



Northern Pacific Railway Company.
Engineering Department Records.

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N. P. 1757
6-24

OFFICE OF

Chief Engineer

FILE NO.

8731-6

SUBJECT:

Grand Coulee Dam

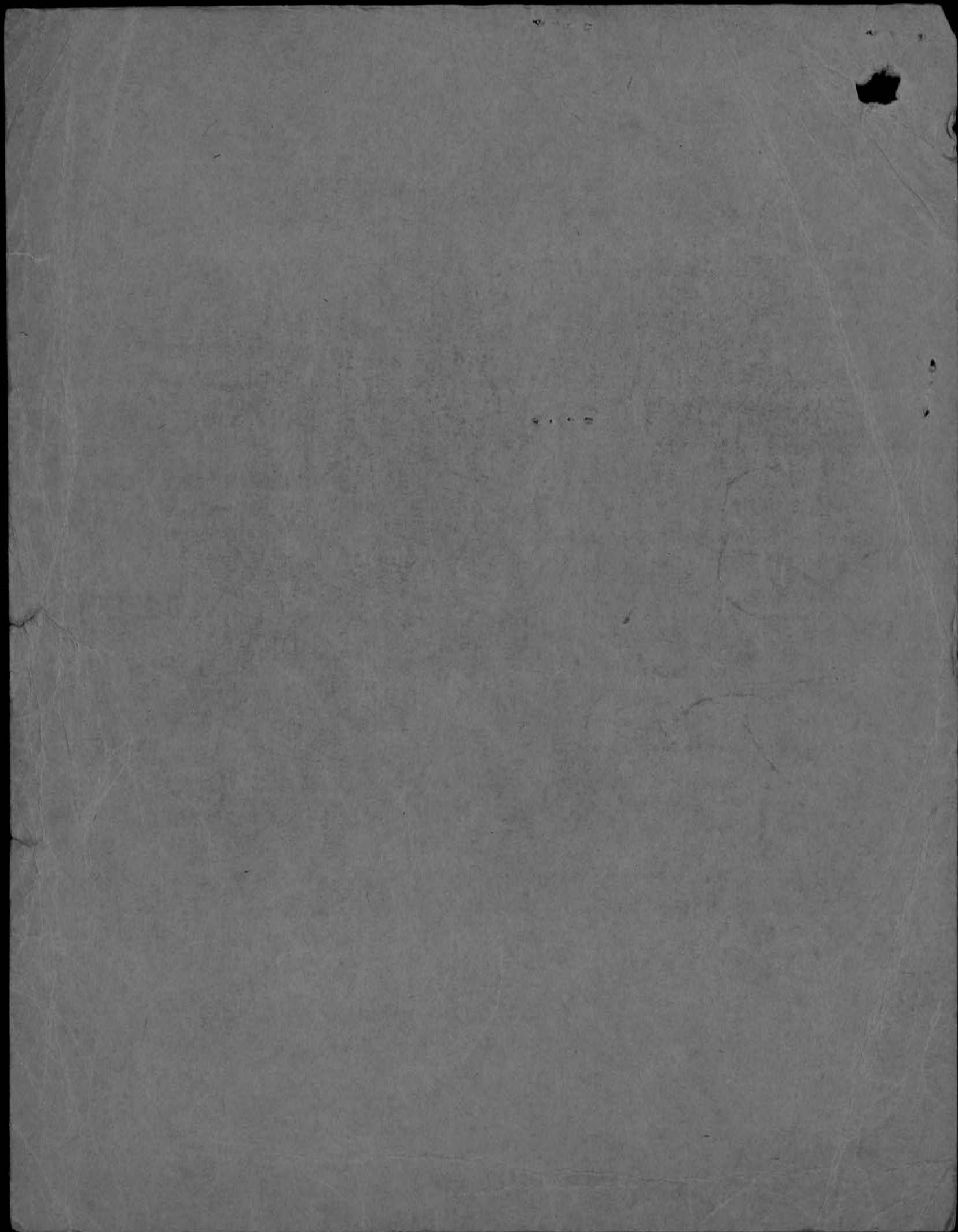
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Closed

8731

6



Saint Paul, April 19, 1946

MR. H. E. STEVENS:

Your verbal request for valuation of the track material which we loaned to the Reclamation Service for the Government railroad between Odair and Grand Coulee Dam:

I have had Mr. Willis furnish prices for the present value of the material which still remains in the Government's hands. They have rail for 34.8 miles of track.

The total valuation f o b Odair, at secondhand prices, is \$161,363.

ob/s

St. Paul, Minn., April 19, 1946

Desk 3 - File 222-5M

Mr. B. Blum:

Referring to your letter of April 16, 1946, regarding material belonging to N. P. Ry. Co. and loaned to the Bureau of Reclamation for construction of the railroad from Odair to Coulee Dam.

The prices for material are as indicated in the following list:

366,256	L.F.	3/90# rail	4932.46 ⁶¹	\$28.00	G.T.	132108.88
186	"	3/85# "	2356 ⁵	\$28.00	G.T.	65.80
1,316	"	3/72# "	14.18	\$28.00	G.T.	377.04
12,190	Prs.	90# angle bars	676545 ²	1.85	cwt.	12516.02
10	"	85# " "	490 ²	1.85	cwt.	9.07
72	"	72# " "	3232 ²	1.85	cwt.	59.79
5,834	Pcs.	7x9 - 90# tie plates	5087 ²	1.50	cwt.	713.02
16,000	"	6x8 1/2 90# "	102800 ²	1.50	cwt.	1632.00
658	"	7 1/2 x 10 - 3/4 "	7185 ²	1.50	"	115.22
5,342	"	New lundie "	60738 ²	1.50	"	911.07
879	"	72# tie plates	5432 ²	1.50	"	81.42
5	-	#9 S.R. 90# frogs		149.61	ea.	748.05
1	-	#9 Rigid 90# "		118.59	"	118.59
6	-	#11 S.H. 90# "		159.88	"	959.28
1	-	#7 Rigid 11'2" - 85# frog		104.50	"	104.50
18	-	Split switches 90# 16 1/2'		161.91	"	2914.32
1	-	" switch 85# 15'		130.21	"	130.21
10	-	Guard rails 90# 8 1/4'		46.36	Set	463.60
8	-	" " 90# plan T-15-3		46.36	Set	370.88
1	-	" " 85# 8 1/4'		48.55	"	48.55
1	-	" " Clamp		3.56	EA.	3.56
20	-	Base plates for guard rail		1.19	Ea.	23.80
10	-	Comp. joints 85-90#		9.79	ea.	97.90
11	-	H.B. switch stands		31.11	"	342.21
9	-	Economy " "		18171	"	167.29
16	-	Connecting rods		3.78	"	60.48
2	-	Non-insl. tie rods		2.56	"	5.12
10	-	Sw. lamps		8.33	"	83.30
10	-	" locks		6.06	Doz.	5.06
720	-	Pcs. 90# track bolts	1606 ²	3.50	Cwt.	56.20

All f.o.b Odair, Wn., all based on S.H.

WCN:mh

E. M. Williams

7161363.62



Statement of Material Leased to the
U.S. Government without rental at Coulee Dam
not accounted for as of April 15, 1946

366,256	L.F.	3/90#	rail	4480.9171	G.T.
186	"	3/85#	"	2.3527	"
1,516	"	3/72#	"	14.1	"
12,190	Pcs.	90#	angle bars	656,789#	
10	"	85#	"	490#	
72	"	72#	"	2,592#	
5,834	pcs.	7x9 - 90#	tie plates	50,872#	
16,000	"	6x8 1/2 - 90#	"		
658	"	7 1/2 x 10 - 3/4	"		
5,342	"	New lundie	"		
879	"	72#	tie plates		
5	-	#9 S.R.	90# frogs		
1		#9 Rigid	90# "		
6		#11 S.R.	90# "		
1		Rigid 11'2"	- 85# frog		
13		Split switches	90# 16 1/2'		
1		"	switch 85# 15'		
10		guard rails	90# 8 1/2'		
8		"	" 90# plain T-15-3		
1		"	" 85# 8 1/2'		
1		"	" clamp		
20		Base plates	for guard rail		
10		Comp. joints	85-90#		
11		H.B. switch stands			
9		Economy	"		
16		Connecting rods			
2		Non-insl. tie rods			
10		Sw. lamps			
10		"	locks		
720		Pcs.	90# track bolts		

8731

St. Paul, Minn., April 16, 1946.

Mr. E. M. Willis:

Attached is statement listing material belonging to the Northern Pacific which we loaned to the Bureau of Reclamation for construction of the railroad from Odair to Coulee Dam. It is desired that this material be appraised at current prices; by this I mean what you would sell the material at Odair.

The material is all second hand, and I think that we can classify the rail as relay rail. I know it is in good condition although not up to our classification of second class that we would put back into our main track.

You will notice that there are listed 5342 pieces of new Lundie tie plates. These plates ^{had} not been used, and we would use them only in places where second hand plates are normally used. The reason for this is that the lundie plates proved improper in design for main track use.

BB/gtg
enc.


 R. Blum:

Attached statement of material leased
to U S Govt. for Coulee Dam railroad:

The Valuation according to the Auditor's
statement is \$107,917.35. Presume you intend to
get the valuation based on current prices.

Cost of NP survey for railroad to Grand
Coulee Dam incurred from Aug. 1933 to Aug. 1934
totalled \$11,960.57. This amount was charged off
to Profit-Loss in Dec. 1934, Auditor's Voucher
1236 J.

T. R. G.
4/15/46

 Mr. Blum:

Attached statement of material leased to
U S Govt. for Coulee Dam railroad:

The Valuation according to the Auditor's
statement is \$107,917.35. Presume you intend to
get the valuation based on current prices.

- T R G
4/15/46

acct. left.

Statement of Material Leased to the
U.S. Government without rental at Coulee Dam
not accounted for as of April 15, 1946

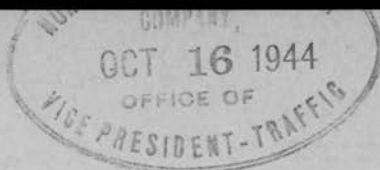
366,256	L.F.	3/90# rail	4480.9171	G.T.
186	"	3/85# "	2.3527	"
1,316	"	3/72# "	14.1	"
12,190	Pcs.	90# angle bars	656,789#	
10	"	85# " "	490#	
72	"	72# " "	2,592#	
5,834	pcs.	7x9 - 90# tie plates	50,872#	
16,000	"	6x8 1/2 - 90# " "		
658	"	7 1/2 x 10 - 3/4 " "		
5,342	"	New lundie " "		
879	"	72# tie plates		
5	-	#9 S.R. 90# frogs		
1		#9 Rigid 90# "		
6		#11 S.R. 90# "		
1		Rigid 11'2" - 85# frog		
18		Split switches 90# 16 1/2'		
1		" switch 85# 15'		
10		guard rails 90# 8 1/4'		
8		" " 90# plain T-15-3		
1		" " 85# 8 1/4'		
1		" " clamp		
20		Base plates for guard rail		
10		Comp. joints 85-90#		
11		H.B. switch stands		
9		Economy " "		
16		Connecting rods		
2		Non-insl. tie rods		
10		Sw. lamps		
10		" locks		
720		Pcs. 90# track bolts		

Statement of Material Leased to the
U.S. Government without rental at Coulee Dam
not accounted for as of April 15, 1946

366,256 L.F.	3/90# rail	4480.9171 G.T.
186 "	3/85# "	2.3527 "
1,316 "	3/72# "	14.1 "
12,190 Pcs.	90# angle bars	656,789#
10 "	85# " "	490#
72 "	72# " "	2,592#
5,834 pcs.	7x9 - 90# tie plates	50,872#
16,000 "	6x8 1/2 - 90# " "	
658 "	7 1/2 x 10 - 3/4 " "	
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1	" switch 85# 15'	
10	guard rails 90# 8 1/2'	
8	" " 90# plain T-15-3	
1	" " 85# 8 1/2'	
1	" " clamp	
20	Base plates for guard rail	
10	Comp. joints 85-90#	
11	H.B. switch stands	
9	Economy " "	
16	Connecting rods	
2	Non-insl. tie rods	
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10	" locks	
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Statement of Material Leased to the
U.S. Government without rental at Coulee Dam
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12,190	Pcs.	90#	angle bars	656,789#	
10	"	85#	" "	490#	
72	"	72#	" "	2,592#	
5,834	pcs.	7x9 -	90# tie plates	50,872#	
16,000	"	6x8 1/2 -	90# " "		
658	"	7 1/2 x 10 - 3/4	" "		
5,342	"	New lundie	" "		
879	"	72#	tie plates		
5	-	#9 S.R.	90# frogs		
7		#9 Rigid	90# "		
6		#11 S.R.	90# "		
1		Rigid 11'2"	- 85# frog		
18		Split switches	90# 16 1/2'		
1		" switch	85# 15'		
10		guard rails	90# 8 1/2'		
8		" "	90# plain T-15-3		
1		" "	85# 8 1/2'		
1		" "	clamp		
20		Base plates	for guard rail		
10		Comp. joints	85-90#		
11		H.B. switch	stands		
9		Economy	" "		
16		Connecting	rods		
2		Non-insl. tie	rods		
10		Sw. lamps			
10		" locks			
720		Pcs. 90#	track bolts		



8731 ✓

Spokane, Washington
October 10, 1944

Mr. Bernard Blum:

For your file on the Lincoln Lumber Company production, Coulee Dam Lake, I hand you herewith clipping from the Spokane Chronicle of October 6. You will note the Great Northern constructed a four-mile spur and that they have a large loading dock on piling.

HMT-b
encl

~~Mr. Stevens~~
~~Mr. Clark~~
To note
19 B.B.
13

Robert
10/12
10/12
M. J. [signature]

J. J. [signature]
District Engineer

NOTED

H. E. S.

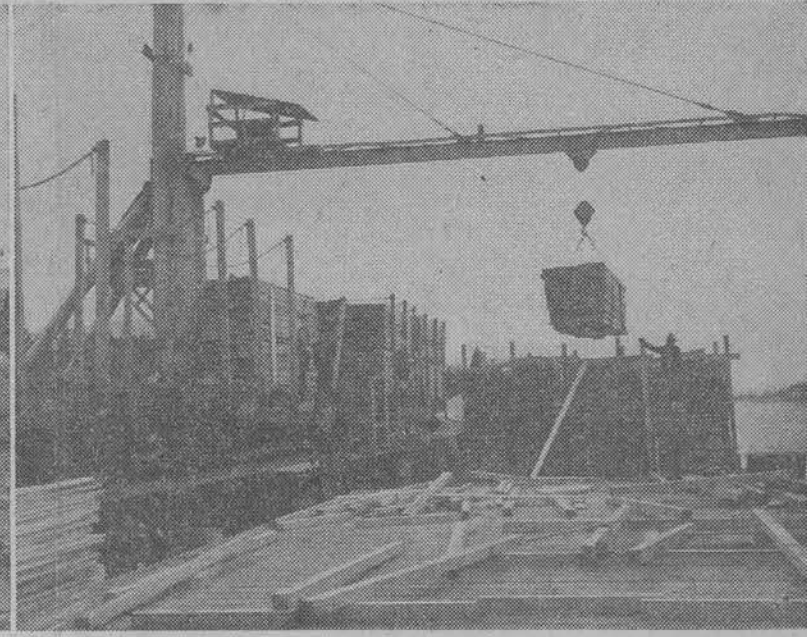
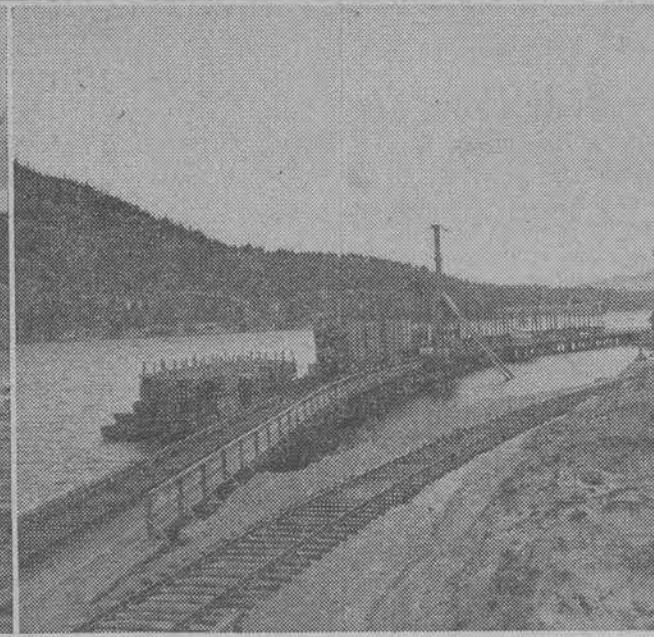
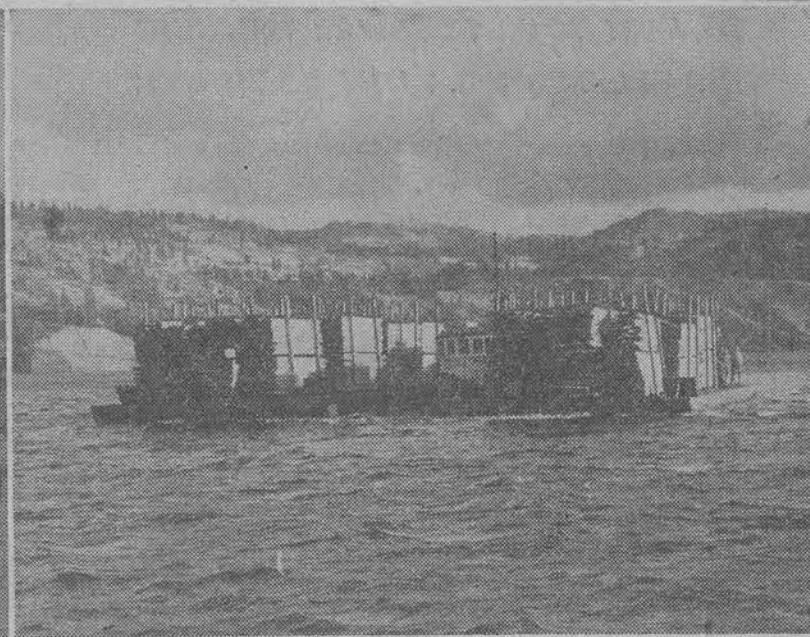
L. S.

E. L. L.

R. D. V.

100

OCT 14 1941



NEW WATER ROUTE A new chapter in Inland Empire transportation — steamboating of lumber 60 miles from Lincoln to Kettle Falls on the backwaters of Grand Coulee dam—is being written this fall. The small home town of the Lincoln Lumber company in Lincoln county now is an established railhead. Although the finished product travels about 160 miles to the Spokane mill of

the Western Pine Manufacturing company, the airline distance is only 48 miles. The lumber company has been delivering its output to Spokane by truck and the water haul will permit the company to use its fleet of trucks wholly in logging operations. The hoist-loader is shown at the left placing a three-ton "bite" of lumber on a barge. The second picture shows the steamer Scolaskin, named for an old-time Colville Indian medicine man,

"at sea" with two barges loaded with about 240,000 feet of lumber. The port of Kettle Falls (third picture) consists of long Great Northern tracks on pilings. The G. N. ran a spur four miles to the river near Kettle Falls. Unloading operation is shown at the right. Albert B. Lafferty of the Lafferty Transportation company, Coeur d'Alene, who spent about \$50,000 in preparing for the water haul, applied two years ago

for a certificate of necessity for barge and passenger service on the lake. Last winter he built three barges, the Chief Moses, Chief Barnaby and Chief Joseph, near the old Detillion bridge on the Spokane river. Maitland Wilkins is captain and Carl Searls is engineer of the steam tug Scolaskin. Searls served 36 years on towboats on Coeur d'Alene lake and the St. Joe river. (Photos by Charles L. Sheely, Chronicle staff photographer.)

8731

Saint Paul, April 28, 1944

MR. H. H. TREMAINE:

Thank you for the clipping about repair work at the foot of Coulee Dam:

The power set-up to which you call attention was explained to me last winter by Mr. Banks when we were attending the suit of the Railway vs the Department of the Interior on cement haul.

He stated that the purpose of the additional storage was primarily to serve the Bonneville dam, and that was the immediate requirement at this time.

bb/s

Spokane, Washington
April 25, 1944

Mr. Bernard Blum:

Herewith a clipping from the Spokane Chronicle of April 24, telling something further of the Reclamation plans for the repairing of the bucket at the foot of the Grand Coulee Dam.

It is interesting to note the data on the power setup. This is the reason, of course, for the desire to have additional storage in the upper regions such as Albeni Falls and the Hungry Horse Projects.

HMT-b
encl

J. W. [Signature]
District Engineer

APR 17 1944
U.S. ENGINEER
OFFICE

EROSION AT DAM TO BE REPAIRED

Erosion in the "bucket" at the foot of Grand Coulee dam is not as severe as was indicated following a first investigation last year, A. F. Darland, construction engineer for the reclamation bureau at the dam, told the Chamber of Commerce Columbia basin committee today.

Darland outlined plans under way for the construction of a steel caisson, which will be sunk on the front face of the dam to permit the making of repairs. He predicted no further serious damage will result in the bucket area for many years after the repairs now planned are completed.

Grand Coulee dam now has 10 generators in operation, which have a total rated capacity of 818,000 kilowatts, but which have an actual output under war conditions of 960,000 kilowatts.

Output Enormous.

The power output, Darland said, in five days at the dam is equal to the annual consumption of power in Spokane before the war. The dam is producing about a third of all the power used in the Pacific northwest, and has a greater output than Boulder dam.

Darland said the river flow last winter was the second lowest on record, with a low of about 30,000 second feet flowing in the Columbia. The lake back of the dam was drawn down about 30 feet to provide added water for Bonneville dam. Very little of the draw-down water was required for the Grand Coulee generators. Darland said the bureau had demonstrated that even in very low water years, the stream flow is sufficient to keep nine main generators operating throughout the year.

The dam now has six main generators of 108,000 k. w. rated capacity, but which are producing more than 120,000 k. w. each; two Shasta generators, rated at 75,000 k. w., and two 10,000 k. w. service generators.

8731

Saint Paul, April 20, 1944

MR. H. E. STEVENS:

Herewith clipping from the SPOKESMAN REVIEW of April 9 covering the establishment by the Great Northern of a barge line on the lake behind Coulee Dam which permits the haul of lumber and logs from the Lincoln Lumber mill to Great Northern trackage at Kettle Falls.

This is a situation which we anticipated several years ago.

bb/s

att.

Spokane, Washington
April 11, 1944

Mr. Bernard Blum:

Herewith clipping from the Spokesman-Review of Sunday, April 9, telling of the establishment by the Great Northern of a rail barge line on the lake behind Grand Coulee Dam; that the G.N. would establish a spur track at Kettle Falls and tow logs and lumber to and from the Lincoln Lumber Company below. The Lafferty Transportation Company, who apparently are going to do the towing, handle all such matters on Lake Coeur d'Alene - a very good outfit and very good friends of ours.

J. T. Derrig
District Engineer

HMT-b
c Mr. J. T. Derrig
encl



THE
OFFICE
OF THE
SECRETARY
OF THE
NAVY
WASHINGTON
D. C.
20340

1. The Secretary of the Navy has the honor to acknowledge the receipt of your letter of the 1st instant, in relation to the matter mentioned therein.

2. The Bureau is at present unable to furnish the information requested, as the same is not available at this time.

3. The Bureau is, however, endeavoring to obtain the same as soon as possible, and will advise you when it is received.

4. Very respectfully,
Yours,
[Signature]

Very respectfully,
Yours,
[Signature]

Very respectfully,
Yours,
[Signature]

8731

Saint Paul, February 14, 1944

MR. H. E. STEVENS:

A few days ago you referred to me a clipping which included an item on the construction of a reproduction of Grand Coulee Dam, on a scale of 1:60. It was built, as I recall, at the dam site; and at the time I wondered somewhat why they would construct such a model at this late date. The usual practice is to build them experimentally in laboratory so as to determine practically the effect of various runs and stages of water.

I think my question is now answered by the attached clipping from the Spokane Chronicle of January 8, which Mr. Tremaine has just sent to me.

You will note that they are having trouble at the downstream apron; and Mr. Banks has estimated, to the press, that repairs will cost about \$4,000,000. Apparently the large model is to be used in determining how repairs can best be made.

bb/s

cc-Mr. H. M. Tremaine

att.

8731

Seattle, Washington,
January 29, 1944.

Mr. F.A. Cleveland:

In compliance with your request of January 27 I am forwarding you twenty prints of map showing railroad lines in the State of Washington, colored as to ownership, as indicated in the legend shown on the map.

It is my understanding that you desire to use these prints in connection with the Grade Coulee case and I am accordingly forwarding two prints to Mr. Blum, at St. Paul, in order that he may be familiar with the exhibit which I have submitted.

JTD:L

J. T. DERRIC

Copy to

Mr. Bernard Blum ✓

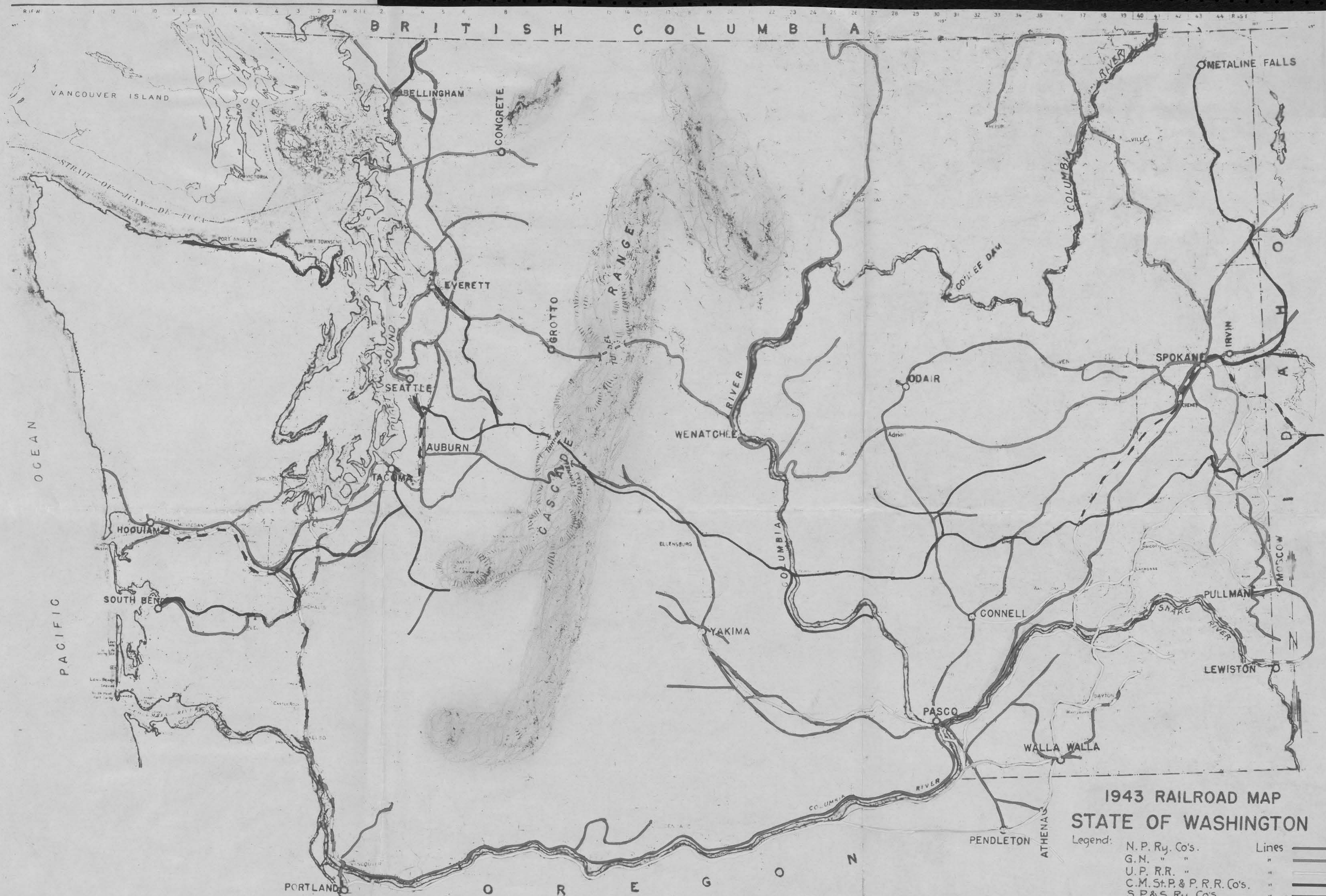
The above maps were made to comply with Mr. Cleveland's request and the outline as shown is in accordance with his wishes.

JTD

2 Prints
att

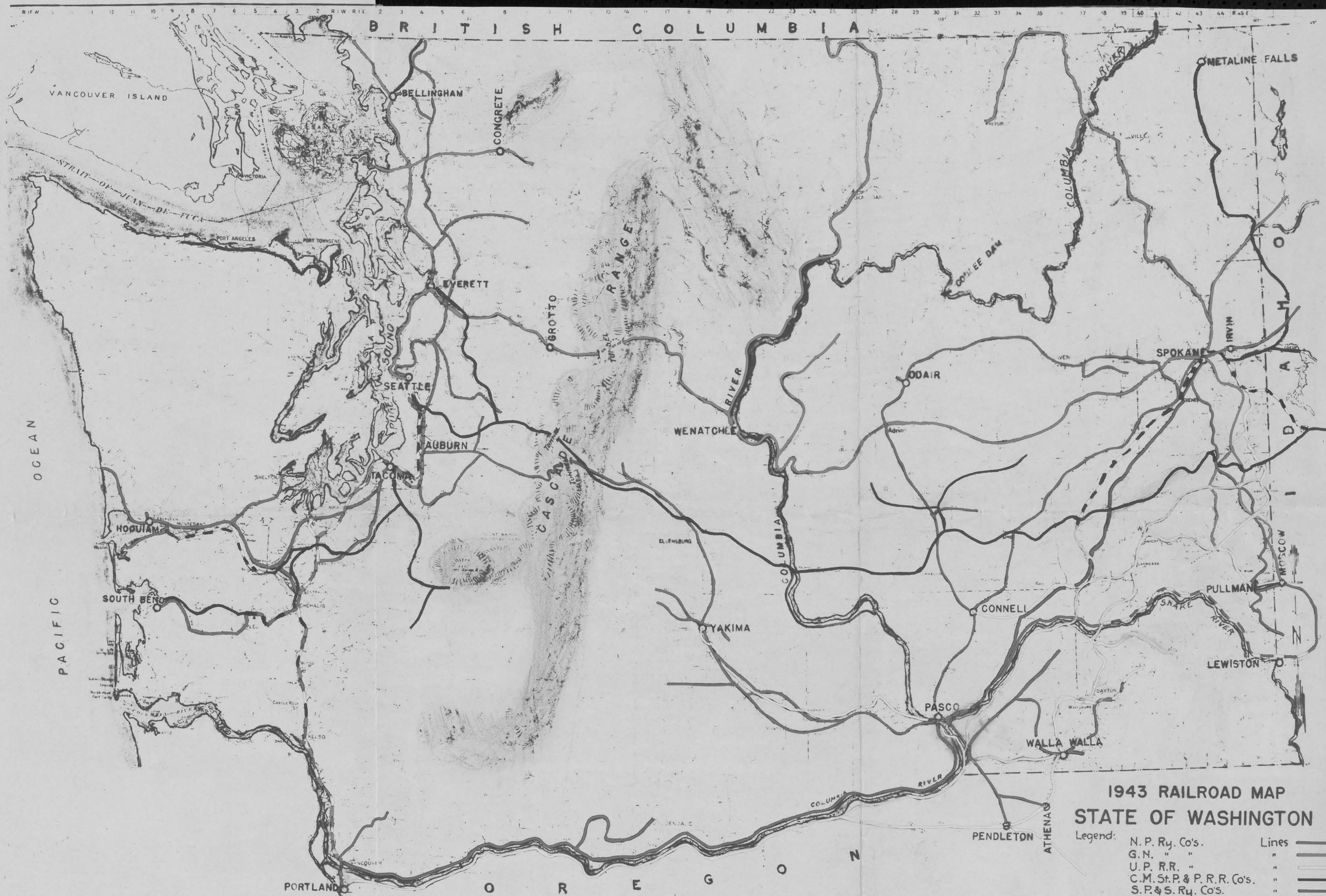
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1000



1943 RAILROAD MAP
STATE OF WASHINGTON

Legend:	N. P. Ry. Co's.	Lines
	G. N. " "	"
	U. P. R.R. "	"
	C. M. St. P. & P. R. R. Co's.	"
	S. P. & S. Ry. Co's.	"



1943 RAILROAD MAP STATE OF WASHINGTON

Legend:

N. P. Ry. Co's.	Lines	—
G. N. " "	"	—
U. P. R.R. "	"	—
C. M. St. P. & P. R. R. Co's.	"	—
S. P. & S. Ry. Co's.	"	—

Off. of Asst. Chief Engr. - N. P. Ry. - Seattle, Wash. - Jan. 28 - 1944

St. Paul, Minnesota
December 8, 1943.

Mr. H. B. Stevens:

Your inquiry about cement prices in connection with the Grand Coulee Dam construction:

Following are the prices the Northern Pacific paid for its cement at several mills:

1934	Trident	\$2.40 per barrel
	Spokane	2.75 " "
1935	Trident	2.40 " "
	Irwin	2.65 " "
1943	Trident	2.75 " "

With respect to the prices in 1934: On June 12, 1934 I wrote you on this matter in connection with the prices received by the U. S. Engineers for the construction of the Fort Peck Dam. The cement companies without any doubt got together and established a price of \$2.705 per barrel delivered at Wlota, which is the connection between the government's railroad and the Great Northern main line for the dam site. Deducting freight rates to the plants, this worked out \$1.85 per barrel f.o.b. cars Trident, and while I do not have a record of the various bidders for furnishing cement to the Fort Peck Dam there was, as I recall, a plant in Nebraska farthest removed from Fort Peck, and the price at that mill was \$1.15 per barrel.

What the government paid at the various mills in 1936-7-8 and 9 I do not know, but I would judge from the above that they paid less than \$1.50 per barrel. You, of course, have the prices they paid for transportation.

For the Coast mills and Metaline Falls, transportation would be 68¢ per barrel. It is my guess that the cement cost, when delivered, around \$2.10 per barrel, or possibly less.

BB/jwm

St. Paul, Minnesota
December 8, 1948.

Mr. H. E. Stevens:

Your inquiry about cement prices in connection with the Grand Coulee Dam construction:

Following are the prices the Northern Pacific paid for its cement at several mills:

1934	Trident	\$2.40 per barrel
	Spokane	2.75 " "
1935	Trident	2.40 " "
	Irwin	2.65 " "
1943	Trident	2.75 " "

With respect to the prices in 1934: On June 12, 1934 I wrote you on this matter in connection with the prices received by the U. S. Engineers for the construction of the Fort Peck Dam. The cement companies without any doubt got together and established a price of \$2.705 per barrel delivered at Mota, which is the connection between the government's railroad and the Great Northern main line for the dam site. Deducting freight rates to the plants, this worked out \$1.86 per barrel f.o.b. cars Trident, and while I do not have a record of the various bidders for furnishing cement to the Fort Peck Dam there was, as I recall, a plant in Nebraska farthest removed from Fort Peck, and the price at that mill was \$1.15 per barrel.

What the government paid at the various mills in 1936-7-8 and 9 I do not know, but I would judge from the above that they paid less than \$1.50 per barrel. You, of course, have the prices they paid for transportation.

For the Coast mills and Meteline Falls, transportation would be 65¢ per barrel. It is my guess that the cement cost, when delivered, around \$2.10 per barrel, or possibly less.

BB/jwn

8731

St. Paul, Minnesota
December 8, 1943.

Mr. H. E. Stevens:

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BB/jwm

M. P. Cement Prices

1934 { *2.40 bbl Triacent
2.75 " Spokane

1935 { 2.40 " Triacent
2.65 " Irwin

1943 Current *2.75 " Triacent

- Prices bid on 600,000 bbls for Fort Peck Dam *2.705 bbl
Less freight made Triacent (nearest) *1.85 bbl
" " farthest away *1.15 "
Decreases at Wooten

Cement

Present

2.75

Trident

.10

Less per bbl

15 day

1934

2.40

Trident

.10

Less per bbl

15 day

2.75

Sporlane

.10

Less per Bbl

15 day

1935

2.40

Trident

.10

Less per bbl

15 days

2.65

Irwin

.10

Less per bbl

15 day

gnr

12/7

Saint Paul, December 6, 1943

MR. M. L. COUNTRYMAN:

You will recall that when I left the witness stand on Friday afternoon, the 3rd, I told Mr. Victor Anderson that I would furnish a statement of grades of the railway Adrian to Odair, and Odair to Head of the Coulee.

Attached are two statements - 1st, Adrian to the connection with the Government railroad at Odair; and, 2nd, grades of the Government railroad to Head of the Dry Coulee.

We do not have a definite record of the grades from the Head of the Dry Coulee to the dam site, a distance of around three miles, although it is my recollection that there are grades as high as 3½% descending, for the loads.

bb/s

att-2

1.

GRADES OF RAILROAD, ADRIAN TO THE CONNECTION WITH THE GOVERNMENT RR. AT
ODAIR

Starting from Adrian, .6 mile,	level grade
Thence 5.5 miles	1.0% descending
.9	0.2 "
.8	0.5 "
.5	0.9 "
1.0	0.0 level
1.2	0.3 "
2.6	level
.7	1.0 ascending
.6	0.1 "
3.4	1.0 "
2.3	0.1 descending
0.3	2.0 "
.8	level
21.2 miles total	

2.

GRADES OF GOVERNMENT RAILROAD, ODAIR TO COULEE DAM

Starting from Odair .3 miles	level
Thence .5	0.4 ascending
.4	1.0 descending
.3	level
2.0	0.9 descending
1.9	.04 ascending
1.4	1.0 descending
1.3	level
1.0	0.6 ascending
0.8	0.2 "
1.3	level
0.8	0.26 descending
0.7	0.5 ascending
1.5	0.3 descending
2.9	0.5 ascending
0.9	0.1 descending
2.4	0.4 "
.8	level
.8	0.34 ascending
2.6	0.15 "
1.0	0.7 descending
2.0	level
0.4	2.0 descending
Total 28.3 miles 0.3	1.0 "

list
different rates
at grades.

1st 5 miles $\frac{1}{2}$ of 1%

Statement
of grade

Odian
Odian

Odian
to Canby
dam

Saint Paul, December 6, 1943

MR. M. L. COUNTRYMAN:

You will recall that when I left the witness stand Friday afternoon, December 3, I told Mr. Victor Anderson that I would furnish a statement of grades of the railway Adrian to Odair, and Odair to Head of the Coulee.

Following are two statements - 1st, Adrian to the connection with the government railroad at Odair; and, 2nd, grades of the government railroad to Head of the Dry Coulee. We do not have a definite record of the grades from the Head of the Dry Coulee to the dam site, a distance of around three miles, although it is my recollection that there are grades as high as $3\frac{1}{2}\%$ descending for the loads:

1. Starting from Adrian .6 mi. level grade.

Thence 5.5 miles	1.0% descending
" .9	0.2 "
" .8	0.5 "
" .5	0.9 "
" 1.0	0.0
" 1.2	0.3 descending
" 2.6	level
" .7	1.0 ascending
" .6	0.1 "
" 3.4	1.0 "
" 2.3	0/1 descending
" 0.3	2.0 "
" .8	level

Total 21.2 miles.

2. Govt. RR Odair to Coulee Dam:

Starting from Odair:

.3 miles	level
.5	0.4 ascending
.4	1. descending
.3	level
2.0	0.9 descending
1.9	.04 ascending
1.4	1.0 descending
1.3	level
1.0	0.6 ascending

2.(continued)

0.8 mi.	0.2 ascending
1.3	level
0.8	0.26 descending
0.7	0.5 ascending
1.5	0.3 descending
2.9	0.5 ascending
0.9	0.1 descending
2.4	0.4 "
.8	level
.8	0.34 ascending
2.6	0.15 "
1.0 mile	0.7 descending
2.0 mi.	level
0.4	2.0 descending
0.3	1.0 "
<u>0.3</u>	
28.3 miles	

bb/s
2x

B

Miles

grade

Adrian

0.6

0.0

5.5

+1.0

0.9

+0.2

0.8

+0.5

0.5

+0.9

1.0

0.0

1.2

-0.3

2.6

0.0

0.7

+1.0

0.6

- +0.1

3.4

+1.0

~~conn. at Odain~~

2.3

-0.1

20.1

0.3

-2.0

0.8

0.0

Odain

21.2

	miles	grade	miles	grade
conn. at Odessa at	0.3	- 2.0	0.4	- 2.0
mp. 0 - 1.1 miles	+ 0.3	0.0	mp 28.3 Grand Coulee	0.3
	0.5	+ 0.4		28.6
	0.4	- 1.0		
	0.3	0.0	from end of T.P. loc. at mp 28.3 to same	
	2.0	- 0.4		
	1.9	+ 0.04	Site, there is no definite recast of profile	
	1.4	- 1.0		
	1.3	0.0		
	1.0	+ 0.6		
	0.8	+ 0.2		
	1.3	0.0		
	0.8	- 0.6		
	0.7	+ 0.5		
	1.5	- 0.3		
	2.9	+ 0.5		
	0.9	- 0.1		
	2.4	- 0.4		
	0.8	0.0		
	0.8	+ 2.4		
	2.6	+ 0.15		
	1.0	- 0.7		
	2.0	0.0		

Saint Paul, June 10, 1943

MR. J. W. HAW:

Your letter of the 7th, transmitting copy of your letter to Mr. Clark, about additional storage for the Columbia River dams:

Your letter states in no uncertain terms what I have been saying to our people since the agitation started for storing waters in Lake Pend Oreille and in Flathead Lake.

The statement that additional storage is needed for the war effort does not make sense to me. Considering the few generators now installed at Grand Coulee there can be no lack of water until the present installations have been tripled or quadrupled, unless the army engineers were so far off in their computations that they were totally incompetent - and I do not believe for a moment that such is a fact.

At the inception of the Bonneville Project I saw figures which showed definitely the power curves, varying with the flow in the river, and at extreme height of water the output would be considerably reduced on account of the backwater in the tail race during the time the river was at high stage. In other words, the army engineers appreciated that situation thoroughly.

