Form No. 10-306 (Rev. 10-74) PH0690929

DATA SHEET

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 22 1976
DATE ENTERED NOV 23 1977

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

1 NAME

HISTORIC
Orman Dam

AND/OR COMMON
Belle Fourche Dam

LOCATION

STREET & NUMBER
__NOT FOR PUBLICATION

CITY, TOWN
Belle Fourche
X VICINITY OF

CONGRESSIONAL DISTRICT
2nd

STATE
South Dakota 57717

CODE

COUNTY
Butte

CODE

CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
__DISTRICT	X PUBLIC	__OCCUPIED	X AGRICULTURE	__MUSEUM
__BUILDING(S)	__PRIVATE	__UNOCCUPIED	__COMMERCIAL	__PARK
X STRUCTURE	__BOTH	__WORK IN PROGRESS	__EDUCATIONAL	__PRIVATE RESIDENCE
__SITE	**PUBLIC ACQUISITION**	**ACCESSIBLE**	__ENTERTAINMENT	__RELIGIOUS
__OBJECT	__IN PROCESS	__YES: RESTRICTED	__GOVERNMENT	__SCIENTIFIC
	__BEING CONSIDERED	X YES: UNRESTRICTED	__INDUSTRIAL	__TRANSPORTATION
		__NO	__MILITARY	__OTHER:

AGENCY

REGIONAL HEADQUARTERS: *(If applicable)*
Upper Missouri Region, Bureau of Reclamation

STREET & NUMBER

CITY, TOWN
Billings
—— VICINITY OF

STATE
Montana 59103

LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.
Butte County Court House

STREET & NUMBER

CITY, TOWN
Belle Fourche

STATE
South Dakota 57717

6 REPRESENTATION IN EXISTING SURVEYS

TITLE

DATE
__FEDERAL __STATE __COUNTY __LOCAL

DEPOSITORY FOR SURVEY RECORDS

CITY, TOWN

STATE

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
_EXCELLENT	_DETERIORATED	_UNALTERED	XORIGINAL SITE
X_GOOD	_RUINS	XALTERED	_MOVED DATE_____
_FAIR	_UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

Orman Dam (Belle Fourche Dam) is a homogeneous earthfill structure containing about 1,783,000 cubic yards of material. It has a maximum base width of 650 feet, a structural height of 122 feet, and a hydraulic height of 97 feet. The crest of the dam at elevation 2989.75 has a length of 6,262 feet and a width of 19 feet.

The upstream slope of the dam was originally constructed at 2 to 1 slope from the upstream toe of the dam, approximate elevation 2927.0 to elevation 2975.0, and a 1.5 to 1 slope from elevation 2975.0 to the crest of the dam (elevation 2989.75). The entire slope was protected by 8-inch-thick precast concrete slabs 6 feet 6 inches long by 5 feet wide embedded on a layer of gravel.

In 1939 a clay earth and gravel fill was placed over the concrete slabs from the toe of the upstream face of the dam and terminating in a 25-feet-wide berm at elevation 2950.0. The fill in effect changed the 2 to 1 slope to a 3 to 1 slope below elevation 2950.0. The fill material is all protected by a rock riprap cover.

The outlet works consists of two horseshoe-shaped conduits through the base of the dam, one each for the North and the South Canals. Their combined capacity is about 900 c.f.s.

The existing spillway is located on the left (north) abutment of the dam and has a design capacity of 3,100 c.f.s. with the reservoir water surface at elevation 2977.0. The spillway crest structure is a semicircular, reinforced-concrete, uncontrolled overflow weir, 314 feet long at crest elevation 2975.0.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	__COMMUNITY PLANNING	X LANDSCAPE ARCHITECTURE	__RELIGION
__1400-1499	__ARCHEOLOGY-HISTORIC	X CONSERVATION	__LAW	__SCIENCE
__1500-1599	X AGRICULTURE	X ECONOMICS	__LITERATURE	__SCULPTURE
__1600-1699	X ARCHITECTURE	__EDUCATION	__MILITARY	__SOCIAL/HUMANITARIAN
__1700-1799	__ART	X ENGINEERING	__MUSIC	__THEATER
__1800-1899	__COMMERCE	__EXPLORATION/SETTLEMENT	__PHILOSOPHY	__TRANSPORTATION
X 1900-	__COMMUNICATIONS	__INDUSTRY	__POLITICS/GOVERNMENT	__OTHER (SPECIFY)
		__INVENTION		

SPECIFIC DATES 1905-1911 BUILDER/ARCHITECT U.S. Bureau of Reclamation

STATEMENT OF SIGNIFICANCE

The Belle Fourche Irrigation Project, of which Orman Dam (Belle Fourche Dam) is an integral part, was the second project constructed under the Reclamation Act of 1902. Construction of the Belle Fourche Dam began in 1905, completed in 1911, and contemplated on being the largest earthfill dam in the world. The primary purpose of its construction was to provide conservation and storage of water for agricultural irrigation purposes downstream along Belle Fourche River and its tributaries.

