



US Army Corps
of Engineers®



Hydroelectric Design Center Engineer-in-Training Program

A 24 month structured program consisting of education and training assignments in hydroelectric power design and construction.

The program trains entry-level engineers at Corps hydroelectric sites across the nation, for the Hydroelectric Design Center at the U.S. Army Corps of Engineers, Portland District.

Hydroelectric Design Center



CONSTRUCTION OF FORT PECK DAM, MONTANA

Originally established in 1948 to support new hydroelectric development on the Columbia River system, the Hydroelectric Design Center (HDC) is the U.S. Army Corps of Engineers' *National Center of Expertise* for hydroelectric and large pumping plant engineering services.

HDC provides engineering services in the following areas: Power, Major Electrical Equipment, Control Systems, Turbomachinery, Mechanical Systems / Equipment, and Structural Design. We have extensive expertise in power plant rehabilitation programs, testing of major equipment and systems, failure analysis, power plant control, data acquisition and more.

Vision

Leaders in Hydropower Engineering

**Respected For Our Competence
Responsive To Customer Needs
Reliable In Product Delivery**

To pursue this vision, HDC executes a mission that performs engineering and design, maintains expertise, and develops standards for the U.S. Army Corps of Engineers hydroelectric power facilities and large pumping plants.

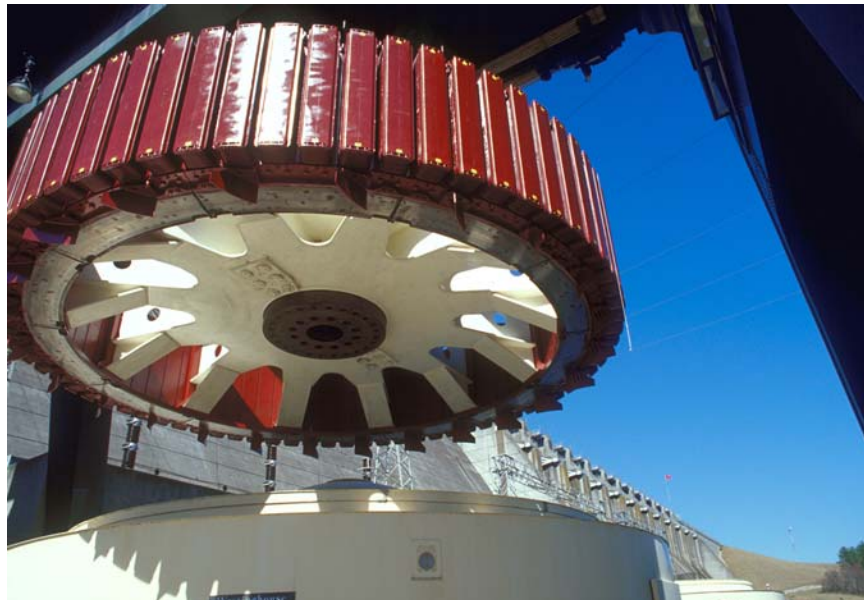
**For more information about HDC:
<https://www.nwp.usace.army.mil/hdc>**



A NEW FRANCIS TURBINE RUNNER INSTALLATION AT J. STROM THURMOND DAM, SOUTH CAROLINA

Goals

- **Deliver quality products and innovative solutions that meet customer requirements and technical standards**
- **Recruit, develop, and retain a workforce to deliver excellence in hydropower engineering**
- **Be a value-added team member through collaboration, coordination, and professionalism**



A ROTOR IS PULLED AT HARTWELL DAM, GEORGIA

Organization



AERIAL VIEW OF BUFORD DAM, GEORGIA

HDC has a staff of about 120 employees and is currently organized into three branches: Electrical, Mechanical/Structural and Product Coordination.

Electrical Branch is sub-divided into five major areas of expertise: Power Systems, Protection Systems, Controls Systems, Generation Equipment, and the Generic Data Acquisition and Controls System (GDACS) Maintenance Team.

Mechanical/Structural Branch is sub-divided into four sections: Turbomachinery, Mechanical Systems, Structural, and Engineering Support.

The Product Coordination Branch manages the work.

