




PUBLIC UTILITY DISTRICT
OF GRANT COUNTY
PRIEST RAPIDS DEVELOPMENT
DATE 7-9-56 PHOTO NO



Smothers
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PUD

History of Priest Rapids

By: Glenn Smothers, Manager
Public Utility District of Grant County

The dream of harnessing the Columbia River at Priest Rapids is not new. Almost half a century ago the Corps of Engineers mentioned Priest Rapids as a possible site for a dam. Throughout the following years a number of plans for a development at Priest Rapids were suggested by irrigation companies, private electric utilities and by individuals.

Mention of Priest Rapids as a possible dam site was made again by the Corps of Engineers in the 308 report in 1934. In 1945 the Corps of Engineers carried on core drillings and other investigations at the site for the possible construction of a high dam.

The possibility of constructing a dam at Priest Rapids was discussed on numerous occasions in 1950 in informal meetings of the Grant County Public Utility District Commissioners F. Wm. Arlt, William Schempp and George Schuster, District Manager Glenn Smothers, District Engineer Robert Ries, Attorney Nat Washington and others. On November 17, 1950 the District obtained copies of the American Power and Light Company's plans for a power dam at Priest Rapids. These plans had been prepared years before, but had been shelved during the depression.

However, before taking any definite action the Commissioners wanted to be sure the people of the county would back them in such an unprecedented undertaking. This question was answered on April 17, 1951, when representatives of the Grant County Chamber of Commerce appeared before the Commissioners and asked the Public Utility District of Grant County to consider the

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construction of a dam on Priest Rapids, approximately 60 miles south of Ephrata on the southern boundary of Grant County.

For several years the PUD officials had been considering some means of assuring a future power supply for the District. The District was (and still is) purchasing its electrical energy from the Bonneville Power Administration. The development of the Columbia Basin Project was increasing the District's electric load at a rapid rate.

The demand for power in the Pacific Northwest was outrunning sources of supply and it was predicted that by 1962 a serious shortage would exist unless new power generating facilities were started. It was obvious that if the PUD was to insure an adequate supply of power for future population growth and industrial development in Grant County, it would have to develop its own source of power. With the support of the Grant County Chamber of Commerce the District officials began a more serious study of the proposition.

In May of 1952 the PUD officials consulted with the Army Engineers and found that the Corps of Engineers had no plans for constructing the project in the near future. Also, during May 1952, the PUD started proceedings for the construction of Priest Rapids Dam, adopted a Plan and System Resolution for the Project and started condemnation proceedings on the reservoir and Priest Rapids Dam site.

During the next three and one-half years the PUD engaged the Harza Engineering Company of Chicago to do the necessary engineering work to complete a feasibility study of the Priest Rapids Project. Also in the pre-

liminary work, the PUD officials contacted private and public power agencies and enlisted their support, with the result that the District was able to go back to Congress and present a united front of all the people in the Northwest in favor of federal legislation to permit the construction of the dam by a local utility. There was no adverse testimony before any of the government committees nor any unfavorable report from any of the federal agencies. The legislation passed the House by a unanimous vote and by practically a unanimous vote in the Senate.

The District conferred with the Atomic Energy Commission, Fish and Wildlife Service and other agencies that might be affected by the project, and worked on many other phases and a multiplicity of details in preparation for construction of the dam.

Studies and investigations led to the conclusion it would be more feasible to build two low dams, one at Priest Rapids and another (Wanapum) about 18 miles upstream, rather than one high dam at Priest Rapids, which was originally considered.

On November 4, 1955 a license was granted the Public Utility District of Grant County to build the Priest Rapids Project. The license specified that construction was to start on Priest Rapids in July 1956 and on Wanapum two years later.

Financing of construction of the dam was to be done by issuing revenue bonds payable from the sale of power. No tax money or appropriations were to be used.

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Twelve public and private Northwest electric utilities in May, 1956 signed power contracts with the Grant County PUD for the purchase of a percentage of power from Priest Rapids, and for an option for the same percentage of power from Wanapum. In these power purchase contracts the purchasers also agreed to be responsible for the same percentage of the annual cost of the dam. Under the allocation, Oregon, Idaho and Montana received 35 per cent, Washington utilities 28.5 per cent and the PUD reserved 36.5 per cent of the power for its own use. The dam will have 630,000 kw initial installed capacity.