The contract for the Belle Fourche Dam was awarded in November 1905 to Orman and Crook, railroad contractors of Pueblo, Colorado, for a bid of $1,003,299.25. Work began on March 26, 1906, with a completion date set for December 1910. With the dam 25 percent completed, Orman and Crook experienced financial difficulties and the firm declared bankruptcy on January 18, 1908. A bonding company became involved and negotiated with a new contractor, Hayes Brothers Company of Janesville, Wisconsin. The contract with the bonding company was approved by the Chief Engineer on April 21, 1908, and work on the dam was resumed. Orman Dam, when completed, contained 1,783,000 cubic yards of homogeneous compacted earth.

A narrow gage railroad track system, which was loaded by steam shovel, was used to transport the material from borrow areas to the dam. As many as 500 railroad cars, having a capacity of about 2 cubic yards each, were transported in a single day from the borrow areas to the dam. As the dam embankment progressed, the track system was relaid and a new area built up.

The borrow areas were located on the north and south ends of the dam and also in the impoundment area. The areas on the north and south ends of the dam are clearly visible today. In addition to the railroad system, wagons drawn by horses were also used to haul material onto the embankment. Elevating graders, which were drawn by as many as 16 horses, were used to load the wagons. The embankment material was unloaded and spread in 6-inch layers with four-horse fresnos and two-horse slips. When the material was too dry for proper compaction it was watered until the proper compaction could be attained.

The concrete slabs covering the upstream face of the dam were cast about 5 miles from the dam site and were transported to the site by another narrow gage railway system especially constructed for this purpose. An 11-car train loaded with four slabs per car made up the load for each trip from the place of casting to the dam site.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

10 GEOGRAPHICAL DATA 125

ACREAGE OF NOMINATED PROPERTY 145 acres

UTM REFERENCES

	ZONE	EASTING	NORTHING
A	13	605460	4954920
B	13	604655	4953080
C	13	604475	4953160
D	13	605100	4955080

VERBAL BOUNDARY DESCRIPTION

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

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE

Raymond A. Ninke

ORGANIZATION — DATE

United States Bureau of Reclamation

STREET & NUMBER — TELEPHONE

P. O. Box 825 — 605-352-8651 extension 263

CITY OR TOWN — STATE

Huron, South Dakota 57350

12 CERTIFICATION OF NOMINATION

STATE HISTORIC PRESERVATION OFFICER RECOMMENDATION

YES___ NO___ NONE___

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, X State ___ Local.

FEDERAL REPRESENTATIVE SIGNATURE

TITLE SHPO / Cult Pres Director — DATE June 2, 1976

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

Robert B. Rating — DATE 11/23/77

~~DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION~~ KEEPER OF THE NATIONAL REGISTER

ATTEST: Charles Adams — DATE 11-18-77

~~KEEPER OF THE NATIONAL REGISTER~~

Curtis Bobbes 2/28/77

Form No. 10-300a
(Rev. 10-74)

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Since the original placement of the concrete slabs, displacement of some of the slabs has occurred virtually every year, with major damage occurring once every 8 years. In 1931, as many as 366 of the slabs were displaced at one time, along with the occurrence of a slide in the dam embankment. In 1939, rehabilitation measures were undertaken. This consisted of a clay earth and gravel fill being placed over the concrete slabs of the upstream face of the dam, terminating in a 25-feet-wide berm at elevation 2950. The fill material is protected by a rock riprap cover.

Irrigation of lands to be served by water stored in the reservoir formed by Orman Dam began in 1908 with the irrigation of the first block of about 12,000 acres of land. Total gross crop value of crops grown on the project from 1908 through 1974 has exceeded $111,500,000.

Through the irrigation of lands with water from the reservoir formed by Orman Dam, the area has experienced a rather stable agricultural economy since 1908, compared to dryland areas. This was especially evident during the "Dust Bowl" days of the 1930's. Irrigation has changed approximately 54,000 acres of land from a predominantly grazing type during pre-1908 to an intensified cultivated hay and grain crop type of agriculture.