

**MEMORANDUM OF AGREEMENT  
BETWEEN  
U.S. ARMY CORPS OF ENGINEERS  
AND  
U.S. DEPARTMENT OF ENERGY  
BONNEVILLE POWER ADMINISTRATION**

**ARTICLE I. PURPOSE**

This Memorandum of Agreement (MOA) is entered into by and between the U.S. Army Corps of Engineers (COE) and the U.S. Department of Energy, Bonneville Power Administration (BPA). The purpose of this MOA is to establish the respective roles and responsibilities of the parties for the passive integrated transponder (PIT) tag program at COE Columbia and Snake River hydroelectric projects. This MOA maintains the formal PIT tag program, which was established by a similar Memorandum of Understanding in June 1996 that expired on June 13, 2001. This MOA is intended to address all design, construction, operations, maintenance, and coordination work necessary for the PIT tag program.

**ARTICLE II. PIT TAG PROGRAM**

The PIT tag program has been an evolving program as the relatively new technology continues to advance. BPA let a research contract in 1983 to National Marine Fisheries Service (NMFS) to develop new methods for identifying and monitoring migrating juvenile salmonids. This research led to the development of the PIT tag and associated monitoring apparatus, which allowed researchers to monitor tagged fish without handling them. Since 1987 PIT tags have been used to tag fish for a variety of BPA and COE monitoring programs and research studies in the Columbia River system. The PIT tags and detection systems have been a vital tool for evaluating COE facilities, juvenile travel time, juvenile transportation programs, overall system survival, and guiding hydrosystem operations.

PIT tag data collected throughout the Columbia River Basin is managed through the Passive Integrated Transponder Tag Information System (PTAGIS) program. PTAGIS was formed to operate and maintain the electronic components of the PIT tag systems and to manage the extensive amount of data being collected. BPA funds this data management by contracting the administration of the PTAGIS program to the Pacific States Marine Fisheries Commission (PSMFC).

Since the development of PIT tags, facilities at COE projects have evolved significantly. Entirely new juvenile transportation facilities and/or juvenile monitoring facilities with PIT tag detectors have been constructed at most of the COE Columbia and Snake River Dams. In 2000, BPA and the COE successfully completed the transition of the PIT tag detection systems within the Columbia basin to the International Standards Organization (ISO) full duplex (FDX) technology that operates at 134.2 kHz. This upgrade significantly improved detection rates, lowered error rates, and extended the detection range thereby allowing further advances in the PIT tag program. COE and BPA are already preparing to install new detection systems on large juvenile bypass pipes and within adult fish ladders.

Adult PIT tag detection has been in operation in the Adult Fish Trap at Lower Granite Dam since 1988. In 1998, two fish flumes at the Bonneville Adult Fish Facility were equipped with a PIT tag detection system. Most recently, a prototype PIT tag detection system has been installed at the Bonneville Dam Washington-shore adult fish ladder in time for the spring 2001 migration. The COE and BPA will continue installing adult PIT detectors in COE Columbia and Snake River Dams during the five-year period of this MOA. The funding responsibilities for these adult facilities are described in Article III, Paragraph 1, New Facility Construction.

Historically in the PIT tag program, the COE has funded the design and construction and/or modification of facility infrastructures, and BPA has funded the development, procurement, and installation of the electronic components for the PIT tag systems. This MOA continues that arrangement for the next 5 years, which will likely include significant growth in the PIT tag program.

### **ARTICLE III. ROLES AND RESPONSIBILITIES**

This MOA is not intended to affect other arrangements between the parties. This MOA shall not be used as a vehicle for authorizing or transferring funds between the parties. If required for a specific activity, a separate formal agreement will be written to transfer funds between the parties.

1. **New Facility Construction.** The COE shall be responsible for designing and constructing new PIT tag facilities authorized and funded through the normal COE appropriation process. The COE will coordinate the scope, function, and design of new facilities with BPA. The COE shall be responsible for designing and constructing the basic fish (juvenile and adult) sampling and PIT tag detection facilities including: all fish passage avenues; holding tanks; water supplies; electrical conduits and power requirements; compressed air; separation gates; heating, ventilation, and air conditioning; a secure room in the sampling facilities for housing PIT tag computer and electronics equipment; and a secure, high-speed data communication link to the internet so long as COE computer security clearance can be obtained. These items will be included in the basic facility, which is designed and constructed with COE funding. COE will also coordinate the design of new PIT tag facilities with regional fishery agencies, Indian tribes, and other interested parties through the COE's Fish Facility Design Review Work Group. BPA shall be responsible for purchasing and installing, with BPA funding, all electronic components and computers required to make the facilities a completely operable PIT tag detection system. In adult PIT tag detection systems, BPA will purchase the antennas and furnish them to COE for installation.

