above the dam. It is an external document to coordinate off-site assets.

e. Continuity of Operations Plan (COOP). The COOP must ensure that essential USACE operations and activities are continued in the event of an emergency or threat of an emergency at any USACE facility. The COOP is for catastrophic re-entry and recovery, after evacuation. This requires identifying functions that would have to be performed during and after such an emergency, developing plans to perform these functions, and developing the capability to execute those plans.

3-4. Communications. The following are communications requirements, which must be concise, reliable, and accurate.

a. Real-time alerts. Hydropower facility operations personnel (for example, operators and controllers) will use audio and visual warning devices to alert personnel to abnormal or emergency conditions within the facility. Three-part communications, which requires three oral exchanges between a sender and a receiver to promote a reliable transfer of information and understanding, must be used during switching, emergency situations, and critical operations (defined from NERC COM-003-1). Each facility must have established plans, as defined in the policy section above, that identify response procedures, alternate communication systems or methods, and contact information to address loss or disruptions of the normal communication system.

b. Visitor Safety Orientation. All persons entering the facility must be provided information concerning enumerated warning devices and expected responses.

c. Transmission Operator. Communications with Transmission Operators are critical and require documentation, which must be recorded in the power station operation logs. Three-part communications is required.

d. Shift Turnover. Oncoming operations personnel must review logs, SCADA (supervisory control and data acquisition) displays, alarm displays, disabled alarms, protective devices, and computer pages; and personnel must receive a verbal briefing from the on-duty operator prior to assuming responsibility for the operation of the facility. At a minimum, the following information should be exchanged during a shift turnover: major equipment status, alarm status, work in progress, HEC procedures, abnormal plant conditions, water releases, power schedules, work scheduled, and any other information that could impact operations, security, or safety.

e. PMA/Power Scheduler. Each MSC will establish agreed procedures with each respective PMA/power scheduler on measures for reporting and information exchange. Operations personnel will implement power scheduling instructions and set operating parameters according to the mutually agreed procedures developed by the USACE and each respective PMA/power scheduler. If instructions cannot be met due to current operating constraints (for example, outage), operations personnel must inform the appropriate PMA/power scheduler immediately.

3-5. Operating Log. The following are requirements for the Operating Log.

a. The Operating Log must contain a chronological history of all pertinent communications sent or received, switching done, relay operations, equipment troubles or failures, clearances, and all other relevant events, showing the date and time of each occurrence. The items logged should be concise but sufficiently complete to provide a clear description and history of the hydropower facility operation, insofar as control room operations personnel has jurisdiction. It should include information such as names of the persons communicated with, relay and switch numbers, clearance numbers, and other important data as applicable to the particular hydropower facility.

b. Operating Logs for each USACE hydropower facility will be maintained daily by the operations personnel in charge of each shift and will utilize ENG FORM 2198. Guidance for the preparation of the Operating Logs and this form can be found in Chapter 3 of EP 1130-2-510. Local reproduction of this form and a fillable version is provided on the USACE publications site. Other methods and/or formats that capture the same requirements of this form (documenting, approving, and securely saving an electronic or hardcopy Operating Log) may be used.

c. The Operating Log may be either hardcopy or electronic, as long as it meets the requirements of this section.

d. Each MSC must identify the person or persons having supervisory control over the affected operations personnel to independently review Operating Logs on a regular and recurring basis, and any must be explicitly documented and explained.

e. Operating Logs must be permanent in that they remain unchanged indefinitely after final approval. Operating Logs must be maintained by each MSC, either in an archive at each hydropower facility and/or an electronic repository approved by the MSC for the life of the project.

3-6. Operator Aids. Operator aids are reference materials that aid operations personnel in making operational decisions and responding to events. At a minimum, operator aids must include unit outage schedules, plant single line diagram, plant switching diagram, and generator capability curves. Operator aids must be posted so they do not obscure instruments or controls, be located near the area of their expected use, and supplement approved procedures. Additionally, the person or persons having supervisory control over the affected operations personnel must approve all operator aids, ensure operator aids are current, and review operator aids at least annually to ensure accuracy and necessity.

Chapter 4 Hydropower Equipment Maintenance and Investment

4-1. Purpose. This chapter establishes expectations for the planning, implementation, and reporting on maintenance and investment for all USACE hydropower facilities, in order to maximize their useful life and reduce near-term routine maintenance costs to meet mission requirements.

