

UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE
NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY -- NOMINATION FORM
 FOR FEDERAL PROPERTIES

FOR NPS USE ONLY
 RECEIVED **JUL 30 1986**
 DATE ENTERED **AUG 13 1986**

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
 TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC
 FORT PECK DAM
 AND/OR COMMON
 HISTORIC RESOURCES OF FORT PECK

2 LOCATION

STREET & NUMBER
 CITY, TOWN
 FORT PECK
 STATE
 MONTANA

____ NOT FOR PUBLICATION
 CONGRESSIONAL DISTRICT
 SECOND DISTRICT, SCOBLEY

VICINITY OF
 COUNTY
 VALLEY

CODE
 30-0450-105

CODE
 30-105

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE
<input type="checkbox"/> DISTRICT	<input checked="" type="checkbox"/> PUBLIC	<input type="checkbox"/> OCCUPIED	<input type="checkbox"/> AGRICULTURE
<input type="checkbox"/> BUILDING(S)	<input type="checkbox"/> PRIVATE	<input checked="" type="checkbox"/> UNOCCUPIED	<input checked="" type="checkbox"/> COMMERCIAL
<input checked="" type="checkbox"/> STRUCTURE	<input type="checkbox"/> BOTH	<input type="checkbox"/> WORK IN PROGRESS	<input type="checkbox"/> EDUCATIONAL
<input type="checkbox"/> SITE	PUBLIC ACQUISITION	ACCESSIBLE	<input type="checkbox"/> ENTERTAINMENT
<input type="checkbox"/> OBJECT	<input type="checkbox"/> IN PROCESS	<input checked="" type="checkbox"/> YES: RESTRICTED	<input checked="" type="checkbox"/> GOVERNMENT
	<input type="checkbox"/> BEING CONSIDERED	<input checked="" type="checkbox"/> YES: UNRESTRICTED	<input checked="" type="checkbox"/> INDUSTRIAL
		<input type="checkbox"/> NO	<input checked="" type="checkbox"/> TRANSPORTATION
			<input type="checkbox"/> MILITARY
			<input type="checkbox"/> OTHER:

4 AGENCY

REGIONAL HEADQUARTERS: *(If applicable)*
 U. S. ARMY CORPS OF ENGINEERS, OMAHA DISTRICT
 STREET & NUMBER
 6014 U.S.P.O. and COURTHOUSE
 CITY, TOWN
 OMAHA

STATE
 NEBRASKA

____ VICINITY OF

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE,
 REGISTRY OF DEEDS, ETC.
 RECORDER'S OFFICE
 STREET & NUMBER
 VALLEY COUNTY COURTHOUSE
 CITY, TOWN
 GLASGOW

STATE
 MONTANA

6 REPRESENTATION IN EXISTING SURVEYS

TITLE
 CULTURAL RESOURCES SURVEY, GOVERNMENT TOWNSITES STUDY
 DATE
 1 MAY 1980

FEDERAL STATE COUNTY LOCAL

DEPOSITORY FOR
 SURVEY RECORDS
 U. S. ARMY CORPS OF ENGINEERS, OMAHA DISTRICT
 CITY, TOWN
 OMAHA

STATE
 NEBRASKA

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
<input checked="" type="checkbox"/> EXCELLENT	<input type="checkbox"/> DETERIORATED	<input checked="" type="checkbox"/> UNALTERED	<input checked="" type="checkbox"/> ORIGINAL SITE
<input type="checkbox"/> GOOD	<input type="checkbox"/> RUINS	<input type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED DATE _____
<input type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

Fort Peck Dam is the largest hydraulic earthfill dam in the world. It is also one of the oldest. The main embankment of the dam is four (4) miles long and consists of 126 million cubic yards of earth placed across the Missouri River Valley.

The Fort Peck Dam project was started under the Public Works Administration in 1933, but became part of the Pick-Sloan plan in 1944. The Pick-Sloan plan was a merger of two plans, one conceived by the Corps of Engineers and one by the Bureau of Reclamation. The combined plan proposed solutions to flooding, hydroelectric, navigation, and irrigation problems along the Missouri River.

Fort Peck Dam is located approximately 1900 miles upstream of the mouth of the Missouri River. The dam is 250 feet high and has a present power-capacity of 165,000 kilowatts (kW). The lake is 200 miles in length and covers an area of 245,000 acres. The reservoir capacity is approximately 19,400,000 acre feet of water. The drainage area above Fort Peck is about 57,725 square miles. The pool area at maximum operating elevation (2,250 ft. m.s.l.) is 247,000 acres. The pool area at minimum operating pool elevation (2,160 ft. m.s.l.) is 93,000 acres. The length of the shoreline at elevation 2,250 ft. m.s.l. exceeds 1,600 miles.