2. **Incorporating New Technology into Existing Facilities.** All funding to incorporate new technology into existing fish sampling (juvenile and adult) or PIT tag detection facilities shall be provided by the MOA party originating the request for the change in the facility, unless otherwise agreed. The originating party will also be responsible for coordinating with regional fishery agencies, tribes, and interested parties as necessary. The PIT tag program has been an evolving program as new techniques, equipment, and facilities have

been developed and incorporated into the program. BPA continues to fund a program to develop new technology for the PIT tag program. New technology may be incorporated into the existing PIT tag facilities as either a prototype test or as a permanent component. BPA will coordinate with regional fishery agencies, tribes, and interested parties as necessary when designing new PIT tag technology.

3. **PIT Tag Facility Operation and Maintenance.** The successful operation and maintenance of a fish monitoring facility with PIT tag detection is a mutual objective of both BPA and COE. BPA and the COE shall work cooperatively in evaluating the operation of PIT tag facilities for determining the required maintenance of the facilities. The COE is responsible for the operation and maintenance of the basic fish sampling facility. The COE responsibility includes all avenues of fish passage within the facility including: flumes, pipes, switch gates, drop gates, rotating gates, holding tanks, water supply systems, underwater components of the PIT tag system, data communication systems, and electrical power systems. These are items that are normally included by the COE in the design of a new facility. The operation and maintenance of the electronic and computer components of the PIT tag systems shall be the responsibility of BPA. These are the components of the PIT tag facilities that are normally funded by BPA.

4. **Regional Coordination.** BPA and COE will continue to jointly chair the Adult PIT Tag Oversight Committee (APTOC). The APTOC was established in 1998 with the charter of planning, reviewing technical issues, and providing guidance during the development, evaluation, and installation of PIT tag interrogation systems for adult salmon transiting fish ladders in the Federal Columbia River Power System. Members of APTOC include representatives from COE, BPA, and the federal, state, and tribal fishery management agencies. Additionally, COE and BPA will continue regional coordination as appropriate through the other existing coordination groups, including but not limited to: Fish Facility Design Review Work Group, System Configuration Team, Fish Passage Operations and Maintenance, and Scientific Review Work Group.

#### **ARTICLE IV. INTERAGENCY COORDINATION**

To provide consistent and effective communications between COE and BPA, each COE District and BPA shall designate a representative for coordinating PIT tag program activities with the other parties. Additional or changes in representatives may be designated by a written notification from one party to the other party of this MOA. COE and BPA representatives shall coordinate all PIT tag program activities under this MOA and shall serve as points of contact between COE and BPA on matters relating to this MOA.


#### **ARTICLE V. EFFECTIVE DATE, AMENDMENT, AND TERMINATION**

This MOA is effective upon the date of the last signature of the parties and shall remain effective for a five-year period from the effective date unless terminated in accordance with terms set forth herein. This MOA may be terminated upon 90 days prior written notice by either party. This MOA may be modified by mutual consent of both

parties. At the end of the period to be covered, the MOA shall be reviewed and a decision made on whether to renew, revise and reissue, or to terminate this MOA.



On a regular basis, or upon request by either party, both parties shall review this MOA to assure that it continues to reflect the appropriate understandings and procedures to provide for current needs and capabilities. This MOA may be modified by written agreement by both parties.

**ACCEPTANCE for the U.S Army Corps of Engineers:**

BY:   
Michael S. White, P. E.  
Director, Civil Works and Management  
Northwestern Division  
U. S. Army Corps of Engineers

July 23, 2001

**ACCEPTANCE for the U.S. Department of Energy, Bonneville Power Administration:**

  
BY:  Date: July 18, 2001  
Alexander B. Smith  
Vice President, Environment, Fish and Wildlife  
U.S. Department of Energy  
Bonneville Power Administration