Bids were opened for construction of the dam on March 12, 1956 with Merritt-Chapman & Scott of New York submitting the low bid of \$91,878,625 as prime contractor. Kaiser Engineers were second low at \$93,128,004. Three other bids were received, ranging up to a top bid of \$108,889,162.

A bid was accepted on June 19, 1956 from a syndicate of bond underwriters for the purchase of the revenue bonds to finance the Priest Rapids Dam. The bonds were signed and actual delivery of the documents was made on July 9, 1956.

The 49-year \$166,000,000 revenue bond issue was purchased by a syndicate of more than 200 bond underwriters headed by Halsey, Stuart & Co., John Nuveen & Co., B. J. Van Ingen & Co. and Blythe and Co. The effective interest rate is 3.989 per cent. The public offering price is \$990 for each \$1,000 bond, and the syndicate purchase price is \$962. The issue is said to

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be the largest of its kind ever offered in the Northwest and one of the largest ever offered in the United States.

Actual construction of Priest Rapids Dam got under way in July of this year.

An interesting sidelight in the preparations for the dam were the negotiations with the Wanapum Indians, who for many centuries have lived along the banks of the Columbia. These River People, as they call themselves, had for many years camped at Priest Rapids and maintained burial grounds near there.

Numbering more than 3,000 at the time of the Lewis and Clark expedition, the tribe has shrunk until today less than a dozen survive. They are unique among Indian tribes in that they have never fought the whites - so never signed a treaty with the government. Consequently they do not live on reservations or receive any allotments.

The Grant County PUD recognizing its moral obligations to the Wanapums, is going to protect their ancient burial grounds, move as many as possible of their ancient writings from the dam site to a new location, and set aside another location for the Wanapum's Long House which is used for their religious rites and tribal feasts. Also, a Wanapum Indian will be employed during construction of the Priest Rapids Dam to make sure that his tribe's relics are preserved. The Wanapums were very fair in their attitude toward the building of the dam. They said that while they regretted having to move their ancient meeting place they realized that progress was inevitable,

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and they would not attempt in any way to halt construction of the dam.

In appreciation of the cooperation of Puck Hyah Toot, leader of the Indians and his tribe, the upper dam has been named Wanapum.

Jenkins
PUD
9-7-56

EPHRATA ---"The interests of the people of Grant county could have been better served if the plaintiff had first discussed with the PUD Commissioners their reasons for reaching their decision in the matter of turbines for the Priest Rapids dam," said George Schuster, Grant County PUD Commissioner, in commenting on the lawsuit filed by E. C. Olander. The lawsuit questions the right of the Grant County PUD to substitute Allis-Chalmers turbines in place of those manufactured by English Electric Co. Ltd.

"If all the factors had been known to the plaintiff I feel sure he would have agreed that the Commission, in deciding to substitute turbines, had acted in the best interests of the people of Grant County, and he would not have filed the suit," Schuster said.

"We are not, as has been claimed, trying to force any foreign manufacturer to withdraw from competition on the project. English Electric is still supplying some \$13,500,000 of generators and transformers for Priest Rapids. However, English Electric had not had experience in building turbines of the size called for in the contract documents. The largest turbines previously built by them had a diameter of 189 inches, while Priest Rapids turbines are to be 280 inches in diameter. Allis-Chalmers has had experience in manufacturing turbines of 292 inches in diameter," Schuster said.

"It was erroneously reported in one publication that the generators were a part of the lawsuit," Schuster said. "The generators are not in question,

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and I wish to repeat that English Electric is supplying the generators and transformers to be used in the Priest Rapids dam. "

"The recommendations of many different people and organizations, including the Power Purchasers of the Priest Rapids Development, were considered before the decisions was reached. These Power Purchasers, many of whom have had a great deal of experience in building large electric generating facilities, have individually and through the Advisory Council requested the District to exercise its option to use Allis-Chalmers turbines," Schuster said. "Our decision was made only after long consideration of the many problems involved, and the action of the Commission was completely legal and within its administrative discretion. "

Jenkins
PUD
9-24-56

EPHRATA -- The Grant County PUD commissioners have decided to use English Electric Co. turbines in the Priest Rapids dam and not to proceed with their option to substitute Allis-Chalmers turbines, George Schuster, PUD commissioner, announced today.