4-2. Policy. It is USACE policy that the following requirements are met:

a. MSCs must develop and apply guidance to assess and define the importance of each hydropower generating unit (which comprise multiple individual assets) in collaboration with other USACE business lines and their PMAs/customers using the guidance and factors provided in EP 1130-2-510 Chapter 4. Understanding the importance of hydropower generating units allows USACE to prioritize maintenance actions and investments. Enterprise-wide application of common factors facilitates consistency and comparability across the MSCs with respect to communicating the significance of a generating unit failure/outage to the USACE mission.

b. Maintenance for hydropower equipment will be planned consistent with the standard maintenance tasks and frequencies found in Appendix B of EP 1130-2-510. Maintenance frequencies may be adjusted with approval from the MSC Operations Chief or their designee, based on guidance provided by each MSC that reflects an asset's relative importance (reference Chapter 4.2.f of EP 1130-2-510). Although Appendix B in EP 1130-2-510 define standard maintenance tasks and frequencies, specific manufacturer's maintenance manuals and recommendations, equipment condition and history, asset importance, environment, severity of use, and other parameters must be considered when developing maintenance plans and when evaluating maintenance frequency.

c. Unless specific guidance is provided by the respective MSC, maintenance tasks will be completed using industry-accepted best practices, (for example, Facilities Instructions, Standards, and Techniques standards or original equipment manufacturer guidance) and in compliance with safety, health, and other applicable requirements. If the appendixes in EP 1130-2-510 show tasks that do not apply to a specific piece of equipment, follow the guidance provided by the MSC to declare the tasks as nonapplicable.

d. Each MSC will prepare and approve hydropower-specific elements of the PMMP that will:

(1) Define the desired performance of the generating units in collaboration with other USACE business lines and their PMAs/customers using the guidance and factors provided in EP 1130-2-510 Chapter 4. Each MSC will establish performance criteria, and at a minimum, must identify and understand the condition of each asset down to the critical component level, and must be able to articulate how that condition affects the mission-performance ability of the asset and the hydropower facility.

(2) Define, plan, and estimate the maintenance that is required to sustain the desired performance.

(3) Determine the funding needed to support the required maintenance for each asset.

(4) Document basis for deviation from the standard maintenance defined in Appendix B of EP 1130-2-510.

e. Each MSC will update the hydropower-specific elements of the PMMP at least every five years or within one year of changes in equipment or other events that invalidate details in the plan.

f. Each MSC will document, plan, estimate, and prioritize all hydropower maintenance and inspection activities (and associated labor) in the Facilities and Equipment Maintenance System (FEM). For guidance on information input and usage in the FEM, reference EP 1130-2-500, Partners and Support (Work Management Guidance and Procedures).

g. MSCs must assess and document the condition of hydropower assets using hydroAMP. For guidance on hydroAMP and condition assessment frequency, reference Chapter 4 of EP 1130-2-510.

h. MSCs must prioritize (independent of budget constraints) their nonroutine maintenance, rehabilitation, and modernization needs using an appropriate and currently recognized tool based on considering both asset condition and relative generating unit importance.

i. To support an enterprise-wide understanding of all funding needs, each MSC must submit the following information every 12 months to the HQ Hydropower BLM:

(1) A summary of investment strategy and project prioritization process.

(2) A prioritized list of nonroutine maintenance, rehabilitation, and modernization needs, as required by paragraph 4.2.h.

(3) A forecast for funding of nonroutine maintenance, rehabilitation, and modernization projects over the next 10 years. This information should consider the condition assessments, importance of assets, and prioritization determinations enumerated above.

Chapter 5 Power Review of Operations and Maintenance

5-1. Purpose. This chapter establishes the policy for the PRO&M of all USACE hydropower facilities. The PRO&M program is designed to promote continuous improvement through compliance with the requirements established in USACE policy, including ER 1130-2-510 and referenced industry best practices.