Fort Peck Lake, from elevations 2,246-2,250, has been allocated for exclusive flood control. Nine hundred thousand acre-feet can be stored in these elevations. Seasonal flood control is allocated for elevations from 2,234-2,246. These elevations will hold about 2,800,000 acre-feet of water.

The production of hydroelectric power at Fort Peck was authorized by the Fort Peck Act, approved 18 May 1938. This act also provides for additional facilities for energy as deemed necessary by market requirements. Fort Peck Dam is now a multi-purpose dam, utilized for flood control, navigation, power, and recreation. The dam was built by using a slurry method for constructing the earthwork.

The top of the dam has an elevation of 2,280.5 ft. m.s.l. The length, including the dike section, is 21,026 feet. The damming height is 220 feet (includes low water to maximum operating pool). The dam is 50 feet wide at the top and 4,900 feet wide at the base. The date of closure was June 24, 1937.

The spillway is located three (3) miles east of the dam. It is a concrete-lined chute with a gated weir. It is designed to discharge 250,000 cubic feet per second. The crest elevation is 2,225 ft. m.s.l. and it is 830 feet wide, including the piers. The gates consist of motor-operated individual hoists and counterweights.

Fort Peck Dam has four tunnels; Number 1 and 2 are power tunnels and are steel lined to adapt for pressures related to hydropower generation. Tunnels 3 and 4 are used for flood control. Three of the tunnels are 24' 8" inside diameter and one is 22' 4" and concrete-lined. Number 1 is 5,386 feet long; Number 4 is 7,262 feet long; the average length is 1 1/4 miles. Each tunnel has a control gate which is 12 feet in length and 28 feet in diameter. The maximum discharge capacity per tunnel at elevation 2,250 and a 9.35 foot opening is 22,500 cubic feet per second.

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Since construction was authorized in 1938, the power plant has had several additions. In 1943, the first unit (35,000 kW) was placed in operation. The second unit, capable of generating 15,000 kW was placed in operation in 1948. A 35,000 kW unit (the third) was placed in operating in December, 1951. A second power plant incorporating Units 4 and 5, each 40,000 kW, was placed in operation in June, 1961. Units 1, 2, and 3 were rewound in 1977-78, increasing the capacity of the first powerhouse by about 20,000 kW.

The powerhouse and dam are presently in very good condition. Normal operation and maintenance activities at the dam and powerhouse include: mowing the grass on the dam, cleaning, painting, drilling bore holes to check the dam movement, rewinding the power plant units, road maintenance, testing and inspecting programs which determine the adequacy and operational availability of hydroelectric machines, equipment, and structures. There is also a comprehensive maintenance and repair program for the powerplant, switchyard, and the associated water control hydraulic structures. New equipment is installed and existing equipment is modified. Plans and specifications are reviewed for compatibility with existing equipment, and contract work is inspected to determine compliance.

The powerplant branch also manages the operation of the powerplant, the switchyard, and the associated water control structures. They monitor the performance of the controllers who operate individual powerplant and switchyard equipment. Operational procedures are analyzed to determine their adequacy and efficiency in meeting power system requirements. The operating and scheduling requirements are coordinated with different branches of the Division and District offices. The operation, maintenance, and repair of the project's communication facilities (radio, powerline carrier, telephone, etc.) are managed by the powerplant branch.

Another group, the Project Maintenance and Construction Branch, provides management, inspection, maintenance, repair, and operation of all activities associated with buildings, public facilities, roads, water treatment and other utilities, land and floating plant, and other miscellaneous equipment, including the townsite at Fort Peck. This branch also assists in the preparation and administration of maintenance and service contracts for work on project lands, vehicles, equipment, and buildings. Periodic inspections are made on: maintenance and service contracts; the main dam embankment, spillways, powerhouses, dam outlet works structure, intake structures, and all appurtenant structures; instruments used to record dam movement, subsurface strata movement, pore pressure, relief well flows, etc. The branch also functions as the construction representative and monitor for all construction which occurs at Fort Peck.

Fort Peck Dam has also attained significance under conservation. Prior to construction of this dam, this area was nearly devoid of wildlife. After the reservoir

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filled with water, the Charles M. Russell National Wildlife Refuge was established around the lake. This one million acre refuge was named after Montana's famous cowboy-artist. It extends 124 miles upriver. As the result of a developed study of food, water, and natural habitat, wildlife abounds throughout the project.