Schuster said the action was taken not because of any doubt as to the adequacy of the District's legal position in regard to the Olander lawsuit, but to save possible delay in completing the dam. (On September 4, E. C. Olander, a Grant county taxpayer, filed a lawsuit asking that the District be restrained from substituting Allis-Chalmers turbines for the English Electric turbines included in the original bid submitted by Merritt-Chapman & Scott, contractors who are building the dam.)

The PUD commissioner said Merritt-Chapman & Scott were unwilling to proceed with the procurement and installation of Allis-Chalmers turbines until a final determination had been made of the pending lawsuit, but were willing to proceed at once with the procurement and installation of the turbines called for in the original bid.

Schuster said there seemed to be a general agreement among all parties concerned that it would take six months or more to complete the lawsuit. This in turn would mean that work couldn't be done on the dam during the low water season and would result in a full year's delay.

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Interest on the project bonds amounts to about \$6,000,000 a year, and the value of the power lost amounts to approximately \$14,000,000 a year. Also, a serious power shortage exists in the Pacific Northwest, and any delay in acquiring the use of Priest Rapids power would be costly to everyone. In view of these facts, the commissioners felt they couldn't afford to continue to be involved in litigation, Schuster said.

"We have at all times recognized that English Electric is a responsible firm and capable of producing good equipment," Schuster said. "In fact, English Electric has had the contract for supplying the generators and transformers from the time the Merritt-Chapman & Scott contract was signed."

October 25, 1956

RETAIL SALES TO GAIN FROM
PRIEST RAPIDS EMPLOYMENT

The employment of from 4,000 to 5,000 workers at the peak of construction on the Priest Rapids and Wanapum dams will create \$17 million annually in retail sales for the Pacific Northwest, according to Axel E. Strom, Director of Utilization for the Public Utility District of Grant County.

"Every city in the Pacific Northwest has contributed to the thinking and planning of the Priest Rapids Project, and the dams will benefit not only Grant County but the entire area," he said. Strom said the location of the Priest Rapids dam is unique in that it is almost equi-distant from six major communities and cities, and that all will share in the benefits of the employment.

The distance from Ephrata to the Priest Rapids dam is 58 miles; Ellensburg 50 miles; Moses Lake 63 miles; Quincy 45 miles; Othello 56 miles and Yakima 60 miles.

Strom broke down the estimated annual expenditure by workers as follows: Food, \$5,000,000; General Merchandise, \$250,000, Furniture, Household Goods, Radio, TV, \$750,000; Automotive, \$2,150,000; Drugs, \$500,000 and other merchandise \$8,350,000.

Construction started on the Priest Rapids dam, located 24 miles below Vantage, in July, 1956. The contract calls for completion of the dam within 1,900 days from start of construction, with a substantial bonus offered for earlier completion.

The contractor estimates that 500 men will be on the job by November 1. This force will start to build up in March and by the end of July, 2,000 men will be employed.

Construction of the Wanapum dam, approximately the same size as Priest Rapids, located some 18 miles upstream, is expected to begin about two years after the start of Priest Rapids.

The Priest Rapids dam will be 8,412 feet long with a maximum height of 178 feet (14 stories) from the deepest excavation to the top of the spillway, with a 79-foot head. The dam will include a gated concrete spillway, an integral powerhouse, earthfill embankments extending to high ground on each abutment, upstream migratory fish passages, and provisions for future navigation locks.

Strom said the low-cost electrical energy created by the Priest Rapids and Wanapum dams undoubtedly will attract industries not only to Grant County but to adjacent areas as well. "This will make a more balanced economy for the entire area," he said.

"The planning for the building of the Priest Rapids Project has been a long but very interesting job," Strom said. "We of the Grant County PUD are very grateful for the fine support we have received from every city in the Pacific Northwest.

Jenkins
PUD
10-26-56

EPHRATA -- More than 100 Indian pictures and carvings on rocks on Whale Island, just above the Priest Rapids Dam, have been photographed by employees of the Public Utility District. Three Wanapum Indians located the rocks for the photographer.