With respect to Grand Coulee dam it is of course true that this project was figured largely for irrigation, and the left powerhouse was laid out to provide for ten or twelve enormous pumps to deliver water into the Dry Coulee during such periods of the spring when power would be devoted to elevating water into storage. The generators would not provide firm power for industries at such a time. Nevertheless the plan included the right powerhouse with ten or twelve generators; and until such time as that number of large generators are installed I cannot conceive of any lack of capacity to produce energy far in excess of what they are now producing. I think your assumptions are close to the facts.

bb/s

2x

Saint Paul, Minnesota
June 7, 1943

Mr. Bernard Blum
Chief Engineer

Referring to the attached:

You are much better able to judge as to whether there is any merit in these observations. I have thrown it in the hopper because I think they have a relation to the problem which we face in deciding how vigorously we should object to the raising of the Kerr dam and the dredging of a deeper channel from the Flathead river into Flathead lake.

JMAw

Encl.

Saint Paul, Minnesota

June 5, 1943

Mr. R. W. Clark
Vice President

You have probably noted in the press that Mr. J. A. Krug, vice chairman of the War Production Board, has been quoted as saying, "Grand Coulee was designed for eighteen generators, but unless you develop a tremendous amount of upstream storage you will never need eighteen stalls".

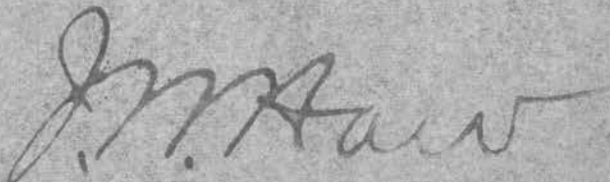
It has also been stated that the Corps of Army Engineers miscalculated the amount of backwater in the tailrace behind the power house at Bonneville dam when the river is running at high stages. This backwater operates to cut down the head and thus seriously limits the power output at Bonneville.

I have said from the outset that there is more than meets the eye in this desperate, frantic search for upstream storage on both the Columbia and its principal tributaries in the United States; namely, the Clark's Fork and Spokane rivers. Both the Army and the Bureau of Reclamation is joining in this search. When pinned down as to the reasons for the immediate need for such storage, both groups agree to the general statement that it is desirable to create additional upstream storage in order to step up the firm power output at Grand Coulee and Bonneville. It certainly occurs to even a layman that if this storage were so vital to these dams, why have we not heard some more about it during the many years in which these projects have been studied. If the need is for more power in this general area, it is comparatively simple to install additional generating capacity. Unused generator stalls exist at the Kerr dam at Polson, at Grand Coulee, at Rock Island and at Bonneville. I am not certain about this situation at Thompson Falls and Spokane.

I think there is justification for the belief that the Bureau of Reclamation, the Bonneville Administration and the Corps of Army Engineers feel that this is the time to correct some miscalculations through the provision of upstream storage. They now have the war and the ease of securing money on their side of the difficult task of getting the public to accept property damages caused by provision of upstream storage.

JWH 1

cc - Mr. J.H. Poore
Mr. B. Blum





N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

8731 M.

301SF AX

SPOKANE MAY 23 1943

T R GIBSON

STPAUL.

SEND OUT OUR COULEE DAM FILES 8731 GENERAL AND 8731 PARTS A AND B
ALSO MY 1934 DIARY IN RIGHT HAND DRAWER OF MY TABLE. B 231.

B BLUM

706PM

8- *Diary r 8731-1-2-3*

9 *8731-4-5-6- A & B*

Mr Blum

In mail today

May 24

8-31
12/17



Draft with my letter 7/9/34 to J. H. McE

#12 - Compare with draft accompanying
my letter 6/5/34 to H. E. S.

8731

Saint Paul, March 6 1943

MR. N. L. COUNTRYMAN, Sr.

Your letter of the 3rd and returning map marked Exhibit D showing Grand Coulee Dam and the western portion of Washington:

It is apparent to me that this is a photostat of a map prepared in this office dated October 9, 1933. A vandyke was made of the original tracing and I am attaching three prints thereof as you verbally requested.

Subsequently the tracing was corrected to eliminate the projected lines of the Great Northern, and the government railroad is marked to show the correct ownership.

On our original drawing we placed table showing distances, etc. The tables were eliminated on the government photostat.

The information shown on the map is correct according to our records.

bb/s

att.

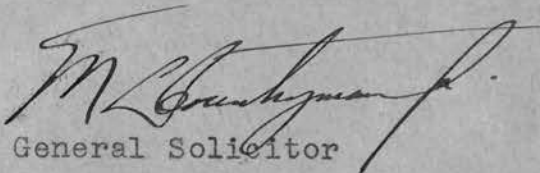
St. Paul, Minnesota, March 3, 1943

Subject: Grand Coulee Dam Cement Rate case
(6343 Minn.)

Mr. Bernard Blum:

I attach map marked Exhibit "D" which is
a small scale copy of a larger map which the Govern-
ment intends to use at the trial of our Grand Coulee
Dam cement rate case.

Will you please check and let me know
whether the information shown on this map is
accurate.


General Solicitor

MLC:g

PAL?
HRR 3/4

Oct 9, 1933

*Map is photographed from a
map prepared in this office except for G.N. survey notes.
in 1933. and the coloring
is according to this map.
The town Coulee has
since been changed
to Coulee City.
P.H. 3/4*



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

B.

The Blue note left 5/2

BUREAU OF RECLAMATION

For Release WEDNESDAY, APRIL 29, 1942.

TWO SHASTA GENERATORS TRANSFERRED TO GRAND COULEE

Two big hydroelectric generators built for Shasta Dam in California will be transferred to Grand Coulee Dam in Washington State to meet pressing power demands for war industries. This move is a part of the program of the Department of the Interior and Bureau of Reclamation for the maximum utilization of their power facilities for the war.

Commissioner of Reclamation John C. Page advised Secretary of Interior Harold L. Ickes today that the generators will be moved immediately. The action was taken following a study made by the Department and the Bureau and upon a request from the War Production Board.

"Installing these two 75,000-kilowatt generators in the Grand Coulee Dam power plant will give a net gain to the war program of 125,000,000 pounds of aluminum," Mr. Page reported to Mr. Ickes. "They will go into action before winter turning out power for Pacific Northwest war factories instead of standing by for the completion of Shasta Dam power house in the winter of 1943-44."

The transfer of the generators was agreed to by Secretary Ickes after the feasibility of the move had been determined by the Bureau of Reclamation, which is in charge of both projects. Five generators were ordered some time ago by the Bureau in order to be as forehanded as possible with the hydroelectric development at Shasta Dam on the Central Valley Reclamation project in California. Two of them, finished and delivered by the manufacturer, were stored temporarily at Boulder Dam. The other three are nearing completion.

The move will have no effect on the plans for power generation at Shasta Dam for Northern California war industry, where a shortage of electric energy is almost as acute as in the Pacific Northwest. Shasta Dam's power house will be fully equipped with five 75,000-kilowatt generators as soon as possible. Work is being rushed by the manufacturer on the three generators on order but not yet delivered. They are expected to be installed and operating by the end of next year.

It is possible that two new generators for Shasta will be fabricated to replace the machines transferred to Grand Coulee Dam. The plan contemplates no delay in providing equipment for the full use of Shasta Dam for power production when water is stored in its reservoir.

(over)

Plans for the installation of additional power units at Grand Coulee will remain unchanged by the transfer. The 150,000 kilowatts of capacity to be added to Grand Coulee Dam power plant's present capacity of 344,000 kilowatts will not affect scheduled installation of the next six great 108,000-kilowatt generators ordered and under manufacture for the Columbia River project.

The two Shasta generators are to be placed in Grand Coulee's left powerhouse, at the end where generators L-7, L-8, and L-9 were scheduled to be installed in 1944. When delivered, these three generators will be installed in the right powerhouse instead without any loss of time. The right powerhouse is under construction.

Hydroelectric power now being generated at Grand Coulee Dam is being transmitted over the Grand Coulee-Bonneville network to aluminum, magnesium, and electro-chemical industries, and to airplane and shipbuilding plants in the Pacific Northwest.



J.T. Derrig

Engr. Dept.



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release SUNDAY, MARCH 22, 1942.

GRAND COULEE POWER PLANT BIRTHDAY

The Grand Coulee Dam power plant has a birthday today. A year ago it produced electricity for commercial use for the first time.

During the year, which saw aggressor nations all but turn the world on end, its whirling hydroelectric dynamos delivered more than 400,000,000 kilowatt hours of energy to plants fabricating weapons needed to subdue the enemy, John C. Page, Commissioner, Bureau of Reclamation, told Secretary of the Interior Harold L. Ickes.

The big figure, of little meaning to the average layman, is impressive when broken down into tangible things. The power would manufacture 20,000 tons of aluminum, which translated in terms of aircraft, is an amount sufficient to build about 1,200 four-motored bombers or about 6,400 fighter planes.

"The year's output at Grand Coulee Dam was a vital contribution to the life-blood of Pacific Northwest military production," Mr. Page said. "The stream of energy that flowed from the project helped no little to throw industry into the high gear that is necessary to do the big job ahead."

The plant will open an even greater storehouse of power to the makers of aluminum and other war supplies during its second year of operation. A third 108,000 kilowatt generator will be put in service in mid-April alongside two others now turning, and the combined delivery of the three will exceed by many times the energy produced during the year concluded today.

The first generators to see action in Grand Coulee Dam's big powerhouse were two 10,000 kilowatt station-service or "house" units, designed to serve the dam, powerhouse, and townsites in the vicinity. Because of the shortage of power early in 1941, the machines, when ready, were immediately connected to the Bonneville Power Administration system, to deliver their load to defense industries.

On October 4, 1941, the first main hydroelectric generator, largest in the world, began operating, followed on January 29, 1942, by a second unit. The two station-service units were taken out of service when the first large dynamo began to hum tune of power.

Th. Blum
note
MD 2/24
B.B.

When the Columbia River has been fully harnessed at Grand Coulee Dam, more electricity than is produced at present at any other one site in the world, 1,944,000 kilowatts, will be developed. One half the plant's ultimate installation, that of the west powerhouse, is scheduled to be in place by 1945. A second powerhouse of equal capacity is being erected in anticipation that additional units will have to be constructed.



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

For Release FRIDAY, MARCH 20, 1942

TEN POWER TRANSFORMERS ORDERED FOR GRAND COULEE PLANT

Secretary of the Interior Harold L. Ickes today ordered ten additional power transformers for the Grand Coulee Dam power plant, on the Columbia River in Washington, already answering its call to the colors with output from two large 108,000 kilowatt generating units.

The Westinghouse Electric and Manufacturing Company of Denver, Colorado, will furnish the ten transformers for a price of \$822,610, which was the lowest of three bids received and opened by the Bureau of Reclamation at its Denver office on March 3, 1942.

Nine of these transformers are for the large units in the left powerhouse designated as L-7, L-8, and L-9 and the other is a spare for use with any unit in the left powerhouse. The contractor is required to deliver the transformers, complete except oil, at specified times over a period of 450 days.

A third large generator is scheduled for operation next month which will bring the installed capacity of the plant to 324,000 kilowatts. With a total capacity of 1,944,000 kilowatts, the Grand Coulee plant will be by far the largest hydroelectric plant in the world, and will contribute its full share to the winning of the War.

The remaining six large units for the left powerhouse are in varying stages of manufacture and installation and work has begun on the construction of the right powerhouse of like capacity.

J.T.Derrig

Engr. Dept.

W. B. Blair
A. B. Blair
W. B. Blair



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release MONDAY, MARCH 16, 1942.

Grand Coulee's Third Large Generator to go in Action

An army of 108,000 kilowatts will be added to America's line of defense--electric power--in about a month when Grand Coulee Dam's third giant generator goes into service.

Commissioner John C. Page of the Bureau of Reclamation today reported to Secretary of the Interior Harold L. Ickes that assembly of the unit was nearing completion and that within a few days it will be ready for the usual tryout and dryout run that always precedes placing a machine in actual production.

The dam's reservoir of electrical energy will be swollen to 324,000 kilowatts when this generator is in service. The output of the first main dynamo was mobilized to serve aluminum plants in the Pacific Northwest in October 1941, and that of the second one in January 1942. A portion of the supply will be held in reserve until new war production facilities, now under construction, are completed. This is expected to be within a few weeks.

"We are doing all in our power to make additional units available at Grand Coulee Dam as rapidly as humanly possible", Mr. Page said. "We realize modern warfare is a battle of production. Electric power, which drives 86 per cent of the factory wheels of America, forms a main army in this battle. The nation with the greatest production will ultimately conquer. The Bureau through its installations at Grand Coulee, Boulder and other Western dams is attempting to do its part to make certain that that nation shall be the United States."

In 1944 or 1945 Grand Coulee Dam will be developing 972,000 kilowatts of energy, a block of power that will be surpassed in quantity only by one other plant in the world, Boulder Dam, he declared. The project's ultimate installation will be twice that amount.

Mr. Page pointed out that the hydro-electric sets, largest in the world, are so immense that three to three and a half years are required to build and install them. Fortunately, in face of the present need for power, the Bureau ordered the first set of three generators on September 6, 1938, allowing the manufacturer 1230 days to design and build the machines. The turbine contract, signed on November 28, 1938, had a time limit of 1020 days.

The machines weigh 1750 tons each. The revolving section, consisting of a rotor, waterwheel, and connecting shaft, with a total height equivalent to that of an eight-story building, weighs nearly half that amount. The rotor, 31 feet in diameter, one of the largest and heaviest wheels ever built, spins inside a stator or stationary winding encompassed by a steel housing 45 feet in diameter.

The output of the first three machines could illuminate New York and Chicago with all their bright lights. The power plant at full development will be capable of lighting a 60-watt lamp in every home in the United States.

8731

St. Paul, Minnesota,
March 9, 1942.

Mr. F. M. Mesenbourg:

Secretary of the Interior, under news release dated March 4, 1942, advises that contract for the construction of additional power unit on the right side of the Columbia River at Coulee Dam has been awarded to the Consolidated Builders under a work order as an extension to their present contract.

The description of the new structure as outlined in the news release is as follows:

This new structure, which will be one of the largest concrete buildings in the west, will be 743 feet long, 84 feet wide and more than 200 feet high, containing about 80,000 cubic yards of concrete. One section of the building, known as the control bay, will contain several dozen rooms, including a control room, switchboard room, oil storage room, compressor and pump room, lockers and showers, reception room, guide room, first aid room, lobby, corridor, file room, fan room, battery room, offices, machine shop, electrical laboratory, cable-spreading room, and terminal board room. The various floors will be serviced by a passenger and freight elevator.

It would appear that the possible use for Travertine in this new structure will be considerable greater than that which existed in the unit now under construction on the left side. I suggest that you consult Mr. F. A. Banks at Coulee Dam, and the Denver Office of the Reclamation Service in respect to the further use of our Montana Travertine in this structure.

J. T. DERRIG

Asst. to Chief Engineer.

JTD:L

cc--Mr. H. E. Stevens
Mr. B. Blum.

St. Paul, Minnesota,
March 9, 1942.

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Asst. to Chief Engineer.

JTD:L

cc--Mr. H. E. Stevens
Mr. B. Blum.



J.T.Derrig

Engr. Dept.



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release WEDNESDAY, MARCH 4, 1942.

CEMENT FOR SECOND POWERHOUSE AT GRAND COULEE DAM

Secretary of the Interior Harold L. Ickes today awarded a contract for furnishing 90,000 barrels of modified portland cement in bulk for the right powerhouse at Grand Coulee Dam, Columbia Basin project, Washington.

The Superior Portland Cement, Inc., of Seattle, Washington, will furnish the cement at a destination delivered cost of \$2.1292 per barrel or \$191,628 for the 90,000 barrels. This was the lowest of five bids received and opened by the Bureau of Reclamation at its Denver, Colorado office on February 12. Shipment will begin about May 1, 1942, and extend over a period of about 12 months.

Construction of the east or right powerhouse was begun in January under an extra work order agreement with Consolidated Builders, Inc., main contractor for completing Grand Coulee Dam and left powerhouse, who was already at the site. Although allowed 560 days, the contractor has hopes of completing the job much earlier.

The new powerhouse is being built many years ahead of schedule to supply power for wartime industries. Like its twin situated on the west or left side of the spillway section of the great dam, it will house nine 108,000-kilowatt generating units.

This new structure, which will be one of the largest concrete buildings in the West, will be 743 feet long, 84 feet wide and more than 200 feet high, containing about 80,000 cubic yards of concrete. One section of the building, known as the control bay, will contain several dozen rooms, including a control room, switchboard room, oil storage room, compressor and pump room, lockers and showers, reception room, guide room, first-aid room, lobby, corridor, file room, fan room, battery room, offices, machine shop, electrical laboratory, cable-spreading room, and terminal board room. The various floors will be serviced by a passenger and freight elevator.

Grand Coulee Dam's power is already surging over the Bonneville-Grand Coulee transmission network to aluminum processing plants and other vital war industries in the Pacific Northwest. Two of the huge 108,000-kilowatt generating units and two 10,000-kilowatt station service units are in operation. One more large unit is scheduled to go on the line in April and the remaining six big units for the west powerhouse are in varying stages of manufacture and installation.



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release WEDNESDAY, MARCH 4, 1942.

CONTRACT FOR TUNNELS ON DESCHUTES PROJECT

The construction of two tunnels of the North Unit Main Canal, which will carry Deschutes River water to irrigate 50,000 acres of dry farming land in the Jefferson Water Conservancy District in central Oregon, was covered in a contract awarded today by Secretary of the Interior Harold L. Ickes.

The contract was awarded to Kern and Kibbe of Portland, Oregon on the successful bid of \$374,007.50, which was the lowest of four bids received and opened by the Bureau of Reclamation at its Bend, Oregon office on December 29.

The tunnels, designated as Nos. 1 and 2, will be 11' -3" diameter horseshoe-shaped tunnels aggregating 6,839 feet in length, involving the excavation of 36,500 cubic yards of materials and the use of 8,340 cubic yards of concrete. Although the specifications called for installation of 105 tons of steel-rib supports and steel-liner plates, both on the materials critical list, it is proposed to substitute wood for the steel. All work must be completed within 550 days.

To date more than 32 miles of the 65-mile North Unit Main Canal have been excavated. The canal with an initial capacity of 1,000 cubic feet per second, heads in the Deschutes River in the reservoir formed by the North Canal Dam, an old private irrigation structure at the north city limits of Bend. For nearly 26 miles it winds across old lava fields to Crooked River, and then for the next six miles traverses the rugged Smith Rock country, where the two tunnels will be located near Terrebonne. The canal then gradually decreases in size as laterals distribute water to the irrigable lands until it ends some six miles north of Madras.

In addition to these two tunnels the work remaining to be done before water can be delivered to the dry lands of the North Unit include the completion of Wickiup Dam, main storage dam of the project, and the construction of three siphons as well as earthwork and lesser structures for 33 miles of additional canal and the lateral system. To offset the reduction of the power output at a privately owned plant on the Deschutes River at Bend, Oregon, which will result from the storage of water in the Crane Prairie and Wickiup reservoirs during the nonirrigation season, the Bureau of Reclamation will install an additional 1,500-kilowatt generating unit at the Cove plant of the Pacific Power and Light Company, on Crooked River.



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release TUESDAY, DECEMBER 30, 1941

Penstock Gates for Grand Coulee Dam

Secretary of the Interior Harold L. Ickes today awarded a contract for furnishing six penstock coaster gates for the Grand Coulee power plant on the Columbia Basin project in Washington, which has already begun to add its energy to the Nation's war effort.

The American Bridge Company of Denver, Colorado submitted the successful bid of \$395,185, which was the lowest of three bids received and opened by the Bureau of Reclamation at its Denver, Colorado Office on December 2.

The penstock coaster gates are to be 15 by 29.65 feet in diameter. These six gates are for six main 108,000 kilowatt generating units in the left powerhouse, designated as L-4, L-5, L-6, L-7, L-8, and L-9. Under the main contract for building the dam eighteen 18-foot diameter penstocks for the main power units at the Grand Coulee power plant were embedded in the concrete of the dam. The penstocks are arranged in parallel in two groups, nine for the right powerhouse and nine for the left powerhouse. Penstock coaster gates have already been purchased for units L-1, L-2 and L-3.

The penstock gates will be used for emergency closure in the case of damage to the hydraulic turbines and for unwatering the penstocks to permit necessary inspection and maintenance of the penstocks and turbines.

One generating unit, L-3, is in operation, having added its power to the Bonneville transmission line on October 4 of this year. Another of the giant 108,000 kilowatt generating units is expected to be ready to go on the line next month and the third in the spring of 1942. Units L-4, L-5 and L-6 are on order and in varying stages of manufacture. Units L-7, L-8, and L-9, for which turbines have already been ordered, are expected to be in operation in 1944, bringing installations at that time to 1,082,000 kilowatts, including the station service units. The left powerhouse then will be completely installed.

A twin powerhouse at the right side of the dam is being started this month. It will raise the capacity of this, the world's largest power project, to 1,974,000 kilowatts.

The penstock coaster gates ordered today will be delivered at specified times over a period of 750 days.

P.N. 171524

Mr. Blum *noted* *10/24* *noted* *1/5 B.B.*



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release WEDNESDAY, DECEMBER 31, 1941.

Eight years in the building, Grand Coulee Dam, world's largest masonry structure, was almost completed in 1941 and now has formed a lake 136 miles long. John C. Page, Commissioner, Bureau of Reclamation, reported today to Secretary of the Interior, Harold L. Ickes.

Transmutation, by the dam's first generators, of the power of the Columbia River into electrical energy, for use in industries manufacturing materials and equipment to gird the Nation in its fight for liberty, was another outstanding event of the year, Mr. Page said.

All mass concrete is in place, and only minor clean-up operations remain to be finished. The contractor added 64,540 cubic yards to the dam and appurtenant structures to bring the volume to 10,521,789. Mass pouring ended on December 12, 1941, six years and two weeks after the first bucket was opened on the bedrock.

In the west powerhouse, on the dam's downstream face, Bureau engineers rushed to completion two 10,000 kilowatt station-service generators, and on March 22 this year they began transmitting energy over the Bonneville Power Administration's Pacific Northwest grid to aluminum plants near Vancouver, Washington.

Seven months later, on October 4, the first of the plant's 108,000 kilowatt giants began humming its song of power. With the demand for electrical energy growing by leaps and bounds at every turn in world events, Grand Coulee Dam's contribution to America's arsenal was both timely and significant.

At the end of the year, the Bureau had its second "Big Bertha" nearly ready for action, and was making rapid progress on unit No. 3. It will join the two other musketeers next March. Three additional machines for installation in 1943 were in varying stages of manufacture and equipment was ordered for still another set of three.

The project's main contractor, Consolidated Builders, Inc., was issued an extra work order in September to build a permanent concrete deck for the 27 transformers of the dam's second powerhouse, a job now in full swing. Its construction is a necessary prerequisite to the erection of the main building in 1942, and to the ultimate installation of more generating units.

To provide sufficient "head" for the main turbines, the Bureau accelerated the impounding of the Columbia, second largest stream in the United States. At the year's peak the lake was nearly three-fourths full, 136 miles long, and in places about two miles wide. Next spring it will be made to rise another 35 feet to its full height, and will reach its full length of 151 miles. As the excess water plunges over the spillway, a major waterfall, 1,650 feet wide and 350 feet high, will be created.

The clearing of trees, brush, old fences, abandoned buildings and other debris from the bed of the new lake, a project begun in the fall of 1938, came to an end in December 1941. WPA forces cleared 53,860 acres of shoreline, grubbed 11,426 acres, and logged 32,568,448 board feet of merchantable timber, which was sold to a saw mill.

Relocation of roads and railroads within the reservoir boundaries was a major operation. Construction of 27 miles of Great Northern Railway, three major bridges, and 90.5 miles of state primary highway was completed. Only 35 of the 89 miles of secondary roads that must be built remain to be constructed.

Another important activity within the reservoir was the widening of the Little Dalles channel of the Columbia, situated 135 miles upstream from the dam. Backwater from this bottleneck, augmented by the creation of the reservoir, threatened to damage property along the river between the restriction and the international boundary at extraordinary high stages of the river. The work, involving the excavation of 323,711 yards of solid rock, eliminate that danger.

In the rush to provide power, the dam's equally important objective, the irrigation of 1,200,000 acres of fertile land in the Columbia Basin, was not overlooked. Study of four of the 28 problems comprising the Joint Investigations, which seek to bring about the successful development of this vast area, was completed, and most of the other problems are well on their way toward solution. Reports on all the studies are due in 1942.

In planning the orderly development of the basin, it was necessary to make four basic surveys. The first of these, retracement (the marking of every section and quarter-section corner), was completed in 1940. The second and third, the topographical survey and the classification of land, were concluded this year, and the fourth, the appraisal of land, is virtually complete.

Investigation of the sites for the two dams that will transform the upper Grand Coulee, a dry riverbed, into the project's balancing reservoir, was continued, and will continue in 1942, with the objective of completing the work in 1943. As Bureau crews conclude the basic land surveys, they are being transferred to work in connection with the canal and lateral layout.

The first fingerling salmon raised in the Leavenworth hatchery of the Bureau's migratory fish control system, completed in 1940, were released this year, in tributaries below the dam. An auxiliary plant on the Entiat River was constructed in 1941, and another on the Methow River is nearing completion. The Government's program will perpetuate the salmon run of the upper Columbia River.

The Chamokane game-fish hatchery near Ford, Washington, being rapidly completed, will be used to stock the Grand Coulee Dam reservoir with game fish. It will be in service early in 1942.

Installation of eleven large drum-gates, 135 feet long and 28 feet high, in the crest of the spillway of the dam, started in 1940, ended in June. These will make it possible to pass over the spillway the river flow, less water passed through powerhouse turbines and later that diverted for irrigation, while maintaining the reservoir surface at a fixed level. Their capacity is more than double the greatest flow recorded.

Construction of eleven large arch-type bridges across the spillway was finished in November. These form the middle section of the 30-foot highway across the 4,300-foot structure. The highway will remain closed to traffic during the present national crisis.

To eliminate the danger of a major slide toward the tailrace channel of the west powerhouse, the Bureau ordered the contractor to remove 1,409,000 cubic yards of earth and 66,000 yards of rock from the west bank of the Columbia. Excavation was started in December 1940, and was completed in August 1941. A small slide condition, upstream from the dam, that threatened the main highway to the project, was also corrected.

Although construction of the dam, to all intents and purposes, can be considered completed, the year 1942 will not lack for intense building activity. Construction of the east powerhouse, and relocation of county roads near the Kettle River and near Hawk Creek, and relocation of isolated sections of Indian Service roads on the Spokane River, will be major work projects. On January 1, 1942, the Bureau took over from the contractor and will do the remaining work on the dam.

#

8731

Saint Paul, December 22, 1941

MR. R. E. STEVENS:

A recent release from the Bureau of Reclamation is to the effect that as of January 1, 1942 the United States will take over the Grand Coulee Dam, although the contractors - Consolidated Builders, Inc. - still have some work to complete on their original contract.

The CBI will be relieved from the necessity of finishing up a lot of odds and ends which the Government will handle.

The CBI has just been awarded a contract to begin construction at once of the right powerhouse, estimated to cost \$3,000,000.

As a matter of interest a recent ~~recent~~ Deficiency Appropriation made available \$6,000,000 for the second powerhouse and of three more generator units. At the present time there is one 108,000 KW generator in operation and five additional are now being installed or are on order for the left powerhouse.

This means that we are going to have considerably more traffic to the dam for the next two years.

cc-Mr. R. W. Clark
Mr. J. H. Poore

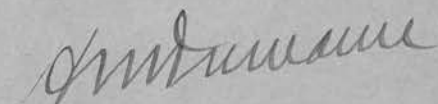
x

bb/s

Spokane, Washington
December 19, 1941

Mr. Bernard Blum:

The morning papers carry dispatch that Secretary Ickes has announced that Coulee Dam will be accepted by the Government as of January 1, 1942 from the contractors, CBI. This means the close of the original contract, although the CBI will be engaged to construct the east power house during 1942.



District Engineer

HMT-b

Spokane, Washington
December 19, 1941

Mr. Bernard Blum: ✓

The morning papers carry dispatch that Secretary Ickes has announced that Coulee Dam will be accepted by the Government as of January 1, 1942 from the contractors, CBI. This means the close of the original contract, although the CBI will be engaged to construct the east power house during 1942.

Signed, H. M. TREMAINE

District Engineer

HMT-b

J.T.Derrig

Engr. Dept.

Mr. Blair
note of return
for
MD 12/19

[illegible]



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

779 12/19

BUREAU OF RECLAMATION

For Release THURSDAY, DECEMBER 18, 1941.

Grand Coulee Dam, the biggest single construction task man so far has set for himself, will be taken over by the Government from the contractor January 1, 1942.

After more than eight years of 24-hour-a-day effort in the canyon of the Columbia River about 90 miles west of Spokane, Washington, Secretary of the Interior Harold L. Ickes announced today that negotiations had been completed with the Consolidated Builders, Inc., the contractor, which have resulted in agreement for the Bureau of Reclamation to take over on New Year's the minor work remaining, the settlement of all claims with the contractor, and immediate start by CBI of the construction of the right powerhouse.

When judged by the amount of concrete and other materials placed the great dam, 4,300 feet long and 550 feet high, is more than 99 percent complete.

The CBI is on the ground and has the equipment at hand to build the right powerhouse, a twin of the left powerhouse at the opposite side of the river where the first 108,000-kilowatt generator already is spinning out power for distribution over Bonneville lines. A recent deficiency appropriation made \$6,000,000 available to begin work on the right powerhouse and on three more generating units in addition to the one now in operation and the five now being installed or on order. The right powerhouse is estimated to cost \$3,000,000. CBI will build it,

under provisions of paragraph 10 of its original contract at cost plus 10 percent. The reinforced concrete building, having no other equal in size on the Pacific Coast, except its twin, will be completed within 560 days.

"This is a good proposition," Commissioner John C. Page of the Bureau of Reclamation, said. "It is the quickest and cheapest way available to us to have the powerhouse completed. As demands for power for defense have leaped to new heights, it has become a prudent precaution to build this powerhouse now. Originally we had thought that we might wait safely for a decade or more."

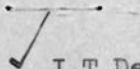
The settlement with the CBI erased \$154,661.64 in claims against the Government prepared by the contractor and growing out of some 12,000 drawings which were revised as a result of change order No. 4 promulgated by the Secretary on March 4, 1939. These changes reflected improvement in designs which were worked out as the gigantic dam grew toward completion.

The settlement also means that the Bureau will take over work of the clean-up character which will cost about \$175,000. If done by the contractor, this work would have been paid for at rates established in the contract. Having these miscellaneous jobs taken over by the Bureau will release the contractor's forces for work at other sites, and will enable the Bureau better to time these jobs with the installation of powerhouse machinery and transmission equipment.

The claim now renounced by CBI involved requests for adjusted payments for such items as changes in the design of trashrack structures; placing of additional metal liners in outlet conduits; changes in the location and dimension of adits, shafts, and galleries in the concrete of the dam; changes in the formwork for elevator towers and parapets on the dam; changes in the formwork for the left powerhouse; an additional requirement for the construction of the floor slab for

the pumping plant bus gallery; additional deflectors over the outlet conduits; requirement for the contractor to turn over to the Government eight large barges from 60 to 124 feet in length; and changes in the gantry crane recess erection platform.

The clean-up work which will now be done by the Bureau includes painting metalwork including the spillway drum gates; removing wiring, and other facilities installed by the contractor but required for use by the Government in future construction operations; backfilling recesses for construction trestle footings east of the spillway after removal of the trestle; removal of the contractor's bridge across the river below the dam; maintenance of the construction railroad after January 1, 1942; taking over all unfinished work in the left powerhouse; and provision of school facilities and instructions for children in school districts Nos. 79 and 123 after January 1, 1942.



J.T.Derrig

Engr. Dept.

TO NORTHERN PACIFIC

REMIT TO R. E. LACY



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release THURSDAY, DECEMBER 18, 1941.

Three turbines, each of 150,000 horsepower capacity, were ordered today by Secretary of the Interior Harold L. Ickes for installation at the Grand Coulee Dam powerhouse as a part of a drive for power for the war effort.

These three great turbines are Nos. 7, 8 and 9 for the Grand Coulee Dam which is being constructed by the Bureau of Reclamation on the Columbia River in Washington. They will complete the installation in the west powerhouse.

Only yesterday arrangements were completed to begin at once the construction of a twin powerhouse on the east side of the river where nine more generators eventually will raise the capacity of this, the world's largest power project, to a grand total of 2,700,000 horsepower.

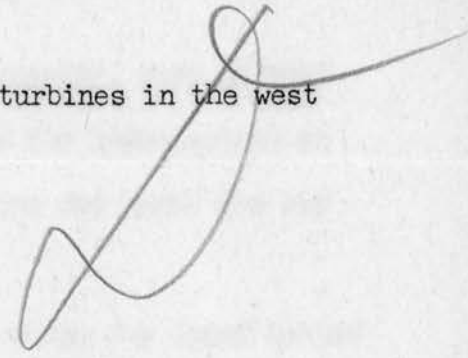
One generating unit already is turning out 108,000 kilowatts of energy at the Grand Coulee Dam. It went on the Bonneville line October 4, 1941. The second will be ready for operation next month, and the third in the spring of 1942. Three additional units are on order and in varying stages of manufacture.

The three turbines ordered today will be constructed by the Newport News Shipbuilding and Drydock Company on its bid of \$1,900,000. They will

be completed in from 500 to 590 days. In other words, these turbines should be installed comfortably before the end of 1943 and the three units of which they are a part should be in production a few months later.

At the same time Secretary Ickes awarded the contract for the manufacture of three governors to the Woodward Governor Company at Rockford, Illinois, on its bid of \$87,550.

The turbines are similar in design to other turbines in the west powerhouse.





DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release FRIDAY, NOVEMBER 14, 1941.

ADDITIONAL EQUIPMENT FOR GRAND COULEE POWER PLANT

Oil circuit breakers, disconnecting switches and lightning arresters were ordered today by Secretary of the Interior Harold L. Ickes for the Grand Coulee power plant, now operating on the Columbia Basin project in Washington.

Contracts totaling \$512,924.70 were awarded to three manufacturing companies, submitting the lowest of ten bids received and opened by the Bureau of Reclamation at its Denver, Colorado office on October 20.

The General Electric Company of Schenectady, New York, will furnish four 230-kilovolt oil circuit breakers complete without oil within 300 days on its bid-price of \$206,920.

The Westinghouse Electric & Mfg. Company of Denver, Colorado, for \$158,004.70 will furnish two 230-kilovolt oil circuit breakers and two 230-kilovolt lightning arresters within 300 days.

The Bowie Switch Company of San Francisco, California, on its bid-price of \$148,000 will furnish seventeen 230-kilovolt and eleven 115-kilovolt disconnecting switches within 200 days.

The 230-kilovolt and 115-kilovolt switching equipment to be furnished under contracts awarded today will be installed in switching stations, located approximately one-half mile west of the left powerhouse, for use with 230-kilovolt and 115-kilovolt outgoing transmission lines.

The first of Grand Coulee's giant generators went into operation October 4, transmitting power over the Bonneville-Grand Coulee network to defense industries in the Pacific Northwest.

With the ultimate installation of eighteen 108,000-kilowatt generating units in two powerhouses, the Grand Coulee Dam plant will be the greatest single source of hydroelectric power in the world.

8731

Spokane, Washington
October 1, 1941

Mr. Bernard Blum:

Herewith clipping from the Spokane Chronicle of September 26 telling that the first of the 118,000 k.v.a. generators will be in operation October 4. You will note that the second big generator is expected to be installed early in 1942.

[Handwritten signature]

District Engineer

[Handwritten mark]

HMT-b
encl

Washington, D.C.
October 1, 1941

100-100000
100-100000
100-100000

Mr. [Name]

Reference is made to your letter of September 23, 1941, in which you state that the first of the 100,000 generators will be in operation by October 1. You will note that the second 50,000 generators is expected to be installed early in

1942.

Very truly yours,
Director

cc: [Name]
cc: [Name]

Spokane, Washington
October 1, 1941

✓
Mr. Bernard Blum:

Herewith clipping from the Spokane Chronicle of September 26 telling that the first of the 118,000 k.v.a. generators will be in operation October 4. You will note that the second big generator is expected to be installed early in 1942.

Signed, H. M. TREMAINE

District Engineer

HMT-b
encl

HUGE GENERATOR TO START POWER FLOW OCTOBER 4

Power from the world's largest electrical generator—the 108,000 k. v. a. unit recently completed in the west power house at Grand Coulee dam—will start flowing Saturday, October 4, to industrial plants connected with the Bonneville-Grand Coulee power administration's lines, it was announced today by the reclamation bureau.

More than 200 electricians, linemen, riggers and engineers started work this morning on a huge job, which must be rushed to completion before the generator may go to work.

The first move was to shut down the two 10,000 k. v. a. generators, which have been serving power to Bonneville for several months.

Temporary electrical connections between the "small generators" and the electrical switching yard, high on the west bluff above the dam, will be removed, and a new permanent wiring system installed.

Will Make Tests.

After wire connections have been established, there will be a series of careful tests to assure perfect synchronization between voltages and electrical phases of the Grand Coulee machines and those at Bonneville dam.

The big generator, a third larger than any heretofore used, weighs about 4,000,000 pounds, stands 116 feet high and has an over all diameter of 45 feet. Its moving parts, including a 200-ton steel shaft, weigh 825 tons. The blades of the turbine, far down in the base of the power house, will be hit by 141 tons of water a second. The water will reach the turbine through an 18-foot wide penstock reaching through the dam.

A second big generator will be in operation at the dam early in 1942, and a third within the next year. Three others are being manufactured. Eventually the two power houses at the dam will house 18 108,000 k. v. a. generators and three 10,000 k. v. a. units.

8731

NOTED

H. E. S.
L. S.
E. L. L.
T. K. Y.
R. D. V.

Spokane, Washington
August 30, 1941

Mr. Bernard Blum:

Herewith clipping from Spokane Chronicle of last night telling of public hearings being now required because the backwater from Coulee Dam will go into Canada more than figured. Evidently the channel rectification works the Bureau did in the upper end of the lake in the hope of avoiding this very thing, were not successful.

G. J. J. J. J.

District Engineer

HMT-b
c Mr. A. F. Stotler
encl

Mr. Stevens
Please note
7/4 B.B.

Desk

Spokane, Washington
August 30, 1911



Mr. Bernard Shaw:

Herewith clipping from Spokane Chronicle

of last night telling of public hearings being now
reported because the backwater from Conlee Dam will
go into Canada more than figured. Evidently the
channel rectification works the Bureau did in the
upper end of the lake in the hope of avoiding this
very thing, were not successful.

Disaster Engine



W.H.B.
c Mr. A. F. Stoller
encl

Spokane, Washington
August 30, 1941

Mr. Bernard Blum:

Herewith clipping from Spokane Chronicle of last night telling of public hearings being now required because the backwater from Coulee Dam will go into Canada more than figured. Evidently the channel rectification works the Bureau did in the upper end of the lake in the hope of avoiding this very thing, were not successful.

Signed, H. M. TREMAINE

District Engineer

HMT-b
c Mr. A. F. Stotler
encl

Spokane Chronicle, August 29, 1941

Dam's Backwater Goes Past Boundary

When Grand Coulee dam has been put into operation a lake will be formed above it extending for some distance into British Columbia, thus requiring the approval of the international joint commission, the Canadian section of the commission today told the Associated Press at Ottawa, Ont.

"It was originally thought that this gigantic work, the world's greatest dam, would not back the Columbia river across the international boundary, but more precise engineering studies have convinced the bureau of reclamation that this is not true," the commission announced.

As a result, public hearings will be held at Trail, B. C., next Wednesday and in Spokane the following Saturday.

•Interests which may be affected by the raising of the level of the Columbia river in British Columbia are the Consolidated Mining and Smelting company, the city of Trail, the West Kootenay Power and Light company and individual land owners along the river between Trail and Boundary.

J.T.Derrig

Engr. Dept.

AGENT.

OCT 7 - 1940

CHECKED AS TO:

CALCULATIONS.....

CONTRACT.....

PRICES.....

ENTERED BY.....

DATE TO A. D.

CERTIFIED.....

[Signature]
District Accountant.

APPROVED.....

APPROVED.....

AUDITED.....



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release MONDAY, AUGUST 11, 1941.

WORLD'S LARGEST GENERATOR ASSEMBLED

Assembly of the world's largest water wheel generator, the first of the eighteen 108,000-kilowatt giants that will make Grand Coulee Dam the earth's greatest single source of electricity, has been completed.

The new generator will be ready to assume its cardinal role in supplying power to Pacific Northwest industries serving national defense as soon as it has undergone rigid inspection, drying out, and test runs, Acting Commissioner Harry W. Bashore of the Bureau of Reclamation reported today to Secretary of the Interior Harold L. Ickes.

Thirty percent greater in capacity than the largest built heretofore, and capable of illuminating $1\frac{1}{2}$ million 60-watt lamps, the dynamo will join the Grand Coulee-Bonneville power network, tapping many of the important manufacturing points of Oregon and Washington, October 1.

The surge of the tireless Columbia was permitted to strike the water wheel blades and turn the 600-ton rotor overhead for the first time on July 16, the eighth anniversary of that hot day in 1933 when a dedication ceremony marking the beginning of construction of Grand Coulee Dam was held on the river bank.

Three years in the making, the machine is one of a set of six, three under assembly and three on order, that will add a great new block of power for aluminum plants and other factories in the Northwest. The flow from two small Grand Coulee generators of 10,000 kilowatts each, known as station-service or "house" units, was previously diverted into main power channels to help forestall power shortage. Two more of the initial set of three main units will be in service within nine months. The total capacity of the completed power plant will be 1,944,000 kilowatts.

A description of Grand Coulee Dam's main turbine-generating set, which in Hollywood language would most certainly be entitled to a "super-colossal" billing, requires use of the dictionary's most impressive superlatives. The quantities of its component parts are staggering.

Unit No. 1 would supply all the electrical needs of a city of 213,000 people. The generator alone is 45 feet in diameter and 22 feet high, its weight more than 1,100 tons. Thirty-eight freight cars were required to bring in all the pieces from the factory in the East.