5-2. Policy. It is USACE policy that the PRO&M Program review fundamentals of hydropower operations and maintenance (O&M). Items inspected are organized under the four topics of (1) electrical maintenance; (2) mechanical maintenance; (3) operations; and (4) management. The PRO&M Program is not intended to include comprehensive condition assessment. It is also not intended to be a comprehensive safety review, although, safety is addressed to the degree that it is directly applicable to hydropower O&M. The PRO&M Program does not review or approve variances from requirements. It is the policy of USACE that the following requirements are met:

a. Annual Hydroelectric Review (AHR). Each year, except the year of the Comprehensive Hydroelectric Review (CHR), the MSC will direct and conduct a self-assessment of their hydropower facility's O&M program using their own project personnel. For more guidance on the AHR, please reference EP 1130-2-510, Chapter 5. The responsibilities for conducting the review are as follows:

(1) Each MSC will ensure completion of the AHR by each hydropower facility by the end of each fiscal year.

(2) Each MSC will use the data collection tool (for example, check sheets) provided by HQUSACE (or delegate) to assess their own compliance.

(3) At the conclusion of each AHR, each MSC will submit to HQUSACE (or delegate) a summary report of the findings based on compliance with the check sheets, as well as a written status of progress on recommendations from previous CHRs.

b. CHR. Once every six years, HQUSACE (or delegate) will assemble a team of subject matter experts to conduct a detailed, independent review of each hydropower facility's O&M program. For additional guidance on conducting the CHR, reference EP 1130-2-510, Chapter 5. The primary responsibilities for conducting the review are as follows:

(1) HQUSACE (or delegate) will schedule the CHR in coordination with the MSC to accommodate the work scope below.

(2) HQUSACE (or delegate) will assemble a review team selected from outside the District being reviewed.

(3) The MSC will appoint an individual to be the Site Review Coordinator to help facilitate the CHR. No less than 120 days before the on-site CHR, the MSC Operations Chief will transmit the 120-day memorandum to the District Operations Chief in order to initiate the CHR process (a template will be provided by the Review Team Lead).

(4) Sixty days before the CHR, the Review Team Lead will conduct a conference call between the Review Team, the Site Review Coordinator, MSC Hydropower BLM, and other interested parties to discuss on-site visit logistics, review focus areas, and any outstanding items from the 120-day memo.

(5) The Review Team must receive requested drawings and data at least three weeks prior to the site visit to have adequate time to study them.

(6) The Review Team will conduct an in-briefing upon arrival to orient the team and project personnel. A review of the agenda and safety requirements will be discussed at this time. On completion of the on-site review, an exit briefing must be conducted with the project to discuss the preliminary CHR findings. The District Operations Chief, District Hydropower BLM, the MSC Hydropower BLM, and other interested parties will be invited to participate in the briefings.

(7) A formal CHR report must be prepared detailing the findings and recommendations. Review Team participants and HQUSACE (or delegate) will sign the report. All issued reports will be posted at a location defined by HQUSACE (or delegate). A standard report template can be found in EP 1130-2-510. For guidance on CHR recommendations, reference Chapter 5 of EP 1130-2-510.

(a) An initial draft report will be submitted to the MSC Hydropower BLM, District POCs, and the Project for review within 30 days after the end of the review. Review comments are due to the Review Team Lead 14 days after receipt of the report. The Review Team will consider, address, and provide response to all review comments.

(b) A final draft report will be submitted to the MSC, District, and project for review within 75 days after the end of the review. Review comments are due to the Review Team Lead 14 days after receipt of the report. The Review Team will consider, address, and provide response to all review comments. The MSC should be satisfied with the final draft report after the Review Team has addressed all comments. Otherwise, where disputes cannot be resolved at this level, the Headquarters Hydropower BLM will make a determination based on input from the MSC Hydropower BLM and the HQUSACE entity responsible for the PRO&M program.

(c) Final CHR reports will be submitted by the Review Team to HQUSACE (or delegate) within 120 days after the end of the review. HQUSACE (or delegate) will issue the final CHR report to the MSC within 30 days of receipt. The MSC Operations Chief will endorse and distribute the final CHR report to the District.

c. Collective bargaining unit (labor union) agreements must be observed and respected while conducting a PRO&M. Since collective bargaining agreements vary, it is the responsibility of the project management to ensure that all union considerations are addressed. All Review Team participants must abide by local agreements.

Chapter 6 Hydropower Craft Training Program

6-1. Purpose. This chapter establishes the policy for the craft training program for hydropower trainees' advancement to their hydropower facility target positions as enumerated in the USACE power rate schedules.