Engineer-in-Training Program



**ENGINEERS-IN-TRAINING (EITs) AT ICE HARBOR DAM,
WASHINGTON**

HDC has the responsibility to maintain and develop expertise in hydropower engineering. In order to meet our recruitment and retention needs and continue building engineering expertise, HDC has created a vibrant EIT program.

It's our goal to recruit the best individuals available and provide them with the best training program we can develop. Mechanical and Electrical engineering candidates are considered based on academic achievements, work history and performance, interest in hydropower engineering, attraction to public service work, and other factors relevant to the specifics of a position.

On-the-Job Training

Each EIT is expected to gain knowledge of the organization, processes, work requirements, staff, and customers through on-the-job training. EITs complete a wide variety of rotational assignments and other training, and have the opportunity to work with mechanics, electricians, and senior design engineers.

Each EIT is given the chance to apply engineering concepts and problem solving skills gained in college to real situations in the field or in a design office.

There are three major methods in which an EIT is trained: rotations, briefings and tours, and additional in-house training.



AN EIT EXAMINING AN OLD FRANCIS RUNNER AT COUGAR DAM,

Rotational Training Plan

Each rotational training plan is unique. The goal is to give the EIT an overview of the Corps, allow development of engineering skills through application, gain experience in day-to-day design issues, and become familiar with large hydropower facilities.

Plans are customized and adjusted as necessary for each EIT's engineering discipline and to respond to the organization's workload. A typical EIT rotation plan might consist of the following assignments:

Office	Duration
HDC (Branch Specific to Discipline)	6 weeks
The Dalles or John Day Project	6 weeks
Construction Resident Office	4 weeks
HDC (Branch Specific to Discipline)	6 weeks
Bonneville Project	6 weeks
Willamette Valley Projects	6 weeks
Portland District Design Branch	4 weeks
Military Construction	8 weeks
<i>Other Training (as needed and available)</i>	
HDC—PC Branch	1 weeks
National Electric Code Class (EE only)	1 week
Dam Safety Inspection	1 week
Northwestern Division Tour	1 week
Intern Leadership Development Class	1 week
MicroStation Class	1 week
HDC On-the-Job Training	46 weeks
Total	98 weeks

Learning Objectives

The EIT's primary responsibility during the rotational assignment portion of the program is to learn about the Corps, about HDC, about Portland District and about our projects.

EIT's will also learn more about their own skills, abilities, and interests while in the program. The rotational assignments support this educational experience by focusing on the following objectives:

- Orientation to offices within HDC, Portland District, and other Corps organizations.
- Obtain an overview of the Corps and the District missions and how they are accomplished.
- Obtain initial on-the-job work experience in both an office and a field setting.
- Become familiar with hydropower design issues, processes, projects, and initiatives.
- Orientation to planning processes and environmental operating principles.
- Obtain experience in construction management.
- Become familiar with the operation and maintenance of hydropower projects.
- Obtain an understanding and application of the Corps' Project Management Business Process.
- Obtain an understanding of Corps support to the military and facilities engineering.

Travel

HDC's work is spread throughout the nation, and Corps projects are often in areas located some distance from major cities. As a result, both EIT and permanent positions in HDC require the employee to travel as part of their work assignments. Typically an employee can expect to be in travel status about 25% of the time. Travel related expenses such as airfares, rental cars, lodging and meals are paid for in accordance with applicable government regulations.



PENSTOCKS LIT DURING THE NIGHT AT CHIEF JOSEPH DAM, WASHINGTON

Briefings & Tours



EITs OBSERVING A NAVIGATION LOCK ON THE NORTHWESTERN DIVISION TOUR

In addition to On-the-Job (OJT) and other training, EITs are given the opportunity to participate in a variety of briefings and tours. EITs may participate in a one-week Northwestern Division Tour that visits various project sites throughout the Northwest. It's designed to give a broad overview of the daily duties, responsibilities, and activities of the Corps of Engineers.

Another tour provides an overview of the Corps navigational responsibilities. This tour is conducted at the Corps' Moorings facility and is organized to occur when one of the Corps' dredges is in dry-dock for maintenance. Portland District also often includes HDC EITs in a variety of ½-day to 1-day long briefings that cover various subjects, duties and responsibilities of the Corps of Engineers.