The Westinghouse Electric and Manufacturing Company, builder of the generators, used 650 tons of steel, 400 tons of stator, rotor, and pole laminations, 77½ tons of copper wire, totaling nearly 100 miles in length, 67 miles of tape, and correspondingly large quantities of other materials. The Newport News Shipbuilding and Drydock Company built the massive turbine.

A solid steel shaft, nearly four feet in diameter, 74 feet high, and weighing nearly 200 tons, connects the rotor with the waterwheel. Bolts weighing more than 200 pounds each were used in the assembly. Engineers aligned the shaft to one-thousandth of an inch, the precision of a fine wrist watch.

The revolving rotor is 31 feet in diameter and 10 feet high, and its rim will travel 130 miles per hour at its normal operating speed of 120 revolutions per minute. If the rotor and water wheel and connecting shaft were set up on some downtown street they would reach to the top of an eight-story building.

Nearly the entire revolving section, wheel, shaft, and rotor, weighing about 900 tons, is suspended from a single bearing, of the Kingsbury type, situated in the top of the machine. Small guide bearings are provided above and below the generator rotor, and a heavy guide bearing is located just above the turbine runner.

At the average head of 330 feet, 140 tons of water per second, equivalent to 23 gallons per day for every inhabitant of the United States, will hurtle through a steel penstock, 18 feet in diameter, and through the turbine scroll-case into the water wheel vanes to provide the unit with its motivating force.



J.T.Derrig

Engr. Dept.

8731

WOLFRAM HILL



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release WEDNESDAY, AUGUST 6, 1941.

Mr. B. B. note 8/12

GRAND COULEE'S RESERVOIR REACHES SEASON'S PEAK

Grand Coulee Dam's vast reservoir is two-thirds full.

The cold, blue-green waters of the Columbia, endlessly pouring in to this third largest man-made lake in the world from the snow-fields and glaciers of the Canadian Rockies and mountains in Montana and other states, has brought it to its season's peak.

Acting Commissioner Harry W. Bashore of the Bureau of Reclamation reported today to Secretary of the Interior Harold L. Ickes that the reservoir now contains more than 7,000,000 acre-feet of water, more than 17,000 gallons for every man, woman, and child in the United States, or a 7-1/2 year supply for the City of New York. Its maximum capacity is 9,720,000 acre-feet.

Through closure of conduits in the spillway or middle section of the dam, Reclamation engineers caused the new body of water to rise steadily throughout the spring and summer. It rose 111 feet in about 2-1/2 months, sufficient storage being built up to bring the water surface to elevation 1,255 feet above sea level, or about 320 feet above the average low-water stage of the river.

The lake level will be maintained at the present stage for several months to provide the high "head" that is necessary to obtain the most efficient operation from the first of the 108,000 kilowatt generators, scheduled to go into operation in September. In December, it will be drawn down about 15 feet to permit performance of work in the reservoir. When this operation is completed, the lake will be allowed to rise to its maximum height, about 35 feet above the present level.

The impounded waterway, at certain points nearly two miles wide, extends 133 miles behind the dam. Its ultimate length will be 151 miles, its average width about 4,000 feet (2-1/4 miles in one place), and its depth 375 feet.

By closing a number of water passages, technically known as outlet conduits, engineers could in the course of a few days cause the river to rise abruptly and plunge over the spillway in a mighty fall equal to the height of a 33-story building, or twice as high as Niagara, and five city blocks wide. This spectacle will be seen for the first time in the spring of 1942. Water is not being allowed to flow over the concrete this summer because of necessary construction in the spillway section of the dam.

The run-off of the Columbia, second largest stream in the United States, is so great that the storage reservoir behind the dam could be filled in two months at the average annual rate of flow, and in less than one month in June or July, when the maximum run-off generally occurs.

The rising lake has already inundated Kettle Falls, most picturesque spot between the dam and the northern tip of the reservoir at the Canadian boundary. Its kettle-like formations and white boils, which for years have been a scenic magnet to travelers, will never be seen again.

The lake has become a placid playground for boating enthusiasts. A commercial pleasure vessel makes daily trips past its scenic attractions, consisting of sheer granite and basaltic walls, some nearly a thousand feet high, sloping benchlands, wooded valleys, and points of historic interest.

Through the Pacific Northwest's new lake will flow the water to drive the eighteen 108,000 kilowatt generators--a third larger than any others built heretofore--that will be installed in the two powerhouses, and the water which giant pumps, each capable of extracting a stream 12 feet in diameter, will boost into a large balancing reservoir for irrigating 1,200,000 acres of arid land known as the Columbia Basin. The Columbia is one river that never has a water shortage, and that bugaboo will never harass basin farmers. Mammoth though they be, the pumps will never extract more than about one-fifteenth of the annual flow of the stream.

J.T.Derrig

Engr. Dept.

ATE AND TRIPLICATE

88000

BILL NO. _____
QUOTE WHEN REMITTING

MONTH'S ACCOUNT _____ AUG. 1940

WESTERN DIST. ACCTS. _____ DEPT. NO. B-2161

DATE MADE _____ AUG. 15, 1940

PACIFIC RAILWAY COMPANY, DR.,

O P. B. LACY, TREAS., ST. PAUL, MINN.

at South Tacoma,
truck August 2, 1940,
06-F.

32.24

.64



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release TUESDAY, JULY 29, 1941.

Turbines and governors for the three additional main generating units to be installed in the world's largest power plant at Grand Coulee Dam on the Columbia River in Washington, were ordered today by Secretary of the Interior Harold L. Ickes.

The Newport News Shipbuilding & Dry Dock Company of Newport News, Virginia, will furnish three 150,000-horsepower turbines on its bid price of \$1,880,000, which was the lower of two bids for this equipment received and opened by the Bureau of Reclamation at its Denver, Colorado office on July 15.

The Woodward Governor Company of Rockford, Illinois, on its bid of \$82,992 will furnish three governors with pumping equipment for regulating the speed of the turbines.


These turbines and governors are for units in the left powerhouse, designated as L-4, L-5, and L-6. With the 108,000-kilowatt generators which were ordered for these same units last week, the major equipment has been ordered for each of these three units.

These three units will add to the first battery of three main units now being installed, one of which will be ready to go into operation next month, one in December and the third in March of 1942.

Power operations at Grand Coulee Dam began on March 22 of this year when two 10,000-kilowatt station service units went on the line serving the Bonneville system.

To meet the requirement of the Office of Production Management for completion of the installation of these three units at the earliest possible date to provide power for national defense purposes, delivery of one of the turbines is required in 500 days, one in 530, and the other in 560 days and one of the governors in 560, one in 590, and the other in 620 days.

By the fall of 1943 all three of these big units will be installed, bringing Grand Coulee's power plant capacity up to 648,000 kilowatts at that time. With the ultimate installation of 18 big units in two powerhouses Grand Coulee will have a total capacity of 1,974,000 kilowatts, making it by far the largest hydroelectric development in the world. From this great plant will come power, not only for national defense, which is the critical present need, but also for irrigation pumping, and for lights and electrical conveniences for hundreds of thousands of people in the Northwest.



J.T.Derrig

Engr. Dept.



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

*Mr. Blue
note 8/30
B*

BUREAU OF RECLAMATION

For Release FRIDAY, JULY 25, 1941

Contracts for three additional, 108,000 kilowatt generators--the largest in the world--for Grand Coulee Dam on the Columbia River in Washington to supply electric power for expanding national defense industries in the Pacific Northwest were announced today by Secretary of the Interior Harold L. Ickes.

The award was made to the Westinghouse Electric & Manufacturing Company--the lowest bidder--on the recommendation of H. W. Bashore, acting commissioner of the Bureau of Reclamation, which is constructing the Columbia Basin project, of which Grand Coulee Dam is the key structure. The bid of the Westinghouse Company was \$2,697,785, f.o.b. East Pittsburgh, Pa.

All three of the big machines are to be installed by the fall of 1943 and will give Grand Coulee by that time a total capacity of 648,000 kilowatts. It will then be second in the world only to Boulder Dam on the Colorado River in the Pacific Southwest, which by the summer of 1942 will have an installed capacity of 951,300 kilowatts.

The new generators for Grand Coulee will add to the first bank of three big machines which are now being installed. The first is now scheduled to

go into operation in August; the second in January and the third in March of 1942.

"The critical power situation in the Pacific Northwest demands that every effort be made to speed installations at Grand Coulee Dam", commented Secretary Ickes. "We are appealing to the Office of Production Management to assist wherever possible by giving necessary priorities with manufacturers of equipment so that we can get these first six generators on the line with the least possible delay.

"The recent allocation to the Pacific Northwest of new aluminum production, which will require 162,500 additional kilowatts, makes the need for the new installations more urgent. I have directed that all speed possible be made in meeting the demand for power for defense needs.

"I was much impressed with the very conservative figures on the power deficiency in the Pacific Northwest reported by the U. S. Bureau of Reclamation. This report shows that on a regional basis, including the Northwest and several Intermountain States, 681,000 kilowatts of additional capacity will be required by 1944 in addition to the ten generators at Bonneville and the first three now being installed at Grand Coulee. We will meet half of this threatened deficiency by the delivery of the second set of three generators at Grand Coulee, but it is quite apparent that still more capacity will be necessary.

"A third set of generators--one each in 1944, 1945, and 1946 already has been recommended. My information from studies made by the Bonneville Power Administration is that this and much more additional power will be

required in 1944 if the Pacific Northwest is to be in a position to meet the National Defense power demands which are prospective."

Six additional generators of 54,000 kilowatts each are being installed at Bonneville Dam, power from which is distributed together with that from Grand Coulee by the Bonneville Power Administration under the Department of the Interior. By the end of 1943 Bonneville will have a capacity of 518,400 kilowatts. The combined capacity available to the Grand Coulee--Bonneville distribution system will then be 1,166,400 kilowatts.

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WOLFTRAM HILL



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release THURSDAY, JULY 17, 1941

RESERVOIR CLEARING COMPLETED AT GRAND COULEE

They'll cut down the old pine tree, the last one of thousands within the boundaries of the Grand Coulee Dam storage reservoir in northeastern Washington, and haul it away to the mill, marking the completion of the logging end of clearing operations on the lake bed behind the world's largest concrete structure this month.

W.P.A. workers using Bureau of Reclamation equipment have felled about 33,000,000 board feet of merchantable logs in the 151-mile basin and rolled them into the Columbia or its tributaries to be floated to a sawmill. A ceremony is scheduled to celebrate the final axe-swinging operation.

The entire clearing operation, covering 50,000 of 81,000 acres of land within the reservoir, is due to be completed this month, John C. Page, Commissioner of the Bureau of Reclamation, reported today to Secretary of the Interior Harold L. Ickes.

One writer has called the Grand Coulee reservoir clearing the world's biggest "shave and a haircut." The work began in October 1938, and since then 600 miles of shoreline have been denuded of trees, large and small, sagebrush, and other growth and debris of various sorts.

The clearing project is the largest for any of the dams thus far built by the Bureau of Reclamation. The Bureau furnished all material and equipment necessary for the construction and operation of the camps and for field operations, and W.P.A. furnished all labor to build, operate, and maintain the camps, and performed the actual clearing work.

Employment totaled 2,600 men at the peak of the work. Five permanent camps, five or more tent camps, and one floating camp, were erected to house the workmen.

Areas more or less remote from the established camps were cleared from the mobile unit, which consisted of three large barges with two-story superstructures and could be moved from place to place. Two vessels were used for sleeping quarters while the third housed the dining room, kitchen, offices, washroom, and showers. A smaller barge with one-story superstructure held a blacksmith shop, machine shop, and gasoline engine generator set for lighting the camp. The workers often encountered rattlesnakes, and lived a somewhat lonely existence, but "Camp Ferry", as the unit was known, was the most popular of all the clearing camps.

W.P.A. forces used a power barge, two tugboats, two motor launches, several smaller vessels, and many pieces of land equipment. Because of the danger of fire most brush was piled for burning in the summer and ignited in the fall after the first rains had fallen. The river canyon became a veritable "valley of ten thousand smokes" on these occasions.

The higher areas of the reservoir were grubbed out because the future winter draw-downs of the reservoir surface will periodically expose the upper 80 feet. The finished picture will at all times show a clear shoreline with no ugly stumps, rocks, or abandoned building foundations to mar the scenic landscape or endanger navigation.

This summer was set as the deadline for the completion of clearing work, because the lake being impounded behind the dam is expected to flood most of the areas mapped out. It has been rising two or more feet a day for the past few weeks. It is expected to extend 133 miles with its highest level 320 feet above the original low water elevation this summer.

The final length of the reservoir will be 151 miles. The average width will be four-fifths of a mile, and the depth 375 feet. It will contain 9,720,000 acre-feet of water, equivalent to 25,000 gallons for every inhabitant of the United States.

Residents of ten hamlets and scattered farm families have moved away ahead of the rising waterline. Ninety miles of State primary highway, an equal amount of secondary highways, consisting of forestry, county and Indian roads, and 27 miles of railroad had to be constructed to replace old thoroughfares vanishing under the reservoir water. About a thousand graves, mostly Indian, were removed to higher land.

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St. Paul, Minn. July 17, 1941

Mr. E. H. Brown:

About a month ago you were inquiring about book-lets and pamphlets furnished by Mr. Tremaine on mineral resources in the Pacific Northwest. I have just run across this and am sending it to you.

T. R. Gibson

TRG:R

Encl.

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J.T.Derrig

Engr. Dept.

Mr. Blum
Mr. Beck *MB*

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NORTHERN PACIFIC

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OF

Sani-Stone Products Co.,
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N.P. RY. CO. \$12

TO TREASURER
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release SUNDAY, APRIL 6, 1941.

The work of cooling the $10\frac{1}{4}$ million cubic yards of concrete in mammoth Grand Coulee Dam is done, Commissioner John C. Page, Bureau of Reclamation, advised Secretary of the Interior Harold L. Ickes today.

The job required two large pump barges, 2,000 miles of pipe, 2 miles of $3\frac{1}{2}$ foot inspection shafts, nearly 6 miles of other galleries and shafts, and five years. It cost an estimated \$1,400,000.

Newly-placed concrete results in the evolution of heat which unless dissipated causes expansion and subsequent contraction liable to damage a structure, especially if a large one. The engineers at Grand Coulee Dam avoided the danger by circulating cold river water through steel tubing imbedded in the dam.

The pumping system reduced concrete temperatures from as high as 132 degrees to the uniform temperature of 45 degrees required by the engineers.

It required 60 to 90 days of circulation of the cold water to cool the concrete in each section to the desired temperature as block after block of the dam was placed until it reached its full height of 550 feet. The engineers calculate that through ordinary radiation the entire mass of concrete would not have cooled for a century.

The two barges pumped cold river water out of the Columbia and circulated it day and night at the rate of 4 gallons per minute through each of the thin-walled 1-inch pipes. One of the barges had 5 pumps and a capacity of 3,500 gallons per minute; the other 6 pumps and a capacity of 5,500 gallons per minute.

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DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

GEOLOGICAL SURVEY

For Release THURSDAY, APRIL 3, 1941.

An increase in returns of more than \$500,000 to the Federal Government from the sale of royalty oil from the Lance Creek field in Niobrara county, Wyoming, today was recorded by Secretary of the Interior Harold L. Ickes as an achievement under the national conservation program. Bids from the Cilebur Corporation of Denver, Colo., were accepted for the purchase of an aggregate of almost 1,000,000 barrels of crude oil over a three-year period from April 1, 1941, to March 31, 1944.

Other contracts signed two weeks ago with the Perry Petroleum Company of Denver, Colo., and the Manville Crude Oil Company of Manville, Wyoming, bring the aggregate of the Government's royalty oil sales over the three-year period to 1,594,000 barrels, at a price ranging from 1 to 2 cents above the minimum figure of \$1.02 per barrel fixed by the Government for its royalty oil in the Lance Creek field where the posted price of major companies is 77 cents.

Constituting the first instance of a sale by the Government of all its share of royalty oil in the Lance Creek field, execution of the contracts marks an advance in the efforts of the Department of the Interior to solve complex problems in that producing area. In addition to resulting in a higher price to

the Government for its oil, the negotiations pave the way for independent operators in the Rocky Mountain Area to secure an assured supply of high quality crude oil for a stated term of years.

Behind the successful outcome of negotiations for sale of the Government's royalty oil lies the story of a complicated situation involving economic and market conditions affecting the Lance Creek field.

Under the Mineral Leasing Act of February 25, 1920, the Government is entitled to receive from 5% to 33-1/3% royalty on oil produced from Federal lands. This royalty may be collected either in the form of oil itself, or in monetary value, based on the posted price fixed in the various fields by the oil industry.

In the Lance Creek field, the present posted field price is 77 cents per barrel, and, until the present negotiations were concluded, the Government collected its royalty in cash on posted price values.

Investigations by the Geological Survey established the fact that the 77-cent posted field price does not represent the Department of the Interior's opinion of the true value of Lance Creek oil, and Secretary Ickes found that \$1.02 was a more reasonable return which the taxpayer should receive as his share of the production through disposal of the royalty oil. Consequently, collection of the Government's royalty on oil in cash has been discontinued and effective April 1, 1941, royalty will be taken in the oil itself and sold under the contracts just signed.

Incidentally, of this return, 52-1/2% goes to the Federal Reclamation Fund, 37-1/2% to the Wyoming State school fund, and 10% to the Federal Treasury.

Roughly estimated, the sale of the royalty oil involved in the contracts at the 77-cent posted price figure would have brought approximately \$1,200,000 to the Government; under the contracts themselves the amount will approximate \$1,700,000.



WOLFRAM HILL

DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release SATURDAY, MARCH 22, 1941

Initial generation of electric energy today by Grand Coulee dam on the Columbia River was hailed as an aid to national defense by President Franklin D. Roosevelt.

In a letter to Frank A. Banks, Supervising Engineer of the giant project, President Roosevelt declared that putting the dam to work two years ahead of schedule "is a fine job well done".

The project, the President said, "served to provide much useful employment at a time eight years ago when it was important that we find at once a means of avoiding complete economic stagnation, and it will serve now to provide the power to make aluminum for airplanes and otherwise to speed our protective arms."

Grand Coulee dam, the greatest structure ever erected by man, will be the largest source of hydroelectric power in the world when all generators have been installed. The first energy from the project, constructed by the Bureau of Reclamation, will be generated today (Saturday, March 22) when two 10,000-kilowatt generators are turned on. The 20,000 kilowatts of power they produce will be only a symbol of the enormous energy which will flow later from the largest generators in the world. (Ultimate capacity of the project will be 1,920,000 KW)

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Commemorative ceremonies will be conducted today at the project as initial generation begins. Participating will be Governor Arthur B. Langlie, of Washington; Bonneville-Grand Coulee Power Administrator Paul J. Raver, and other dignitaries.

Commendatory letters to Supervising Engineer Banks upon the start of generation months ahead of schedule also were dispatched by Secretary of the Interior Harold L. Ickes, and Commissioner of Reclamation John C. Page. Their letters, with President Roosevelt's, follow:

"THE WHITE HOUSE
WASHINGTON

March 17, 1941.

"My dear Mr. Banks:

"I want to congratulate the Bureau of Reclamation upon putting the great Grand Coulee Dam to work two years ahead of schedule. It is a fine job well done.

"It is thrilling to contemplate the prospects that this dam opens. A tremendous stream of energy will flow continuously from the dam to turn factory wheels to make the lives of men more fruitful. It will light homes and stores in towns and cities; it will ease the drudgery around the farmhouses and farmyards of the Pacific Northwest. In short, it will bring to millions the many benefits of plentiful, low-cost, public power.

"Water will flow through the canals from the dam to lands now dry and barren but which one day will be made fertile by irrigation. This water will serve thus to create homes for thousands of families on farms and in new towns and villages.

"Floods will be curtailed and navigation will be improved so that much of the commerce of this new empire may cheaply be waterborne.

"We must not lose sight of these things which were in our minds when the dam was begun. It is of vital importance also at this time to know that generators are ready at Grand Coulee to take up the task of providing the power we need for an immediate and pressing task, that of preparing our defenses. This project will have served in two emergencies. It served to provide much useful employment at a time eight years ago when it was important that we find at once a means of avoiding complete economic stagnation, and it will serve now to provide the power to make aluminum for airplanes and otherwise to speed our protective arms.

"Grand Coulee Dam will have served these two emergent needs without in the least decreasing its effectiveness as a long-term productive asset planned and designed prudently to utilize the resources of the Northwest in building a sounder and richer United States.

"Very sincerely yours,

(Sgd) Franklin D. Roosevelt.

"Mr. Frank A. Banks,
Supervising Engineer,
Bureau of Reclamation,
Coulee Dam, Washington."

"THE SECRETARY OF THE INTERIOR

WASHINGTON

March 10, 1941

"Mr. Frank A. Banks,
Construction Engineer,
United States Bureau of Reclamation,
Grand Coulee, Washington.

"My dear Mr. Banks:

"Through you I take this occasion, as Grand Coulee Dam is put to work for the first time, to congratulate the technicians, workers, and citizens whose long labors have made possible this achievement.

"I am proud of the eight-year record written by the Bureau of Reclamation to date on this vast project, in which the dam alone comprises the greatest single structure man has built. We are now starting it on its useful tasks two years ahead of the original schedule. Thus we adapt it to emergency needs and enlist it in the national defense program to supply vitally needed electric power. We are able to do this today because of the wisdom of undertaking such gigantic works as Grand Coulee in times of depression when our productive labor and machinery were not utilized and pushing them forward with efficiency and dispatch so that we were ready for the call that came now all our productive facilities are strained by the defense program.

"This significant first task of Grand Coulee is but a symbol of the power and resource that is inherent in the structure your co-workers have erected. It is now only embarking on its long life of multiple purposes, and its service will be augmented greatly in the

years to come. Grand Coulee will not be finished for many decades. My hope and trust is that this job will be completed with the skill and devotion that has brought us to this day, so that it may fully discharge its destiny in our democracy.

"Sincerely yours,

(Sgd.) Harold L. Ickes

Secretary of the Interior"

"UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
Washington

"AIR MAIL

"Mr. Frank A. Banks,
Supervising Engineer,
Bureau of Reclamation,
Coulee Dam, Washington.

"Dear Mr. Banks:

"The initial commercial operation of the power plant at Grand Coulee Dam this Saturday, March 22, offers occasion for congratulations, which you will be receiving from many quarters. I wish to add my own-- to extend them to you, to the Denver office of the Bureau, to your own staff, and to the workmen at the dam.

"The occasion is an opportunity for congratulations also on the part of the Pacific Northwest. For 50 years people in the Northwest have envisioned the transformation of the desert and dry-farmed land of the Big Bend country in Washington to a fertile empire of homes, farms, factories and towns.

"That vision is now coming within reach. A vista of low cost hydroelectric power and of widespread benefit from irrigation with a solid economic development is being opened up by the commencement of power generation at Grand Coulee Dam.

"The rotation of the two station service generators to be cut into the Bonneville line marks a milestone not only in the historical calendar of the Northwest, but also in the record of the Bureau. In 38 years of self-liquidating irrigation construction which has brought water, power and light to 4-1/2 million people in the West the Bureau

has never built so great a structure or so huge a power plant. Grand Coulee Dam is the largest concrete dam in the world. Grand Coulee Dam's hydroelectric power plant will also be the largest in the world.

"In the celebration of this event, it should be remembered well that the entire construction of this project and the progress made to date are directly due to the farsighted wisdom of President Roosevelt and Secretary Ickes. It is directly due to their continued encouragement that the Bureau's work on the Grand Coulee Dam project has attained the present stage of construction. With this leadership, I am confident that the Bureau can bring the vast project to successful fruition.

"Very truly yours,

(Sgd.) John C. Page

Commissioner."





WOLFRAM HILL

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DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release THURSDAY, MARCH 20, 1941.

Grand Coulee Dam passes another important milestone on March 22, Commissioner John C. Page, Bureau of Reclamation, reported today to Secretary of the Interior Harold L. Ickes.

Electricity will flow for the first time on that date from the project powerhouse to the Bonneville transmission system with microphones of Nationwide broadcasting networks and newsreel cameras recording the event.

The National chain goes on the air for 30 minutes at 1:00 p.m. Pacific Coast time (4:00 p.m. Eastern Standard) and the Columbia at 3:00 p.m. Pacific time (6:00 p.m. E.S.T.). The sound of the generators will be recorded for millions of listeners.

Many pioneer boosters for the dam, largest in the world, consider the March 22 milestone the most momentous of all that have occurred since July 16, 1933, when with considerable ceremony State and Northwest dignitaries symbolically turned up the first shovel of earth for the mammoth structure later to arise.

The dates considered most significant in the growth of the dam are:

Sept. 9, 1933--First survey stake driven.

Dec. 13, 1933--Excavation to expose bedrock begun.

Sept. 25, 1934--First major contract for construction of the "low"
dam awarded Mason-Walsh-Atkinson-Kier Company.

Nov. 18, 1934--First power line (110,000 volts) built to dam site.

Dec. 8, 1934--Golden spike driven on project's first railroad.

June 5, 1935--Secretary Ickes approves change order altering low
dam to base for high dam.

July 28, 1935--First train reaches Grand Coulee Dam.

Dec. 6, 1935--First concrete pour made.

Dec. 15, 1936--Columbia River diverted for first time.

Feb. 7, 1938--Second major contract (for completion of the structure)
awarded to Consolidated Builders, Inc.

Feb. 18, 1939--First (Quincy) Columbia Basin irrigation district
formed.

March 22, 1941--First power generated, station service units (2 of
10,000 kilowatts each).

And in August 1941--First of world's largest hydroelectric generators
(108,000 kilowatts) should start production.

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✓
J.T.Derrig

Engineering Dept.

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~~M. B. L.~~

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~~J.R.S.~~
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J.D.





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~~WOLF MACHINE~~
DEPARTMENT OF THE INTERIOR
INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release WEDNESDAY, MARCH 19, 1941.

The first American will be the first direct customer for Grand Coulee Dam power.

Indians of the Colville Reservation adjacent to the Columbia River project will be the first people to use electricity direct from the powerhouse when it is sent surging through the lines of their REA Nespelem Valley Electric Cooperative.

Power is scheduled to be produced for the first time and transmitted to the Bonneville line on March 22, with microphones of two national radio networks recording the hum of twin 10,000-kilowatt station-service units and transmitting it to millions listening in all parts of the country. The REA cooperative, now buying electricity from the construction circuit operated by Consolidated Builders, Inc., dam contractors, has been promised Grand Coulee power about May 15.

The cooperative has about 15 Indians among the 150 customers served by its 39-mile line. It has applications from 15 others and more are expected as soon as older Indians become as familiar with the new phenomenon as the younger members of the tribe now enjoying and taking it for granted.

The memory of how in years past a power line somewhere fell on and electrocuted one of their horses still lingers with aged members of the Confederated Tribes of the Colvilles, comprised of 3,300 Nez Perce, Colvilles, Okanogans, Moses Columbias, and San Poils.

When the REA line was being strung an Indian squaw rushed out of her home wildly protesting the erection of a pole on her land. She was afraid that the pole would fall on her stock.

The case was put up to the Colville Indian Business Council, self-governing agency for the tribe. Composed mostly of younger Indians the body quickly assented to the construction. It was equally imperative however to get the backing of the old chiefs; the older Indians followed their advice; for them to say "No" to the proposal to cross Indian lands would have been a definite setback for the older leaders weld great influence.

Called together by Chief Willie Red Star of the Nez Perce five of the chiefs met steadily for a day and a half, with an interpreter acting as the intermediary for Harry H. Butler, superintendent of the proposed system.

"What took so long?", Butler was asked. "I don't know," he replied, "every time I would say six words, it would be interpreted with language of each tribe represented. Then they'd talk about a lot of other matters."

The outcome of this unofficial but delicately important meeting was approval. Soon afterwards the Indians who could not sign their names placed their thumb-prints on legal papers and the line was built from the dam site into the valley. Nearly all of the common labor was performed by young Indian men.

Joe Redthunder, about 35, descendant of the great Chief Kamiakin, is one of the most enthusiastic power consumers. He has a refrigerator, electric iron and other appliances. Many of the older Indians have come to inspect his home.

From the campfire light to the incandescent lamp is a long step and the source of the energy is not always understood among the tribesmen. One Indian woman, said to be over a hundred years old, went to a five-and-ten-cent store and bought an armful of bulbs and sockets, then walked into the REA office and said, "Me want light."

An example of the wide gap between the old West and the new can be seen in an Indian cemetery situated on a knoll overlooking Nespelem. The most prominent grave is that of Chief Joseph of the Nez Perce who died at the age of "about 60" in 1904 after leading his people in the great Nez Perce War of 1877.

Only about 150 feet from the gravestone is one of the power poles of this 20th century conveyance bringing light made by the White Man to the heart of a great warrior's last hunting grounds.



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release FRIDAY, MARCH 21, 1941.

PHOTOS AVAILABLE

National defense and imminent power shortage in the Northwest are not the only elements which make time of the essence on the immense Grand Coulee Dam project in Washington whose power plant begins to operate this week.

Swift erection of the great concrete dam two years before schedule has put the engineers on a spot. They are racing against time in striving to complete the relocation of railroad and highway communications in the area before inundation.

John C. Page, Commissioner, Bureau of Reclamation, reported today to Secretary of the Interior Harold L. Ickes that the Columbia River water backed up by Grand Coulee Dam was expected to reach almost full flood stage in May or June.

The lake will then be 375 feet deep and 151 miles long. All roads and two branches of the Great Northern Railway will be buried under tons of water. New roads and new lines must be completed beforehand.

Approximately 180 miles of State highway and secondary roads and 29 miles of railroad are being relocated to skirt the reservoir. Three major bridges, six smaller bridges and numerous other structures such as underpasses, overpasses, and culverts are being built.

The construction work has been going on since the spring of 1939. Estimated contract cost for the State highway work is \$1,733,000; for the secondary road relocation, \$732,000; and for the railroad relocation, \$1,366,000, including the estimated cost of materials and the substructure of three bridges.

While the reservoir area to be flooded is not heavily populated, a number of small hamlets and towns exist. Inundated towns are not considered a part of the highway or railroad relocation program but are being appraised and bought in the same way that other right of way is handled.

The population centers are connected by a network of roads on both sides of the Columbia River, consisting of State, county, Indian and forestry roads, portions of which will be inundated by the rise in water level, particularly in the valleys formed by tributary drainage to the main river.

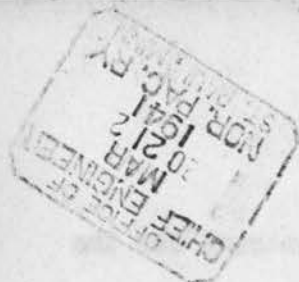
The branches of the Great Northern Railway to be partially submerged are from Kettle Falls northwest up the Kettle River to Boyds, 16 miles, and from Kettle Falls up the Columbia River to Williams, 13 miles. These rerouted lines and necessary bridgework are under construction.

Of the 90 miles of State highway to be inundated about 50 miles have already been relocated and 40 are nearing completion. Of the 90 miles of secondary roads (county, Indian Service, Forest Service) approximately 23 miles have been completed, 26 are under construction and 41 remain to be constructed.

The highway relocation work is under supervision of the State, which will be recompensed for the cost by the Bureau. The railway relocation, including bridges and auxiliary facilities such as railway yards, grade separations, spurs and sidetracks, drainage structures, riprap protection of steep slopes and

water-supply systems, is under supervision of the Bureau. A contract for the work incident to the railway relocation, with exception of some of the bridge and other structural construction, was let in July last year to J. A. Terteling & Sons.

Inasmuch as the reservoir is expected to reach almost its full height in two or three months, it is imperative that practically all the relocated roads, railways and bridges be completed prior to peak discharge of the Columbia River at that time. Commissioner John C. Page expressed confidence as to the outcome, "The race to complete the construction ahead of high water promises to be a close one, but barring unusual contingencies the work should be finished on time."





WATERBURY HILL

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Damm

DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For release MONDAY, MARCH 17, 1941.

Grand Coulee Dam which on March 22 begins providing power for National Defense, didn't just grow to be the "biggest thing on earth." It was built by man and will remain a monument to the engineering genius of this day for generations to come.

"It is so big you cannot see it. Can an ant see an elephant?" was the reaction of one well-known writer to this plug in the Columbia River 90 miles west of Spokane.

It is 550 feet high and 4,300 feet long, and its purpose is to store 10,000,000 acre feet of water in a 151-mile reservoir for the irrigation of 1,200,000 acres of dry land, for the generation annually of 12 billion kilowatt hours of electric energy in the largest power plant in the world, for flood control, river regulation, navigation improvements, and downstream power benefits.

Who built this colossal structure? An army of men reaching a maximum of 7455 in the front rank working on the site day and night for more than seven years makes it possible for two generators to begin operation two years ahead of schedule.

Behind the lines was an even larger army of supporting troops, which could not be seen from the vista houses on the rim of the Columbia River Canyon. These

worked in forests providing lumber; in mines producing raw materials; and in steel mills providing pipe, piling, reinforcement bars; in foundries and factories making machinery and equipment; on farms producing the food for those men; and on railroads which poured the products of all their labors through the funnel and into Grand Coulee Dam.

At the site of the dam, 52,919,945 man-hours of employment have been given. Off the site, in more than forty states, approximately 89,305,000 man-hours--70 percent more than at the site of the structure--of work have been required.

Under President Roosevelt's program for meeting unemployment, construction of the dam was begun in 1933 by the Bureau of Reclamation, an agency of the Department of the Interior. The President approved an allocation of Public Works funds by Administrator Harold L. Ickes to begin construction.

To the engineers of the Bureau of Reclamation goes the credit for planning, designing and supervising this harnessing of the country's second largest river.

To the contractors, who marshalled thousands of workers on the job, there is due commendation for the efficiency of their organizations. The results justify the confidence reposed in them.

Secretary of the Interior Harold L. Ickes said today in commenting on the start of power generation two years ahead of schedule: "The Bureau of Reclamation has again justified its international reputation for outstanding engineering. Its work in planning and supervising the construction of Boulder Dam was an engineering landmark. Now a still greater achievement is added to its list, compilation of which began nearly forty years ago. To the technical and administrative staffs of the Bureau, from the Commissioner and Chief Engineer down and to the many other loyal employees who have served with them on the Grand Coulee job, I say--'Well Done.'

"I can not let this opportunity pass without saying a word for the thousands of men who actually made the great dam. They accepted their difficult tasks with the fine pride and good humor that are the trademarks of American labor, and they set and broke records for preparing and placing concrete with such monotonous regularity that eventually little attention was paid to new ones. The American laboring man, from the steel mills of the East to the sawmills of the West and on the dam itself, has built himself a monument."

Dr. Elwood Meal was Commissioner when Grand Coulee Dam was begun. He died in January 1936, and was succeeded by John C. Page, who was promoted out of the ranks after more than a score of years of service with the Bureau as surveyman, engineer, project manager, and office engineer during the construction of Boulder Dam.

The construction activities of the Bureau are directed from the office at Denver, Colorado, and there the designs were perfected which have been translated into the climax dam of the Bureau's long record. In Denver were:

Raymond F. Walter, Chief Engineer from 1925 until his death in 1940. He was succeeded by Sinclair O. Harper, who had been Assistant Chief Engineer under Mr. Walter. Both had long records with the Bureau in construction of irrigation projects and supervising the building of 165 dams.

Designing Grand Coulee was John L. Savage, Chief Designing Engineer of the Bureau, recognized as an authority on high dams. Mr. Savage has designed more than 55 major dams, numerous smaller structures, and canals.

L. N. McClellan, Chief Electrical Engineer, designed the electrical installations and the powerhouses.

In command at the scene of construction activities has been Frank A. Banks, Supervising Engineer, in the service of the Bureau for 35 years. During that

period he has supervised the construction of American Falls Dam on the Snake River in Idaho and the Owyhee Dam in Oregon, the highest dam in the world when it was completed in 1932. In addition to his duties at Grand Coulee, Mr. Banks served as Acting Administrator of the Bonneville Power Administration from May until September 1939.

Major contractors on the construction of Grand Coulee have been:

David H. Ryan, San Diego, California, removal of 4,200,000 tons of overburden earth and rock.

Mason-Walsh-Atkinson-Kier Company, comprised of the Silas Mason Co., Inc., New York; Walsh Construction Co., Davenport, Iowa; and Atkinson-Kier Co., San Francisco, for construction of the first half of the dam.

Consolidated Builders, Inc., for the construction of the high dam and power plant. It was made up of ten firms, including the three companies in the MWAK Co., and the following: Morrison-Knudsen Co., Boise, Idaho; J. F. Shea Co., Los Angeles, Calif., McDonald and Kahn, Los Angeles; Henry J. Kaiser Co., Oakland, Calif.; Utah Construction Co., Ogden, Utah; General Construction Co., Seattle, Wash.

Thumbnail sketches of the men who have planned and executed the work that has brought Grand Coulee Dam into being follow:

Elwood Mead, born in Switzerland County, Ind., January 16, 1858; graduate civil engineer of Purdue University; State Engineer of Wyoming 1888-99; Chief of Division of Irrigation and Drainage Investigations, Department of Agriculture 1899-1907; Chairman of State Rivers and Water Supply Commission, Victoria, Australia, 1907-14; Professor of Rural Institutions, University of California, and Chairman of State Land Settlement Board, 1914-23; Commissioner, Bureau of Reclamation, 1924-36. He died in office in January 1936.

John C. Page, born Syracuse, Neb., Oct. 12, 1887; graduate civil engineer, University of Nebraska, 1908; specialized at Cornell University in Hydraulics and Civil Engineering; Bureau of Reclamation, topographer to project superintendent, 1909-30; office engineer Boulder Dam, 1930-35; Head of Engineering Division, Washington Office of the Bureau of Reclamation, 1935-36; Commissioner, Bureau of Reclamation, 1936 to date.

Raymond F. Walter, born Chicago, Illinois, October 31, 1873, graduate Colorado Agricultural College; civil engineering practice until 1903; Engineer, Supervising Engineer, Assistant Chief of Construction, Assistant Chief Engineer, Reclamation Service, 1903-25; Chief Engineer, Bureau of Reclamation, 1925-40. He died in office in June 1940.

Sinclair O. Harper, graduate of University of California, 1907; civil engineering practice, 1907-8; Engineer, Bureau of Reclamation, 1908-17; Superintendent Grand Valley Project, Colorado, 1917-25; General Superintendent of Construction, 1925-30; Assistant Chief Engineer, 1930-40; Chief Engineer, 1940 to date.

John L. Savage, born Cooksville, Wis., 1879; graduate civil engineer, University of Wisconsin; civil engineering practice, 1899-1903; Engineer, Bureau of Reclamation, 1903-08; Consultant, 1908-16; Chief Designing Engineer, Bureau of Reclamation, 1916 to date.

Frank A. Banks, born Saco, Maine, 1883; graduate civil engineer, University of Maine; rodman to construction engineer, Bureau of Reclamation, 1905-33; Supervising Engineer, Grand Coulee Dam, 1933 to date.

L. N. McClellan, born Middletown, Ohio, 1888; graduate electrical engineer, University of Southern California; electrical assistant to Chief Electrical Engineer, 1911-1924, and Chief Electrical Engineer since 1924.



John A. Jones, born [illegible], Dec. 12, 1907, [illegible]

University of [illegible], [illegible] [illegible]

1932-33 [illegible] [illegible] [illegible] [illegible]

1933-34 [illegible] [illegible] [illegible] [illegible]

1934-35 [illegible] [illegible] [illegible] [illegible]

1935-36 [illegible] [illegible] [illegible] [illegible]

1936-37 [illegible] [illegible] [illegible] [illegible]

1937-38 [illegible] [illegible] [illegible] [illegible]

1938-39 [illegible] [illegible] [illegible] [illegible]

1939-40 [illegible] [illegible] [illegible] [illegible]

1940-41 [illegible] [illegible] [illegible] [illegible]

1941-42 [illegible] [illegible] [illegible] [illegible]

1942-43 [illegible] [illegible] [illegible] [illegible]

1943-44 [illegible] [illegible] [illegible] [illegible]

1944-45 [illegible] [illegible] [illegible] [illegible]

1945-46 [illegible] [illegible] [illegible] [illegible]

1946-47 [illegible] [illegible] [illegible] [illegible]

1947-48 [illegible] [illegible] [illegible] [illegible]

1948-49 [illegible] [illegible] [illegible] [illegible]

1949-50 [illegible] [illegible] [illegible] [illegible]

1950-51 [illegible] [illegible] [illegible] [illegible]

1951-52 [illegible] [illegible] [illegible] [illegible]

1952-53 [illegible] [illegible] [illegible] [illegible]

1953-54 [illegible] [illegible] [illegible] [illegible]

1954-55 [illegible] [illegible] [illegible] [illegible]



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release THURSDAY, MARCH 20, 1941.

The whir of generating dynamos in the Grand Coulee power plant on March 22 will mark a significant date in the calendar of the Pacific Northwest, Commissioner John C. Page, Bureau of Reclamation, reported today to Secretary of the Interior Harold L. Ickes.

Since the days of original settlement, pioneers and engineers have wrestled with the problem of applying the water of the Columbia River to the rich but arid soil of the Big Bend country in central Washington.

Numerous schemes were conceived, and at least two of them underwent extensive engineering and economic investigations by State and Federal agencies for more than 30 years. Eleven bulky reports had been made prior to 1933 when President Roosevelt allotted emergency relief funds to the project, enabling the Bureau to start preliminary work.

Today, 7 years and 7 months later, mammoth Grand Coulee Dam stands practically complete. The Columbia River has been thrown back and is held in storage for beneficial use. The largest power plant in the world is about to start its use of the water to generate power. Eventually the plant will furnish electric energy for pumping billions of gallons of Columbia River water to farms, factories and towns in the Big Bend country.

Construction of two comparatively small dams, the erection of a pumping plant, and the construction of a system of canals and pertinent works will complete the steps necessary to bring the Big Bend problem to final solution. It will be like adding a 49th State to the Union to irrigate and develop the 1,200,000 acres, an area about equal in size to Delaware.

More than 300,000 people will find homes, farm and commercial and industrial opportunities opened up to them in the area. Families now struggling to make ends meet on submarginal acreages will have the opportunity of applying for family-size farms of good soil where the winter is mild and the growing season nearly six months long.