Many of the smaller picture rocks will be moved by the Public Utility District to a location above the water line of the reservoir and will be preserved for posterity. The larger rocks, including some that weigh many tons, will be left on the island and will be covered by the water behind the Priest Rapids Dam. However, photographs have been taken so that the pictures may be studied by archeologists and others interested in ancient writings and customs.

One picture rock, regarded as especially sacred by the Wanapums, will be moved and placed over the grave of Puck Hyah Toot, religious leader of the Wanapums, who died September 11, 1956. Puck Hyah Toot is buried in the ancient burial grounds on the west side of the river. The cemetery is located above the reservoir water line, and the PUD has fenced the grounds against encroachment by curiosity seekers.

The entire project of moving and photographing the picture rocks was worked out in detail in conferences between the PUD and Puck Hyah Toot and members of his band. The Wanapum Indians have frequently expressed their gratitude toward the Grant County Public

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Utility District for the care and thought the District has given in protecting and preserving the record of their picture rocks, it was said.

The four surviving Wanapums say they do not know the significance of the rock writings and pictures, nor do they know how long the pictures have existed. Apparently, say the Wanapums, the pictures have existed for many centuries, but the story of when they were created and by whom has been lost in antiquity. Scientists, so far, have been unable to decipher the meanings of the pictures.

A repeated theme in many of the pictures is sunbursts, deer, bear paws and men. Also, many rocks have deep notches along the edges. A number of these notches are half circles about an inch wide and half an inch deep along the edges of the rocks.

Many of the pictures are carved in shallow grooves, much like those that would be made by fingers in soft mud. But these pictures are all on solid rock, and the surviving Wanapums claim they do not know what tools were used in the carvings.

One particularly modern-looking carving is of several deer in a row with a hunter with a bow and arrow shooting at them. Another perfectly preserved picture is the six-inch figure of a deer carved in a shallow recess on a rock.

Jenkins
PUD
10-29-56

EPHRATA ---The "Hardhats" are arriving at Priest Rapids dam, now under construction for the Grant County Public Utility District, on the Columbia River 60 miles south of Ephrata. Approximately 500 men are on the job now and the number is expected to grow to 2,000 by July, 1957.

Veteran construction workers are coming in from Point Barrow, Venezuela, Turkey, Iran, Alaska and the Arctic - lean, tough, wiry men with a lifetime of experience behind them. They are the men who helped set up the Dew Line radar stations, sweltered in the heat of Saudi Arabia, drilled oil wells in South America, bored the Great Northern tunnel through the Cascades, flung bridges across the marshes of Louisiana, built the New Jersey turnpike, drove tunnels under the Hudson, built huge airbases in remote corners of the world, and created factories in rural areas.

Names like Grand Coulee, Chief Joseph, Hungry Horse and Shasta call forth an immediate flood of reminiscences. Mention almost any construction job in the world and somebody will speak up and say, "I was there in '42. Do you remember the time Shorty swiped the superintendent's car and piled it up at the bottom of the first curve below camp?" Or "Do you remember what a time we had trying to place the steel on that bridge when it was below zero and the wind was blowing right out of the north?"

The "Hardhats" laugh now at the sand, flies and 130 degree heat on some desert jobs in foreign countries. They chuckle as they recall some of the situations they got into while building the Alcan highway.

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Their "construction telegraph" is a marvel. Let some humorous incident occur on a job, especially involving a well-known worker, and within three weeks the story is being told on jobs all over the world.

They follow men, as well as jobs. The moment they hear that "Pat" is going to be superintendent on some part of the work many of his former workers start drifting out to the job. The highest tribute they can pay a superintendent is a quiet, "He's a good man. He knows his job."

The "Hardhats" can spot a phony immediately. Mention a braggart or ignorant boss and they will say, "He's a triple-distilled gold-plated so-and-so who couldn't build a sand castle on a beach." You can't bluff on construction work. You're surrounded by competent workmen, and you either produce - or else! The "Hardhats" take pride in their work, and they have no patience with anyone who doesn't.

Nothing stumps a "Hardhat." Give a welder and a steelworker a place to stand and enough material and they'll build a bridge to the moon. A concrete worker would put a dam across the Bering Sea (yes, that's been talked about) if the job called for it. A shovel operator working with a 90-foot boom can pick up your hat, or load a 15-cu-yd truck and hardly spill a handful of dirt. Give him time, and he would tackle the job of filling the Grand Canyon or leveling the Rockies.