Other Training Opportunities



AN EIT EXAMINES ELECTRICAL BREAKERS AT COUGAR

In addition to the OJT of rotational assignments, HDC EITs are required to complete other training assignments, which may include some or all of the following:

- Civilian Education System (CES) Foundation
- Action Officer Development Course
- Project Management Business Process
- Contracting Officer Representative/Contracting Officer Technical Representative Training
- National Electric Code
- Introduction to MicroStation
- Communication and Leadership Skills
- Resident Management System
- Safety Courses

Evaluations

Each EIT will have many opportunities to have their job performance evaluated. EITs will be given guidance on their role in the evaluation process and advised on the significance of the ratings they receive. EITs will also be asked to evaluate each rotational assignment within the program.

In addition, EITs are given the opportunity to periodically provide management staff with feedback on the program. This allows EITs to advise and encourage their peers, to make suggestions for improving the program, and to identify assignments that have been well received.



**EITs DISCUSS CONDITION IN THE INTAKE TOWER AT COUGAR DAM,
OREGON**

Pay and Promotion



EITs OBSERVE A GOVERNOR CONTROL PANEL AT CHIEF JOSEPH DAM, WASHINGTON

Typically, HDC EITs begin their appointments at the GS-07 pay grade. This requires superior academic achievement with a minimum GPA of 3.0. The minimum time to complete the program is 24 months.

If performance is satisfactory or better, the EIT will be promoted to the GS-09 level after 12 months, and to the GS-11 level at the end of the 24-month program. EITs are paid according to a special salary rate scale for their respective engineering discipline and grade level.

Program Completion

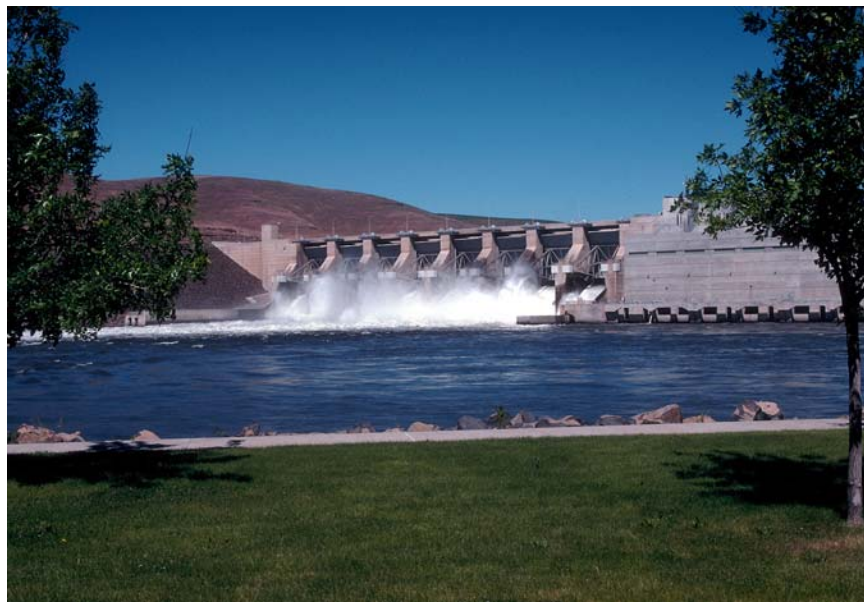
Once an EIT has completed the first 12 months of the program, they are placed in a permanent assignment in HDC. The EIT is assigned projects with a senior engineer as a technical mentor.



THE 480 TON INTAKE GANTRY CRANE AT BONNEVILLE FIRST POWERHOUSE, OREGON

The HDC management team determines where to place an EIT after considering the EIT's goals, interests, and performance in conjunction with the organization's staffing and workload needs.

Hydroelectric Design Center Engineer-in-Training Program



THE SPILLWAY IS OPENED AT LITTLE GOOSE DAM, WASHINGTON

Questions?

Please contact

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**US Army Corps
of Engineers®**

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