The materialization of the vast project, which will be fully and gradually achieved in the years to come, required extensive preparations to bring it to the present stage. Adequate transportation facilities for the construction of the dam and power plant had to be provided. Roads leading to the dam site were regraded, widened and hard-surfaced. A hard-surfaced highway from Grand Coulee to the site had to be constructed. Bridges across the Columbia replaced a primitive ferry.

From Odair on the Northern Pacific Railway near Coulee City 32 miles of railroad had to be built to the mouth of Grand Coulee and into the river canyon. A 110-kilovolt transmission line 31 miles long was built from the Washington Water Power Company's line near Coulee City to Mason City. Telephone and telegraph lines were built in by the Pacific Telephone and Telegraph Company and the Western Union Telegraph Company.

To house the workmen, whose number exceeded 7,000, two towns had to be constructed. The Bureau of Reclamation built Coulee Dam on the west side of the

river, and Mason-Walsh-Atkinson-Kier Company (the contractor) built Mason City on the other.

Coulee Dam is a permanent town, housing the engineers and other employees of the Government on the Columbia Basin project. It has paved streets, concrete sidewalks, water, sewer and street-lighting systems, a schoolhouse, postoffice, fire station, and extensive warehouses. It will house the operators of the dam in the future.

Mason City was built for only temporary service. It is already losing part of its population, now that the great dam is nearly complete. In addition to family houses and single-men dormitories the town has a hotel, hospital, schoolhouses, two churches, stores, office buildings, shops, warehouses, and a mess hall capable of seating 1,360 men at one time.

After all these preparations and many others plus the construction of two towns, the excavation of the foundation site and actual construction of the dam and power plant had to be accomplished. That tremendous work has been going on since January 1934. The next portion of the job now follows. It also will take years in the doing. Water at last will be applied to the rich, arid land. The problem which intrigued the early settlers and the engineers of years ago will be solved.



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release TUESDAY, MARCH 18, 1941.

March 22 climaxes the tremendous growth of hydroelectric power development on Reclamation projects, John C. Page, Commissioner, Bureau of Reclamation, reported today to Secretary of the Interior Harold L. Ickes.

The date celebrates the commencement of power operations at the most powerful power plant in the world—Grand Coulee, at Grand Coulee Dam, Washington.

The ultimate capacity of Grand Coulee power plant is 1,974,000 kilowatts—2,475,000 horsepower all wrapped up in one bundle, ready for national defense, for irrigation pumping, for lights and electrical conveniences for hundreds of thousands of people in the Northwest.

The hydro byproduct of Reclamation construction has already multiplied 900-fold from the first small beginning—a tiny power plant in 1906 on the Salt River project in Arizona. Today the total is 24 plants in operation in 8 States with an installed capacity of 873,655 kilowatts, not counting Grand Coulee.

In the process of installation on Reclamation projects—Grand Coulee, for one—are generators and turbines which will more than double today's capacity, to 1,915,755 kilowatts or 2,402,350 horsepower.

Plans for the addition of more generators and the erection of more plants—bringing the total to 42—will quintuple the capacity, to nearly 4-1/2 million kilowatts or more than 5-1/2 million horsepower.

The total power then available in power plants on Reclamation projects will equal the entire present hydroelectric development in the western half of the country.

"The event to be celebrated at Coulee Dam, Washington, on March 22 vies in significance with any conservation move ever undertaken by the national Government," said Commissioner Page. "The 10,000 kilowatt generators flashing into action at Grand Coulee are harbingers of a great and endless tune of untold wealth--the myriad, creative wealth of hydroelectric power being unfolded for the future comfort and happiness of thousands of homes, and for businesses, factories, and mines in the Northwest.

"The power plant at Grand Coulee Dam is the most ambitious ever built by the Bureau of Reclamation in its 35 years of hydroelectric plant construction. Its nearest competitor in size is the Boulder Dam plant in Nevada-Arizona completed by the Bureau 5 years ago and now returning power revenues totaling \$500,000 monthly. Grand Coulee's plant capacity is nearly 50 per cent larger than Boulder's. Their only near-rival in the world is at Dnieprostroy in Russia, which is about half the size of Boulder.

"The total output of power plants on Reclamation projects during the fiscal year ending June 30, 1940, was more than 3-1/4 billion kilowatt-hours, and gross revenues nearly \$8,000,000."

The Bureau of Reclamation has installed power units in plant after plant to meet the requirements of a developing section of the Nation. Two years after the construction of the Roosevelt plant on the Salt River project in Arizona--first to be built by the Bureau--the Spanish Fork plant went into operation on the Strawberry Valley project in Utah. A year later, 1909, the Bureau completed

a plant on the Minidoka project in Idaho. There followed in the next five years 5 more plants, three on the Salt River project. (constructed by the Salt River Valley Water Users Association under Bureau supervision), one on the Newlands project in Nevada, and another on the Boise project in Idaho.

The World War slowed power plant construction but the Lingle plant went into operation on the North Platte project in Nebraska-Wyoming in 1918, followed in 1919 by another Water Users Association plant on the Salt River project. In 1922 the Bureau built the Shoshone plant on the Shoshone project in Wyoming. In 1925 two plants went into operation, the Pilot Butte plant on the Riverton project in Wyoming and the Black Canyon plant on the Boise project.

There were two more plants in 1926--Mormon Flat on the Salt River project (again Association construction, under Bureau supervision) and Siphon Drop on the Yuma project in Arizona--and two more in 1927--the Guernsey plant on the North Platte project and the Horse Mesa plant (Association) on the Salt River project.

The Horse Mesa plant was the largest hydroelectric development on a Reclamation project, by far, at that time. Capacity of the plant was 30,000 kilowatts--almost 1/66th the size of Grand Coulee.

In 1930 the Stewart Mountain plant was built on the Salt River project under Bureau supervision, making a total of eight plants operating on the project. In 1932 two plants were erected by the Bureau, the Grand Valley plant on the Grand Valley project in Colorado and the Prosser plant on the Yakima project in Washington.

There was a gap of four years without completion of a hydroelectric development but in 1936 Boulder Dam's power plant--the equivalent of a couple of dozen normal-size plants rolled in one--went into operation.

Seminoe plant was completed on the Kendrick project in Wyoming in 1939, and Elephant Butte plant on the Rio Grande project in New Mexico in 1940.

This year marks the entrance of Grand Coulee in the 35-year record of development; and the power plant at Parker Dam on the Colorado River, Arizona-California, is also expected to see first action before the end of 1941.

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DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release WEDNESDAY, MARCH 12, 1941.

When Grand Coulee's first generator starts humming on March 22 it will be transmuting into electric energy the waters of the second largest river runoff in the United States.

The average annual runoff of the Columbia River system would cover the six New England States to a depth of 2-1/2 feet, or supply metropolitan New York City for 95 years. It is 79,000,000 acre-feet or 25,754 billion gallons.

This huge quantity of water will be stored in part and regulated for use in Grand Coulee reservoir. When full the reservoir will extend 151 miles to the Canadian border. It will hold 10 million acre-feet or 3-1/4 trillion gallons of water.

The water will be used for irrigation as well as in the generation of power. A supply will be available for 1,200,000 acres, virtually adding a 49th State to the Union. Homes and commercial and industrial opportunities are expected to be provided for more than 300,000 people.

The pumping plant to handle this irrigation supply consisting of a system of 12 pumps each driven by a 65,000 horsepower motor will be able to handle 8,640,000 gallons of water a minute. Approximately 600 tons of water would be lifted every second.

The pumping plant capacity is great enough to provide every man, woman and child in the United States--130,000,000 people--with all the water normally required for domestic use.

The pumps will be able to take care of one-sixth the average flow of the Columbia River.

The power plant capacity at Grand Coulee is 1,974,000 kilowatts or 2,475,000 horsepower. It is by far the largest in the world. The plant will contain 18 main generators, each of 108,000 kilowatt capacity, and 3 station service generators each of 10,000 kilowatt capacity.

The power plant will consist of two houses, one at each end of the dam. Each house will be 765 feet or nearly three city blocks long and 112 feet wide. They will be 292 feet high, the height of a 24-story building.

Each of the main generators weighs over 2,300,000 pounds, is 40 feet in diameter and more than 3 stories high. A single generator can supply an entire city with light and power.

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DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

BUREAU OF RECLAMATION

For Release THURSDAY, FEBRUARY 27, 1941.

The power plant at Grand Coulee Dam, giant among giant hydroelectric plants, will go to work March 22.

Secretary of the Interior Harold L. Ickes announced today that on that date two 10,000-kilowatt station service generators in the Grand Coulee plant will be cut into the Bonneville transmission line and will begin their work of contributing kilowatt hours to the normal and defense needs of the Pacific Northwest.

Three tremendous generators are being installed, one to be completed in August, one in November, and one in the early months of 1942. These each will be of a capacity of 108,000 kilowatts, larger than any others in the world, topping the 82,500-kilowatt generators of Boulder Dam.

The Bureau of Reclamation, builder of the Grand Coulee Dam and power plant, in cooperation with the Bonneville Power Administration, which will distribute and sell the power, will be host in the West Power House at a colorful ceremony beginning at noon on March 22 commemorating the occasion of commencement of generation of electricity.

In comparison with the great generators now being placed in pits 5 stories deep in the same powerhouse, the station service units appear small, but the 20,000 kilowatts they will turn out continuously will be sufficient to supply, for example, the normal needs of a city of 60,000 persons.

Seven years, seven months, and 26 days will have elapsed on March 22 since July 27, 1933 when President Roosevelt approved the first allotment of \$15,000,000 of Public Works funds to the Bureau of Reclamation for the start of work on the great irrigation and power project now known throughout the world. Grand Coulee Dam, 550 feet high, 4,300 feet long, and containing 11,250,000 cubic yards of concrete, is the largest structure yet erected by man. The first contract connected directly with construction of the dam was let in December 1933. Since that time thousands of men have been employed continuously, and employment rose to the peak of 7,455 in June 1937.

As the dam drew near to completion, the task was begun of resurveying, and planning the development of the tremendous area of 1,200,000 acres which will be irrigated. This area, lying south of the dam, is now dry and largely unused.

Fully developed some 25 years hence, this area about equal to Delaware in size will support about 350,000 inhabitants.

"It will be like adding a 49th State to the Union to develop the Columbia Basin lands," Secretary Ickes said.

As generation starts in the powerhouse, plans for the irrigation development are rapidly crystallizing as a result of Joint Investigations, in which the Bureau of Reclamation has been joined by some 40 other Federal, State and local agencies, in progress in the Big Bend country where the canals will carry their transmuting waters.

8731

Saint Paul, January 17, 1941

MR. H. E. STEVENS:

Mr. Tremaine has sent in the following information showing carloads handled to Coulee Dam in the years 1934-1940 inclusive:

<u>Material</u>	<u>1934</u>	<u>1935</u>	<u>1936</u>	<u>1937</u>	<u>1938</u>	<u>1939</u>	<u>1940</u>	<u>Total</u>
Cement	42	274	8287	11741	4081	16253	6810	47488
Lumber	283	322	867	308	189	238	116	2323
Machinery	173	176	59	19	14	68	87	731
Iron and pipe	74	777	492	294	955	836	656	4084
Explosives	1	16	22	19	16	6	—	76
Miscel.	41	55	34	27	21	79	35	292
Outbound equip.	-	-	-	64	471	569	554	1658
Totals	614	1616	9761	12472	5882	18049	8258	56652

bb/s
x

Spokane, Washington
January 14, 1941

Mr. A. F. Stotler:

Following, for your ready reference, is a statement showing the carloads handled to Coulee Dam, years 1934 to 1940, inclusive:

Quote

<u>Material</u>	<u>1934</u>	<u>1935</u>	<u>1936</u>	<u>1937</u>	<u>1938</u>	<u>1939</u>	<u>1940</u>	<u>Total</u>
Cement	42	274	8287	11741	4081	16253	6810	47488
Lumber	283	322	867	308	189	238	116	2323
Machinery	173	176	59	19	149	68	87	731
Iron and Pipe	74	777	492	294	955	836	656	4084
Explosives	1	12	22	19	16	6	0	76
Miscellaneous	41	55	34	27	21	79	35	292
Outbound Equipment	0	0	0	64	471	569	554	1658
Totals	614	1616	9761	12472	5882	18049	8258	56652

Signed, H. M. TREMAINE

District Engineer

HMT-b

c Mr. Bernard Blum

Washington, D.C.
January 10, 1951

RECEIVED
JAN 11 1951
U.S. DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF STAFF

Mr. E. T. Stoll:

Following, for your ready reference, is a list:

of items for which a contract was awarded, and, where applicable, the name of the contractor.

to 1-1, inclusive:

Material	1951	1952	1953	1954	1955	1956	1957	1958	1959	Total
General	45	274	1274	1001	1623	610	1400			
Accessories	215	325	461	508	115	116	533			
Inventory	175	175	10	10	63	81	131			
Iron and steel	74	177	108	284	324	258	404			
Explosives	1	12	12	12	8	0	78			
Mineral products	12	25	24	24	19	25	202			
Gasoline and oil	0	0	0	0	0	0	103			
Other	0	0	0	0	0	0	0			
Totals	641	1210	1845	1545	1845	954	2633			

Signed: N. W. B. B. B. B.

Director, Engineer

1-1-51
U.S. Department of the Army

Saint Paul, January 7, 1941

MR. H. E. STEVENS:

Your letter of the 6th, attaching copy of Mr. Clark's letter to Mr. Denney of December 31, about suggestion of the Reclamation Service that the government turn over to the Northern Pacific the railway between Odair and Coulee City:

At the time we made the survey for the railroad as constructed we considered the possibility of building the line above elevation 1570, which was the tentative level proposed for the storage reservoir in the Dry Coulee.

The railroad that we located is approximately 28 miles long, and of those 28 miles about 24 lie below elevation 1570. It would not have been possible to build the constructed railroad above the proposed water level unless we had utilized the loose talus slopes along the edge of the canyon, and in part would have had to niche into the canyon wall - the expense of which construction would have been extremely high. We did not make an estimate of the cost, as in our opinion it was out of the question from a practical standpoint; and we had in mind that should it be desirable to maintain a railroad after the reservoir might be built, the thing to do would be to build a new railroad from either Wilbur or Almira, or Hanson, which would involve construction of 19 miles of line at a fraction of what it would cost to re-establish the construction railroad in the Grand Coulee above elevation 1570.

Even if such a railroad might be constructed above the pool level in the coulee the maintenance would be extremely difficult, and the hazard from falling rock great.

In reading Mr. Haw's report of his conference with Mr. Banks I was struck by the thought that Mr. Banks may have in mind that in turning the railroad over to the Northern Pacific he would save the expense of returning to us the metal which is his obligation under the existing contract. Also he possibly is avoiding the maintenance of the railroad for the next year or two.

With respect to the movement of heavy power-generating equipment to the Dam and the haulage of transmission line items; it seems to me that that is a problem for him to work out, in co-ordinating the time when he will flood the storage reservoir and the time for completing his construction work.

It is my thought that the benefit from owning and operating a railroad to the dam site can better be realized through a line from the vicinity of Almira, serving the intervening country. Such a railroad could terminate on the south side of the dam several hundred feet above the power house, and arrangements made by cable way or other suitable means to lower heavy items. It may well be that one or more large industries will locate adjacent to the dam; and if so it is possible that they would build at the higher level.

With respect to connecting with navigation on the impounded reservoir: how much traffic may result therefrom is of course problematical; but I am inclined to think that we are at some disadvantage in that respect as compared with the Great Northern. They will have many miles of railroad on their relocated Marcus branch, just above the pool level and adjoining deep water. It would be very easy to transport grain and other products from barges to the Great Northern at numerous locations.

To return to the matter of hauling in further construction material to the dam: as the estimate is that filling of the balancing reservoir will not be until 1944, there is a full three years for Mr. Banks to haul in material for his generating machines, and for that matter, to haul in supplies for construction of the righthand power house.

bb/s
x

FSM:

Pete Larson says they
found map of "high line".

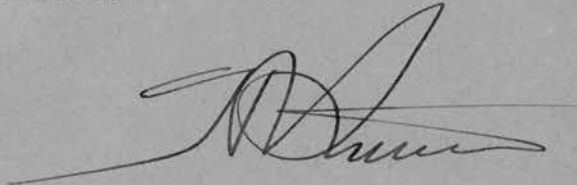
- E d g a r
12/45p

St. Paul, Minnesota,
January 6th, 1941

Mr. Bernard Blum:

Attached is copy of Mr. Clark's letter to Mr. Denney of December 31st about possibility that the Government may desire to turn over to the Northern Pacific the railway between Odair and Coulee City, also copy of my letter of even date to Mr. Clark.

As per our telephone conversation, I wish you would check over such preliminary information as we have available as to the expense of relocating the Grand Coulee line above high water level compared with the expense of building an entirely new line out of Wilbur to a point near the damsite.

A handwritten signature in dark ink, appearing to read "Blum", with a large, sweeping initial "B" and a long horizontal stroke extending to the right.



St. Paul, Minnesota,
January 6th, 1941

Mr. R. W. Clark:

Referring to your letter to Mr. Denney of December 31st about the advisability of the Northern Pacific taking over the ownership of the Government Railway between Odair and Coulee.

If railway transportation is required for the three or four years which Mr. Banks estimates will elapse between the completion of the dam and the filling of the balancing reservoir, it is not at all clear to me why the Government should not continue to own and operate the railway, or at least continue to own it and perhaps give the Northern Pacific trackage rights to operate such occasional movements as are necessary to meet the railway transportation requirements.

It is true the original contract with the Government required them to turn the rail back to us on the completion of the high dam. However, that difficulty could easily be obviated by making a new agreement.

As stated by Mr. Banks, a large part of the present roadbed will be flooded when the balancing reservoir is filled and I doubt if we would care to consider relocating a line in the Grand Coulee above the high water level of the reservoir.

If permanent railway transportation to a point near the damsite is justified, it might be more economical for the Northern Pacific to build and operate a line taking off the Washington Central Branch near Wilbur rather than attempt to relocate the Grand Coulee Line.

In addition to the possibility of large industries locating near the damsite, there would appear to be the possibility of navigation developing on the back water of the dam which would tap a large area of country not now served by the Northern Pacific.

H. E. STEVENS

Copy

St. Paul, Minn., December 31, 1940.

Mr. C. E. Denney,
President.

When I met Mr. Haw in Chicago on his return from his recent conference in Washington with Mr. Page, he told me that the latter was going to take up with you, or with me, the question of Northern Pacific acquiring the Government railroad from Odair to Coulee City. Mr. Page has not written to me, and I understand he has not written to you, about acquiring the Government railroad.

Recently Mr. Haw was at the dam and, in talking with Mr. Banks, the latter brought up the question as to whether or not we would be interested. Mr. Haw, in reporting on this conference, with Mr. Banks, stated:

"He said the present railroad would be cut off from serving the immediate dam site as soon as construction was begun on the upper Grand Coulee balancing reservoir dam. Probably this would be in the spring of 1942. The railroad would, of course, still come within about three miles of the Grand Coulee dam site and the remainder of the railroad would not be unusable until filling of the balancing reservoir actually began, which I guess would not be until 1944.

"There will be a movement of heavy power generating equipment to the Coulee Dam for many years as generating capacity is enlarged. The east side power house also remains to be built. Eventually there will be a virtual forest of transmission lines stemming away from the dam as well as power switch yard equipment. Mr. Banks said the estimated final cost of the power switch yard at the dam was \$8,000,000.00. Mr. Page has said the Government operating personnel at the dam will finally number between 750 and 1,000 employees.

"Mr. Banks has a topographic map of the Grand Coulee reservoir showing location of the railroad and proposed water line of the reservoir. It can be had if we need it. As near as I can judge at least 75% of the present line will be submerged. Relocation above the proposed high water line would appear exceedingly expensive."

There are some reasons from a traffic department standpoint why we might think it desirable to see this railroad kept in place and owned by us; and if you have no objection I would like to develop that feature of it in anticipation of request that will probably come to the company later on.

(signed) R.W.Clark.

8731

St. Paul, December 30, 1940

Mr. Bernard Blum:

Attached for your file is copy of Mr.
Clark's letter of December 26th about work yet to be done
in connection with the Coulee Dam.

H E Stevens

~~J. T. D. J. D.~~ $\frac{12}{31}$
note
B. B.
 $\frac{12}{30}$



ST. PAUL, MINN., 1-1-41

ST. PAUL, MINN., 1-1-41

ST. PAUL, MINN., 1-1-41

ST. PAUL, MINN., 1-1-41

ST. PAUL, MINN., 1-1-41

ST. PAUL, MINN., 1-1-41

ST. PAUL, MINN., 1-1-41

ST. PAUL, MINN., 1-1-41

St. Paul, Minn., December 26, 1940.

Mr. C. E. Denney,
President.

I quote below from Mr. Haw's letter to me of December 19, giving information about the work yet to be done in connection with the Coulee Dam development:

"After spending a day and a half at the dam early this month, I realize I was wrong as to the amount of concrete work remaining. To my inquiry on this point Mr. Banks replied that while the spillway (center) section of the dam was far from complete, no very great amount of concrete work was involved. They are now engaged in installing the huge drum gates in the spillway section. The completion of the piers and roadway over the top of the dam must be kept in step with this installation. He mentioned considerable cement work inside the dam and power house but, of course, emphasized that amount of cement required was very minor as compared with amounts heretofore used.

"He told me the Bureau of Reclamation has asked for Bureau of Budget approval of \$7,500,000.00 in the first deficiency bill and \$12,500,000.00 in the regular Department of Interior appropriation bill for this project. The first item he said would be required between now and June 30, 1941, and the latter for the Government fiscal year beginning July 1, 1941. Of this entire amount he said only \$3,500,000.00 was for the irrigation project. If made available it would be used to begin work on the two dams at either end of the Grand Coulee balancing reservoir. He hoped to start these dams in the spring of 1942.

"Shovels and heavy trucks are at work unloading the bad slides which threaten the tailrace of the power house, the highway and railroad. Stopping these slides is estimated to cost \$500,000.00."

(Signed) R. W. CLARK

cc-Mr. H. E. Stevens,
Vice President.
Mr. J. L. Burnham,
Western Traffic Mgr.

Saint Paul, August 24, 1940

MR. M. L. COUNTRYMAN, Jr.:

Replying to your letter of August 21 about statements made in the amended answer of the Government to the suit brought to settle the question of rates on cement to Grand Coulee Dam:

I made no such statements or representations to any officer of the government nor to any other person, nor do I know that any officer or employe of the Northern Pacific Railway made such statements.

I would call to your attention the statement which you have numbered 6, in which you quote the Government as stating that the Railway Company represented that all cement originating at Bellingham, Concrete, Grotto, and Seattle would be centered and concentrated in carload lots at the city of Seattle; that the services of the Great Northern Railway Company, which connected with and serves each of these points, would not be utilized, etc. As you know, Grotto is an exclusive Great Northern station, located on their main line 81 miles east of Seattle and about 137 miles west of Adrian, where we had connecting tracks with the Great Northern for many years prior to the beginning of the Grand Coulee Dam construction.

cc-Mr. B. W. Scandrett
Mr. H. E. Stevens
Mr. R. W. Clark

bb/s

St. Paul, Minn., Aug. 21, 1940.

Mr. B. W. Scandrett:

Mr. H. E. Stevens:

Mr. R. W. Clark:

✓ Mr. Bernard Blum:

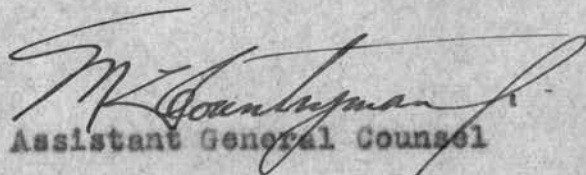
The Government has served an amended answer in the suit we brought to settle the question of rates on cement to the Grand Coulee Dam. It makes a variety of claims, among which are: (1) That the contract of November 19, 1934 did not fully state the agreement reached and should be reformed so as to provide rates of 11 cents per 100 pounds from Irvin, and 15 cents per 100 pounds from the other cement mills, and so as to provide that the Northern Pacific would reimburse the Government for the cost of constructing, maintaining and operating the branch if the high dam should be built, and all cement shipped by rail; (2) that the Northern Pacific is estopped to deny that the contract so requires; (3) that the 13 and 17 cent rates provided in the contract are excessive and extortionate, and were inserted in the contract because of false and fraudulent representations by Northern Pacific officers and agents; and (4) that the contract was executed by the Secretary of the Interior without lawful authority and the court should determine what rates are reasonably compensatory. These claims are predicated on certain alleged statements, representations and agreements claimed to have been made by the officers, agents and representatives of the Northern Pacific in the negotiations preceding the execution of the contract. I enclose herewith a memorandum, which sets out these alleged representations. Will each of you please advise me what, if anything, you know about any such statements or representations having been made?

Mr. B. W. Scandrett - et al

#2

Aug. 21, 1940

The amended answer also alleges that in the year 1938 the Northern Pacific, through its officers, agents and representatives, negotiated with officers of the United States in pursuance of the provisions of Article XII of the contract for an adjustment of the rates named in the contract; that no agreement was reached and efforts to that end were abandoned by plaintiff, but that it then instructed its agent at Odair to insert in the freight bills, issued for transportation of cement over its railway to Odair, a rate of 19 cents per 100 pounds in lieu of 17 cents; that the agent at Odair inserted the 19 cent rate in one freight bill issued in connection with Government bill of lading I-633250, but has since inserted the special rate of 17 cents in all its freight bills covering shipments of cement used in the construction of the Grand Coulee Dam. I never heard that there were any negotiations with the Government preceding Mr. Clark's conference with Mr. Hayge in Washington early in April, 1938, but I would be glad to be advised what the facts are and how it happened that a rate of 19 cents was inserted in one freight bill.


Assistant General Counsel

MLC:r
Enc.

52

0.03

MEMORANDUM

ALLEGED REPRESENTATIONS BY N. P. OFFICERS

1. "that if said Grand Coulee dam and power plant and appurtenances thereto would be constructed and completed (as separate and apart from the original so-called 'low dam') within the time fixed in said contract 'Exhibit C', that a special maximum freight rate of 15 cents per hundredweight of cement from each of said points therein stated, with the exception of Irvin where the maximum special freight rate of 11 cents per hundredweight of cement was fixed, were fair, equitable, just, proper and reasonably compensatory freight rates, and that said plaintiff would ship and deliver or cause to be shipped and delivered from each and all of said points specified at the last mentioned maximum special freight rates all of the cement in carload lots necessary and required for the construction and completion of said Grand Coulee project" (p.7)
2. "that if the shipment of cement necessary and required for the construction and completion of the Grand Coulee project was made by rail on plaintiff's line of railway and connecting lines of railway thereto, from the points mentioned and specified in said contract 'Exhibit C', that the plaintiff not only would make and charge a special freight rate of not to exceed 15 cents per hundredweight from each of said points, except from Irvin, where the sum of 11 cents per hundredweight was fixed, as the proper special freight rate, but that the plaintiff at its own cost and expense would build, construct and operate the line of railway from said city of Odair to Grand Coulee dam site as the only condition that said Grand Coulee project would be completed within the ten-year period." (P.8)
3. "that if the shipment of cement necessary and required for the construction and completion of the said Grand Coulee project was made by rail on plaintiff's line of railway and connecting lines of railway thereto from the points mentioned and specified in said contract 'Exhibit C', that the plaintiff ***at its own cost and expense would build, construct, and operate a line of railway from said city of Odair to said Grand Coulee dam site on the only condition that said Grand Coulee project would be completed within the ten-year period" (p.9).

4. "that the cost of said service plus a reasonable profit was all that plaintiff sought or desired by said contract 'Exhibit C' and that the maximum special freight rates therein specified were for the purpose of limiting the amounts to be paid to the plaintiff therefor to less than said maximum rates." (p.13).
5. "that the larger the quantity of materials, including cement, proposed to be hauled over its railway lines and the proposed branch line from Odair, Washington, to the dam site and for use in construction of said Grand Coulee project, the lower the special rate would be that they were enabled to make to and for the benefit of the defendant, and that it was necessary that the plaintiff charge and be paid the special maximum freight rates designated in said contract, 'Exhibit C', for the material necessary for the so-called 'low dam' because of lack of assurance had that the said Grand Coulee dam and power plant would ever progress beyond its first stage then under contemplation." (p. 18).
6. "that all of said cement originating at Bellingham, Concrete, Grotto and Seattle would be centered and concentrated in carload lots at the City of Seattle; that the services of the Great Northern Railway Company which connected with and served each of said points would not be utilized, and was not available to plaintiff, except for delivery of said cement from said points of origin to said central concentration point of Seattle, and that plaintiff had no interchange facilities with said Great Northern Railway Company at Adrian, Washington, where the railway lines of said companies crossed; that therefore said shipments of cement thus centered and concentrated in the City of Seattle would of necessity and in fact be carried by plaintiff on its own tracks from Seattle via Ellensburg, Yakima, Prosser, Pasco, Connell, Bassett Junction and Adrian, to Odair, Washington, and that the latter point on said long and circuitous route is more than 367 miles from the City of Seattle, and that because of said long haul and circuitous route, it was necessary and required that the maximum freight rates on cement from said points as specified, fixed and set out in said contract (Exhibit C', which maximum rates were contended by the plaintiff to be necessary and required when the same were considered and determined on a ton and car-mile basis." (p.21)
7. "that its line of railway from Connell to Odair, Washington, known as its Washington Central Branch, had for a long time prior thereto been operated at a loss, and the plaintiff and the plaintiff experienced great difficulty in justifying

the movement of trains thereon or its continued operation; that the shipment of cement originating at Bellingham, Concrete, Grotto and Seattle would, on account of said facts and matters aforesaid, be carried by the plaintiff on its own tracks and over and upon said Washington Central Branch and on the long and circuitous route of plaintiff at less than the maximum rate specified in said contract, 'Exhibit C', the plaintiffs operation of said Washington Central Branch Line would no longer be a losing venture but that it could and would be operated at a substantial profit and income * * and that it would only charge for shipments of cement over said lines a rate that would be reasonably compensatory and compensatory and profitable when considered on a ton and car-mile bases". (pp. 21,22)

8. "that all of the cement from Metaline Falls would be shipped and carried on the railway line of the Chicago, Milwaukee, St. Paul and Pacific Railway Company from said City of Metaline Falls interstate to Rathdrum, in the State of Idaho and that such cement would thereupon be shipped on and be carried over and by the plaintiff on its line of railway from Rathdrum, Idaho, to Odair, Washington". (p.23)
9. "that plaintiff could not reasonably perform such transportation services at less than the said special freight rates set forth in said contract." (p.36).
10. "that in the performance of said contract and in the furnishing of said transportation services said plaintiff would transport the cement and other equipment, material and supplies necessary for the construction and completion of the Grand Coulee project over its so-called southern route on all shipments which originated from Seattle, Bellingham, Concrete and Grotto, and thereby would create and provide employment for a greater number of persons in accordance with the spirit and intent of the National Industrial Recovery Act * * and other remedial legislation seeking to relieve the unemployment situation in the United States, and under which funds were appropriated or provided for the payment of such transportation charges". (p.37.)

UNIVERSITY OF MINNESOTA
INSTITUTE OF TECHNOLOGY
MINNEAPOLIS

8731

COLLEGE OF ENGINEERING AND ARCHITECTURE
ADMINISTRATION

July 9, 1940

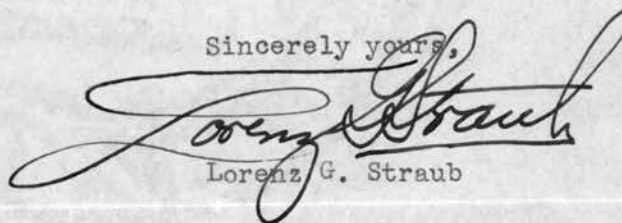
Mr. Bernard Blum, Chief Engineer
Northern Pacific Railway Company
176 East Fifth Street
St. Paul, Minnesota

My dear Mr. Blum:

I have just returned from the west coast the past week and want to take this opportunity to express to you my thanks for your special courtesy in arranging with Mr. Young of the Spokane district office to show me the Grand Coulee project.

Mr. Young spent the entire day with me, driving me to the project, accompanying me on the inspection of the construction work, and driving me to Spokane through the Grand Coulee. He was most cordial and I enjoyed his company.

Sincerely yours,


Lorenz G. Straub

LGS CD

Mr. Tremaine
Mr. Young

note
7/13 BB.

done
jag

CHIEF ENGINEER
JUL 9 1940
NOR PAC, KY
ST. LOUIS, MO

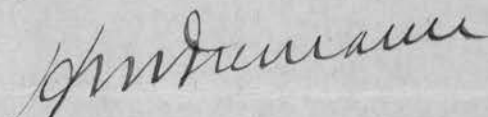
CHIEF ENGINEER
JUL 7 1940
NOR PAC, KY
ST. LOUIS, MO

8731

Spokane, Washington
June 26, 1940

Mr. Bernard Blum:

Yours of June 7 and 14 about visit of Dr. Straub to the Coulee Dam. I may advise that Dr. Straub arrived here on the 19th and Assistant Engineer Young drove him over this entire project. We are very much indebted to Mr. J. H. Miner, Acting Supervisory Engineer at Coulee Dam, for his courtesy in affording Messrs. Straub and Young full access to the dam and all its workings.



District Engineer

HMT-b
c Mr. J. A. Young



NOV 1940
28 29
JUN

Section of Washington
Date 28, 1940

Mr. Bernard Williams

Letter of June 7 and in short visit
of Mr. Williams to the office here. I may mention that
Dr. Williams arrived here on the 19th and remained
longest time, drove him over this entire project, to
the very much indebted to Mr. Williams, looking
especially at the office here, for his company
in attending to the work of the office and access to
the lab and all its workings.

Director Engineer

Mr. Williams
28, 1940

Spokane, Washington
June 26, 1940

✓
Mr. Bernard Blum:

Yours of June 7 and 14 about visit of Dr. Straub to the Coulee Dam. I may advise that Dr. Straub arrived here on the 19th and Assistant Engineer Young drove him over this entire project. We are very much indebted to Mr. J. H. Miner, Acting Supervisory Engineer at Coulee Dam, for his courtesy in affording Messrs. Straub and Young full access to the dam and all its workings.

Signed, H. M. TREMAINE

District Engineer

HMT-b
c Mr. J. A. Young



N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

8731 M.

Saint Paul, June 14, 1940

H M Tremaine

Spokane

A-23 Straub now advises plans arriving Spokane 8 AM Wednesday and leaving by train that night for Pullman. B-142

Bernard Blum

8731

Saint Paul, June 14, 1940

MR. H. M. TREMAINE
District Engineer
S p o k a n e

I have just wired you that Dr. Straub will arrive Spokane Wednesday morning.

Dr. Straub, who is Director of the Saint Anthony Falls Hydraulic Laboratory, University of Minnesota, plans to go direct from Minneapolis to Seattle, and to return from there to Spokane, arriving early Wednesday morning. He has an appointment at Pullman for Thursday morning and plans on leaving Spokane on the 9:30 PM train Wednesday, the 19th.

He will call at your office in the depot; so that if Mr. Young will be ready at 8 AM they can leave at once for the Dam, which would provide sufficient time for the visit at the Dam.

cc-Dr. Lorenz G. Straub
133 Main Engineering Bldg.
University of Minnesota
Minneapolis

bb/s

8731
UNIVERSITY OF MINNESOTA
INSTITUTE OF TECHNOLOGY
MINNEAPOLIS

ST. ANTHONY FALLS HYDRAULIC LABORATORY

June 13, 1940

Mr. Bernard Blum, Chief Engineer
Northern Pacific Railway Company
176 East Fifth Street
St. Paul, Minnesota

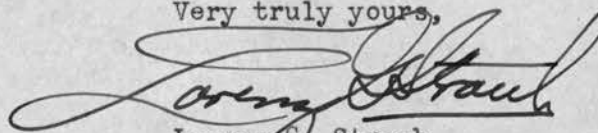
Dear Mr. Blum:

Since talking with you on the telephone a few days ago I have completed an itinerary for my trip to the northwest, in connection with which you kindly offered to arrange for my going to the Grand Coulee project from Spokane.

It is my plan to go directly to Seattle from here and to return from there to Spokane, arriving at 8:00 a.m. Wednesday, June 19. I have an appointment in Pullman the following morning and plan to leave Spokane on the 9:30 train Wednesday evening.

Following your suggestion, I will call on Mr. H. M. Tremaine Wednesday morning shortly after my arrival at the Spokane station. I greatly appreciate your courtesy in arranging for me to be properly directed to the Grand Coulee Dam.

Very truly yours,


Lorenz G. Straub
Director

LGS CD



N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

86 SF S

SPOKANE 6/11/40

BERNARD BLUM

ST PAUL

B 112 OKAY ALL LINED UP. IF POSSIBLE WOULD LIKE TO HAVE ADVICE
A DAY OR TWO IN ADVANCE OF DR STRAUBS ARRIVAL AND HAVE ARRANGED
FOR ASSISTANT ENGR YOUNG TO DRIVE HIM TO DAM. DR STRAUB CAN CALL
AT MY OFFICE OR YOUNG CAN PICK HIM UP ANY WHERE HE WISHES.
WILL ARRANGE FOR ITINERARY AT THE DAM. A-23

H M TREMAINE

151 PM



N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

8731

M.

Saint Paul, June 11, 1940

H M Tremaine

Spokane

A-15 Would appreciate it if you could arrange to handle as you suggest and advise me. B-112

Bernard Blum



N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

8731 M.

141SFR

SPOKANE JUNE 10 1940

BERNARD BLUM

ST PAUL

YOUR LETTER 7 TH ABOUT VISIT DR STRAUB TO COULEE DAM YOU WILL RECALL
YOU GAVE ME PERMISSION TO ATTEND AREA COMMITTEE MEETING IN CLEVELAND
JUNE 20 AND 21 AND I AM LEAVING HERE THIS MORNING OF JUNE 17 AND
NO ONE ELSE IN THIS OFFICE HAS SUITABLE CAR- SUGGEST THAT ARRANGE-MENTS
BE MADE WITH EITHER THE OPERATING OR TRAFFIC DEPARTMENT- ADVISE IF
YOU WISH ME TO DO THAT HERE. A-15

H M TREMAINE 6P



8731

Saint Paul, June 7, 1940

MR. H. M. TREMAINE
District Engineer
S p o k a n e

Dr. Lorenz G. Straub, head of the Department of Hydraulics,
University of Minnesota, will arrive at Spokane the week of June 17
and desires to spend the day at Grand Coulee Dam.

I would appreciate it very much if you would make the necessary
arrangements to have Dr. Straub taken to the Dam and meet their
Mr. Banks and other engineers connected with the Project.

I will advise later when Dr. Straub will arrive.

cc-Dr. Lorenz G. Straub
Department of Hydraulics
University of Minnesota
M i n n e a p o l i s

(133 Main Exp. Bldg.)

bb/s

8731

Saint Paul, April 17, 1940

MR. H. E. STEVENS:

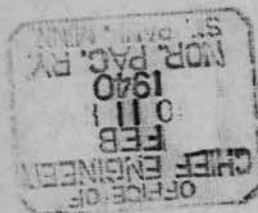
Our conversation about capacity of cement plants in the
State of Washington which supply Grand Coulee Dam:

Following is a list:

<u>P l a n t</u>	<u>Capacity</u> <u>bbls. per day</u>	
Grotto	1650	
Pacific Coast, Seattle	3300	
Concrete	3500	
Bellingham	2700	
Mettaline Falls	1650	
I r v i n	<u>1800</u>	14,600

bb/s

x



of the relation of the project to the
branch were omitted in the original
of the project, and which have been

Chief Engineer

11

Spokane, Washington
February 9, 1940

Mr. Bernard Blum:

Herewith clipping telling of progress
of the relocation of the Great Northern Marcus
Branch where conflict is had with the backwater
of Coulee Dam, about which you have wondered.

Signed, H. M. TREMAINE

District Engineer

HMT-b
encl

8731

Spokane, Washington
December 2, 1939

Mr. Bernard Blum:

Coulee Dam

When Mr. Stevens was at Coulee Dam the other day, he inquired as to the exact time required to fill the equalizing reservoir in the Grand Coulee, as we could not figure out exactly what this meant from the remarks of the lecturer.

I therefore wrote Mr. Miner, Acting Supervising Engineer, who replied as per copy of his letter November 27 attached, in which you will note he states that with the maximum of ten pumps, eleven and one-half days will be required.

HMT-b
encl



District Engineer

Copy sent to Mr. Stevens 12/6-39



C O P Y

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
Coulee Dam, Wash.

November 27, 1939

Mr. H. M. Tremaine
District Engineer
Northern Pacific Railway Co.
Spokane, Washington

Dear Mr. Tremaine:

Receipt is acknowledged of your letter of November 24, 1939 requesting information on the time required to fill the storage reservoir in Grand Coulee with all the irrigation pumps at the dam in operation.

I think you must be mistaken in your recollection of Mr. Banks' statement regarding the time required. The total storage in the Grand Coulee equalizing reservoir will be approximately 1,150,000 acre feet, and available storage will be approximately 370,000 acre feet. There will be a maximum of ten pumps in operation at one time with capacity of 1,600 c.f.s. each, or total capacity of 16,000 c.f.s. This would provide approximately 32,000 acre feet per day, and would require approximately $11\frac{1}{2}$ days to fill the available storage.

Very truly yours,

(S) J. H. Miner
Acting Supervising Engineer

Mr. J. H. ...
B. Blum
JMA

\$2,000,000 PAID FOR LAND AT COULEE DAM

Owners of Property to Be
Flooded Receive Money From
Government; Survey Ends

B.

COULEE DAM, Wash.,
Oct. 21.—F. A. Banks, construction engineer for the bureau of reclamation, disclosed today the government had paid nearly two million dollars for land which will be flooded by the 150-mile lake to be formed by Grand Coulee Dam.

Banks said contracts for 2,000 pieces of land—more than 90 per cent of the area owned by white people—had been effected at a cost of \$1,840,000.

CONGRESS BILL

Indians whose lands were flooded during the summer by the rising waters of the Columbia River received \$54,000, Banks said, adding that a bill would be introduced at the January session of congress to transfer the title on Indian lands from the Indian service to the bureau.

He said a total payment of \$174,000 was proposed for the Indian holdings in the future lake bed.

TO RELOCATE RAILROAD

The bureau has completed a survey for the relocation of twenty-five miles of the Great Northern Railway right of way above the dam.

Banks said the bureau would call for bids for the relocation when a contract was signed with the railroad company.