Upland game birds common to the refuge are sage grouse, sharp-tailed grouse, ringnecked pheasant and gray partridge. Canada geese, widgeon, mallards, pintails, gadwall and blue-winged teal prevail. The golden eagle and prairie falcon make their home in the rough areas at Fort Peck, and bald eagles can be seen during the spring and fall migration periods.

Some 45 different species of mammals, have been recorded on the wildlife range including coyote, bobcat, badger, rabbit and porcupine. There are indications that black-footed ferrets are present although no actual sightings have been made.

When the wildlife range was established, whitetailed deer, mule deer, and antelope were the only native big game animals remaining in that area. Since then, elk and bighorn sheep have been introduced. Mule deer exceeds all other big game throughout the range, with whitetailed deer a frequent visitor of the river bottom lands. Antelope prefer the open rolling grasslands, and elk can be found in the timbered breaks. Since their reintroduction, elk have adapted to their ancestral range, but bighorn sheep have responded less favorably. Small exhibition herds of captive buffalo have been established at Fort Peck and Lewistown.

The Fort Peck area is recognized by scientists as one of the most fossiliferous localities known. Between 1907 and 1914 the Fort Peck field was made known to the world through the discoveries of Dr. Barnum Brown, a leading authority on dinosaurs. Dr. Brown's finds in the Fort Peck area include some of the most outstanding fossil discoveries of all time, most of which were assembled at the American Museum of Natural History in New York. The most spectacular included a skeleton of the Tyranosaurus Rex, the flesh-eating king of the dinosaurs. Standing 16 feet high and measuring 47 feet long, this awe-inspiring creature lived in the Fort Peck area millions of years before man appeared. Of nearly equal scientific importance was discovery of the first and only skeleton of the Akylosaurus, the great club-tailed, horned toad of that era, which was 24 feet long, five feet high and seven feet wide.

Although a number of important finds here have been sent to other corners of the nation, four hundred specimens are displayed at the museum in the power plant. Among these items are a horn core of the Triceratops (three horned dinosaur), a fossil egg (with embryo exposed), fossil figs, multi-tuberculate teeth and well known items such as clam, oyster, lobster and other marine types. In the Big Dry Arm of the reservoir, large reptile bones, teeth, turtle shells and bones, fish scales, and similar remains are being uncovered.

8 SIGNIFICANCE

PERIOD		AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW				
<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION		
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input type="checkbox"/> LAW	<input checked="" type="checkbox"/> SCIENCE		
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE		
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN		
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input checked="" type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER		
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input checked="" type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input checked="" type="checkbox"/> TRANSPORTATION		
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input type="checkbox"/> INDUSTRY	<input type="checkbox"/> POLITICS/GOVERNMENT	<input checked="" type="checkbox"/> OTHER (SPECIFY)		
		<input type="checkbox"/> INVENTION			Flood Control Hydroelectric Pow Navigation	

SPECIFIC DATES 1933 (Operational - 1940) BUILDER/ARCHITECT U. S. Army Corps of Engineers

STATEMENT OF SIGNIFICANCE

Fort Peck Dam is significant in many aspects. It is significant (in order of discussion) in terms of exploration and settlement, engineering (flood control, hydroelectric power), transportation (navigation), conservation, and science. Fort Peck Dam is also significant in terms of its size, age, and method of construction, all of which are discussed below.

The name of the dam originated at a trading post owned by Durfee and Peck, which stood on the west bank of the Missouri River about one mile above the present damsite. The fort was built in 1865 by a party of men onboard the steamer Tacony, bound for Fort Benton with a load of merchandise. Low water forced them to abandon their journey a few miles above the Milk River. Undaunted, they unloaded their cargo, built some log buildings, and began trading with the Indians. They also built ice houses, packed ice in the winter, and, the next summer, dispensed free ice water to all the Indians who came to the post. This beverage was very popular and Indians flocked in from all directions to barter at Fort Peck. They came in such numbers that these enterprising traders were hardly able to handle all the business.

This fort was also a convenient steamboat landing for sternwheelers journeying upstream. Although it was not an Army post, the fort served as temporary headquarters for military personnel and Washington delegates who negotiated with the Indians until Custer's demise in 1876. The fort was abandoned in 1879 and gradually eroded into the river.

Construction of the dam began in 1933 when President Roosevelt approved it under the Public Works Administration. Fort Peck Dam is the oldest and largest of the hydraulic earthfill dams in the world.

This dam consists of two porous sand and gravel "shells" embanked against a relatively imperious fine earth core. Gravel toes were placed against the base of the dam to aid in drainage and to prevent sloughing of the lower slopes. The upstream face of the dam is further protected with an earthen berm; an 18 inch blanket of gravel, and is topped by field boulders and quarry stone shipped in by rail.