As former dams have proven, the Columbia river is no placid creek to work on. In June of 1956 more than 550,000 cubic feet of water roared past Priest Rapids every second. That's 4,125,000 gallons of water

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per second, or 247,500,000 gallons a minute -- enough in ONE MINUTE to supply 1-1/2 gallons of water for every man, woman and child in the United States.

The "Hardhats" are building a cofferdam to shove the river over to one side. They will build a part of the dam, then another part, and then divert the water through low blocks and build the rest of the dam. An almost incidental phase of the job is throwing a 1,700-foot construction bridge across the racing waters.

Who's Who on the job? Glenn Smothers, a man with a lifetime of experience in the electric power business, is manager of the Grant County Public Utility District, for whom the dam is being built. R. R. Ries, quiet, soft-spoken electrical engineer with 16 year's experience, is chief engineer for the Grant County PUD.

C. K. Willey, vice president of Harza Engineering Co., who are consulting engineers for the PUD, is a graduate of jobs all over the United States, Southern Europe, India and Hawaii. R. B. Jackson, resident engineer for Harza, has built railroad bridges in Europe, served 18 months in the Arctic, and built roads, bridges, dams and tunnels in the United States. Bert Hall, assistant resident engineer, was drafted out of retirement after a lifetime of work on construction jobs in Europe and on dams in the United States, including 19 years at Grand Coulee. Hall was busy making reservations for a vacation trip to Europe when the lure of "just one more job" pulled him back to work.

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Add "Hardhats"

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Jenkins

in charge of

William Denny, Executive Vice President of M.C+S, Construction Department

R. J. Jenks, a veteran of construction jobs in South America and

the United States, is project manager for Merritt-Chapman & Scott, contractors on the dam. Russell Hoffman, a true all-around construction engineer with experience in Australia, Nova Scotia, Alaska and other countries, is general superintendent.

These are but a few of the top men. Their background and experience is typical of the men handling the various phases of the work. And they are backed by a crew of "Hardhats" who have yet to see a job they couldn't lick.

Jenkins
PUD
11-29-56

EPHRATA -- If you ever had to wait at a railroad crossing while a 100-car freight train rumbled by you probably swore you were delayed ten minutes. Yet, if the train was traveling 30 miles an hour it actually took only 99 seconds to pass the crossing.

However, you would be delayed 49 minutes if you had to wait on a train long enough to haul the 757,000 barrels of cement that will be used in the construction of the Priest Rapids dam, now being built for the Public Utility District of Grant County by Merritt-Chapman & Scott under a \$91,880,625 contract. To haul the cement for the dam would require a train of 3,028 hopper cars, each carrying 250 barrels, making a train 24.7 miles long. Traveling at 30 miles an hour it would require 49 minutes to pass a given point.

The Priest Rapids dam, located 24 miles below Vantage on the Columbia River, might not be as tall as some dams, but some of the required amounts of construction materials are spectacular. The dam will be 8,412 feet long -- long enough to moor eight Forrestal-type airplane carriers end to end along its crest. Of this length, 2,427 feet will be concrete and 5,985 feet earthen embankment.

The maximum height of the dam will be 178 feet from deepest point of excavation, equal to the height of a 14-story building. The dam will have a head of approximately 79 feet.

Here's some more figures: the 909,500 cubic yards of concrete

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required for the dam are enough to build a 4-foot sidewalk, 4 inches thick, 3,488 miles long -- or clear across the United States with a generous measure left over.

A man with a wheelbarrow would have a long job ahead if he attempted to move the 3,239,000 cubic yards of excavation required for the dam. If giant 16-cubic-yard trucks, each 30 feet long, were used to haul the excavated material it would require 202,438 trucks, bumper to bumper, in a line 1,150 miles long. It would require almost as many trucks, 194,063, in a line 1,103 miles long to haul in the 3,105,000 cubic yards of fill material. Just think what would happen if all the truck drivers decided to stop at the same hamburger stand at the same time!

Approximately 3,730,000 square feet of forms will be used, enough to cover 85-1/2 acres, or if you want to use them another way you could build a fence 6 feet high and 122 miles long. Slightly more than 9-1/2 acres of curved forms (427,000 square feet) will be built.