L. S. MACDONALD
AGRICULTURAL DEVELOPMENT AGENT
NORTHERN PACIFIC RAILWAY
MISSOULA, MONT.



8731

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
COULEE DAM, WASHINGTON

October 3, 1939

Mr. Bernard Blum
Chief Engineer
Northern Pacific Railway Co.
St. Paul, Minnesota

Dear Mr. Blum:

I have your letter of September 28 advising you would like to have Mr. James Poore secure an intimate view of the construction operations at Grand Coulee along the lines of your observation on your recent trip here. Please be assured we will welcome an opportunity to show to Mr. Poore all phases of the construction in which he may be interested.

Very truly yours

F. A. Banks

F. A. Banks
Supervising Engineer

cc Mr. James Poore
c/o Mr. Murphy, N.P., Spokane

Mr Poore
note
10/7
B.B.
Mr Blum noted thanks JAB
10/9.

UNITED STATES

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

COLORADO, WASHINGTON



RECEIVED
OCT 15 1906
BUREAU OF RECLAMATION
WASHINGTON

TO THE
BUREAU OF RECLAMATION
WASHINGTON

FROM

THE
BUREAU OF RECLAMATION
WASHINGTON

TO THE
BUREAU OF RECLAMATION
WASHINGTON

FROM

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WASHINGTON

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WASHINGTON

1906

8731

September 28, 1939

MR. F. A. BANKS
Construction Engineer
Bureau of Reclamation
Coulee Dam, Washington

My dear Mr. Banks:

Mr. James Poore, son of Mr. John H. Poore, Executive Assistant, Northern Pacific Railway, is now in Spokane on some work for a subsidiary of the Railway; and before returning home would appreciate an opportunity to view in some detail the construction activities at Grand Coulee Dam.

Having recently had such an opportunity myself I know how valuable and interesting such an inspection is; and I would be very happy if you could make it possible for Mr. Poore to view the work to an extent that is not open to the general public.

I trust that this request is not out of line.

Very truly yours,

bb/s

cc-Mr. James Poore

8731

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
COULEE DAM, WASHINGTON

August 21, 1939

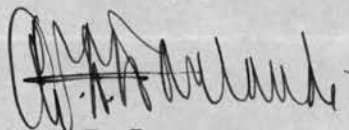
Mr. Bernard Blum
Chief Engineer
Northern Pacific Railway
St. Paul, Minnesota

Dear Mr. Blum:

I wish to thank you for your kindness in sending
with your letter of August 3 an enlargement of the photograph
which you took on the occasion of your last visit to Coulee
Dam.

The picture is very good and I shall keep it to
remind myself of the very enjoyable time I had in showing you
and your party over the project.

Cordially yours



A. F. Darland
Field Engineer



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

COLORADO DAM, WASHINGTON

1908
3242
AUG

8731

(At Seattle)

August 3, 1939

Dear Mr. Darland:


Herewith an enlargement of the photograph I took of you when we were at the Grand Coulee Dam week before last, when you so kindly piloted us over the works.

I realize that you are surfeited with photographs of the job, but I hope that in the future when you may be looking over your old photographs this will bring to mind your kindness to a bunch of tourists.

Very truly yours,

bb/s

Mr. Alvin F. Darland
U S Bureau of Reclamation
Coulee Dam
Washington



8731

At Seattle, August 3, 1939

MR. H. M. TREMAINE:

Herewith enlargement of the group photograph taken recently when we were on the lower level of the upstream side at the east end of the Grand Coulee Dam.

You had the foresight to remove your hat; but unfortunately the other faces were too much shaded.

bb/s

At Seattle, August 3, 1939

Dear Mr. Seitz:

I have obtained enlargement of one or two of the pictures taken at Grand Coulee Dam week before last; and am enclosing an enlarged print of the group and also of the general plan view of the works, which I think shows up the job in fairly good detail.

Thought you would like to have them.

Mr. Robert Seitz
c/o Mr. H. M. Tremaine
S p o k a n e

8731

St. Paul, Minnesota,
July 25, 1939

Mr. Bernard Blum;

Your letter of July 20th about cement movement
from California points via Portland and Auburn to Grand Coulee.

Our agreement with the Great Northern covers only the
cement originating at Grotto, Concrete, Bellingham and Seattle.

Our agreement with the Government covers these points and,
in addition, Irwin and Metaline Falls, and is not applicable to
the California cement moving via Portland.

A handwritten signature in dark ink, appearing to read "B. Blum", with a large, stylized flourish underneath.

RECEIVED
JUL 26 1939
FAC. PAC. DIV.

8731

Train 5, Pasco, July 20, 1939

MR. H. E. STEVENS:

I had some drainage matters on the Washington Central branch to go over, and in connection therewith I visited the Coulee Dam yesterday.

Work is progressing at good speed, although Mr. Darland of the Bureau of Reclamation told us that there would have to be curtailment of concrete work this fall on account of shortage of cement.

Possibly you know the situation, but if you have not been advised, it appears that two California mills have bid on the requirements, and in conjunction with five Washington mills are furnishing cement for the job. These are

The Santa Cruz Portland Cement Co., making delivery from their storage bins at Portland; and

The Calaveras Cement Co. of Kentucky House, California who are shipping all-rail via the Southern Pacific with delivery to the NP at Portland.

I think you will be interested in the attached statement showing the schedule of deliveries from the various mills by months. This schedule is based on shipping seven days per week, although I understand shipments are actually made six days per week.

I would call to your attention the figures at the lower half of the sheet, which are in thousands of barrels, so that for absolute figures three naughts must be added.

I think the interesting thing about the California shipments is that deliveries are at Portland and to the Northern Pacific. I do not recall your arrangement with the Great Northern, but am wondering if the California cement has to be divided with the Great Northern. Furthermore, I do not recall that the agreement with the Government covered the 17 cent rate as applicable to Portland. Mr. Day Reynolds told me that the California cement is coming in via Auburn. Are we not entitled to the full tariff on the California shipments with due allowance for the land-grant mileage?

bb/s
2x

BERNARD BLUM

Train 5, Pasco, July 20, 1939

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bb/s
2x

8731

Spokane, Washington
February 2, 1939

Mr. Bernard Blum:

For your information, I am sending you
herewith a publication by the Spokesman-Review of
the Coulee Dam operations to date.

H.M. Fennell
District Engineer S.

Dict.
HMT-b
encl

B

ST. PAUL, MINN.
NOV. 1939
FEB 1 1940
CHIEF ENGINEER
OFFICE OF

ST. PAUL, MINN.
NOV. 1939
FEB 1 1940
CHIEF ENGINEER
OFFICE OF

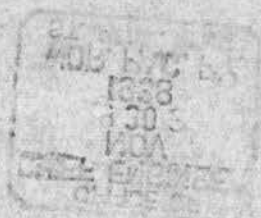
Mr. [Name] [Address]

For your information, I am sending you
herewith a publication by the [Organization] - review of
the [Subject] for operations to date.

Respectfully,
[Signature]
Chief Engineer

File
100-1
enc

St. Paul, Minnesota,
December 29th, 1938



Mr. M. L. Countryman:

Referring to your telephone inquiry as to the amount of cement consigned to MNAK Company for their Coulee Dam contract, and the estimated amount required for the contract now in effect with Consolidated Builders, Inc.

Mr. Behler has compiled from our record of the shipments the amount shipped to the MNAK Company from the start of the work to April 3, 1938, and the amount shipped to Consolidated Builders from April 4, 1938 to November 1938. Copy of this statement is attached.

Shipments to the MNAK Company total 922,263 tons. The preliminary estimate given me by Mr. Harper in Denver in April 1934 was 800,000 tons for the low dam unit. The actual quantities exceed the estimate about 15%.

Mr. Walsh of Consolidated Builders has given us the following information as to the relative yardage of concrete in the two contracts.

"With reference to your request as to the amount of concrete already placed and to be placed in the Grand Coulee dam, our records show that 4,525,409 cu yds were placed under the MNAK contract, and that the C.B.I. contract calls for approximately 6,000,000 yards more. Of the 6,000,000 yards, 5,500,000 are listed as mass concrete, and the remaining half million yards are reinforced concrete in the power house, trashracks, spillway crest, bridge work and elevator towers. The 5,500,000 yards of mass concrete includes 160,000 yards to be placed in the pumping plant, the location of which you will recall is approximately at the site shown in the photograph which you sent me."

Assuming Mr. Walsh's figure for the Consolidated Builders contract is approximately correct, this contract would require about 1,200,000 tons of cement.

E. E. STEVENS

cc Mr. R. W. Clark
Mr. W. C. Sloan
Mr. Bernard Blum

NORTHERN PACIFIC RAILWAY COMPANY

SHIPMENTS OF CEMENT FOR THE COULEE DAM
AUGUST, 1934 TO NOVEMBER, 1938 INCLUSIVE

	<u>Tons</u>
<u>CONSIGNED TO MASON - WALSH - ATKINSON KIER CO.</u>	
August, 1934 to December, 1934	1,919
Year 1935	11,497
Year 1936	379,574
Year 1937	528,553
January, 1938 to April 3, 1938	720
<hr/>	
TOTAL -	922,263

<u>CONSIGNED TO CONSOLIDATED BUILDERS</u>	
April 4, 1938 to November, 1938	129,244
<hr/>	
GRAND TOTAL -	1,051,507

St. Paul, Minnesota,
December 28, 1938

A.F.A. - S. - 3853

Saint Paul, December 23, 1938

MR. H. E. STEVENS:

Your telephone inquiry as to the weight of cement entering the GRAND COULEE DAM:

M W A K CONTRACT

Total yardage of concrete	4,525,409
400,000 yds at 1.5 bbls..	600,000 bbls
4,125,000 yds at 1.1 bbls..	4,537,500 bbls
Total bbls.....	5,137,500
5,137,500 bbls at 380-lbs.	1,952,250,000 lbs..976,125 tons.

C B I CONTRACT

Total yardage of concrete	6,000,000
500,000 yds at 1.5 bbls..	750,000 bbls
5,500,000 yds at 1.1 bbls..	6,050,000 bbls
Total bbls....	6,800,000 bbls
6,800,000 bbls at 380 lbs.	2,584,000,000 lbs..1,292,000 tons

—000—

The specifications show that very careful gradations of aggregates are made, and the amount of cement used is to provide concrete of 2800 lbs. compressive strength in 28 days, as determined from tests. The minimum amount of cement per yard to be used in mass concrete is 1 bbl. We have therefore assumed 1.1 bbls. for the mass concrete. The specifications show that for reinforced concrete, etc. the cement may amount to 1.5 bbls. per yard.

Just how much grouting is to be done is not clear, and I am inclined to think that to take care of grouting, etc. the CBI contract can be increased to not less than 1,300,000 tons, and possibly somewhat higher.

Your copy of the specifications returned herewith.

bb/s
x

Coulee Dam.

Cement required for C.B.I. contract.

5,500,000 cu. mass concrete, @ 1.1 bbl. = 6,050,000 bbls.

500,000 " reinforced " @ 1.5 " = 750,000

Total 6,800,000 bbls

6,800,000 bbls @ ~~90~~³⁸⁰ = ~~612,000,000~~^{2584,000,000}

~~306,000 tons~~
1,292,000 tons

M.W. A.T.

4,525,409 cu. yds.

400 cu yds @ 1.5 = 600,000 bbls
4,125,000 @ 1.1 = 4,537,500 ✓

5,137,500 ✓

@ 380^{lb} = 1,952,250,000 lbs
976,125 tons

8731

Saint Paul, December 12, 1938

MR. H. E. STEVENS:

Our discussion about the yardage of concrete for the Grand Coulee Dam:

I have just received the following information from Mr. J. J. Walsh, son of Tom Walsh of the Consolidated Builders, Inc.:

"With reference to your request as to the amount of concrete already placed and to be placed in the Grand Coulee Dam, our records show that 4,525,409 cubic yards were placed under the MWAK contract, and that the C.B.I. contract calls for approximately 6,000,000 yards more. Of the 6,000,000 yards, 5,500,000 are listed as mass concrete, and the remaining half million yards are reinforced concrete in the powerhouse, trashracks, spillway crest, bridgework and elevator towers. The 5,500,000 yards of mass concrete includes 160,000 yards to be placed in the pumping plant, the location of which you will recall is approximately at the site shown in the photograph which you sent me."

I am a little surprised at the figures, as I understood that there was less yardage poured under the MWAK contract and that more than this would be poured by the C.B.I. people.

cc-Mr. L. B. dePonte

bb/s

CONSOLIDATED BUILDERS, INC.

MASON CITY, WASHINGTON

December 8, 1938

Dear Mr. Blum:

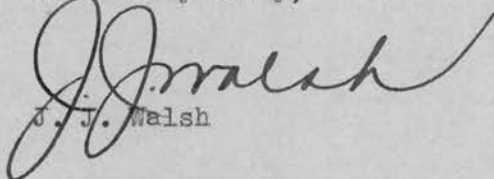
Thank you very much for your letter of December 3, enclosing the splendid snapshot of Jim Derrig, Frank Irving, and me. I must admit that you are a splendid photographer. I've always thought that Jim was about the largest man in the world, but it appears that I am at least as large as Jim as seen through the eye of your miniature camera.

With reference to your request as to the amount of concrete already placed and to be placed in the Grand Coulee Dam, our records show that 4,525,409 cubic yards were placed under the MWAK contract, and that the C.B.I. contract calls for approximately 6,000,000 yards more. Of the 6,000,000, 5,500,000 yards are listed as mass concrete, and the remaining half million yards are reinforced concrete in the powerhouse, trashracks, spillway crest, bridgework and elevator towers. The 5,500,000 yards of mass concrete includes 160,000 yards to be placed in the pumping plant, the location of which you will recall is approximately at the site shown in the photograph which you sent me.

If there is any other information you desire, or, if any of your friends are headed for Grand Coulee, do not hesitate to call on me for such help as I may be able to give you.

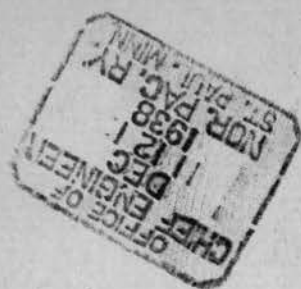
With best wishes for a Merry Christmas and a Happy and Prosperous New Year, I am

Yours very truly,



J. J. Walsh

Mr. Bernard Blum
Chief Engineer
Northern Pacific Railway
St. Paul, Minnesota



Saint Paul, December 7, 1938

MR. H. E. STEVENS:

Your inquiry as to the quantities of rail and track material turned over to the Government for constructing the railroad from Odair to the head of the Dry Coulee, and from that point to the dam site:

Following is list of material:

Rail: 368,487 lin.ft., 4935 tons,	\$98,699
Angle bars: 12287 pairs, 330.3 net tons.....	20,149
Tie plates, 25800 pcs, 111.9 tons	3,552
Turnout material: 20 sets	<u>4,018</u>
Total	\$126,418

bb/s
x

Statement of Quantities of material turned over to
U. S. Government for construction of Railroad from Odessa
to Grana Queen Dam

				<u>Cost</u>
Rail	3/90 lb	368.301 lin ft	4932.647	\$98.652-
"	3/85 "	186 "	2.35 "	47-
A Bars	90 - PH	12277 pcs	330.177	20,134
"	85 " "	10 "	2 "	15
Die Plates	90 "	25800 pcs	111.86 "	3,552
Durmounts	90" comp	19		2727
"	85" "	1		140
Guara Rails	sets	20		669
Switch Stands etc				483

Total

\$126 419

~~126.419~~

8731

12/3/38

Dear Mr. Walsh:

During our recent trip to the Dam I took a few snapshots with my miniature camera. You will recall that the last one I took was of yourself, Jim, and Frank Irving.

I had it enlarged, and am enclosing it herewith.

I was recently looking over the specifications and plans of the Dam under which you are now working and the question came to my mind as to the relative amounts of concrete placed by MWAK and the amount remaining to be placed. Can you let me know how many yards of concrete you placed under the MWAK contract?

Very truly yours,

Mr. Jack Walsh
C/o Consolidated Builders, Inc.
Grand Coulee Dam
Wason City, Washington

BERNARD BLUM

bb/s

encl.
X

WYLL

Dear Mr. [illegible]

I have just received your letter of the 14th inst. and am glad to hear that you are well and happy. I am also well and hope this letter finds you the same.

I am in the best of health and am much obliged to you for your letter.

I am very glad to hear that you are well and happy. I am also well and hope this letter finds you the same. I am in the best of health and am much obliged to you for your letter.

Very truly yours,

BERNARD ELDM

Mr. [illegible]
[illegible]
[illegible]
[illegible]

12/3/38

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Very truly yours,

Mr. Jack Walsh
C/o Consolidated Builders, Inc.
Grand Coulee Dam
Mason City, Washington

bb/s

encl.

Saint Paul, December 3, 1938

MR. H. E. STEVENS:

Our discussion about the amount that the Government has invested in the railroad from Odair to Grand Coulee Dam:

As you know the Government built the railroad in two sections: the first under the Ryan contract, from Odair to the head of Dry Coulee, approximately 28 miles, which was the part the Northern Pacific considered building; and the second, the part from head of the Dry Coulee to the dam site - which from the start was proposed to be built by the Government.

The following figures cover the railroad from Odair to head of the Dry Coulee only, approximately 28 miles. Based on the David Ryan contract prices we estimate the following costs to the Government:

Grading, track laying, ballasting (contract)	\$235,570
Right of way	50,000
Engineering	25,000
Culvert materials.....	18,375
Timber bridge materials.....	2,940
Fencing and signs	2,200
Cross ties, delivered.....	77,400
Bolts, spikes, rail anchors.....	15,840
Miscellaneous	7,500
	<hr/> 433,925

In the above figures you will note an estimate of \$50,000 for right of way. That is the figure we estimated it would cost the Northern Pacific to acquire the right of way. The Government condemned the land and undoubtedly included in their condemnation the area that would be flooded for the storage reservoir; and it is my opinion that \$50,000 is most liberal, and more than necessary to include. I think that \$25,000 for engineering is fairly liberal.

I would say that a good round offhand cost to the Government was \$400,000.

As a matter of interest, our investment in the railroad might be given as follows:

Engineering for location....	\$12,396	
90-lb rail	98,699 -	91091
Track fastenings and other trk mtl's	27,719	✓
Labor, loading material	2,922	
	<hr/> 141,736	

To this we might add freight on track metal, Saint Paul to Odair, at 7 mills per ton mile, \$69,910, making our total investment in the railroad \$211,646.

The above cost of material furnished by the Northern Pacific includes the metal we furnished to the Government for their railroad from the head of the Dry Coulee down to the dam site. I think it proper to include this metal, for the reason that it entered into the deal that was made with Mr. Walters.

bb/s

x

St. Paul, December 3, 1938.

MR. BERNARD BLUM:

In compliance with your verbal request, I have prepared an estimate of the cost of the Government's investment in the railroad leading from Odair to Grand Coulee Dam.

In preparing this estimate, I have used our estimate for the value of right of way and value of material purchased by the Government to which I have added their contract price for the grading track laying. On this basis the cost to the Government for the Railroad from Odair to MP 28 $\frac{1}{2}$ or the Head of the Dry Canyon is estimated at \$433,925.

I think all of the items in this estimate are reasonably close except the item of right of way and it is my understanding that the Government are condemning the property in the Canyon as a whole, and therefore the portion chargeable to the Railroad will be a very small item. Roughly I would say the Government's investment and the railroad to MP 28 $\frac{1}{2}$ is somewhere between \$390,000 and \$400,000.

We have furnished the Government for the building of the railroad, Odair to MP 28 $\frac{1}{2}$, including track material for that portion of the railroad, MP 28 $\frac{1}{2}$ to the dam site. The material which is carried on our books is at the following prices, except the item of freight which is included at 7 mills per ton mile. The summary of these items as furnished by the Railway Company is as follows:

Cost to Government:	\$433,925.
Engr. cost of locating R.R.	\$12,396
Rail 3/90	98,699
Angle Bars	20,149
Tie Plates	3,552
Frogs	1,191
Guard rails	669
Switch material (metal)	2,158
Loading rail at 50¢ GT	2,466
" fastenings etc.	456
Frt 6242 N.T. @ .007 (1600 MI.)	16,910
Total investment by Ry. Co.	\$211,646
Total estimate of cost for above items	645,571

In regard to the cost of constructing the railroad from MP 28 $\frac{1}{2}$ to the dam, the contract for the grading for a portion of this work was let to Crooks & Company, and while we do not have the figures available, it is my recollection that the cost of this contract was in the neighborhood of \$225,000.

The contract for a portion of the grading for the railroad was included in the contract for the construction of the dam. This grading was on

Mr. BB #2 12/3/38

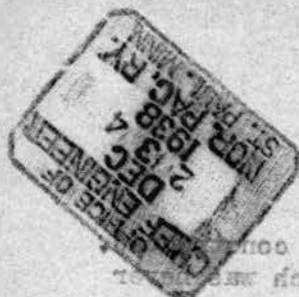
the lower end of the proposed railroad, some of which was never constructed. A portion of this grading you will recall included a tunnel which was never used.

The Government in constructing this railroad from Odair to MP 28 $\frac{1}{2}$ did not place any water stations, telephone lines, and only a small amount of right of way fence. In addition to this the grading changes of the highway were handled by W.P.A. labor. The Government did not invest any money in tools or equipment, section houses or other facilities for their men, as this burden was placed on the railroad contractor, and in the case of operating the railroad, on the contractor handling the dam project.

The contractor handling the grading for the railroad gave a very small figure, and it has been rumored that he lost in excess of \$100,000. on the railroad job. I do not think there was any change in quantities or classifications above the bid price, and if this is a fact the Government investment in the railroad, MP 0 to 28 $\frac{1}{2}$ should not exceed \$390,000. The N.P. investment as a whole as indicated in the detailed estimate above is \$211,646.


Ass't. to Chief Engineer.

JTD-vmlg



Mr. B. B. 12/2/38

A portion of this grading you will recall included a tunnel which was never completed. Some of which was never completed. A portion of this grading you will recall included a tunnel which was never completed.

The Government in constructing this railroad from Olathe to MP 283 did not place any water stations, telephone lines, and only a small amount of right of way fence. In addition to this the grading changes of the highway were handled by W.P.A. labor. The Government did not invest any money in tools or equipment, section houses or other facilities for their men, as this burden was placed on the railroad contractor, and in the case of operating the railroad, on the contractor handling the dam project.

The contractor handling the grading for the railroad gave a very small figure, and it has been rumored that he lost in excess of \$100,000. on the railroad job. I do not think there was any change in quantities or classifications above the bid price, and if this is a fact the Government investment in the railroad, MP 0 to 283, should not exceed \$320,000. The W.P.A. investment as a whole as indicated in the detailed estimate above is \$211,848.

Ass't. to Chief Engineer.

17-1012

St. Paul, December 3, 1938.

MR. BERNARD BLUM;

In compliance with your verbal request, I have prepared an estimate of the cost of the Government's investment in the railroad leading from Odair to Grand Coulee Dam.

In preparing this estimate, I have used our estimate for the value of right of way and value of material purchased by the Government to which I have added their contract price for the grading track laying. On this basis the cost to the Government for the Railroad from Odair to MP 28 $\frac{1}{2}$ or the Head of the Dry Canyon is estimated at \$433,925.

I think all of the items in this estimate are reasonably close except the item of right of way and it is my understanding that the Government are condemning the property in the Canyon as a whole, and therefore the portion chargeable to the Railroad will be a very small item. Roughly I would say the Government's investment and the railroad to MP 28 $\frac{1}{2}$ is somewhere between \$390,000 and \$400,000.

We have furnished the Government for the building of the railroad, Odair to MP 28 $\frac{1}{2}$, including track material for that portion of the railroad, MP 28 $\frac{1}{2}$ to the dam site. The material which is carried on our books is at the following prices, except the item of freight which is included at 7 mills per ton mile. The summary of these items as furnished by the Railway Company is as follows:

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Guard rails	669	
Switch material (metal)	2,158	
Loading rail at 50¢ GT	2,466	
" fastenings etc.	456	
Frt 6242 N.T. $\frac{1}{2}$.007 (1600 MI.)	16,910	
Total investment by Ry. Co.		\$211,646
Total estimate of cost for above items		645,571

In regard to the cost of constructing the railroad from MP 28 $\frac{1}{2}$ to the dam, the contract for the grading for a portion of this work was let to Crooks & Company, and while we do not have the figures available, it is my recollection that the cost of this contract was in the neighborhood of \$225,000.

The contract for a portion of the grading for the railroad was included in the contract for the construction of the dam. This grading was on

Mr. BB #2 12/3/38

the lower end of the proposed railroad, some of which was never constructed. A portion of this grading you will recall included a tunnel which was never used.

The Government in constructing this railroad from Odair to MP 28 $\frac{1}{2}$ did not place any water stations, telephone lines, and only a small amount of right of way fence. In addition to this the grading changes of the highway were handled by W.P.A. labor. The Government did not invest any money in tools or equipment, section houses or other facilities for their men, as this burden was placed on the railroad contractor, and in the case of operating the railroad, on the contractor handling the dam project.

The contractor handling the grading for the railroad gave a very small figure, and it has been rumored that he lost in excess of \$100,000. on the railroad job. I do not think there was any change in quantities or classifications above the bid price, and if this is a fact the Government investment in the railroad, MP 0 to 28 $\frac{1}{2}$ should not exceed \$390,000. The N.P. investment as a whole as indicated in the detailed estimate above is \$211,646.

Ass't. to Chief Engineer.

JTD-vmlg

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Total investment by Ry. Co.		\$211,646
Total estimate of cost for above items		645,571

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Mr. BB #2 12/3/38

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Ass't. to Chief Engineer.

JTD-vmlg

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MR. BERNARD BLUM:

In compliance with your verbal request, I have prepared an estimate of the cost of the Government's investment in the railroad leading from Odair to Grand Coulee Dam.

In preparing this estimate, I have used our estimate for the value of right of way and value of material purchased by the Government to which I have added their contract price for the grading track laying. On this basis the cost to the Government for the Railroad from Odair to MP 28 $\frac{1}{2}$ or the Head of the Dry Canyon is estimated at \$433,925.

I think all of the items in this estimate are reasonably close except the item of right of way and it is my understanding that the Government are condemning the property in the Canyon as a whole, and therefore the portion chargeable to the Railroad will be a very small item. Roughly I would say the Government's investment and the railroad to MP 28 $\frac{1}{2}$ is somewhere between \$390,000 and \$400,000.

We have furnished the Government for the building of the railroad, Odair to MP 28 $\frac{1}{2}$, including track material for that portion of the railroad, MP 28 $\frac{1}{2}$ to the dam site. The material which is carried on our books is at the following prices, except the item of freight which is included at 7 mills per ton mile. The summary of these items as furnished by the Railway Company is as follows:

Cost to Government -		433,925.
Engr. cost of locating R.R.	\$12,396	
Rail 3/90	98,699	
Angle Bars	20,149	
Tie Plates	3,552	
Frogs	1,191	
Guard rails	669	
Switch material (metal)	2,158	
Loading rail at 50¢ GT	2,466	
" fastenings etc.	456	
Frt 6242 N.T. x .007 (1600 MI.)	16,910	
Total investment by Ry. Co.		\$211,646
Total estimate of cost for above items		645,571

In regard to the cost of constructing the railroad from MP 28 $\frac{1}{2}$ to the dam, the contract for the grading for a portion of this work was let to Crooks & Company, and while we do not have the figures available, it is my recollection that the cost of this contract was in the neighborhood of \$225,000.

The contract for a portion of the grading for the railroad was included in the contract for the construction of the dam. This grading was on

Mr. BB #2 12/3/38

the lower end of the proposed railroad, some of which was never constructed. A portion of this grading you will recall included a tunnel which was never used.

The Government in constructing this railroad from Odair to MP 28½ did not place any water stations, telephone lines, and only a small amount of right of way fence. In addition to this the grading changes of the highway were handled by W.P.A. labor. The Government did not invest any money in tools or equipment, section houses or other facilities for their men, as this burden was placed on the railroad contractor, and in the case of operating the railroad, on the contractor handling the dam project.

The contractor handling the grading for the railroad gave a very small figure, and it has been rumored that he lost in excess of \$100,000. on the railroad job. I do not think there was any change in quantities or classifications above the bid price, and if this is a fact the Government investment in the railroad, MP 0 to 28½ should not exceed \$390,000. The N.P. investment as a whole as indicated in the detailed estimate above is \$211,646.

Ass't. to Chief Engineer.

JTD-vmlg

St. Paul, Dec. 3, 1938..

Mr. Derrig:

Eng Charges Grand Coulee Dam survey \$12395.94

transferred to Profit and Loss December 1934 accounts.

J H R

See J-1236 Dec. 1934
#11960 59



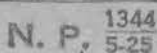
N. P. 1344
5-25

Estimated Cost to U. S. Govt for Constructing
Railroad from Odier to Head of Canyon
near Camero Dam, 28.5 miles main line
with sidings. Total trackage 30.1 miles

Right way	50000
Engineering	25000
550 Lin ft 24" Corr Pipe (Mat/only)	1325
1900 " " 36 " " " "	5700
1500 " " 48 " " " "	9750
200 " " 60 " " " "	1600
50000 F.B.M. Bridge Timber	1500
1800 Lin ft Piling	540
10 miles Rf Fence	2000
1 ing of Signs	200
Cross Ties 86000 pcs 90¢	77400
Track Bolts 42000 pcs " 12¢	5040
Track Spikes 1200 Kgs @ 80¢	9600
Anchors 6000 pcs @ 20¢	1200
Miscellaneous	7500
Save Repair Grating, track Laying Ballast etc	235590
Total investment by Govt Odier To Head of Canyon	\$ 433925

Value of material at Odier furnished by
Nor Pac Ry Co for Constructing
Rock Railroad from Odier to Head of
including track metal furnished Govt
for tracks at material yard and from
Head of Canyon to dam site

Engl Cost of Laying R.R.	12396
Rail 3/40	98699
Angle Bars	20149
Tie Plates	3552
Frogs	1191
Guard Rails	669
Switch Material (Metal)	2158
Leading Rail @ 50¢ G.T.	2466
" Fastenings etc	456
Frt - 6242 N.T. @ 007 (1600-mi)	69910
Total investment by Ry Co	211646
Total Estimate of Cost for above items	\$ 645571



Rail

[illegible]

December 3, 1938

Dear Mr. Miner:

I beg to acknowledge receipt and thank you for the copy of specifications and contract covering the work of Consolidated Builders, Inc. on the Grand Coulee dam, which was forwarded me at the request of Mr. E. V. Klein.

When Mr. Blum was starting on his last western trip I asked him, in case he visited the dam site, to obtain from you a copy of the contract and specifications in order to complete my file, we already having been furnished by Mr. Walters a copy of the contract and specifications with the MWAK Company.

It appears Mr. Tremaine thought he could get an extra copy from Mr. Klein with the result that Mr. Klein made the request instead of Mr. Blum.

With best regards to yourself and Mr. Banks.

Yours very truly,

H. E. STEVENS

Mr. J. H. Miner,
Acting Construction Engineer,
U. S. Department of the Interior,
Coulee Dam, Washington

cc Mr. Bernard Blum ✓
Mr. H. M. Tremaine

B



I am the author of the book "The History of the United States of America" published by the University of Chicago Press. The book is a comprehensive history of the United States, covering the period from the first European settlement to the present. It is written in a clear and concise style, and is suitable for both students and general readers. The book is available in both print and electronic formats.

On 12 June 1964, the following was received from the U.S. Navy:

very few in Alaska with the result that a. Alaska made the

With best regards to your wife and Mr. Jenkins.

[illegible]

P. E. STEVENS

Mr. J. H. Miller,
 Acting Construction Engineer,
 U. S. Department of the Interior,
 Office of Reclamation

Mr. H. M. Tremaine
Mr. F. M. Bismarck



N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

8731 M.

Saint Paul, December 3, 1938

H M Tremaine

Spokane

A-2 Contract received this morning. B-31

Bernard Blum

Spokane, Washington
December 2, 1938

Mr. Bernard Blum:

PERSONAL

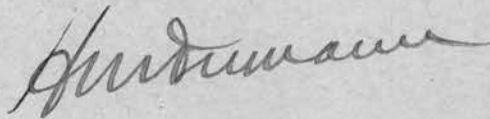
As per my telegram A-2 of even date,

I hand you herewith the following letters:

J. H. Miner to H. E. Stevens, November 29,
copy to E. V. Klein.

Letter from E. V. Klein to me, November 30,
enclosing Mr. Miner's letter.

I am not keeping a copy of these letters.



District Engineer

HMT-b





E. V. KLEIN
VICE-PRESIDENT

SPOKANE AND EASTERN

BRANCH OF SEATTLE - FIRST NATIONAL BANK

SPOKANE, WASHINGTON

November 30, 1938

Mr. Hugh Tremaine
618 Cotta
Spokane, Washington

Dear Hugh:

Enclosed is a copy of a letter which I received this morning from J. H. Miner, Acting Construction Engineer, U. S. Department of the Interior, Bureau of Reclamation, Coulee Dam, Washington, in which he states he has forwarded a copy of the C. B. I. contract and specifications to Mr. H. E. Stevens, Vice President of the Northern Pacific Railway Company, St. Paul, Minnesota.

I hope Mr. Stevens receives them promptly.

Sincerely,

E. V. Klein

EVK:LF

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
COULEE DAM, WASHINGTON

November 29, 1938



Mr. H. E. Stevens
Vice President
Northern Pacific Railway Company
St. Paul, Minnesota

Dear Sir:

At the request of Mr. E. V. Klein, Vice-President,
Spokane and Eastern Trust Company, we take pleasure in sending
you a copy of the contract with the Consolidated Builders,
Incorporated, contractors under specifications No. 757, and a
copy of the specifications.

Yours very truly,

J. H. Miner
Acting Construction Engineer

cc Mr. E. V. Klein
Vice-President
Spokane and Eastern Trust Co.
Spokane, Washington



N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

43 SF S

SPOKANE 12/2/38

BERNARD BLUM

ST PAUL

Contract

B-11. PEBBLE MAILED BY J H MINER TO MR STEVENS NOVR 29

I HAVE COPY OF LETTER OF TRANSMITTAL. MAILING TONIGHT

A 2

H M TREMAINE

1142 AM

T. R. G.

*Let me know in
the morning B.B.*

*Letter Nov 29th received. Contract has 1 1/2
not arrived*

*Contract received by Mr Stevens this morning.
Dec 1 13-38*





N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

8731 M.

Saint Paul, December 1, 1938

H M Tremaine

Spokane

Contact
Dam pebble not yet received here. Can you ascertain
possibly through Mr. Klein without arousing any more wonder-
ment on part of *Mr. Banks* capart bow. See my letter 29th.

B-11

Bernard Blum

(Copy)

P e r s o n a l

Saint Paul, November 29, 1938

MR. H. M. TREMAINE:

Your letter of the 28th, about obtaining a copy of the contract between the Government and the Consolidated Builders, Inc. covering the second stage of the GRAND COULEE DAM:

I am glad that you gathered from our conversation that obtaining a copy of this contract was something that I wished handled indirectly, and that I did not wish my name to appear. That is quite correct. Does not this suggest that neither did I desire the name of Mr. Stevens to appear?

What I wanted was that you obtain the contract on your own initiative, as something that you personally desired to have for your own use in estimating, writing specifications, etc.

As the matter now stands Mr. Banks must be wondering why a Spokane banker should make request on him for plans and specifications to be sent to the Vice President of the railway; and I wish that you would take the first opportunity to set the matter right with Mr. Banks - along the following lines:

- "1. Mr. Stevens asked Mr. Blum if he had a copy of the contract between the U.S. and the Consolidated Builders, Inc. as he had a copy of the contract with the MWAK Co. - which had been handed him personally by Mr. Walters - and he desired to complete his files with a copy of the second contract and specifications.
2. On Mr. Blum's recent trip west he had not anticipated going to the dam, so on Monday, the day before he went to the dam, he asked me (Mr. Tremaine) if I had a copy of the contract which could be spared. I said that I could get Mr. Klein's copy; and I asked Mr. Klein if he had the copy which I knew the bank had received.
3. It is apparent that Mr. Klein, instead of notifying me, telephoned you (Mr. Banks) direct.
4. I (Mr. Tremaine) desire to explain the situation to you so as to clear up the matter."

As the matter was actually handled it seems to me that a very embarrassing situation has been created. I think that if you will read your letter, comparing the first paragraph with the statement in the last paragraph, you will agree that it was certainly inconsistent to tell Mr. Klein to have it sent direct to Mr. Stevens.

bb/s

(copy later sent to Mr. Stevens 12/3/38)

BERNARD BLUM

(Copy)

P e r s o n a l

Saint Paul, November 29, 1938

MR. H. M. TREMAINE:

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As the matter was actually handled it seems to me that a very embarrassing situation has been created. I think that if you will read your letter, comparing the first paragraph with the statement in the last paragraph, you will agree that it was certainly inconsistent to tell Mr. Klein to have it sent direct to Mr. Stevens.

bb/s

(copy later sent to Mr. Stevens 12/3/38)

BERNARD BLUM

Spokane, Nov. 28, 1938.

Mr. Blum,

Your telegram B 281.

I gathered from our conversation on this matter, and your omission from asking direct for this contract while you were at Coulee Dam on your trip, that this was something you wished handled indirectly and that you did not wish your name to appear.

Knowing that the Spokane Eastern Bank (also our depository here) had things to do with the financing of this and the previous Mason contract, and also knowing the officers of this bank very well personally, I contacted Mr. Klein, Vice President of the Bank, and told him that I wanted to get a copy of the Contract so that our files could be kept complete; that I had somehow omitted getting when the job was let. Mr. Klein said that he had an extra copy which I could have; but on attempt to find it developed that the President Ferris had given it away.

Mr. Klein then called Mr. Banks on long distance telephone and asked ~~for~~ if there was a set available for us, Mr. Banks replied that he had one and asked where he could send it and as I was aware of the acquaintance between Mr. Stevens and Mr. Banks, and under the impression you did not wish to appear in the deal, I thought I might just as well shoot the works and ~~take~~ I told Mr. Klein to have it sent direct to Mr. Stevens, to which Mr. Banks agreed, the charge for contract was \$5.00 which I paid

to Mr. Klein and for which I hold his receipt,

Handwritten signature

Saint Paul, November 26, 1938

MR. H. E. STEVENS:

Your letter of the 22nd about GRAND COULEE DAM matters:

Mr. Edgar Kaiser admitted that to date the amount of demurrage paid has been such that there are no objections on the part of his company; but what he anticipates is that under the new method of operation where cars are moved across the dam special a heavy demurrage charge will accrue when the work closes down seasonally and starts up again, unless they go to the expense of operating a daily train between the dam and Odair.

In regard to obtaining a copy of the existing contract between the Builders and the Government: I told Mr. Tremaine to obtain a copy, figuring it would take less explanation than if I asked Mr. Banks for a copy. I received a wire Saturday from Mr. Tremaine stating that due to the contact he employed it was necessary to have the contract and specifications sent direct from Mr. Banks to you by U S mail. I have wired Mr. Tremaine for an explanation of what went on.

bb/s

x

BERNARD BLOOM

Saint Paul, November 28, 1938

MR. H. E. STEVENS:

Your letter of the 22nd about GRAND COULEE DAM matters:

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bb/s
x

Saint Paul, November 23, 1938

MR. H. E. STEVENS:

Your letter of the 22nd about GRAND COULEE DAM matters:

Mr. Edgar Kaiser admitted that to date the amount of demurrage paid has been such that there are no objections on the part of his company; but what he anticipates is that under the new method of operation where cars are moved across the dam special a heavy demurrage charge will accrue when the work closes down seasonally and starts up again, unless they go to the expense of operating a daily train between the dam and Odair.

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bb/s

x



N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

Saint Paul, November 23, 1938

H M Tremaine

Spokane

A-37 If you have not already done so wish you would write me airmail explaining obtaining of contract and necessity of having sent direct by construction engineer. B-281

Bernard Blum



N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

66 SF S

SPOKANE 11/26/38

BERNARD BLUM

WT PAUL

YOUR B 231 HAVE SECURED COMPLETE COPY OF CONTRACT AND SPECIFICATIONS
OWING TO CONTACT I EMPLOYED WAS NECESSARY TO HAVE SENT DIRECT BY
MR BANKS TO MR STEVENS BY U S MAIL. A 37

H M TREMAINE

1259 PM





N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

65 SF S

SPOKANE 11/25/38

BERNARD BLUM

ST PAUL

B-231. UNABLE TO ESTABLISH CONTACT UNTIL NEXT WEEK.

A 36.

H M TREMAINE

1255 PM

B





N. P. 1386
12-24

TELEGRAM—BE BRIEF

TIME FILED

8731 M.

Saint Paul, November 23, 1938

H M Tremaine

Spokane

What success have you had my request for obtaining a certain contract.

B-231

Bernard Blum

St. Paul, Minnesota,
November 22, 1938

Mr. Bernard Blum:

Your letter of November 17th about your talk
with Mr. Kaiser at the Grand Coulee dam.

The demurrage item has been in the mill for some time
but no one has yet given me the necessary information for sizing
up the situation. For the first six months of their operation
the Consolidated Builders paid us a total of \$187.00, which I
would not suppose would be much of a factor in their costs in
the construction of a project of the magnitude of the one on which
they are engaged. I have written Mr. Sloan for further information.

You do not touch on the question I particularly asked you
to investigate, and that is the possibility of getting a copy of
the existing contract.

A handwritten signature in dark ink, appearing to be "R. Sloan", with a long horizontal flourish extending to the right.



8731

At Seattle, November 17, 1938

MR. H. E. STEVENS:

I visited the GRAND COULEE DAM work on Tuesday, the 15th.

The work is progressing rapidly. On Monday they poured over 11,000 yards of concrete and they expected to pour some 12,000 yards the day I was there. The work now consists of building up the various blocks all the way across the dam, and they are gradually raising the water behind them in five-foot lifts as the various slots are closed off. The water behind the dam at present is 25 to 30 feet higher than below the dam.

Mr. Edgar Kaiser spoke to me protesting the application of demurrage charges for cars which you will recall are contained in our agreement with the United States. While the bulk of the cement is unloaded adjacent to the government railroad and such cement cars are handled promptly, so that under the average demurrage arrangement cars are returned to Odair within the 48-hour limit, some of the low-temperature cement is conveyed across the river on the trestle over the dam and unloaded in a separate bin adjacent to the concrete mixing plant. All the concrete mixing is done on the right or east bank of the river.