The method for placing the earthen fill was unique, never tried before this dam was constructed. Four electrically operated suction dredge units were used. Each dredge unit was equipped with a cutter head to cut through the earth, a water booster and two pumps to mix the earth with water, and a land booster mounted on rails to give the final push up to the construction area. A mixture of water and earth (approximately

9 MAJOR BIBLIOGRAPHICAL REFERENCES

MacDonald and Mack Partnership: "Cultural Resources Survey, Government Townsites Study," Report prepared for the Omaha District, Corps of Engineers, 1 May 1980. Published by the Omaha District. Copies available upon request.

Fort Peck Dam and Lake, Montana. Pamphlet, U.S. Army Corps of Engineers, Omaha Dist.

Fort Peck, A Job Well Done, October 1933-August 1977. Commemorative booklet put out by Fort Peck Reunion Committee.

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 500 (approx.)

UTM REFERENCES

A	1,3	39,31,3,0	5,31,7,6,8,5	B	1,3	39,52,7,5	5,31,8,3,3,0
	ZONE	EASTING	NORTHING		ZONE	EASTING	NORTHING
c	1,3	39,57,1,0	5,31,7,9,4,5	D	1,3	39,27,7,5	5,31,6,6,3,0
	ZONE	EASTING	NORTHING		ZONE	EASTING	NORTHING

VERBAL BOUNDARY DESCRIPTION

Along Highway 24 from the West Base bench mark 2281 to the East Base bench mark 2324, proceed northwest to the Observation Point, then southwest to the southeast corner of the trees located in the Downstream Recreation Area (intersection of 2050 contour with Yellowstone Rd.) and back to Point A (West Blue, BM).

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
MONTANA	30-045-105	McCONE	30-055
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE

REBECCA J. OTTO / ARCHEOLOGIST

ORGANIZATION

U. S. ARMY CORPS OF ENGINEERS

DATE

OCTOBER 1984

STREET & NUMBER

6014 U.S.P.O. & COURTHOUSE

TELEPHONE

FTS 864-3070 (402) 221-3070

CITY OR TOWN

OMAHA,

STATE

NEBRASKA

12 CERTIFICATION OF NOMINATION

STATE HISTORIC PRESERVATION OFFICER RECOMMENDATION

YES

NO

NONE

Marella Day 12-18-84
STATE HISTORIC PRESERVATION OFFICER SIGNATURE

In compliance with Executive Order 11593, I hereby nominate this property to the National Register, certifying that the State Historic Preservation Officer has been allowed 90 days in which to present the nomination to the State Review Board and to evaluate its significance. The evaluated level of significance is National State Local.

FEDERAL REPRESENTATIVE SIGNATURE LTC Kit J. Valentine

TITLE Chief, Office of Environmental Overview

DATE

Kit J. Valentine
15 April 1984

FOR NPS USE ONLY	
I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER	
<i>See Continuation sheet for listings</i>	DATE
DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION	DATE
ATTEST:	DATE
KEEPER OF THE NATIONAL REGISTER	

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15% solid) was pumped through 28 inch pipelines to the dam. The pipeline openings were placed on either side of the dam. The heavier material settled down first to force the shell; the fine material floated on into the "core pool" and settled to form the impervious "core" of the dam. Since only 15 percent of the pumped material was solid, it was necessary to pump the water out of the core pool after the solids had settled. The excess water was first returned to the river by cascade-type spillways, and later by suction pumps. At one time, the pipeline extended 6 miles downstream and the material was raised 200 feet above the river bottom.

Nearby dredge material and glacial fill from a borrow pit near the dam were used to complete the top 25 feet of the dam. These two materials were placed on top of the dam and compacted. There is currently an all-weather road across the dam.

Fort Peck Dam and its construction methods have served as a model of design for practically all other major earthfill dams. It was also an achievement in terms of construction management and numbers of workers. At one time during the dam's construction, nearly 10,000 people lived at Fort Peck.

Other qualities which make this dam significant under the "engineering" category include the \$13 million derived in average annual benefits from hydroelectric power, flood control, navigation, water quality, irrigation, recreation, and rentals from the leasing of project lands.

The normal and routine operation maintenance, and construction associated with the dam and/or powerhouse will not, in any way, effect any of the categories of significance listed above.

The Fort Peck Dam has also made significant contributions to the establishment of the Charles M. Russell National Wildlife Refuge. The Fort Peck area is also world-reknown for fossils. These two contributions give the dam significance under the science category.