6-2. Policy. It is USACE policy that the following requirements are met.

a. Training Program: MSCs will utilize a uniform apprenticeship-type training program in order to fill existing and predicted hydropower facility personnel vacancies for facility target positions enumerated in the USACE power rate schedules. The four-year training program will consist of a combination of academics, plant equipment studies, and on-the-job training (OJT). For guidance on the training program, reference EP 1130-2-510, Chapter 6. After successful completion of the training program as prescribed in this regulation a trainee will be eligible to advance to their target position.

b. Oversight: HQUSACE Corps of Engineers Civil Works – Operations and Regulatory (CECW-CO) will be responsible for oversight of the training program. Any deviations from the requirements of this ER will require approval from HQUSACE (CECW-CO).

c. Trainee Agreement: Each trainee will enter into a written agreement with the local appointing authority. The agreement will specify, but not be limited to:

(1) Mobility during and after training for MSC or District wide placement.

(2) Mandatory service after graduating from the program will meet regulation standard (Title 5 USC 4108), otherwise the trainee may be required to reimburse government expenses on pro-rate basis.

(3) Sufficient progress in and successful completion of the training program is a condition of the trainee's employment, as defined in EP 1130-2-510 Chapter 6. If the trainee fails to make satisfactory progress in the program, he or she may be removed from the training program, and from federal service.

d. Records: Each trainee who successfully completes the training program will be presented with a Certificate of Training on DA Form 87 and annotated correctly on the SF50 associated with attaining their target position.

e. Advancement: Each MSC will establish a program that prepares and qualifies the craft individuals at their target positions for advancement within their craft. Individuals will be qualified through an approved evaluation process that covers all subjects outlined in Appendix D of EP 1130-2-510.

f. Craft Change: Individuals who have obtained their target position may submit a written request to the Hydropower Training Committee for a craft change or additional qualification with the approval of their supervisor. If craft change is approved, the training program manager will prepare a training schedule consisting of plant equipment studies, OJTs, and academic studies that will ensure the individual has an opportunity to develop the necessary knowledge and skills by the end of the craft change period. Personnel will also be required to pass all evaluations up to their requested target position as outlined by their developed craft change training schedule.

6-3. Responsibilities.

a. Major Subordinate Command. The MSC Commander is responsible for the overall implementation and management of the program. The MSC Commander may delegate all or part of their duties as appropriate.

b. District. The District Commander is responsible for ensuring the execution of the training program. The Operations Chief will see that the training is imparted as stipulated and will also be an advisor to the District Commander on matters pertaining to the training program.

c. Hydropower Training Committee (HTC). An HTC will be established in writing at the MSC or District level, as determined by the MSC Commander. The HTC will consist of a minimum of three members. The Chairperson and each committee member will be directly involved in, and knowledgeable of, operation and maintenance of hydropower facilities. The HTC will be responsible for:

(1) Reviewing trainees' requests for reduction in training time (with supervisor approval) and forwarding them to the MSC Commander or their designee for approval or denial. Additionally, reviewing and approving course instructions and on-the-job training for trainees granted a reduction in training time.

(2) Evaluating the effectiveness of the hydropower craft training program.

(3) Recommending to the MSC Commander the hydropower facilities to be used as training sites.

(4) Reviewing requests for craft change.

(5) Other training-related duties as assigned.

d. Hydropower Training Program Manager. Hydropower Training Program Managers are a requirement of the craft training program and will be appointed consistent with MSC guidance. The Hydropower Training Program Manager will be responsible for the day-to-day management and administration of the training program. Managers will have been at least a senior level craftsperson or equivalent. If there are no Hydropower Training Program Instructors within the district, then the Hydropower Training Program Manager will also serve as the hydropower training instructor. Complete training and phase evaluation records will be transferred to Human Resources (HR) upon graduation of the program or reassignment and maintained in line with HR requirements.

e. Hydropower Training Program Instructor. Hydropower training program instructors are a requirement of the craft training program and will be appointed consistent with MSC guidance. The instructors, or project personnel acting in this capacity, will be responsible for providing formal instructions to the trainee(s). These instructions are provided in Appendix D of EP 1130-2-510 and does not include OJT. Instructors will have the technical capability to teach the class and be at least a senior level craftsperson or equivalent.