Other cars are moved across the river, such as form lumber, certain steels, etc. These cars are slid downhill from the government railroad on a form of skip-hoist and dropped on the rails of the construction trestle over the river. It is not possible to handle such cars within the time limit and Mr. Kaiser argues that under the existing arrangement the Consolidated Builders are not being treated comparably to other shippers who have 48 hours free time at points adjacent to the company railway tracks. On account of conveying the cars 28 miles by government railroad, thence several miles over the contractor's rails, he thought they should have additional free limit.

I had heard previously of this from one of our traffic representatives at Spokane. I do not know if it has reached you.

Mr. Kaiser stated that he had asked for five instead of two days free time; but he volunteered the statement that he would be satisfied if he got four days free time. He stated that at the present time this matter is of small moment, but that at the closing down of the work in the fall and at starting out in the spring it would amount to an important item for his company, for the reason that with only a few cars being handled they would either have to operate their train daily between Odair and the dam site, or else pay heavy demurrage charges. So long as enough cars are moving, and they can justify operating the railroad to and from Odair, the reciprocal arrangement practically wipes out ordinary demurrage charges; but he anticipated a heavy penalty in the next few weeks when they will probably have to close down account cold weather.

I told Mr. Kaiser that as the present arrangement was an executed contract all I could do was to report to you his plea.

bb/s

8731

Saint Paul, November 8, 1938

P e r s o n a l

Mr. H. M. TREMAINE:

Will you call upon Mr. Banks and see if you can obtain from him a copy of the contract between the United States and the CONSOLIDATED BUILDERS covering the completion of the high dam.

For your information we are having a controversy with the Government over the cement rate. I mention this so that you will not bring it up in connection with your request for copy of the agreement.

bb/s

Tom Gibson

Harriet

Pete 11/4

MR. BLUM:

Have gone through the files on the Coulee Dam, but am unable to find the information desired by Mr. McCarthy in definite form.

The files do however contain the following information:

1. Your letter to Mr. Stevens, 8/29/33, after conversation with Mr. Banks, stated he had advised you that the amount of federal funds allocated to this work was 63 million dollars which was barely enough to cover the construction of the low level dam and powerhouse.
2. In your letter to Mr. Scandrett 9/16/33 you explained conversation with Sen. Dill after riding with him from Butte to Livingston, in which he stated that the President was definitely committed to the 63 million dollar appropriation.
3. In your letter to Mr. Clark 11/3/33 you furnished statement of probable tonnage for both the low and high dams. This information was obtained from the Chief Engineer of the Reclamation service at Denver, in letter to Mr. Thian dated 8/5/33.
4. Under date of 3/28/34 Mr. Stevens while at Denver, in letter to Mr. Walter, Chief Engineer, Bureau of Reclamation, confirmed verbal understanding regarding construction of line to the Dam and referred only to the Low Dam project.
5. Mr. Clark in his letter to Mr. Walter, 4/4/34, quoting freight rates, following up Mr. Stevens' letter above, stated specifically the rates are to cover material for the so-called low dam unit.
6. Mr. Stevens in letter to you 4/5/34 further explaining his understanding with Mr. Walter referred to the quantities for the Low Dam.
7. June 14, 1934 Mr. Stevens in letter to Mr. Sloan states, "As to general terms of contract for the construction and freight rates. These have been agreed upon and are not open for further adjustment. The general terms for the construction are covered by my letter to Mr. Walter of March 28, copy of which you have. The agreement as to rates is covered by Mr. Clark's letter to Mr. Walter of April 4, copy of which is attached. These rates are stipulated as applicable to material moving on government bills of lading and used in the construction of the so-called Low Dam unit at G and Coulee. This is specific and in strict conformity

with our understanding with the Reclamation officials."

8. The Northern Pacific return to questionnaire concerning the application for permission to construct the branch line, finance docket 10212 and the certification dated Feb. 13, 1934 referred to quantities and freight revenues from traffic in connection with the Low Dam. The contract between the Railway and the Government dated 11/19/34 for the construction of the Railroad also refers to taking up the line on completion of the Dam and Power Plant unless it appears probable that the United States will within a few years thereafter proceed with the work on the High Dam.
9. There is nothing further in the files about the High Dam until Mr. Haw's letter of 2/25/37 sending copy of Sen. Bone's letter to the President Jan. 16, 1937 and the President's reply of 2/10/37.
10. On December 24, 1937 you furnished Mr. Stevens with an estimate of freight involved in construction of the High Dam.

- T. R. G.
11/2/38

low dam 773 865 2
high " 143 750'

2698

5860

6195'

6669-

6067

27489

Grana, Coulee Dan
Letter from Chief Engineer Reclamation Service
to P.E. Shuan Aug 5 - 1933

C O P Y

St. Paul, Minn., Nov. 3, 1933

Mr. R. W. Clark:

Your letter of the 2nd about tonnage of contractors material, etc., that will probably move to the Grand Coulee Dam:

You state that you have made up an estimate of revenues covering materials which will enter into the construction of the proposed low dam. In order to have my statement to you complete we have shown the construction materials which were furnished by the Chief Engineer of the Reclamation Service at Denver in a letter to Mr. Thian dated August 5th. This shows a total of 773,865 tons of construction material.

In accordance with your request we have shown in the lower half of page one of the attached estimate, our best judgment as to the tonnage of contractors equipment, supplies including fuels, material for housing, subsistence, etc., totaling 145,750 tons. It is estimated that 50% of the excavation material will be handled by electric shovels requiring no fuel.

At the top of page two there is shown the construction materials required for the proposed highway suspension bridge which is to be hung across the gorge. This totals 12,050 tons.

Total of all tonnage is 931,665.

The contractors equipment, supplies, tools, subsistence, etc., is estimated conservatively as to the total requirements. Whether or not some of this will move by truck it is difficult to say, except that in the application which is being made to the I.C.C. to construct the railroad we are stipulating that all materials must move by rail, including contractors equipment, etc.

This statement shows no rail movement for gravel and sand to be required in the construction of the dam. In talk I had with Engineer Banks of the Reclamation Service, he was hopeful of obtaining all the needed aggregate from the river excavation to be made for the dam. There are large deposits of gravel on the floor of the dry coulee. There is a possibility that some gravel will move over our proposed railroad line, but I do not think that we are justified in figuring very much on that.

C O P Y

No passenger transportation has been included in our statement. Undoubtedly we will enjoy an increase in passenger traffic in connection with the construction of the dam, altho none of which will move over the proposed new line. In connection therewith supply men, manufacturers agents, etc., will have occasion to visit the work moving from eastern points as well as from Seattle and Portland. However, as I do not imagine we will run passenger trains over the proposed branch it hardly seems proper for you to take credit for such increased passenger business for the new branch line, and after all this estimate is to show the earnings that we hope to enjoy if we build the railroad.

It is my understanding this material will be for contractors, etc., and therefore will not move under the land grant rates.

BB:wp

cc: Mr. H. E. Stevens
Mr. A. C. Terrell

C O P Y

Chief Engineer

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

Custom House,

Denver, Colorado

Office of Chief Engineer

August 5, 1933

Mr. P. E. Thian, Consulting Engineer
Northern Pacific Railway Company,
St. Paul, Minn.

Dear Mr. Thian:

Attached is a tabulation of approximate quantities of construction materials to be shipped to the Columbia River dam, which you requested on your recent visit to this office.

The construction period is given as four and seven years, respectively, for the low and high dams. If more detail is desired relative to the time of shipment of the various items listed, it can be prepared for you within a short time.

Very truly yours,

(R.F.Walter)

encl.

Chief Engineer

C O P Y

C o l u m b i a R i v e r D a m

W A S H I N G T O N

Quantities of Materials to be Transported by Rail (TONS)

<u>I t e m</u>	<u>Low Dam</u>	<u>High Dam</u>
C e m e n t	570,000	2,526,000
Reinforcing steel	17,250	13,500
Miscellaneous metal	825	9,485
Sluice Gate Metal	4,093	7,841
Structural Steel	4,081	19,153
Steel penstocks, cars, etc.	12,715	12,715
Turbines, valves, etc.	7,500	14,273
Electrical Equipment	17,600	29,376
Form Lumber	67,006	157,862
Timber Cribbing	49,203	49,203
Steel sheet piling, etc.	<u>23,592</u>	<u>23,592</u>
T o t a l	773,865	2,863,000
Construction Period	four years	seven years

C O P Y

Denver, Colorado, March 28, 1934

Mr. R. F. Walter, Chief Engineer,
Bureau of Reclamation,
Denver, Colorado

Dear Sir:

Confirming our verbal understanding this morning, The Northern Pacific Railway Company agrees to furnish f.o.b. Coulee City, sufficient rail and fastenings to complete the construction of a railway, including yard, tracks and sidings, from a connection with the Washington Central Branch near Coulee City to the head of the Grand Coulee Canon. We will also turn over to you the complete data covering our preliminary survey for this railway and agree to stake out on the ground definite location of center line, also furnish subject to your approval, specification for its construction. No charge to be made by the railway company for the use of the rails or for the survey data and engineering work.

The Government agrees to include in its specifications and proposal blanks, covering the construction of the Grand Coulee Low Dam project, items to cover grading, ballasting, track laying and surfacing of the above described railway on a right-of-way to be furnished by the Government. It will also require the successful bidder to proceed with the construction of this railway with all possible dispatch promptly on the award of the general contract.

The Government further agrees that it will return to the railway company without cost to it, f.o.b. cars Coulee City, all rail and fastenings loaned to it by the railway company promptly on completion of the Low Dam Project. Provided, however, that if on completion of this project it appears probable that the Government will, within a few years thereafter, proceed with the construction of the High Dam Project, the railway will not require the return of the rails and fastenings until the High Dam Project has been completed. If no definite decision on construction of the High Dam is

C O P Y

- 2 -

reached within a period of ten (10) years from date, the Government will, on demand of the railway company, pick up and return the rail and fastenings to the railway free of charge, f.o.b. Coulee City; at the option of the Government the railway will pick up the rail and fastenings, the Government to pay the railway the actual cost of doing the work.

The Government agrees to require its general contractor to maintain the railway and to provide reasonable service thereover for handling the business of the Government and others through out the contract period. Revenues for handling other than Government business over the railway to accrue to the Government but to be entirely independent of rates fixed by the railway company for delivery of materials at the interchange point of connection with its Washington Central branch.

It is my understanding that the above conditions are acceptable to you provided we can agree on maximum rates for major items of material shipped on Government bills of lading. A responsible traffic officer of our company will confer with you not later than April 3rd, 1934 and undertake to determine these maximums on a basis that will be equitable and take into consideration all factors of your transportation problem.

I am enclosing herewith estimated quantities of principal items entering into the construction of the proposed railway as determined from our preliminary survey.

Yours truly,

Vice President
Northern Pacific Railway

HES/JC

COPY

Principle items of material entering into the construction of
a railroad between Odair and the head of the Grand Coulee Canyon.

Main track	28.5 miles
Yards and sidings.	4.0 miles
	<u>32.5 miles</u>

Right of way 370 acres

Common Excavation.	410,000 cu.yd.
Loose Rock	46,000 " "
Solid Rock	50,000 " "
Total Grading.	<u>406,000 cu.yds.</u>

Bridging:

6 Pile and Frame trestles . . .	25 spans or	369 ft.
24 inch corrugated iron pipe . . .		550 "
36 inch corrugated iron pipe . . .		1,900 "
38 inch corrugated iron pipe . . .		1,500 "

Ties:

7'8" cross ties	608,840 pcs.
17 sets switch ties	50,000 FBM
Bridge Ties	20,000 "

Rail	32.5 miles
Switches	17 sets

Ballast 1000 cu.yd. per mile main track 28,500 cu.yd.

Tracklaying and surfacing .	32.5 miles
Right of way Fence	36 miles

C O P Y

EXHIBIT "E"

EXHIBIT E - PART 1

Estimate based on preliminary surveys. Approximate estimated cost by primary accounts is as follows:

Length of Main Track	28.5 miles
<u>Length of Other Track</u>	<u>1.6 miles</u>
Total All tracks	30.1 miles

Acct. No. 1	- Engineering 5%	\$ 33,252
" " 2	- Land for Transportation Purposes	50,000
" " 3	- Grading	239,786
" " 6	- Bridges, Trestles & Culverts	28,800
" " 8	- Ties	61,959
" " 9	- Rails	102,490
" " 10	- Other Track Material	32,495
" " 11	- Ballast	21,500
" " 12	- Tracklaying & Surfacing	62,583
" " 13	- Right of Way Fences	22,100
" " 15	- Crossings & Signs	7,858
" " 16	- Station & Office Buildings	5,983
" " 17	- Roadway Buildings	4,217
" " 18	- Water Stations	11,000
" " 19	- Fuel Stations	800
" " 26	- Telegraph & Telephone Lines	12,980
" " 27	- Signals & Interlockers	60
" " 37	- Roadway Machines	400
" " 38	- Roadway Small Tools	200
" " 71	- 75 & 77 - General Expenditures	27,932
" " 76	- Interest During Construction	<u>32,680</u>
TOTAL		\$759,135

EXHIBIT E - PART 2

Existing equipment owned by the Carrier will be sufficient to handle the expected business.

C O P Y

On Yellowstone Division
April 5, 1934.

MR BERNARD BLUM:

Herewith copy of my letter to Mr. R. F. Walter, Chief Engineer of the Bureau of Reclamation, dated March 28th, outlining conditions for the construction by the Bureau of Reclamation of a railroad between Odair and head of the Grand Coulee Canyon.

Subsequently an agreement was reached on rates and the Bureau will put in their general specifications covering the construction of the dam a clause to the effect that a railroad will be furnished by the Bureau from the damsite to a connection with the Northern Pacific at Odair. They intend to send out their invitation this week if possible, but will not have the specifications for the railroad ready to forward until next week. They intend to let the railroad construction as a separate contract.

I turned over to Mr. Harper all of the data forwarded me with Mr. Lowry Smith's letter of March twenty-ninth with the exception of the negatives for culverts and head-walls. This data, as you know, is quite incomplete account of no definite location having been made. I told Mr. Harper we would put on a party and run in the center line for a definite location, and I wish you would arrange to do so as quickly as possible. I suggested they forward to Mr. Banks' office at Almira all data which I turned over to them so it would be available for your use in running in the center line, although I assume Mr. Smith kept tracings of such negatives as he forwarded. The Bureau intend to reproduce the 2000 foot scale map and preliminary profile to a small scale for use in sending out with their specifications for bids. They will use the approximate quantities given Mr. Walter with my letter which were taken from the only estimate I had on the file, as you failed to furnish me with copy of your final estimate made up on the basis of my letter to you of November second.

I have also agreed to furnish Mr. Walter with specification for ties or any other information he may request and which we have available.

I made no definite promises as to weight of rail we would furnish. If we do not relay a portion of the Washington Central I presume we will have available sufficient third 90# to lay the branch. They asked me to furnish in addition to the rail necessary to lay to the head of the canyon the additional tonnage necessary to lay from the head of the canyon to the damsite, which I understand will be about two miles, and I agreed to furnish this

C O P Y

Mr. Blum Page #2

additional material. Mr. Banks will give us definite information on quantities later.

I suggested they use untreated ties and I do not think tie plates will be necessary for the tonnage they will move over this line. The contractor will operate it and probably use light power.

For the low dam they now estimate a total of 800,000 tons of cement and about 100,000 tons of other items, a total of 900,000 tons. The work will be spread over three or four years and I doubt if the maximum movement exceeds forty cars in any one day and probably the average will be around twenty cars per day. This volume of traffic in itself will not justify tie plates on the branch or relay of the Washington Central, but it is my understanding you may wish to make a relay account of the general rail situation.

Copy Mr. W. C. Sloan

(Signed) H. E. Stevens

C O P Y

Saint Paul, Minn.,
June 14, 1934.

MR. W. C. SLOAN:

I have just written Mr. Blum about the draft of contract submitted by the Reclamation Service for the construction of a railroad between Odair and the Coulee Dam and the remarks made in that letter cover the items enumerated in your letter to me of June eleventh up to the point where you start enumerating items for the contractor.

So far as the Railway Company is concerned, we are dealing with the Federal Government and I do not want to make a contract with the contractor for any item which we can cover in our contract with the Government. The contractor is the Government's agent and they should be made responsible for his acts and initiate whatever measures may be necessary to force him to comply with the terms of our contract.

This applies also to the handling of the joint expense and your agreement on this item should be with Mr. Walter. I have already told him personally that there would be some such expense which would be split jointly on an equitable basis.

We will cover damage to equipment while in the possession of the Government and demurrage on the same basis it would be covered in a deal between two common carrier railroads and a clause will be added to the contract to that effect.

As to general terms of contract for the construction and freight rate. These have been agreed upon and are not open for further adjustment. The general terms for the construction are covered by my letter to Mr. Walter of March 28th copy of which you have. The agreement as to rates is covered by Mr. Clark's letter to Mr. Walter of April fourth, copy of which is attached. These rates are stipulated as applicable to material moving on Government bills of lading and used in the construction of the so-called low dam unit at Grand Coulee. This is specific and in strict conformity with our understanding with the Reclamation officials.

C O P Y

- 2 -

My letter of March 28th provides that the Government will return to the railway company without cost f.o.b. cars Coulee City all rail and fastenings loaned to them by the railway promptly on completion of the low dam project. We then go on with the proviso to take care of the possibility of the mutual desire on the part of the Government and ourselves to leave the rail in place for service in construction of the high-dam unit. I have no apprehension as to misunderstandings arising out of that proviso for the reason that it will be pretty definitely known by the time the low dam is completed whether or not it would be advisable to pick up the rail. We would be just as anxious to have it stay in place as the Government if there was any real possibility of their going on with the larger construction.

The ten year proviso was for the purpose of making certain the rail could be recovered before the ties had completely rotted out. You appreciate the fact that after the low dam unit is completed and the contractor relieved from his obligation there will be no one to operate or maintain the railroad.

Mr. Clark has checked over the contract and I am attaching copy of his letter dated June seventh. I think we should add to the contract the stipulations mentioned in this letter.

I think this takes care of all of the questions raised by yourself and Mr. Blum, and I would like to have you explain them personally to Mr. Walter and his assistants while you are with him next week so we will be in a position to redraft the contract promptly, as the Government will, I anticipate, insist the contract be signed before they permit their construction contractor to go ahead with the grading work.

Copy Mr. B. Blum

C O P Y

St. Paul, Minn. Feb. 25, 1937

Mr. R. W. Clark,
General Traffic Manager

I attach copies of three letters of rather unusual interest bearing on appropriations for continuing work on the Grand Coulee Dam. President Roosevelt's expression of views on this project are particularly important and significant.

Enc.

(Signed) J. W. Haw

cc - Mr. Donnelly
Mr. Stevens
Mr. Coman
Mr. Sloan
Mr. Blum
Mr. Hughes

To note: A.J.D.
W.J.H.
W.P.S.
K.C.M.

C O P Y

NATIONAL RECLAMATION ASSOCIATION
WASHINGTON D C
February 23, 1937

Mr. John W. Haw,
Director
Agrl. Dev. Dept.,
Northern Pacific Ry. Co.,
St. Paul, Minn.

My dear John:

I have been in several conferences with officials of the Reclamation Bureau regarding the land speculation matter in the Columbia Basin. Last week George Sanford asked that I secure for the Bureau a list of all the large holdings which might be easily acquired by the Federal government. I turned the matter over to Jim Ford and suggested that he get the Spokane Chamber of Commerce to compile that information and get it down here as early as possible. Interior Department Solicitor Margold and four or five attorneys have been devoting a great deal of their time to the question as to how best to prevent speculation on the Columbia Basin land. They airmailed their plan to Reclamation District Counsel Stoutemyer, at Portland, and asked him to reply by night letter so that the wire would reach here by Friday morning of last week, but Stoutemyer was seemingly not fully advised and it is now necessary to wait until this week to get additional information here. I suspect, however, that before the end of the week a plan will be laid out to submit to the President. Personally, I do not believe the situation is going to be hard to meet.

The death last night of Congressman Buchanan, Chairman of the Appropriations Committee, also materially changed the complexion of things here, making Taylor of Colorado the ranking member, but there is grave doubt whether Mr. Taylor will live through the present Congress. The next ranking member is Clarence Cannon of Missouri, with whom I am not acquainted.

As requested in your letter of February 17, I am enclosing copy of two public work bills, one introduced by Mr. Secrest in the House and the other by Mr. Lemke. The Secrest bill is identical to the one introduced by Mr. Barkley and Mr. Buckley in the Senate and is the one which Barkley, Buckley and Secrest expect to amend somewhat to comply with the demands of the Ohio Valley Conservation and Flood Control Congress.

foh mj
Enc.

Respectfully yours,
(SGD) F.O. Hagie
Executive Secretary.

C O P Y

January 16, 1937

Dear Mr. President:

Knowing your great personal interest in the Grand Coulee project, we would like to call your attention to the fact that the project is in grave danger of being killed due to what seems to be a misunderstanding by the Budget Bureau. If the appropriation is based upon the present budget of \$7,250,000 for construction this year without a supplemental estimate to which we later refer, work will end in December, 1937 with a granite block stretching across the river, forming a useless pool, and with no power production possible or any other useful product to show for the expenditure of \$63,000,000.

Here are the facts in boiled-down form:

The Grand Coulee dam was authorized by act of Congress passed August 20, 1935. This authorization provided for the reclamation of public lands and Indian reservations, as well as for the generation of electric energy. Previously, \$62,000,000 had been allotted by executive order for construction of what has come to be called the "low dam" from funds designated for public works projects.

Studies by the Reclamation Bureau convinced reclamation engineers that a high dam should be constructed. A change order was therefore issued June 5, 1935, providing for constructing the base of a high dam with the \$63,000,000 available.

The Budget Director is of the opinion, as expressed at a meeting in his office January 11th, that Congress did not intend to spend more than \$63,000,000 on the dam and therefore the budget should include only an item of \$7,250,000 to bring the total cost to \$63,000,000. The budget director based his belief on the following language in Public 741, 74th Congress, at page 31:

"Provided further, that the obligation for the construction of the Grand Coulee Dam and appurtenant works, including those heretofore entered into, shall not exceed a total of \$63,000,000 and no obligations in excess of that amount shall be incurred for such dam, or dams, canals, structures, or incidental works in connection therewith under Section two of the Rivers and Harbors Act, approved August 30, 1935, until appropriations or contract authorizations, or both, therefore are hereafter specifically granted by Congress."

C O P Y

Mr. President
Page #2
January 16, 1937

Mr. Bell construes this to mean that Congress wanted to put a final limit of \$63,000,000 on the cost of the Coulee Dam. That was not the intention of Congress at the time the appropriation bill was adopted. All congress intended to do was to prevent the Government from entering into any new contract for continuance of the work until further appropriations had been made. Definite proof of this intention is shown in the statement of Senator Carl Hayden at the time he submitted to the Senate the conference report on the Interior Bill on June 18, 1936. At that time Senator McNary inquired as to whether or not the rider in any way affected the basic authorization. Senator Hayden replied:

"It is evident that this restriction cannot in any manner affect the law authorizing the construction of the project. It merely provides that no money shall be appropriated to continue the construction of that dam and incidental works, once it is completed to the height that is now contracted for, unless Congress shall make a specific grant for that purpose. In other words, the basic law authorizing the construction of the Grand Coulee Dam is not changed by this limitation."
Congressional Record, 74th Congress, 2d Session, page 7879.

Failure to include in the budget or in a supplemental budget at least \$15,000,000 needed to go on with construction means that the supporters of Grand Coulee will be placed under a serious and possibly insurmountable handicap in trying to amend the appropriation bill to obtain an appropriation of this amount which is absolutely vital to a continuance of the work on a high dam.

The dam will eventually pay for itself if completed, but it is worse than a dead loss incomplected, since interest on the money borrowed to build it will pile up at the rate of \$2,400,000 annually.

We of the Washington Delegation sincerely hope that you can see your way clear to induce the Budget Bureau to submit a supplemental estimate so that Grand Coulee construction may continue without interruption.

Sincerely yours,
(SGD) Homer T. Bone

The President
The White House
Washington, D.C.

C O P Y

THE WHITE HOUSE
Washington

February 10, 1937

My dear Senator Bone:

I have a letter of January sixteenth, signed by yourself and other members of the Washington Delegation, in which you urge the necessity of providing additional funds for the building of Grand Coulee Dam so that construction of the project may be continued without interruption.

It is evident that a waste of money will be entailed if construction of the high dam does not proceed upon completion of the present structure, due to the loss of interest on the money now invested by the Government, and on account of the necessity, at some future date, for organizing a new working force and preparing the foundation so that a bond may be obtained between the old and new structures.

A tremendous benefit will accrue to the Northwest by the building of Grand Coulee Dam and power plant, and the Columbia Basin Irrigation project I am in favor of the Federal Government providing adequate funds so that the construction at Grand Coulee may proceed in an efficient manner and without delay.

Nevertheless, it is only fair that I should tell you that before the appropriation of funds for the construction of Grand Coulee Dam as a high structure, it is my thought that the Congress assure itself of complete control over the lands in the Columbia Basin which would be irrigated.

I know that you will agree with me that it is unthinkable that real estate profits should accrue to private individuals solely because of this great government work.

Therefore, in my judgment, construction of the high dam should be dependent on the elimination of private profits, speculative or otherwise, which would result from this proposed action by the Federal Government.

Very sincerely yours,
(SGD) FRANKLIN D. ROOSEVELT

Hon. Homer T. Bone
United States Senate
Washington, D.C.

C O P Y

Saint Paul, December 24, 1937

MR. H. E. STEVENS:

I returned to you Mr. Haw's report to Mr. Clark, with clippings about award of contract for constructing the high dam at GRAND COULEE:

Following is an estimate of the freight involved:

		<u>Tons</u>
concrete: cement only, 6,000,000 cu.yds.		1,400,000
Steel:		
Reinforcing steel	26,000	
Structural steel	14,500	
Machinery, etc.	32,000	
Misc. steel, elec.supplies, waterproofing, etc.	4,000	
Cranes, tramways, etc.	<u>4,000</u>	80,500
Contractor's tonnage, other than current repairs and supplies:		
Equipment, various classes,	6,000	
Form lumber, 50,000,000' BM	75,000	
Hardware	1,000	
Trucks, cable, struc.steel for high line	<u>10,000</u>	92,000

Quantities do not include current supplies during the construction period such as gasoline, fuel oil, grease, etc., and commissary supplies required for the Dam project.

cc-Mr. R. W. Clark

bb/s

8731

Glendive, Montana,
October 21, 1938.

Mr. Bernard Blum,
Chief Engineer,
St. Paul, Minnesota.

Dear Mr. Blum:

I wish to acknowledge your kindness in sending me the pamphlet on Coulee Dam. I have read this with a great deal of interest. I also thank you for the memorandum on the outcome of the sugar company negotiations.

I had hoped to be able to send you the prints from our recent trip to Fort Peck Dam. I turned the roll in for development Monday, October 10th. On the 20th I called at the store and up to date they had printed six of the twenty negatives. We didn't have too much light and these are somewhat gray, but I believe will show some of the details we had intended to photograph. If we have sufficient patience, we will eventually get these prints.

With kindest personal regards, I am

Yours very truly,

Washington
Acting Chief Surgeon

MAS:H

10/21 *J.T.D.* *B*
note
10/23 *BB*



[Faint, mostly illegible text spanning the middle section of the page, appearing to be several paragraphs of a letter or report.]

[Faint, mostly illegible text at the bottom of the page, possibly a signature block or a concluding paragraph.]

8731

(On line- at Fargo)

October 12, 1938

Dear Doctor Shillington:

Protecting my promise to you of Saturday, I am transmitting herewith a booklet issued by the U S Bureau of Reclamation covering the Grand Coulee Dam and Columbia Basin reclamation project.

This of course is an authentic statement; and I am sure that you will be interested in the photographs.

Like the Fort Peck Dam, it is such a huge structure that it is almost impossible to visualize the mass of concrete.

Very truly yours,

Dr. M. A. Shillington
Acting Chief Surgeon
N. P. B. A. Hospital
Glendive

bb/s

8731.

St. Paul, Minnesota

Sept. 28th, 1938.

Mr. H. M. Smith:

Your letter of September 27th, file 1715, about gasoline lanterns shipped from Coulee Dam survey to Park-water store:

I have no objections to selling them at \$1.50 each, or such price as you and the Purchasing Agent approve.

BERNARD BLUM

BB:m

R
10/3

St. Paul, Minnesota

Sept. 28th, 1938.

Mr. H. M. Smith:

Your letter of September 27th, file 1715, about gasoline lanterns shipped from Coulee Dam survey to Park-water store:

I have no objections to selling them at \$1.50 each, or such price as you and the Purchasing Agent approve.

BB:m

BERNARD BLUM

St. Paul, Minn., Sept. 27, 1938

File 1715

Mr. B. Blum;

Chief Engineer

Referring to your letter August 5th in regard to gasoline lanterns shipped from Coulee Dam survey several years ago to Parkwater Store.

You have suggested that these lanterns might be sold at \$3.64 each, which is 75% of the value new. I am advised that these are old style lanterns and there is little possibility of their being used for any purpose on the Railroad. They can be disposed of to some of our employes who have fishing and hunting camps at \$1.50 each.

Have you any objection to selling them at this price if the Purchasing Agent is willing?

S-n

H. M. Smith

St. Paul, Minn., Oct. 27, 1938

File 1713



Mr. A. Blum;

Dear Sir:

Referring to your letter of the 25th in regard to the lanterns shipped from your firm survey several years ago to the U.S. Navy.

You have suggested that these lanterns might be sold at \$3.84 each, which is 75% of the value now. I am advised that these are old style lanterns and there is little possibility of their being used for any purpose on the part of the Navy. They can be disposed of to some of our employees who have fishing and hunting camps at \$1.50 each.

Have you any objection to selling them at this price if the purchasing agent is willing?

Sincerely,
[Signature]

B. Blum
J. H. Law

noted 4/9/1
L 5 4/9/ 8731

note
B.B.

9/1

Excerpt from paper entitled
"Cost of Hydro-Generated Energy
by
L. N. McClellan,
Chief Electrical Engineer, U. S. Bureau of Reclamation

The Grand Coulee Dam and Reservoir will serve both irrigation and power and, because of this dual purpose, it has been tentatively proposed to allocate one-half of the cost of the dam and reservoir to irrigation and one-half to power. The total estimated cost of the project is \$425,000,000. Of this \$282,000,000 is the cost of the irrigation development which is to be repaid in 40 years without interest, conforming with the established plan of repayment of Federal Reclamation projects, and \$143,000,000 is the cost of the power development which is to be repaid in 40 years with interest at $3\frac{1}{2}$ per centum per annum. It is estimated that the water users will be able to repay about \$23,000,000 of the construction cost of the irrigation development in addition to the cost of operation and maintenance leaving some \$243,000,000 of the cost of the irrigation development to be repaid out of power revenues.

With the 5,000,000 acre-feet of active storage in the Columbia River Reservoir, the firm energy output of the Grand Coulee Power Plant will amount to 8,138 million kilowatt-hours per year. A considerable period of time will be required for the market within economic transmission distance to absorb this large amount of energy and for the purpose of determining the cost of power it is assumed that about 20 years will be required to market all of the firm energy. It is believed that this is conservative and it is expected that the full output will be absorbed in a considerably shorter period and, if so, the deficits in the early years and the cost of power will be reduced somewhat. In addition to the firm energy there will be large amounts of seasonal or secondary energy which it is proposed to use largely for pumping water for irrigating the lands of the Columbia Basin Project. It is assumed that the water users will pay one-half mill per kilowatt-hour for secondary energy used for pumping purposes.

An analysis of the financial operation of the Grand Coulee Project is shown graphically on drawing 22-D-2133, (slide) based on the assumptions that the firm energy will be absorbed at the rate of 720 million kilowatt-hours per year and that the irrigation development will progress at the rate of 50,000 acres per year. This study indicates that during the first

five years of operation the revenues will be insufficient to meet the annual interest charges on the investment in the power development and deficits amounting to about eight million dollars will accumulate during this period which will have to be paid off with interest in subsequent years adding to the cost of power. Interest payments will reach a maximum in the 16th year, after which they will reduce rapidly as the investment in the power development is amortized. The cost of the power development will be amortized in 26 years and the cost allocated to irrigation will be repaid in about 41 years. This study indicates that the cost of firm energy delivered at the high voltage bus at Grand Coulee Power Plant will be 2.25 mills per kilowatt-hour if repayment of the cost of the irrigation development to the extent of about \$243,000,000 is included in the power rate base.

Professor Barrows considered the cost of Grand Coulee power on the assumptions that the investment in the power development only is included in the power rate base and that the total energy available is disposed of. Under these conditions he found that the cost of energy would be 1.5 mills per kilowatt-hour based on the total output including both firm and secondary energy.

The propriety of subsidizing irrigation development with revenues from power might be subject to question but it must be borne in mind that the water users cannot and should not be expected to shoulder the entire cost of an irrigation development such as the Columbia Basin Project. The proposed rate of 2.25 mills per kilowatt-hour for firm energy is competitive with the cost of energy from other sources in the Northwest and since the power users will be able to secure power from the Grand Coulee Dam as cheap or cheaper than it can be obtained from other sources they will not suffer by the proposed subsidy of the irrigation development. In fact, they will benefit from the general increase in the wealth and commerce of the Northwest as a result of the development of the 1,200,000 acres of the Columbia Basin Project. Considering the Columbia Basin Project as a whole it would seem entirely proper to apply power revenues to the repayment of the cost of part of the irrigation development in order to place the project on a sound financial basis and make the project economically feasible.

St. Paul, August 30, 1938.

MR. H. M. SMITH,

Referring to your letter of August 22nd,
file 1715, about gasoline lanterns turned over to the
Storekeeper at Parkwater from the Coulee Dam survey:

On November 17th, 1933, I sent to Mr.
Wales a copy of folio No. 33, involving a credit of
\$118.01 covering credit for the Coleman lanterns referred to.

Chief Engineer.

JHR-vml

St. Paul, Minn., Aug. 22, 1938

File 1715

Mr. B. Blum,

Chief Engineer

Referring to your letter August 5th in regard to gasoline lanterns and other equipment shipped to Division Storekeeper, Parkwater from Coulee Dam about four years ago.

In your letter you state that Engineering Department was credited with 75% of value new for the lanterns by this department.

Matter was referred to District Accountant at Tacoma who advises that he is unable to find where Parkwater was charged with any of the equipment that was turned in at that time.

Can you give me invoice record?

S-n





11-1-38

Mr. E. R. Rine

Chief Engineer

Reference to your letter August 25th in regard to essential features and other equipment attached to Division Engineer, Engineer from Census Bureau about four years ago.

In your letter you state that engineering department was credited with 75% of value new for the lanterns by this department.

Latter was referred to District Commissioner as to advise that no value for this work department was charged with it as equipment that was turned in at this time.

Can you give me invoice record?

8731

At Seattle, August 5, 1938

MR. H. M. SMITH:

Your letter of the 1st, file 1715, about disposing of seven gasoline lanterns shipped in from Coulee Dam survey four years ago to Parkwater store:

I know of no immediate use for these lanterns, and in my opinion it is best to dispose of such items if a fair price can be obtained.

These are Coleman lanterns which cost us \$4.95 each, less two per cent, or \$4.85 apiece. The Engineering Department was credited with 75 per cent by the Store Department, so that I believe that they stand on your books at \$3.64 each.

I think that if you could get something around that figure it would be satisfactory.

cc-Mr. J. H. Rochon

bb/s

BERNARD BLUM

R

St. Paul, Minn., August 1, 1938

File 1715

Mr. B. Blum,

Chief Engineer

Referring to your letter June 13th in regard to equipment shipped to Storekeeper at Parkwater from Coulee Dam about four years ago.

Storekeeper has disposed of everything except seven gasoline lanterns and he has been unable to find any departments interested in them, although he has had inquiries from two or three employes who would like to purchase them for their camps in the woods.

Would you have any objection to selling them, and if you do not, what price would you recommend?

S-n

A. M. Smith 190 4.85
4(1455
364

~~Cost~~
8 Coleman Lanterns @ 4⁹⁵ ea. 39.60
Less 2% .79
Net Cost 38.81

Engr Dept Credit 75% = 29.11
Ave Cost & Store Dept \$364

W. H. 8/2-38



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8731

St. Paul, Minnesota, June 29, 1938.

COPY

Mr. R. W. Clark,
Vice President

There has just come to hand release by the Public Works Administration showing a breakdown of the allocations made by the President last Saturday to 15 Federal reclamation projects. The allotments to these 15 projects total \$30,500,000.00. Of the 15, two concern the Northern Pacific - both in the state of Washington: to the Grand Coulee project \$13,005,000.00, to the Roza division of the Yakima project \$1,000,000.00. In describing the purpose for which these funds will be used, the release says with regard to the Grand Coulee project - "For continuation of the construction of Grand Coulee Dam", in connection with the Roza division of the Yakima project - "For construction of additional sections of the Yakima ridge canal and the construction of a diversion dam on the Yakima river about four miles above Pomona, Wash."

Since \$13,000,000.00 was included for Grand Coulee in the regular Interior Department appropriation this brings the total funds available for this project for the fiscal year July 1, 1938 to June 30, 1939 to \$26,005,000.

In the regular appropriation bill Roza received \$1,500,000.00. With this additional \$1,000,000.00 from P.W.A. the total amount for the next fiscal year for Roza will be \$2,500,000.00.

jwh el

(SIGNED) J. W. HAW

cc- Mr. Scandrett
Mr. Stevens
Mr. Blum
Mr. Morrison
Mr. Hughes

8731

St. Paul, June 13, 1938.

Mr. H. M. Smith:

Referring to your letter of the 11th instant, file 1715, in regard to equipment shipped by Mr. C. D. Flanchard from Coulee to Parkwater about four years ago.

This is the subject of my letter to Mr. F. G. Cook of same date, copy to you. You will note that this material has been billed against Store Department.

Chief Engineer

TRG:JED

St. Paul, Minn., June 11, 1938

File 1715

Mr. B. Blum,

Chief Engineer

About four years ago Mr. C. D. Blanchard, Coulee shipped to your care at Parkwater two cases, one carton and a drafting table, and as no instructions as to disposition were received, the shipment has been held subject to your orders ever since.

A few days ago Storekeeper decided to open up the cases and found the following supplies:

1	5-gal. oil can,	SH
1	1-gal. " "	SH
4	Water buckets,	SH
2	Wash basins,	SH
32	Bed blankets	
10	Pillows	
2	Pillowslips	
8	Coleman Quick-Light lanterns	
1	Drafting table, complete	

The tinware has been placed in our regular stock, and I assume you will desire to give some disposition of the other items.

Will you please advise?

Amrich

S-n



Chief of Police
NOV 1938
RECEIVED

Chief of Police
NOV 1938
RECEIVED

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8731

Saint Paul, June 11, 1938

MR. F. G. COOK
Assistant Superintendent
S p o k a n e

Your letter of the 3rd and our conversation Sunday night at Spokane, about field drafting table and three boxes in the Park-water storehouse containing equipment sent in by Assistant Engineer Blanchard from the Coulee Dam survey:

These boxes contain blankets, pillows, and other supplies which were turned over to the Store Department in the fall of 1933 and my files indicate that they were charged to Material and Supplies.

Under date of October 10, 1933 I wrote the General Storekeeper that while the Assistant Engineer tagged them in my name to be held in storage subject to Engineering Department orders, it was all company material and there is no reason why it should not be used.

Am sending copy of this letter to Mr. Smith suggesting that he open the boxes and make the best disposition possible of the equipment.

cc-Mr. H. M. Smith

bb/s

Spokane, June 3, 1938.

PERSONAL

Mr. B. Blum:

Yesterday while prowling around the store room at Parkwater, I found a field drafting table and three boxes, one large and two small, which evidently contains equipment sent in by Asst. Engineer Blanchard when he located the Coulee City line. I could not tell what was in the boxes but one evidently was oil cans and pales, another evidently contains blankets which have not been taken care of and will probably be full of moths, etc. Probably this shipment has been overlooked and you might care to have something done with it. Be very glad to do anything I can in this connection.

T. R. G. ✓
What does
records show?
B.B.
GK

F. G. Cook.

Mr. Blum
This equipment belongs
Parkwater Store in accordance
with Mr. Derrig's instructions
Belonged to Store Dept & came
in Nov 1933
Mly 6/10

8731

Seattle, January 17, 1938

MR. H. E. STEVENS:

Sunday's edition of the SPOKESMAN REVIEW contained a supplement covering the Grand Coulee Dam, copy attached.

There are some interesting pictures and data on the Dam.

bb/s

Ingot Iron Railway Products Co.
General Office
MIDDLETOWN, OHIO

From District Office
at Mp/s

PERSONAL MEMORANDUM

To Mr. J. T. Derrig.

Thought you might
be interested if
you have not
already seen this
article on "Coalee".

Mable notep 11
noted BB

Russell Betts
District Manager

a large percentage of coarse particles smaller than $\frac{1}{4}$ in. and it should contain no stones large enough to damage automobiles when picked up and thrown by passing traffic. This sand is stocked during the fall months at the garages and along the highways. Calcium chloride to prevent freezing is added at the rate of 50 lb. per cu.yd. It is important that the sand be free from lumps so that it does not clog the spreaders or the lumps strike passing automobiles. When the sand is applied and does

not imbed itself in the ice and is blown off the highway by passing traffic, more chloride is added. On concrete pavements this addition must not exceed 50 lb. per cu.yd.

To spread the sand on the highways, the Michigan State Highway Department has built a large number of sand spreaders by using the rear axles of old cars and mounting a disk on the short drive shaft which is turned up to a vertical position. A hopper is installed over this disk and the sand is shoveled from the trucks

into the hopper by two men as the truck moves forward pulling the spreader. The disk is rotated by the wheels running on the pavement. This type of spreader costs from \$45 to \$60 to build.

Within the last year, the spreaders were redesigned so that the truck load of sand was fed directly into the hopper, eliminating the necessity for one man in the operation. The spreaders were also altered so that the spreading has been accelerated and made more uniform.

Grand Coulee High Dam

Plans for completion reveal staggering proportions of world's greatest concrete structure being built on the Columbia River in Washington.

THE GRAND COULEE project on the Columbia River in eastern Washington is a most remarkable and fascinating engineering conception. A combination power, river control and irrigation scheme, it includes the building of the world's most massive concrete structure, one of the country's largest hydroelectric power plants from which part of the power produced will pump water to an irrigation supply reservoir to be created simply by closing off the ends of the Grand Coulee, a mighty hanging valley whose floor is 600 ft. above present river level. Engineering and construction history have been made in the work already done on the project: excavating the foundations, freezing an earth slide, building unprecedented cofferdams, and record speed in placing concrete in the base of the dam. Now plans have been announced and bids opened for completion of the high dam, the building of one of the two power houses and the construction of the pumping plant dam. Development of the irrigation reservoir, canals and distribution system is left to the future.

The bids, opened at Spokane on Dec. 10, indicate that the huge concrete structure will be built by the greatest aggregation of large con-

tracting firms ever assembled on one project. Eleven powerful concerns, including the four now engaged in building the base of the dam, the six that built Boulder Dam, the nearest rival to Grand Coulee in size, and one other have combined to bid \$35,000,000 for completing the structure to its ultimate height of 550 ft. and length of 4,500 ft., requiring nearly 6,000,000 cu.yd. of concrete in addition to the 4,500,000 cu.yd. already in place. Only one

other bid was received, that from a combination of eight firms for nearly \$43,000,000.

Plans for the dam have been revised several times since inception of the project. The contract for the present base originally called for a low dam for power purposes only, contemplating both widening and raising in the future. Fear of failure to establish proper bond between the low and high sections and a bad slide that required excessive excavation led to the decision to change the low dam to the base of the high dam. When this change was made the tentative design of the high dam was announced, but this again has been changed in some detail in the plans just completed.

Design features

Briefly, the finished dam will be a straight gravity concrete structure about 4,000 ft. long, flanked at the west (left) end by a smaller gravity dam 500 ft. long meeting the main dam at an angle and housing the irrigation supply pumps. At the center of the main dam will be an overflow spillway 1,650 ft. long, controlled by eleven drum gates each 28 ft. high and 135 ft. long. Surmounting the spillway is a multiple-

PREVIOUS ARTICLES ON GRAND COULEE PROJECT

Columbia Basin Project Feasible....	June 30, 1932, p. 907
Development Discussed by Engineers.....	July 14, 1932, p. 52
Initial Construction Operations.....	Apr. 5, 1934, p. 442
Complete Unit Prices of Low Dam....	Oct. 11, 1934, p. 481
Power, Navigation and Irrigation....	Nov. 29, 1934, p. 678
Columbia River Project.....	Nov. 29, 1934, p. 681
Construction Work in Progress.....	Apr. 18, 1935, p. 574
Aggregate Transportation by Belts....	Nov. 14, 1935, p. 674
Excavation and Construction (whole issue)...	Aug. 1, 1935
Earth Pressure Tilts Pier of Bridge....	Nov. 7, 1935, p. 646
Feeder Grizzly for Conveyors.....	Dec. 12, 1935, p. 821
Concrete Mixing and Placing.....	Jan. 23, 1936, p. 119
Aggregate Stockpile Tunnels.....	June 25, 1936, p. 920
Construction Camp Water Consumption.....	Sept. 10, 1936, p. 364
Concrete Dispatching System.....	Sept. 10, 1936, p. 377
Program for Second Cofferdam.....	Oct. 1, 1936, p. 464
Concrete Improved by Better Control.....	Oct. 15, 1936, p. 546
Ice Dam Stops Earth Slide.....	Feb. 11, 1937, p. 211
Ice Dam Stops New Slide.....	Mar. 18, 1937, p. 404
Cofferdam Leak Checked.....	Apr. 22, 1937, p. 595
Contractors Win River Battle.....	July 1, 1937, p. 13
New Concrete Placing Record.....	July 15, 1937, p. 101
Grand Coulee Cofferdam Removal....	Sept. 2, 1937, p. 401

arch concrete highway bridge. At either side of the spillway section is a non-overflow section, topped by a highway, and containing the 18-ft. penstocks for the power units.

Outlet works consist of three horizontal tiers of 60 conduits $8\frac{1}{2}$ ft. in diameter, arranged in pairs, twenty to a tier. The tiers differ 100 ft. in elevation. The two upper sets of conduits are controlled by two 102-in. ring seal gates set in tandem in each pipe, and 12 x 12-ft. bulkhead gates at the inlet; the lowest set has one 102-in. ring seal gate and one 102-in. paradox gate in each pipe.

The two power houses are at each end of the dam; one only is to be built now. Ultimately there will be installed eighteen 120,000-k.v.a. generators and three small service station units. In the west power house, which is to be built now, provisions are being made for early installation of three large and two small units.

The pumping plant, located in the flanking dam at the west end of the main dam, will contain twelve pumps, two of which are spare units. Each pump will have a capacity of 1,600 sec.-ft., sufficient for irrigating 120,000 acres, driven by a 65,000-h.p. motor. Intake conduits for the pumps are 14 ft. in diameter.

Even though nearly half the volume of concrete in the dam has been placed, the quantities of work remaining to be done are staggering. In the dam itself 5,500,000 cu.yd. of concrete are yet to be placed, and an additional 350,000 cu.yd. will be required for auxiliary structures. Reinforcing and structural steel, conduit and penstock lining, gates and piping aggregate 44,683 tons of metal. Some 250,000 reinforcing bar intersections in the power house area must be insulated. Metal sealing strips in construction and expansion joints total 80 miles in length. There are 197,000 ft. of drain and grout holes to be drilled and 131,000 ft. of porous drain tile to be placed.

Construction plans

The base of the dam has been completed to roughly El. 940 in the spillway section and to El. 1,000 in the power house sections. Crest of spillway is El. 1,260; top of dam is El. 1,311. Foundations of both power houses are complete, but all of the pumping plant remains to be built. As most of the excavation has been

completed the new work is largely manufacture and placement of concrete and installation of conduits, penstocks, gates and piping. Much of the present concrete plant can be utilized on the new work.

The government furnishes all permanent materials and equipment except sand and gravel, which are available at a nearby government-owned deposit. A fabricating plant for penstocks and gate structures will be established by the government at the head of Grand Coulee near the construction railroad. All shop fabrication will be done at this plant by parties other than the general contractor.

The mass concrete cooling system, as used for the base, will be continued in the high dam. Plant already installed is adequate for the cooling.

River diversion for the first part of the new schedule will be through low slots in the spillway section. These slots are merely low block sections, and will be shifted from block to block as concreting progresses, backing up the water. The top of present concrete is about the level of the lowest set of outlet conduits. As the concrete is built up, these conduits will carry part of the river flow. Likewise, the higher outlet works will serve as river diversion facilities when they are installed. Of course, there is always a chance that the entire spillway section might be submerged in a flood.

The contractor has 1,460 calendar days in which to complete the work, subject to a daily penalty of \$2,000 for delay beyond the contract time limit. Minimum wage rates, varying from 60c. for unskilled to \$1.50 for skilled labor were stipulated. However, the low bidder, the Interior Construction Co., has already announced signing an agreement with A.F. of L. unions that set wage scales at 75c. minimum for unskilled labor and up to \$1.65 for equipment operators, and binds the unions to ignore labor trouble of whatever source.

The old contract will be finished shortly after the first of the coming year, but the new construction schedule will be rather slow during 1938.

Chronology of plans

The first investigation of the Columbia Basin project by the federal government was made by the Bureau of Reclamation in 1904, was fol-

lowed by many others, both by the Bureau and by the Corps of Engineers, War Department. A plan to divert water from the Spokane River and other eastern tributaries of the Columbia was favored by the Bureau of Reclamation for many years, until it became apparent that water power development on the Columbia River at a major dam near the head of the Grand Coulee might make feasible construction of the dam to the dimensions needed for diversion direct from the main stream.

In 1927 the Corps of Engineers was directed to make the study which resulted in its "308" report on the Columbia River and tributaries, sent to Congress March 29, 1932. This report proposed a long-range development through a series of dams for power and other purposes on the Columbia River.

While this report was in preparation, however, on January 7, 1932, Bureau of Reclamation engineers presented another report which was included in the Corps of Engineers report, which held that the Grand Coulee Dam, as now constituted, was feasible and would repay its costs (*ENR* Jan.30,1932,p.907). This report was outlined by L. N. McClellan, electrical engineer, and Dr. Elwood Mead, then commissioner, of the Bureau of Reclamation at public hearings before the Irrigation and Reclamation Committee of the House in May and June, 1932.

Dr. Mead said before the committee at that time: "As I say, our thought in the first place was the reclamation of this land (Columbia Basin) and we were starting over on the east side, on the high ground, in order to have a gravity scheme. There were two reasons for that: One was that we could start with a less expenditure of money; and until we came to the Colorado River, we never had nerve enough to think of terms of hundreds of millions of dollars of expenditures. It was the cheapest plan to start, to come down by gravity, but as we went further and further into it, we found this: There was not water enough in the unregulated supply for us to irrigate that area, and we would have to have storage, a large amount of storage, and this added to the cost; and then the States of Montana and Idaho have an interest in the waters which have to be stored.

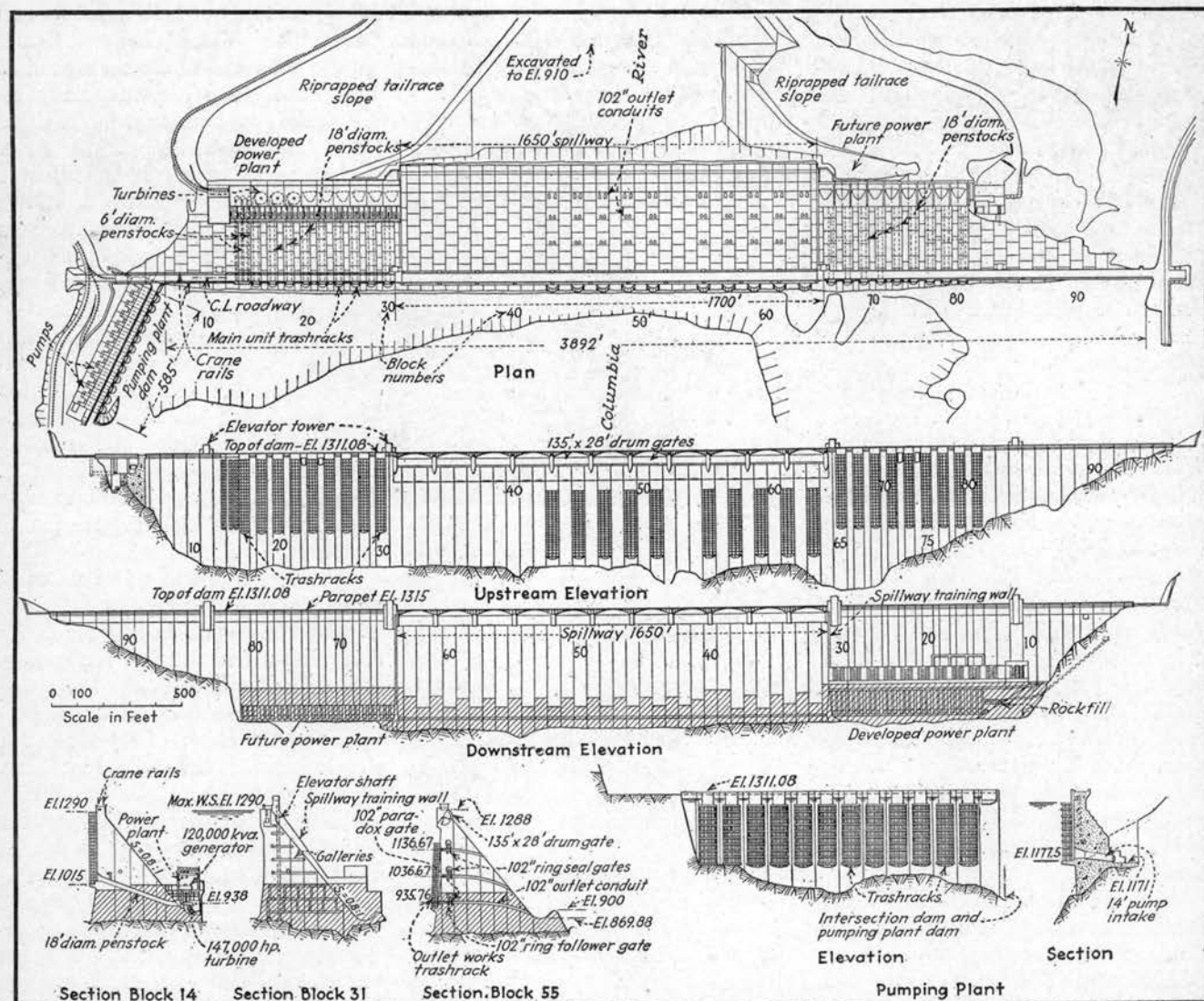


Fig. 1. General plans and sections of the high dam at Grand Coulee. The shaded areas of one elevation and three cross-sections represent concrete already placed under previous contract for the base of the dam.

"To start from the east side of the irrigable area the first step would be to adjust those rights, just as they have been settled on the Colorado, and those things lead to delays and to interstate complications.

"But over on the other side of this irrigable area is the Grand Coulee. From that part of the Columbia River, there is no problem of water shortage or of interstate rights, which has a water supply so abundant and so unclaimed that at one sweep all of these complications about water titles are removed. There is more water than could possibly be used except as it is used for power.

"Then, too, we came to realize that, while the greatest value to the country is the building of agricultural population, the best way to make it possible, without putting heavy burdens on irrigation is to join

power development with irrigation development. Since the financial return from power in these works creates solvent investment for the Government and it has a social value in giving better light and power in farm houses and helping to pay the irrigators' charges."

When the allotment was made for start of the work on Grand Coulee Dam, then, the plans for the Columbia Basin project were well set.

The original allotment of \$63,000,000 (later reduced) of Public Works funds was for the purpose of beginning the development by construction of a so-called low dam for power generation, with the expectation that eventually this dam would be raised to the height necessary to permit diversion of water for irrigation. The contract was let on this basis. About a year later, on June 7, 1935 when the contractor was en-

gaged in excavating for the foundation of the dam, a change order was signed by Secretary of the Interior Harold L. Ickes. This was proposed by the engineers of the Bureau of Reclamation for two principal reasons: there was a question concerning the making of a proper bond between the low dam and the high dam which would eventually be super-imposed upon it; and a major slide of clay into the west excavation required removal of more overburden than had been anticipated in the construction of the low dam, thus the excavation of the entire foundation area for the high dam was favored as being more economical. Also, commencement of construction of Bonneville Dam, near Portland, subsequent to the allotment of funds for the low dam at Grand Coulee, indicated that the immediate demands of the power market

which the low dam would serve might be taken care of and that the high dam at Grand Coulee could be completed and synchronized into its proper place in the water power field without the necessity for construction by two stages.

The bids opened on December 10, 1937, involve the contract for completion of the dam to its full height for use as a diversion structure, with the aid of pumping, for the irrigation project, and power generation.

Finances

The original allotment of Public Works Funds for construction of the low dam at Grand Coulee for power production was \$63,000,000. After a few months, however, part of this sum was rescinded, leaving \$15,000,000, or only enough for the first year's construction, available. A second allotment of \$19,800,000 from funds of the Emergency Relief Act of 1935 assisted in carrying the work forward, and subsequently the Congress twice has appropriated money for continuation of the work; appropriating \$20,750,000 for the 1937, and \$13,000,000 for the 1938 fiscal years.

At the conclusion of the M.W.A.K. contract, covering the base of Grand Coulee Dam, approximately \$10,000,000 of the funds for construction will remain unexpended on this project and this sum will be available for work under the new contract covering completion of the dam. There is no doubt that this sum will be sufficient to see the new work through to the 1938 fiscal year.

In order that the rising dam shall not become an insurmountable obstacle to the salmon run up the Columbia River prior to the period in 1938 when this run occurs, the specifications for completion of the dam put limitations upon the amount of concrete which may be placed prior to October in the spillway section of the dam. By the time of the 1939 salmon run, provisions are expected to have been completed for trapping the fish at Rock Island and planting the fingerlings in waters tributary to the Columbia River below Grand Coulee Dam.

It is estimated that Grand Coulee Dam and reservoir will cost on completion a total of \$128,450,000, of which the dam will cost \$118,123,000; the ultimate power installation,

including switchyard, substation and transmission lines, \$71,000,000 and the irrigation canals and the balancing reservoir in Grand Coulee \$195,000,000. It is unlikely that any work will be commenced on the balancing

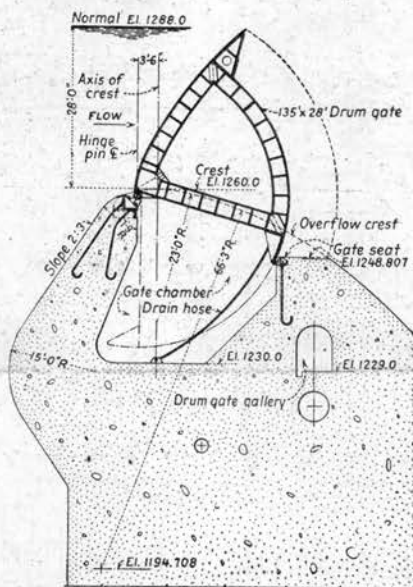


Fig. 2. Section of drum gate, eleven of which will control the discharge over the spillway. Gates are 28 ft. high, 135 ft. long.

reservoir or the canal system until the dam itself is nearly completed. The canals for the irrigation of the Columbia Basin lands will be constructed as needed to develop the irrigable area; that is in a series of comparatively small systems designed to serve approximately 150,000 acres each. After the dam and the balancing reservoir in the Grand Coulee are completed, the annual expenditures necessary to maintain an orderly construction program for the irrigation of the lands will probably be about \$5,000,000 a year. It is not anticipated that the entire project will be completed within several decades.

In addition to the obvious services of Grand Coulee Dam, that of providing a water supply for 1,200,000 acres of land and that of the generation of power at the dam, additional benefits will accrue from its construction.

Maj. John S. Butler, of the Corps of Engineers, author of one of the important reports on the dam, stated at the hearing before the House Committee on Irrigation and Reclamation in 1932 that provision of 5,028,000 acre-ft. of useful storage at Grand Coulee Dam would double the firm

power output of all present and prospective dams below Grand Coulee Dam and above the mouth of the Snake River and materially increase the firm power output of dams between the mouth of the Snake River and the mouth of the Columbia River at plants to be built there. It has been estimated that the increase in the firm power at plants in this latter stretch of the river which will result from equalization of the Columbia's flow at Grand Coulee dam will amount to 50 per cent. Bonneville Dam is in this stretch of the river.

Grand Coulee Dam will create a reservoir with a capacity of almost 10,000,000 acre-ft., of which more than 5,000,000 acre-ft. is usable storage.

This reservoir will be of value in equalization of the flow of the river, resulting in reduction in flood peaks and improvement in navigation. Grand Coulee Dam is the key structure of the system of ten dams proposed by the Corps of Engineers for development of the Columbia River. It is the uppermost in the series, utilizing all of the fall between the Canadian border and the mouth of the Grand Coulee, 151 miles downstream.

It is estimated that when completed the power plant will have an annual capacity of 8,320,000,000 k.w.-hr. of firm power and 4,200,000,000 k.w.-hr. of secondary energy.

Of the secondary energy, a maximum of 2,260,000,000 k.w.-hr. will be used ultimately in pumping water out of the reservoir created by Grand Coulee Dam into the balancing reservoir in the Grand Coulee itself above. The maximum flow of the Columbia River, and therefore the period during which secondary power is producible in largest quantities, occurs during the irrigation season when the pumps must be run.

Grand Coulee Dam will raise the water in the storage reservoir about 350 ft. above ordinary river level, and pumps will lift it 280 ft. more to the balancing reservoir in the Coulee.

Plans for the high dam were prepared in the Denver office of the Bureau of Reclamation under the direction of R. F. Walter, chief engineer, and J. L. Savage, designing engineer.

Unit prices on the new contract are on advertising page 20.

B. Blum
J. H. Law
(Copy)

7

8731

Seattle Jan 15 1938

J W Haw - St. Paul

Yesterday at Yakima Mr. Fink met with Messrs Reynolds McCormick Holt Dexter and the writer to discuss matters having to do with organization of Columbia

Basin Districts Stop. Page, Banks and Fink have received notification from so called Land Owners committee in the general Ephrata territory that they

propose to proceed with organization of district covering west side canal without delay and have set Feb. 1st for hearing before Grant County Commissioners

Stop Their letter states that they assume this action is in line with policies established at Spokane meetings Stop Rumors are that these

same people will make effort to have anti-speculation law changed to the end that work may be started on their project prior to the time that all

of the land has been organized into districts and repayment contracts executed between these districts and the department of the Interior Stop

As result of yesterdays conference Fink agreed to write Page Airmail immediately protesting this program pointing out that it is not in line

with general understanding reached at Spokane meetings and urging that Mr. Page immediately take such action as may be desirable to keep organ-

ization of Columbia Basin Districts in line with agreed policies Stop I think Mr. Fink will send you a copy of his letter to Page Stop I know

you will agree this is situation we should watch carefully and that we should be prepared to do everything we can to protect our interests and

the interests of the Columbia Basin project as a whole. S-18

W P Stapleton

218 pm

Could have file.

8731

St. Paul, Minn. January 4, 1938

Mr. W. P. Stapleton,
Seattle, Wash.

A man by the name of Carter Howard from Coulee Dam has been killing some of my time this morning. He claims to represent interests in the towns surrounding the damsite which are concerned as to the future of the towns after construction work on the dam is completed. He believes the only reason which will prevent Coulee Dam towns from developing into industrial centers is lack of railroad facilities as, of course, the present line into the damsite from Odair will ultimately be submerged. He wanted to know our plans for building in case industries finally decided to locate in or about the damsite. He asked whether we would build on the floor of the Coulee at levels above the balancing reservoir or build north from Wilbur and come down to the lake level above the dam through what is called Spring Canyon.

I find on discussion with Mr. Blum that this question has never been given serious consideration. Mr. Blum and Mr. Derrig made a reconnaissance survey from Almira north and down through Spring Canyon, but found the grade too heavy and the cost excessive as compared with the present line on the floor of the Coulee. He was unable to answer the question as to whether if later, and after the entire work around the damsite was completed, we would build a line to the damsite to serve industries up the Coulee from Coulee City or north from Wilbur. You may be aware that about two-thirds of the present line in the Coulee will be submerged. It would have to be relocated at higher levels and two or three miles would have to be built into the basalt cliffs or on the talus slopes. One would be very expensive and the other very dangerous and probably unsatisfactory.

Of course at the moment I think this is all a hypothetical subject and Mr. Howard was given no answer this morning.

He did tell me of one situation of considerable interest; namely, that the Government, in buying up the lands submerged in the reservoir or lake site above the dam, had bought up to a meander line at elevation of 1310 ft. Now the forebay or the highwater level of this reservoir or lake is elevation 1290 ft. In other words, the lake shore will be insulated by a strip of land of varying width lying between elevations 1290 and 1310. Of course on benches this might amount to a quarter of a mile in width. I presume the purpose of this is to control contamination of the lake as, of course, trash or other material dumped into the lake would have to be skimmed off by the trashracks at the dam so as to protect the flow to the penstocks leading to the generators. You see what this would mean; namely, nobody located around the lake shore,

J.T.D. JTD
Note 1/5 B.B.

NOV 19 1938
CHIEF OF POLICE
CITY OF NEW YORK

NOV 19 1938
CHIEF OF POLICE
CITY OF NEW YORK

TO THE CHIEF OF POLICE, NEW YORK CITY
FROM THE CHIEF OF POLICE, NEW YORK CITY
SUBJECT: [Illegible]

I have the honor to acknowledge the receipt of your letter of the 14th inst. regarding the matter of the [Illegible] and to inform you that the same has been forwarded to the [Illegible] for their consideration. The [Illegible] will be held on the [Illegible] at [Illegible] and the [Illegible] will be held on the [Illegible] at [Illegible]. The [Illegible] will be held on the [Illegible] at [Illegible] and the [Illegible] will be held on the [Illegible] at [Illegible]. The [Illegible] will be held on the [Illegible] at [Illegible] and the [Illegible] will be held on the [Illegible] at [Illegible].

Very respectfully,
[Illegible Signature]

Enclosed for the [Illegible] are the [Illegible] and the [Illegible] for the [Illegible] and the [Illegible] for the [Illegible]. The [Illegible] will be held on the [Illegible] at [Illegible] and the [Illegible] will be held on the [Illegible] at [Illegible]. The [Illegible] will be held on the [Illegible] at [Illegible] and the [Illegible] will be held on the [Illegible] at [Illegible]. The [Illegible] will be held on the [Illegible] at [Illegible] and the [Illegible] will be held on the [Illegible] at [Illegible].

Mr. Stapleton
Page #2
Jan. 4, 1938

whether industries or outing resorts could reach the actual lake shore to secure wharfage. It would also mean that low-lying benches which might possibly be used for irrigation would not be usable unless above elevation 1310 and the lift to such areas would be increased by 20 ft. Of course also there would be an uncertain water line even below elevation 1290 because of the intermittent draw-down.

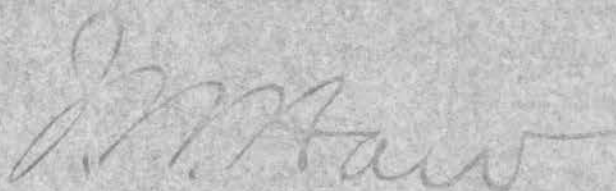
Mr. Howard claims to be going to Washington in the interest of those who are figuring on buying lands abutting the lake. Question is as to what rules and regulations may be enforced relative to permits to cross over or through this 20 ft. strip which will insulate the lake.

You and I have talked, as you know, of the possible use for irrigation of bench lands abutting the lake. Therefore I thought you would be interested in Mr. Howard's statements which put a somewhat new angle on the use of these lands.

I take it this man Howard is not a man of means or influence. He struck me as a nut. For instance, he talked glibly of the home owners in the towns surrounding the Coulee pooling their resources and establishing co-operative industries around the damsite. He was silent as to their type. Such proposal, of course, can be shot full of holes, but it did not seem to me that it was up to me to do any shooting. Others will do this for us.

jwh el

cc - Mr. Coman
Mr. Clark
Mr. Blum
Mr. Plummer
Mr. Hughes



8731
Spokane, Washington
January 3, 1938

Mr. Bernard Blum:

Coulee Dam

Please be referred to the newspaper clippings I have sent you previously telling of the proposed change in personnel.

There is underground gossip floating around to the effect that this change of personnel, that is, relieving so many of the MWAK people from the active management, was to give the MWAK bunch a free hand in presenting additional claims to the Bureau of Reclamation in the amount of around \$2,000,000.00 because of extras for which payment has not yet been made nor, I believe, recognized.

The heaviest of these extras seems to be the preparation of the old concrete to receive the new batches. The report is that the blending of the cement which was done by the Government caused an excessive amount of laitence of a peculiar kind which could only be removed by a sand blast. The claim will be made, I believe, that the removal of this laitence did not come under the contract specifications because of its peculiar nature. I believe that the contract specifies removal of laitence and any foreign matter whereas it is said that the laitence ultimately found was not that anticipated and was brought about in part, at least, by the blending of the cement. I understand that MWAK have actual time slips which, of course, have been given to the Government during the course of the work, aggregating over \$500,000.00 for the work actually done which can be tagged, and the remainder of the claim on that account will be for delays incidental thereto.

HMT-k

Mr. Beach
Hindman
District Engineer



Saint Paul, December 24, 1937

8731
MR. H. E. STEVENS:

I returned to you Mr. Haw's report to Mr. Clark, with clippings about award of contract for constructing the high dam at GRAND COULEE:

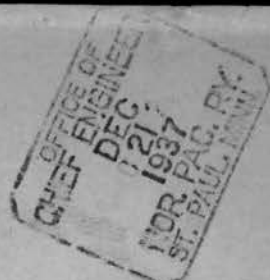
Following is an estimate of the freight involved:

		<u>Tons</u>
Concrete: cement only, 6,000,000 cu.yds.		1,400,000
Steel:		
Reinforcing steel	26,000	
Structural steel	14,500	
Machinery, etc.	32,000	
Misc. steel, elec.supplies, water-proofing, etc.	4,000	
Cranes, tramways, etc.	<u>4,000</u>	80,500
Contractor's tonnage, other than current repairs and supplies:		
Equipment, various classes,	6,000	
Form lumber, 50,000,000' BM	75,000	
Hardware	1,000	
Trucks, cable, struc.steel for high line	<u>10,000</u>	92,000

Quantities do not include current supplies during the construction period such as gasoline, fuel oil, grease, etc., and commissary supplies required for the Dam project.

cc-Mr. R. W. Clark

bb/s



St. Paul, Minn. Dec. 21, 1937.

Mr. Bernard Blum:

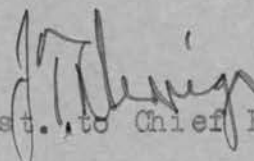
I am attaching hereto clipping from the Spokesman Review of Dec. 11, 1937, referring to awarding of contract for the high dam.

In reading the bids at the open public meeting on Dec. 10th detail price of the various items was not read but the total of both bids was announced. Detail price is included in the statement containing Mr. Tremaine's letter of the 15th attached to the file.

For your further information at this time I am attaching hereto statement showing estimate tonnage involved in the construction of the high dam. It is now estimated there will be six million cubic yards of concrete in the high dam or a total of 10,700,000 cubic yards in the combined dam structures.

There will also be approximately 80,500 tons of steel of various classes in the dam structure. In addition it is estimated there will be 92,000 tons of material shipped by contractor, exclusive of current supplies, during the period of constructing the dam.

In handling the work the government contemplate the erection of a fabricating plant at Odair. It is possible in supplying some of this structural steel the manufacturer will make an endeavor to fabricate some of the tonnage in their own plant, and if so the clearance factor may have some bearing on the routing of the materials.


Asst. to Chief Engineer.

JTD-W

SUMMARY OF TONNAGE FOR HIGH DAM - COULEE.

	Freight Tons
Concrete 6,000,000 cu yds (cement only)	1,400,000
Steel - Various classes	
Reinforcing steel	26,000
Structural steel	14,500
Machinery, etc.	32,000
Misc. steel, Elec. supplies, waterproofing, etc.	4,000
Cranes, tramways, etc.	4,000
Total Steel tonnage in dam	80,500
Contractor's Tonnage - other than current repairs and supplies.	
Equipment various classes (steel)	6,000
Form lumber 50,000,000 FBM	75,000
Hardware	1,000
Trucks, cables, structural steel for High line	10,000
	92,000

NOTE: Quantities do not include current supplies during the construction period such as gasoline, fuel, oil, grease, etc. and commissary supplies required for the Dam project.

Office of Chief Engineer,
St. Paul, Minn.
Dec. 21, 1937.

SUMMARY OF TONNAGE FOR HIGH DAM - COULEE.

	Freight Tons
Concrete 6,000,000 cu yds (cement only)	1,400,000
Steel - Various classes	
Reinforcing steel	26,000
Structural steel	14,500
Machinery, etc.	32,000
Misc. steel, Elec. supplies, waterproofing, etc.	4,000
Cranes, tramways, etc.	4,000
Total Steel tonnage in dam	80,500
Contractor's Tonnage - other than current repairs and supplies.	
Equipment various classes (steel)	6,000
Form lumber 50,000,000 FBM	75,000
Hardware	1,000
Trucks, cables, structural steel for High line	10,000
	92,000

NOTE: Quantities do not include current supplies during the construction period such as gasoline, fuel, oil, grease, etc. and commissary supplies required for the Dam project.

Office of Chief Engineer,
St. Paul, Minn.
Dec. 21, 1937.

OFFICE OF
CHIEF ENGINEER
DEC 12 1937
1000 PAC. BLDG.
ST. PAUL, MINN.

SUMMARY OF FORECAST FOR HIGH DAM - MOUNTAIN

1,400,000
80,000
14,000
23,000
2,000
4,000
80,000

Concrete 6,000,000 (approx. only)

Steel - Various classes

Reinforcing steel
Structural steel
Miscellaneous
Miscellaneous
Miscellaneous
Miscellaneous
Miscellaneous

80,000
14,000
23,000
2,000
4,000
80,000

Equipment various classes (approx.)

For power 6,000,000 (approx.)

Concrete
Reinforcing steel for high dam

Estimated cost of construction of high dam and power plant
The construction of the high dam and power plant is estimated to cost
approximately \$10,000,000. This estimate is based on the current prices
of materials and labor at the time of the estimate.

Dec 12 1937

INTERIOR GROUP

Spokane Review 8/11-37

Crowd Is Electrified by Tender Nearly \$8,000,000 Below Opponents.

Two giants in the construction world amalgamated their forces yesterday to submit the low bid of \$34,442,240 for the completion of Grand Coulee dam in 1941.

Only one other tender was received by the reclamation bureau, a bid of \$42,185,802.50, almost \$8,000,000 higher than the figure compiled by the Interior Construction company, which, if awarded the contract, will finish the job begun in 1934 by the Mason-Walsh-Atkinson-Kier company.

Before the bids were opened formally by Frank A. Banks, reclamation bureau engineer in charge at Grand Coulee, the rumor sped swiftly that the two leading contenders for the job had merged their forces, and that consequently only two bids would be submitted instead of three.

First Bid Electrifies Crowd.

But the crowd which packed the auditorium of the Civic building was electrified when Mr. Banks announced that the first bid opened was by the Interior Construction company, Henry J. Kaiser, president; Guy F. Atkinson, vice president; Charles A. Shea, vice president, and Tom Walsh, chairman of the board. A joining of forces between the four powerful firms making up the MWAK company, and seven other concerns, banded together under the name of the Interior Construction company, had materialized at the last minute. Final details of the merger were not completed until a few hours before the bids were opened.

Boulder Dam Men Share Honors.

Thus the new members of the syndicate, formerly associated with the famous Six Companies in the building of Boulder dam, and who tasted the dregs of defeat in 1934, now will take part in the completion of the world's greatest dam.

The second bid was submitted by Pacific Constructors, Inc., W. A. Johnson, president; S. M. Griffith, vice president; J. C. Maguire, secretary, and Clyde W. Wood, treasurer. This was the group represented by Harvey Slocum, former job superintendent for the MWAK, now a consulting engineer of San Francisco.

Takes Five Minutes to Get Results.

It required only five minutes in all for Mr. Banks to complete the ceremony of announcing the two bids, the same number of bids incidentally, received when the first contract was awarded. Immediately the successful bidders were surrounded by well wishers and friends, while photographers flashed pictures of the celebrities.

For 25 minutes, beginning at 1 o'clock, the throng sat listening intently to the setting of the stage by the three speakers who appeared on the program before the bids were opened. The entire program was broadcast over KGA in an audience which far outnumbered the few hundred who filled the auditorium.

Announcer Describes Scene.

On a split-second schedule Announcer Harry Lantry opened the ceremony with a description of the scene for the radio audience, listing the names of the notables at the head table, which included Governor Clarence D. Martin, John C. Page, reclamation commissioner; R. F. Walter, Denver, chief engineer of the reclamation bureau; Frank A. Banks, reclamation engineer in charge at Grand Coulee; C. B. Funk, chief clerk; B. E. Stoutemyer, Portland, western counsel; J. W. Moore, superintendent of the Yakima reclamation project; A. F. Darland, field engineer, and James Miner, office engineer.

Contractors Watch Proceedings.

Occupying the two front rows in the audience were the numerous contractors and engineers, with members of their families—an anxious group which probably cared little about the verbal trimmings with which the scene was adorned.

But the bids containing the fateful figures lay sealed in two large manilla envelopes in front of Mr. Banks, while the firm voice of Secretary of Interior Harold Ickes, through the magic of radio, came to the audience from Washington, D. C. Speaking of the Grand Coulee dam, on a nation-wide broadcast, Secretary Ickes said:

Ickes Says Dam Aids Nation.

"It will serve to reduce flood peaks; to improve navigation; to store and to permit the diversion of sufficient water to irrigate a rich desert area one and one-half times as large as the state of Rhode Island; and to generate half again as much power as Boulder dam."

In his brief talk the secretary of the interior pointed out completion of the dam "will mean new homes and new opportunities for half a million or more Americans and new wealth for the nation. This is one of the most important conservation projects ever undertaken," he declared.

Arid Land Folk Applaud Page.

Attentive listeners in the audience were many from the arid area in the Columbia basin who have dreamed for 25 years of water to irrigate their thirsty fields. They applauded with vigor when Commissioner Page fervently declared:

"Would that we were ready now to start the pumps. Our construction progress can not make land available fast enough in the Columbia basin, which will provide homes for less than half of those who would seek locations there."

The reclamation commissioner brought out that if all the waters in the west were utilized it would only irrigate an area the size of the state of Iowa. Erosion has ruined 10 times the amount of land now irrigated, he declared.

Third of Nation Ill-Watered.

"This is an auspicious occasion," Commissioner Page began his address. He suggested that in addition to the one-third said to be ill-fed, ill-clothed and ill-housed in this country, it might be added that one-third is ill-watered.

When Commissioner Page concluded his remarks, Mr. Banks stepped before the microphone. A hush fell over the room, and at the long press table in front of the speakers, reporters and photographers poised ready to record the historic event in the process of unfolding.

Banks Tells of Interest.

"You are as interested as I am in these two envelopes," Mr. Banks began, with one eye on the stop clock before him. As he proceeded, Mr. Funk, chief clerk of the bureau, slit open the bulky envelopes of the two bids on the table.

"There are many others besides the 15,000 who live in the Columbia basin whose stake is just as large in this project," Mr. Banks continued. "Those who work in the mills and factories furnishing supplies which will go into this dam are equally interested with those who have been waiting 25 years for water."

Picking up one of the bids, Mr. Banks remarked he had no idea which one it was, who submitted it, nor what the figure would be. Then reading from a memorandum written on several sheets of Daventry hotel stationery, he announced that the bid had been submitted by the Interior Construction company.

Merger Is Revealed.

He kept up the suspense a few seconds longer by reading the names of the officials of the new concern, revealing for the first time that the MWAK had merged its interests with their competitors of 1934. Then came the breath-taking total bid: \$34,442,240.

The audience gasped while Mr. Banks went on to state that a check for \$1,000,000 from the MWAK company accompanied the bid, together with a check for \$200,000 from the Pacific Bridge company; \$280,000 from the Utah Construction company; \$280,000 from McDonald & Kahn, and \$280,000 from the Henry J. Kaiser Construction company. "The check from the MWAK," he laughed. The \$1,000,000 check from the MWAK was on the Spokane and Eastern company. A similar deposit of \$280,000 accompanied the bid of the Pacific Constructors, Inc.

COMPLETION OF GRAND COULEE DAM, LEFT
POWERHOUSE, AND FOUNDATION FOR PUMPING PLANT
COLUMBIA BASIN PROJECT, WASHINGTON

Bids will be considered on the following schedule, but no bid will be considered for only a part of the schedule.

S C H E D U L E

Item : No. :	Work or material :	Quantity and price :	Amount :
1	Diversion and care of River during construction and unwatering foundations	For the lump sum of ----- (words) -----dollars	\$-----
2	Dismantling and removing temporary suspension bridge and conveyor	For the lump sum of ----- (words) -----dollars	\$-----
3	Excavation, all classes, stripping sand and gravel deposits	475,000 cu. yds., at ----- (words) -----(\$-----) per cu.yd.	-----
4.	Excavation, common, for foundations of dam, powerhouse, and pumping plant.	10,000 cu. yds. at ----- (words) -----(\$-----) per cu.yd.	-----
5.	Excavation, rock, for foundations of dam, powerhouse, and pumping plant	210.000 cubic yds. at ----- (words) -----(\$-----) per cu.yd.	-----
6.	Trimming rock foundations excavated by previous contractors	11,000 cu. yds. at ----- (words) -----(\$-----) per cu.yd.	-----
7.	Excavation, all classes, in open cut for tunnels	800 cu.yds. at ----- (words) -----(\$-----) per cu yd.	-----
8.	Excavation, all classes in pumping plant drainage tunnel	900 cu.yds at ----- (words) -----(\$-----) per cu yd.	-----
9.	Excavation, all classes in tunnels for pumping plant discharge pipes	5,000 cu.yds.at ----- (words) -----(\$-----) per cu yd.	-----
10.	Excavation, all classes in other tunnels and in elevator shafts	5,000 cu. yds. at ----- (words) -----(\$-----) per cu yd.	-----
11.	Excavation, common, for roads and railroad.	1,500 cu.yds.at ----- (words) -----(\$-----) per cu.yd.	-----
12.	Excavation, rock, for roads and railroad	118,000 cu.yds.at ----- (words) -----(\$-----) per cu.yd.	-----
13.	Excavation of silt and debris from structures	3,000 cu.yds.at ----- (words) -----(\$-----) per cu.yd.	-----

Item : No.	Work or material	Quantity and price	Amount
14.	Excavation of concrete	300 cu. yds. at ----- (words) -----(\$-----) per cu.yd.	\$-----
15.	Chipping and roughening existing concrete	18,000 sq.ft. at ----- (words) -----(\$-----) per sq.ft.	-----
16.	Backfill	1,000 cu.yds. at ----- (words) -----(\$-----) per cu.yd.	-----
17.	Compacted fill	18,000 cu.yds.at ----- (words) -----(\$-----) per cu.yd.	-----
18.	Riprap	3,000 cu.yds.at ----- (words) -----(\$-----) per cu.yd.	-----
19.	Rubble masonry walls	600 cu. yds.at ----- (words) -----(\$-----) per cu.yd	-----
20.	Grouted paving	1,500 sq.yds.at ----- (words) -----(\$-----)per sq.yd.	-----
21.	Placing 18-inch corru- gated metal pipe culverts	400 lin. ft. at ----- (words) -----(\$-----) per lin.ft	-----
22.	Placing water-bound macadam base course	6,000 cu.yds.at ----- (words) -----(\$-----) per cu.yd.	-----
23.	Crushed rock for wear- ing course, in place	3,200 cu.yds,at ----- (words) -----(\$-----) per cu.yd.	-----
24.	Hauling and spreading road oil	77,000 gals. at ----- (words) -----(\$-----) per gal.	-----
25.	Mixing, compacting, and finishing oil-treated wearing course	24,000 sq.yds. at ----- (words) -----(\$-----) per sq.yd.	-----
26.	Constructing guardrails	4,500 lin. ft.at ----- (words) -----(\$-----) per lin.ft.	-----
27.	Laying ties and rails	750 track-ft, at ----- (words) -----(\$-----)per tr.ft.	-----
28.	Applying rail anchors	850 anchors at ----- (words) -----(\$-----)per anchor	-----
29.	Ballasting railroad track	600 cu.yds.at ----- (words) -----(\$-----)per cu.yd.	-----
30.	Drilling (B) grout holes not more than 30 feet deep	15,000 lin.ft. at ----- (words) -----(\$-----) per lin.ft.	-----
31.	Drilling "B" grout holes more than 30 feet deep and not more than 50 feet deep	4,000 lin ft, at ----- (Words) -----(\$-----)per lin.ft.	-----

Item No.	Work or material	Quantity and price	Amount
32.	Drilling "C" grout holes more than 30 feet deep and not more than 75 feet deep	3,000 lin.ft.at----- (words) -----(\$-----) per lin.ft	\$-----
33.	Drilling "C" grout holes more than 75 feet deep and not more than 125 feet deep	9,000 lin.ft.at----- (words) -----(\$-----)per lin.ft	-----
34.	Drilling "A" grout holes not more than 50 feet deep	11,000 lin.ft. at----- (words) -----(\$-----) per lin.ft	-----
35.	Drilling "A" grout holes more than 50 feet deep and not more than 100 feet deep	11,000 lin.ft.at----- (words) -----(\$-----)per lin.ft	-----
36.	Drilling "A" grout holes more than 100 feet deep and not more than 150 feet deep	34,000 lin.ft.at----- (words) -----(\$-----) per lin.ft	-----
37.	Drilling "A" grout holes more than 150 feet deep and not more than 200 feet deep	42,000 lin.ft.at----- (words) -----(\$-----)per lin.ft	-----
38.	Drilling "A" grout holes more than 200 feet deep and not more than 500 feet deep	4,000 lin.ft. at----- (words) -----(\$-----)per lin.ft	-----
39.	Drilling drainage holes not more than 25 feet deep	3,000 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
40.	Drilling drainage holes more than 25 feet deep and not more than 50 feet deep	40,000 lin.ft.at----- (Words) -----(\$-----)per lin.ft	-----
41.	Drilling drainage holes more than 50 feet deep and not more than 75 feet deep	1,000 lin.ft.at----- (words) -----(\$-----)per lin.ft	-----
42.	Drilling drainage holes more than 75 feet deep and not more than 100 feet deep	2,000 lin.ft.at----- (words) -----(\$-----)per lin.ft	-----
43.	Drilling drainage holes more than 100 feet deep and not more than 150 feet deep	1,000 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
44.	Drilling drainage holes more than 150 feet deep and not more than 200 feet deep	7,000 lin.ft.at----- (words) -----(\$-----)per lin.ft	-----
45.	Drilling weep holes	300 lin.ft.at----- (words) -----(\$-----)per lin.ft	-----
46.	Drilling holes for anchor bars and grouting bars in place	600 lin.ft.at----- (words) -----(\$-----)per lin.ft	-----
47.	Pressure grouting found- ations and tunnels	170,000 cu.ft.at----- (words) -----(\$-----)per cu.ft	-----

Item : no. :	Work or material	Quantity and price	Amount
48.	Filling pipe or tubing less than 8 inches in diameter by grouting methods	20,000 cu.ft.at----- (words) -----(\$-----)per cu.ft	-----
49.	Manufacturing and placing porous concrete drain tile	131,000 lin.ft.at----- (words) -----(\$-----)per lin.ft	-----
50.	Constructing 6-inch diameter sewer pipe drains	800 lin.ft.at----- (words) -----(\$-----)per lin.ft	-----
51.	Concrete in dam	5,500,000 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
52.	Concrete in spillway training walls	3,700 cu.yds.at----- (words) -----(\$-----)per cu.yds	-----
53.	Concrete in trash-rack structures	51,000 cu.yds at----- (words) -----(\$-----)per cu.yds	-----
54.	Concrete in cantilevers of twist adjustment slots	3,600 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
55.	Concrete lining in tunnels, adits and shafts	2,100 cu.yds.at----- (words) -----(\$-----)per cu.yd	-----
56.	Concrete in control cable gallery extension	240 cu.yds.at----- (words) -----(\$-----)per cu.yd	-----
57.	Concrete in spillway crest and piers	85,000 cu.yds.at----- (words) -----(\$-----)per cu.yd	-----
58.	Concrete in sidewalks and parapets on dam	2,300 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
59.	Concrete in elevator towers and gallery entrance	4,100 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
60.	Concrete in bridges	7,400 cu.yds.at----- (words) -----(\$-----)per cu.yd	-----
61.	Concrete in powerhouse substructure	37,000 cu.yds at----- (words) -----(\$-----)per cu.yd	-----
62.	Concrete in powerhouse intermediate structure	37,000 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
63.	Concrete in powerhouse superstructure	30,000 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
64.	Second-stage concrete in powerhouse	12,000 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
65.	Concrete in road structures and paving for gantrycrane pit	900 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----

Item No	Work or material	Quantity and price	Amount
66	Concrete in bulkheads	40 cu.yds.at----- (words) -----(\$-----)per cu.yd.	\$-----
67.	Concrete backfill in shafts, galleries, gutters, and bulkhead recesses	900 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
68.	Concrete backfill in grout ring blockouts about outlet conduits	220 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
69.	Concrete backfill around penstock pipes	41,000 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
70.	Concrete backfill in pipes 8 inches nominal diameter and larger	600 cu.ft.at----- (words) -----(\$-----)per cu.ft.	-----
71.	Concrete backfill in twist adjustment slots	28,000 cu.yds.at----- (words) -----(\$-----)per cu.yds	-----
72.	Furnishing and installing steel tunnel-liner plates	125,000 pounds,at----- (words) -----(\$-----)per pound	-----
73.	Placing reinforcement bars and fabric	50,000,000 pounds,at----- (words) -----(\$-----)perpound	-----
74.	Special finishing of concrete surfaces	35,000 sq.yds.at----- (words) -----(\$-----)per sq.yd	-----
75.	Finishing lighting recesses	2,200 recesses at----- (words) -----(\$-----) per recess	-----
76.	Concrete cover around reinforcement-bar dowels	40 cu.yds,at----- (words) -----(\$-----)per cu.yd.	-----
77.	Insulating reinforcement bars and conduit	250,000 intersections,at----- (words) -----(\$-----)per in'ter	-----
78.	Welding reinforcement bars	7,100 welds,at----- (words) -----(\$-----)per weld	-----
79.	Removing protective covering from reinforcement bars	59,000 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
80.	Painting reinforcement bar dowels	23,000 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
81.	Splicing broken reinforcement bars	700 splices, at----- (words) -----(\$-----)per splice	-----
82.	Testing reinforcement-bar dowels and welded splices	500 tests, at----- (words) -----(\$-----)per test	-----
83.	Removing concrete bulk heads in unwatering and pipe galleries	8 bulkheads,at----- (words) -----(\$-----)per bulkhd	-----
84.	Removing precast concrete bulkheads covering 30-inch diameter man-holes in the unwatering galleries	9 bulkheads, at----- (words) -----(\$-----)per bulkhd	-----

Item No	Work or Material	Quantity and price	Amount
85.	Cutting, bending or removing existing temporary metal sealing strips	4,000 lin.ft.at----- (words) -----(\$-----)per lin.ft.	\$-----
86.	Repairing and completing installation of existing metal sealing strips	4,000 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
87.	Installing metal sealing strips in contraction and expansion joints	425,000 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
88.	Installing metal sealing strips in construction joints in powerhouse	8,000 lin.ft. at----- (words) -----(\$-----)per lin.ft.	-----
89.	Installing contraction joint grout tubing and fittings	1,400,000 pounds, at----- (words) -----(\$-----)per pound	-----
90.	Installing metal tubing and fittings for concrete cooling system	4,700,000 pounds, at----- (words) -----(\$-----)per pound	-----
91.	Dismantling cooling headers and fittings	1,250,000 pounds, at----- (words) -----(\$-----)per pound	-----
92.	Installing cooling headers and fittings	750,000 pounds, at----- (words) -----) \$-----)per pound	-----
93.	Installing cover plates on grout grooves	137,000 lin.ft., at----- (words) -----(\$-----)per lin.ft.	-----
94.	Installing expansion-joint filler	147,000 sq.ft.at----- (words) -----(\$-----)per sq.ft.	-----
95.	Placing joint filler in twist adjustment slots	11,000 sq.ft.at----- (words) -----(\$-----)per sq.ft.	-----
96.	Removing joint filler from twist adjustments slots	10,000 sq.ft.at----- (words) -----(\$-----)per sq.ft	-----
97.	Installing timber support in twist adjustment slots	2,000 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
98.	Placing sand fill in twist adjustment slots	25,000 cu.yds.at----- (words) -----(\$-----) per cu.yd.	-----
99.	Removing sand, gravel tile, timber, and canvas sealing strips from twist adjustment slots	28,000 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
100.	Placing and relquefying asphalt seals	6,000 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
101.	Installing bituminous-saturated felt roofing, complete with flashing	59,000 sq.ft.at----- (words) -----\$-----)per sq.ft.	-----
102.	Installing bituminous mastic on roofs	59,000 sq.ft.at----- (words) -----(\$-----)persq.ft.	-----

Item No	Work or material	Quantity and price	Amount
103.	Placing 2-inch cork insulation on roofs	9,000 sq.ft.at ----- (words) -----(\$-----)per sq.ft.	-----
104.	Lightweight concrete in floors	600 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
105.	Placing bonded-concrete floor finish	30,000 sq.yds.at----- (words) -----(\$-----)per sq.yd.	-----
106.	Placing cement wall base	6,000 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
107.	Manufacturing and placing precast terrazzo floor slabs, 3 inches thick	500 sq.ft at----- (words) -----(\$-----)per sq.ft.	-----
108.	Installing terrazzo treads, risers, and wall base for stairs	600 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
109.	Installing bonded-terrazzo floors and landings 1 1/2 inches thick	8,000 sq.ft.at----- (words) -----(\$-----)per sq.ft.	-----
110.	Installing unbonded terrazzo floors and landings 3 inches thick	5,000 sq.ft.at----- (words) -----(\$-----)per sq.ft.	-----
111.	Installing terrazzo-cove wall base	1,500 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
112.	Applying liquid floor hardener	30,000 sq.yds. at----- (words) -----(\$-----)per sq.yd.	-----
113.	Installing glass block panels	8,000 sq.ft.at----- (words) -----(\$-----)per sq.ft.	-----
114.	Manufacturing and placing precast reinforced concrete framing members for glass block panels	120 cu.yds.at----- (words) -----(\$-----)per cu.yd.	-----
115.	Installing structural glass partitions	500 sq.ft.at----- (words) -----(\$-----)per sq.ft.	-----
116.	Installing structural glass wainscot, including base	11,000 sq.ft.at----- (words) -----(\$-----)per sq.ft. 1,100	-----
117.	Constructing suspended ceilings	sq.yds.at----- (words) -----(\$-----)per sq.yd.	-----
118.	Hollow walls of metal lath and plaster	60 sq.yds.at----- (words) -----(\$-----)per sq.yd.	-----
119.	Plaster on concrete walls and ceilings	1,500 sq.yds.at----- (words) -----(\$-----)per sq.yd.	-----
120.	Installing terra-cotta units	500 sq.yds.at----- (words) -----(\$-----)per sq.yd.	-----

Item No	Work or material	Quantity and price	Amount
121.	Painting concrete walls	8,500 sq.yds.at----- (words) -----(\$-----)pr sq.yd.	\$-----
122.	Installing lead sheet membrane waterproofing	2,000 sq.ft.at----- (words) -----(\$-----)per sq.ft.	-----
123.	Installing 5-ply bituminous membrane waterproofing	16,000 sq.ft.at----- (words) -----(\$-----)per sq.ft	-----
124.	Waterproofing of exterior walls	7,500 sq.yds.at----- (words) -----(\$-----)per sq.yd	-----
125.	Installing drum gates	15,300,000 pounds, at----- (words) -----(\$-----)per pound	-----
126.	Installing drum-gate control mechanisms	1,300,000 pounds, at----- (words) -----(\$-----)per pound	-----
127.	Installing gate frames seats, guides and stop-log seats and guides	5,870,000 pounds, at----- (words) -----(\$-----)per pound	-----
128.	Installing penstock intake gates	600,000 pounds, at----- (words) -----(\$-----)per pound	-----
129.	Installing bulkhead gates	725,000 pounds, at----- (words) -----(\$-----)per pound	-----
130.	Installing penstock intake gate hoists	290,000 pounds,at----- (words) -----(\$-----)per pound	-----
131.	Installing outlet conduit gates, hoists, and metal conduit linings	26,000,000 pounds,at----- (words) -----(\$-----)per pound	-----
132.	Installing operating and control apparatus for hydraulically operated gates	51,000 pounds,at----- (words) -----(\$-----)per pound	-----
133.	Installing upstream section of each penstock	1,350,000 pounds,at----- (words) -----(\$-----)per pound	-----
134.	Installing pump inlet pipes	900,000 pounds,at----- (words) -----(\$-----)per pound	-----
135.	Drilling, tapping, and plugging grout holes in penstocks and pump inlet pipes	1,000 holes, at ----- (words) -----(\$-----)per hole	-----
136.	Installing metal pier noses in draft tubes	375,000 pounds,at----- (words) -----(\$-----)per pound	-----
137.	Installing structural steel	2,110,000 pounds,at----- (words) -----(\$-----)per pound	-----
138.	Installing traveling and gantry cranes	2,660,000 pounds,at----- (words) -----(\$-----)per pound	-----

Item No	Work or material	Quantity and price	Amount
139.	Installing track rails	1,860,000 pounds, at----- (words) -----(\$-----)per pound	\$-----
140.	Installing trash-rack guides and supports	5,200,000 pounds, at----- (words) -----(\$-----)per pound	-----
141.	Installing trash-rack sections	18,600,000 pounds, at----- (words) -----(\$-----)per pound	-----
142.	Cleaning and painting interior surfaces of penstocks	43,000 sq.yds. at----- (words) -----(\$-----)per sq.yd	-----
143.	Installing metal tubing brass, steel and cast-iron pipe, fittings, and valves less than 6 inches nominal diameter	430,000 pounds, at----- (words) -----(\$-----)per pound	-----
144.	Installing metal tubing brass, steel and cast-iron pipe, fittings, and valves 6 inches and greater, nominal diameter	4,200,000 pounds, at----- (words) -----(\$-----)per pound	-----
145.	Removing leaded-in cast-iron plugs	300 plugs, at----- (words) -----(\$-----)per plug	-----
146.	Removing grouted-in cast-iron bulkheads	7 Bulkheads, at----- (words) -----(\$-----)per bulkhd	-----
147.	Removing grouted-in concrete and wooden pipe covers	11 covers, at----- (words) -----(\$-----)per cover	-----
148.	Installing steel or iron pipe handrails	46,000 pounds, at----- (words) -----(\$-----)per pound	-----
149.	Installing aluminum pipe handrails and curbs	10,000 pounds, at----- (words) -----(\$-----)per pound	-----
150.	Installing metal stairways	341,000 pounds, at----- (words) -----(\$-----)per pound	-----
151.	Installing metal frames gratings, platforms and covers for floor openings	437,000 pounds, at----- (words) -----(\$-----)per pound	-----
152.	Installing metal drain inlets	50,000 pounds, at----- (words) -----(\$-----)per pound	-----
153.	Installing metal protectors for concrete edges	9,000 pounds, at----- (words) -----(\$-----)per pound	-----
154.	Installing metal bearing-plate assemblies	100,000 pounds, at----- (words) -----(\$-----)per pound	-----
155.	Installing drainage and sump pumps and accessories for drainage, sewage disposal, and draft-tube unwatering purposes.	60,000 pounds, at----- (words) -----(\$-----)per pound	-----

Item No.	Work or material	Quantity and price	Amount
156.	Installing oil-storage tanks	104,000 pounds, at ----- (words) -----(\$-----)per pound	-----
157.	Installing metal accordion doors	1,000 sq.ft.at----- (words) -----(\$-----)per sq.ft.	-----
158.	Installing metal swinging doors	6,000 sq.ft.at----- (words) -----(\$-----)p.sq.ft.	-----
159.	Installing metal swinging gates	1,500 pounds, at----- (words) -----(\$-----)per pound	-----
160.	Installing metal-sash windows	600 sq.ft.at----- (words) -----(\$-----)per sq.ft	-----
161.	Installing metal partitions	700 sq.ft.at----- (words) -----(\$-----)per sq.ft	-----
162.	Installing metal inserts	35,000 pounds, at ----- (words) -----(\$-----)per pound	-----
163.	Installing metal expansion joints in floors	3,000 lin.ft.at----- (words) -----(\$-----)per linft.	-----
164.	Installing metal expansion-joint facing in walls	2,500 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
165.	Installing miscellaneous metalwork	136,000 pounds, at----- (words) -----(\$-----)per pound	-----
166.	Installing wooden doors	450 sq.ft.at----- (words) -----(\$-----)per sq.ft	-----
167.	Installing plumbing fixtures and appurtenant hardware	9,000 Pounds, at ----- (words) -----(\$-----)per pound	-----
168.	Installing electrical metal conduit 1 1/4 inches or less in diameter	90,000 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
169.	Installing electrical metal conduit larger than 1 1/4 inches and not larger than 3 inches in diameter	44,000 lin.ft.at----- (words) -----(\$-----)per lin.ft	-----
170.	Installing electrical metal conduit larger than 3 inches in diameter	5,500 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
171.	Installing electrical non-metallic conduit	1,000 lin.ft.at----- (words) -----(\$-----)per lin.ft.	-----
172.	Installing electrical apparatus	60,000 pounds, at----- (words) -----(\$-----)per pound	-----

Item No.	Work or Material	Quantity and price	Amount
173.	Installing electrical conductors	100,000 pounds, at----- (words) -----(\$-----)per pound	-----
174.	Installing ground wires	46,000 pounds, at----- (words) -----(\$-----)per pound	-----
175.	Installing electrical cable for resistance thermometers, strain-meters, stress-meters and jointmeters, embedded in concrete	83,000 lin.ft.at----- (words) -----(\$-----)per linft	-----
176.	Operating concrete cooling plant	900 barge days, at----- (words) -----(\$-----)per barge day	-----
177.	Transporting fabricated penstocks from Odair, Washington, to dam	210 tons, at----- (words) -----(\$-----)per ton	-----
178.	Transporting unfabricated penstock and pump inlet pipe materials from Odair, Washington to fabricating plant	9,000 tons, at----- (words) -----(\$-----)per ton	-----
179.	Transporting penstocks from fabricating plant to dam	8,000 tons, at----- (words) -----(\$-----)per ton	-----
180.	Transporting freight of all kinds on the construction railroad for the Government or its agents, other than the contractor, in carlots between delivery yard and Government siding at head of Grand Coulee.	310 cars, at----- (words) -----(\$-----)per car	-----
181.	Transporting freight of all kinds on the construction railroad for the Government or its agents, other than the contractor, in less than carlots between delivery yard and Government siding at head of Grand Coulee	5,000 cwt. at----- (words) -----(\$-----)per cwt	-----
182.	Transporting freight of all kinds on the construction railroad for the Government or its agents, other than the contractor, in carlots between delivery yard and siding at Government warehouse.	100 cars, at----- (words) -----(\$-----)per car	-----

Item No.	Work or material	Quantity and price	Amount
183.	Transporting freight of all kinds on the construction railroad for the Government or its agents, other than the contractor, in less than carlots between delivery yard and siding at Government warehouse	2,000 cwt. at----- (words) -----(\$-----)per cwt.	-----
184.	Transporting freight of all kinds for the Government or its agents, other than the contractor between Government siding at head of Grand Coulee and powerhouse	1,000 tons at----- (words) -----(\$-----) per ton	-----
185.	Purchase of camp and construction facilities from the Government by the contractor.	<u>SUBTOTAL</u> For the lump sum of five hundred thousand dollars	\$ <u>34,442.240</u>
		NET TOTAL FOR SCHEDULE	\$ <u>42,885.802</u>
			\$500,000.00

Name	Address	City	State
	J. W. Smith (Name)	Washington, D. C.	D. C.
	J. W. Smith (Name)	Washington, D. C.	D. C.
	J. W. Smith (Name)	Washington, D. C.	D. C.
	J. W. Smith (Name)	Washington, D. C.	D. C.
	J. W. Smith (Name)	Washington, D. C.	D. C.
	J. W. Smith (Name)	Washington, D. C.	D. C.

Griffith G.
 Lower & McNamee
 Shiffert
 McP. Conner
 et al.

8731

St. Paul, Minn. Dec. 21, 1937.

Mr. Bernard Blum:

I am attaching hereto clipping from the Spokesman Review of Dec. 11, 1937, referring to awarding of contract for the high dam.

In reading the bids at the open public meeting on Dec. 10th detail price of the various items was not read but the total of both bids was announced. Detail price is included in the statement containing Mr. Tremaine's letter of the 15th attached to the file.

For your further information at this time I am attaching hereto statement showing estimate tonnage involved in the construction of the high dam. It is now estimated there will be six million cubic yards of concrete in the high dam or a total of 10,700,000 cubic yards in the combined dam structures.

There will also be approximately 80,500 tons of steel of various classes in the dam structure. In addition it is estimated there will be 92,000 tons of material shipped by contractor, exclusive of current supplies, during the period of constructing the dam.

In handling the work the government contemplate the erection of a fabricating plant at Odair. It is possible in supplying some of this structural steel the manufacturer will make an endeavor to fabricate some of the tonnage in their own plant, and if so the clearance factor may have some bearing on the routing of the materials.

JTD-w

Asst. to Chief Engineer.

SUMMARY OF TONNAGE FOR HIGH DAM - COULEE.

	Freight Tons
Concrete 6,000,000 cuys (cement only)	1,400,000
Steel - Various classes	
Reinforcing steel	26,000
Structural steel	14,500
Machinery, etc.	32,000
Misc. steel, Elec. supplies, waterproofing, etc.	4,000
Cranes, tramways, etc.	4,000
Total Steel tonnage in dam	80,500
Contractor's Tonnage - other than current repairs and supplies.	
Equipment various classes (steel)	6,000
Form lumber 50,000,000 FBM	75,000
Hardware	1,000
Trucks, cables, structural steel for High line	10,000
	92,000

NOTE: Quantities do not include current supplies during the construction period such as gasoline, fuel, oil, grease, etc. and commissary supplies required for the Dam project.

Office of Chief Engineer,
St. Paul, Minn.
Dec. 21, 1937.

SUMMARY OF TONNAGE FOR HIGH DAM - COULEE.

	Freight Tons
Concrete 6,000,000 cuys (cement only)	1,400,000
Steel - Various classes	
Reinforcing steel	36,000
Structural steel	14,500
Machinery, etc.	32,000
Misc. steel, Elec. supplies, waterproofing, etc.	4,000
Cranes, tramways, etc.	4,000
Total Steel tonnage in dam	80,500
Contractor's Tonnage - other than current repairs and supplies.	
Equipment various classes (steel)	6,000
Form lumber 50,000,000 FBM	75,000
Hardware	1,000
Trucks, cables, structural steel for High line	10,000
	92,000

NOTE: Quantities do not include current supplies during the construction period such as gasoline, fuel, oil, grease, etc. and commissary supplies required for the Dam project.

Office of Chief Engineer,
St. Paul, Minn.
Dec. 21, 1937.

Summary of Tonnage for High Dam Gulle

Concrete 6000.000 cu yds (Cement only) Freight Tons 1400,000

Steel - Various Classes

Reinforcing steel	26000 Tons
Structural	14500 ✓
Machinery etc	32000
Misc Steel Ele. Suppys, waterproofing etc (4000)	4000
Cranes & Tramway etc	4000
Total Steel Tonnage in Dam	80500

Contractors tonnage other
than Current Repairs & Suppys

Equipment Various Classes (Steel)	6000 Tons
Form Lumber 50.000.000 F.B.M.	75000
Hardware	10000
Trucks - Cabs, structural steel for High Line	10000
	72000

Note Quantities do not include Current
Suppys during the Construction period
such as Gasoline, Fuel, Oil Grease & etc
Commissary Suppys required for the Dam
Project.

Office Ch Enr 12/21-31

8731

Saint Paul, December 20, 1937

MR. H. E. STEVENS:

The SPOKANE CHAMBER OF COMMERCE has issued a statement that completion of the Grand Coulee Dam will involve the following weights of material:

Steeltons	80,000	
Pipe and fittings "	5,000	
Gates and operating devices	25,000	
Trashrack metal work	12,000	
Penstocks	8,000	
Cranes and misc. machinery	<u>4,000</u>	134,000 tons

The new contract will involve placing about six million cubic yards of concrete, which I estimate roughly to involve 1,400,000 tons of cement.

cc-Mr. R. W. Clark

Arnold Blum

bb/s

Not Sent



News Flashes

ABOUT THE GRAND COULEE DAM

Issued by the
**SPOKANE CHAMBER of COMMERCE
NEWS BUREAU**

from Seat of Activities at **SPOKANE, WASH.**

Compiled December 14, 1937

"FEDERAL RECLAMATION NOT ONLY HAS AN
IMPORTANT PLACE IN THE NATION'S LAND-
USE PROGRAM -- IT IS ESSENTIAL"

Spokane, Wash:- "Irrigation must stop when all the waters available in the west for use by feasible projects are utilized. It cannot be permitted to stop short of that time. This limit may be reached all too soon", said John C. Page, United States Commissioner of Reclamation to the large and interested audience that gathered in Spokane, December 10, to hear the bids for the completion of the gigantic Grand Coulee dam.

The Grand Coulee dam is the key to the Columbia Basin project which has been the dream and the goal of the Pacific Northwest for thirty years. It means the reclaiming of rich and fertile acres that are vital to the country and it means the development of vast natural resources which will add materially to the wealth of the nation.

When the bids were read by Frank A. Banks, United States Bureau of Reclamation engineer in charge of construction of the dam, it was found that the Interior Construction company was the low bidder with a bid of \$34,442,240. If this organization receives the contract as it is expected that it will, its member units may well be known as builders of great dams, for the Interior Construction company includes the Mason-Walsh-Atkinson-Kier company, the builders of the great dam's foundations; and a majority of the companies who formed the famous Six Companies that built Boulder Dam; the Owyhee Dam, the Bonneville Dam; and have started the Ruby dam. These other member firms are Morrison-Knudsen company, Boise, Idaho; J. F. Shea company, San Francisco; McDonald & Kahn, San Francisco; Pacific Bridge company, San Francisco; Henry J. Kaiser, Oakland; Utah Construction company, Ogden, Utah; and the General Construction Company, Seattle.

"The Department of Agriculture tells us that soil erosion has impoverished or ruined 200,000,000 acres of once productive farm lands", Commissioner Page continued, "That is 10 times the amount of land now irrigated in the west ! It tells us further than an additional 100,000,000 acres of use-

CHIEF OF POLICE
ST. PAUL, MINN.
JAN 13 1907

ful farm land is actively affected by erosion, and that its productivity is threatened. That is 10 times the amount of land which may in the future be irrigated in the west! The nation is engaged in an earnest attempt to remove from cultivation a part of its sub-marginal lands; thus to free from a peonage wrought by nature and misuse of the soil a section of our population. Recently a seven-years drought, as yet unbroken, has driven 100,000 farm families from the Great Plains. Where are these people to go?

"Many of them go west looking for new opportunities; hoping to find homes on irrigated lands. If these people are to resume their lifework, many of them must find irrigated farms.

"This brings us to one of the major functions of Federal Reclamation in our National land-use program. Only about 3,000,000 acres now are irrigated by Federal projects. This land, however, supports directly approximately 900,000 people living on farms and in towns on the projects. The present construction program, though it may be considered large, will irrigate but an additional 2,500,000 acres when the projects are completed. This total includes the 1,200,000 acres of the Grand Coulee Dam-Columbia Basin project, a long-range development which will not be finished within, perhaps, 30 years. Our construction program cannot make new lands available fast enough to take care of the demand arising among those who have been driven from their homes in other areas. Many of these men were from the Great Plains. The Columbia Basin project, if it were finished at this time, would provide homes for less than half of the farm families already driven by drought from the Great Plains alone. I would that we were prepared now to start the pumps at Grand Coulee Dam and to turn the water into the canals which eventually will form a net over the fine land to the south of the dam. We would then be in a position to help at least a fraction of those who are in need.

"Farmers in other areas need have no fear of irrigation. Irrigated agriculture has complementary relationships rather than competitive relationships with the agriculture of humid areas. The staple crops of which are exportable surpluses in other regions are produced only in inconsequential amounts on the irrigated lands of the west.

"Federal Reclamation not only has an important place in the nation's land-use program -- it is essential. It is vital to those whom it nourishes in distant parts. It is vital to those with whom nature has not dealt kindly elsewhere; those who seek security through new homes and new opportunities.

"It is our responsibility to apply the knowledge that engineering and science now make available, for the benefit of all the people. Today we move forward in the construction of Grand Coulee Dam, the key structure of the greatest single irrigation project of history. To the limit of our ability, let us be worthy of our trust and meet the challenge of nature on the third of our nation which is ill-watered."

-2-

ANOTHER MILESTONE IN BIGGEST JOB ON EARTH

Spokane, Wash:-- "On the Columbia River in eastern Washington the second stage of construction of Grand Coulee Dam, the biggest single building job on earth is about to get under way.

"The base of the dam, which was begun in 1934, will be completed in January, according to a release of the Bureau of Reclamation; - the base already makes the biggest masonry structure so far built by man, and it is little more than half as large as remainder of the dam.

"Work included in the new contract will involve the manufacturing and placing of about 6,000,000 cubic yards of concrete, nearly twice as much as was placed in the Boulder Dam. Almost 160,000,000 pounds of steel will go into the permanent structure, including 50,000,000 pounds of reinforcing steel, 10,000,000 pounds of pipe and fittings, 50,000,000 pounds of gates and operating devices, 24,000,000 pounds of trashrack metal-work, and 16,000,000 pounds in penstocks, and 8,000,000 pounds in cranes, and miscellaneous metal work."

-2-

Tons		
80,000	Steel	134
- 25,000	Reinforcing	80
5,000	Pipe	54
25,000	Gates etc.	
12,000	Trash Metal	200
8,000	Penstocks	7,000,000 lbs
4,000	Cranes - Misc.	20,000
159,000	Total	7,000,000 lbs
1,400,000	Cement	200
		140,000

8731

Spokane, Washington
December 15, 1937



Mr. A. F. Stotler:

Bids on Completion of
Goulee Dam

I hand you herewith a detail of the
bids of the successful contractor and the
high man. You will note this is tied into
the schedule, also attached.

Signed, H. M. TREMAINE
District Engineer

HMT-k
c Mr. Bernard Blum ✓
encl

*Mr. Blum
Hearst
NOV 28 12/20*

R. E. G.
*Will you have
the two sets of unit
prices noted in Col. A
and the amount of the
low bid in Column B.
17/13.4*

U. S. B. R.

ABSTRACT OF BIDS UNDER SPECIFICATIONS No. 757, COMPLETION OF GRAND
COULEE DAM, LEFT POWERHOUSE, AND FOUNDATION FOR PUMPING PLANT

Bids Opened at Spokane, Wash., December 10, 1937.

Interior Construction Co.
1522 Latham Square Bldg.
Oakland, California

Pacific Constructors, Inc.
708 Architects Building
Los Angeles, California

Item Number	Unit Price	Amount	Unit Price	Amount
1.		\$ 727,000.00		\$ 100,000.00
2.		10,000.00		40,000.00
3.	.30	142,500.00	.30	142,500.00
4.	1.50	15,000.00	7.00	70,000.00
5.	3.75	787,500.00	7.00	1,470,000.00
6.	6.00	66,000.00	10.00	110,000.00
7.	6.00	4,800.00	7.00	5,600.00
8.	25.00	22,500.00	20.00	18,000.00
9.	10.00	50,000.00	20.00	100,000.00
10.	19.00	95,000.00	20.00	100,000.00
11.	1.50	2,250.00	3.50	5,250.00
12.	2.00	236,000.00	3.50	413,000.00
13.	2.75	8,250.00	6.00	18,000.00
14.	45.00	13,500.00	7.00	2,100.00
15.	.70	12,600.00	.30	5,400.00
16.	.75	750.00	.50	500.00
17.	1.15	20,700.00	1.00	18,000.00
18.	3.00	9,000.00	1.50	4,500.00
19.	14.00	8,400.00	20.00	12,000.00
20.	2.85	4,275.00	2.00	3,000.00

Abstract of bids for Completion Grand Coulee Dam - Page 2

Interior Construction Co. Pacific Constructors, Inc.

Item Number	Unit Price	Amount	Unit Price	Amount
21.	1.75 \$	700.00	1.00 \$	400.00
22.	3.00	18,000.00	1.50	9,000.00
23.	3.30	10,560.00	1.50	4,800.00
24.	.05	3,850.00	.10	7,700.00
25.	.40	9,600.00	.15	3,600.00
26.	.60	2,700.00	2.00	9,000.00
27.	1.70	1,275.00	1.00	750.00
28.	.20	170.00	.50	425.00
29.	3.00	1,800.00	1.50	900.00
30.	1.90	28,500.00	2.00	30,000.00
31.	1.90	7,600.00	2.25	9,000.00
32.	1.90	5,700.00	2.50	7,500.00
33.	1.90	17,100.00	2.75	24,750.00
34.	2.05	22,550.00	2.00	22,000.00
35.	2.05	22,550.00	2.25	24,750.00
36.	2.75	93,500.00	2.50	85,000.00
37.	3.00	126,000.00	4.00	168,000.00
38.	4.00	16,000.00	5.00	20,000.00
39.	3.15	9,450.00	2.25	6,750.00
40.	3.50	140,000.00	2.50	100,000.00
41.	4.00	4,000.00	2.75	2,750.00
42.	4.50	9,000.00	3.00	6,000.00

Abstract of Bids for Completion Grand Coulee Dam - Page 3

Interior Construction Co. Pacific Constructors, Inc.

Item Number	Unit Price	Amount	Unit Price	Amount
43.	5.50 \$	5,500.00	3.50	3,500.00
44.	6.00	42,000.00	4.00	28,000.00
45.	1.75	525.00	1.00	300.00
46.	2.30	1,380.00	1.00	600.00
47.	1.40	238,000.00	1.50	255,000.00
48.	1.85	37,000.00	1.00	20,000.00
49.	1.15	150,650.00	1.00	131,000.00
50.	1.15	920.00	1.00	800.00
51.	3.53	19,415,000.00	5.42	29,810,000.00
52.	11.50	42,559.00	12.00	44,400.00
53.	25.00	1,275,000.00	25.00	1,275,000.00
54.	18.50	66,600.00	20.00	72,000.00
55.	35.00	73,500.00	22.00	46,200.00
56.	30.00	7,200.00	22.00	5,280.00
57.	15.00	1,275,000.00	10.00	850,000.00
58.	30.00	69,000.00	20.00	46,000.00
59.	30.00	123,000.00	33.00	135,300.00
60.	45.00	333,000.00	26.00	192,400.00
61.	15.00	555,000.00	12.00	444,000.00
62.	24.00	888,000.00	12.00	444,000.00
63.	38.00	1,140,000.00	20.00	600,000.00

Abstract of Bids for Completion Grand Coulee Dam - Page 4

Interior Construction Co. Pacific Constructors, Inc.

Item Number	Unit Price	Amount	Unit Price	Amount
64.	19.00	228,000.00	10.00	120,000.00
65.	35.00	31,500.00	30.00	27,000.000
66.	35.00	1,400.00	30.00	1,200.00
67.	15.00	13,500.00	10.00	9,000.00
68.	75.00	16,500.00	20.00	4,400.00
69.	7.00	287,000.00	10.00	410,000.00
70.	2.25	1,350.00	1.00	600.00
71.	8.00	224,000.00	8.00	224,000.00
72.	.09	11,250.00	.06	7,500.00
73.	.023	1,150,000.00	.017	850,000.00
74.	.90	31,500.00	1.00	35,000.00
75.	5.75	12,650.00	2.00	4,400.00
76.	28.00	1,120.00	20.00	800.00
77.	.06	15,000.00	.15	37,500.00
78.	.85	6,035.00	1.50	10,650.00
79.	.30	17,700.00	.05	2,950.00
80.	.20	4,600.00	.10	2,300.00
81.	4.00	2,800.00	5.00	3,500.00
82.	9.00	4,500.00	5.00	2,500.00
83.	100.00	800.00	100.00	800.00
84.	25.00	225.00	10.00	90.00
85.	.70	2,800.00	100.00	4,000.00
86.	1.40	5,600.00	1.00	4,000.00

Abstract of Bids for Completion Grand Coulee Dam - Page 5

Interior Construction Co. Pacific Constructors, Inc.

Item Number	Unit Price	Amount	Unit Price	Amount
87.00	.60 \$	255,000.00	.60 \$	255,000.00
88.	1.15	9,200.00	.75	6,000.00
89.	.17	238,000.00	.06	84,000.00
90.	.09	423,000.00	.06	282,000.00
91.	.09	112,500.00	.02	25,000.00
92.	.09	67,500.00	.05	37,500.00
93.	.60	82,200.00	.25	34,250.00
94.	.25	36,750.00	.15	22,050.00
95.	.25	2,750.00	.15	1,650.00
96.	.45	4,500.00	.50	5,000.00
97.	1.75	3,500.00	2.00	4,000.00
98.	1.25	31,250.00	1.50	37,500.00
99.	3.50	98,000.00	2.00	56,000.00
100.	2.00	12,000.00	.25	1,500.00
101.	.30	17,700.00	.08	4,720.00
102.	.20	11,800.00	.10	5,900.00
103.	.25	2,250.00	.10	900.00
104.	20.00	12,000.00	20.00	12,000.00
105.	4.50	135,000.00	1.00	30,000.00
106.	.90	5,400.00	.50	3,000.00
107.	2.50	1,250.00	1.00	500.00
108.	2.75	1,650.00	1.50	900.00
109.	2.25	18,000.00	.50	4,000.00
110.	2.25	11,250.00	.60	3,000.00

Abstract of Bids for Completion Grand Coulee Dam - Page 6

Interior Construction Co. Pacific Constructors, Inc.

Item Number	Unit Price	Amount	Unit Price	Amount
111.	1.75 \$	2,625.00	1.50 \$	2,250.00
112.	.18	5,400.00	.05	1,500.00
113.	1.15	9,200.00	.50	4,000.00
114.	70.00	8,400.00	50.00	6,000.00
115.	1.15	575.00	1.00	500.00
116.	1.15	12,650.00	.50	5,500.00
117.	2.85	3,135.00	1.00	1,100.00
118.	4.50	270.00	5.00	300.00
119.	2.20	3,300.00	1.00	1,500.00
120.	5.75	2,875.00	1.50	750.00
121.	.45	3,825.00	.25	2,125.00
122.	.90	1,800.00	.25	500.00
123.	.30	4,800.00	.15	2,400.00
124.	.85	6,375.00	.30	2,250.00
125.	.033	504,900.00	.027	413,100.00
126.	.06	78,000.00	.05	65,000.00
127.	.06	352,200.00	.027	158,490.00
128.	.03	18,000.00	.025	15,000.00
129.	.017	12,325.00	.02	14,500.00
130.	.045	13,050.00	.05	14,500.00
131.	.02	520,000.00	.02	520,000.00
132.	.09	4,590.00	.10	5,100.00

Interior Construction Co. Pacific Constructors, Inc.

Item Number	Unit Price	Amount	Unit Price	Amount
133.	.023 \$	31,050.00	.02 \$	27,000.00
134.	.03	27,000.00	.025	22,500.00
135.	5.75	5,750.00	2.00	2,000.00
136.	.018	6,750.00	.025	9,375.00
137.	.016	33,760.00	.027	56,970.00
138.	.013	34,580.00	.027	71,820.00
139.	.023	42,780.00	.015	27,900.00
140.	.021	109,200.00	.027	140,400.00
141.	.009	167,400.00	.015	279,000.00
142.	.70	30,100.00	.50	21,500.00
143.	.10	43,000.00	.075	32,250.00
144.	.06	252,000.00	.06	252,000.00
145.	7.00	2,100.00	2.00	600.00
146.	25.00	175.00	10.00	70.00
147.	10.00	110.00	5.00	55.00
148.	.09	4,140.00	.10	4,600.00
149.	.30	3,000.00	.20	2,000.00
150.	.035	11,935.00	.05	17,050.00
151.	.045	19,665.00	.03	13,110.00
152.	.045	2,250.00	.05	2,500.00
153.	.12	1,080.00	.10	900.00
154.	.045	4,500.00	.06	6,000.00
155.	.045	2,700.00	.075	4,500.00

Abstract of Bids for Completion Grand Coulee Dam - Page 8

Interior Construction Co. Pacific Constructors, Inc.

Item Number	Unit Price	Amount	Unit Price	Amount
156.	.03	\$ 3,120.00	.03	\$ 3,120.00
157.	.45	450.00	.25	250.00
158.	.45	2,700.00	.25	1,500.00
159.	.09	135.00	.10	150.00
160.	.45	270.00	.50	300.00
161.	.55	385.00	.50	350.00
162.	.25	8,750.00	.10	3,500.00
163.	.45	1,350.00	1.00	3,000.00
164.	.45	1,125.00	1.00	2,500.00
165.	.12	16,320.00	.10	13,600.00
166.	.50	225.00	.25	112.50
167.	.30	2,700.00	.15	1,350.00
168.	.45	40,500.00	.20	18,000.00
169.	.50	22,000.00	.20	8,800.00
170.	.80	4,400.00	.20	1,100.00
171.	.45	450.00	.20	200.00
172.	.20	12,000.00	.10	6,000.00
173.	.25	25,000.00	.10	10,000.00
174.	.40	18,400.00	.10	4,600.00
175.	.12	9,960.00	.06	4,980.00
176.	115.00	103,500.00	100.00	90,000.00
177.	4.50	945.00	1.00	210.00
178.	1.15	10,350.00	.50	4,500.00

Abstract of Bids for Completion Grand Coulee Dam - Page 9

Interior Construction Co. Pacific Constructors, Inc.

Item Number	Unit Price	Amount	Unit Price	Amount
179.	4.50	\$ 36,000.00	.50	\$ 4,000.00
180.	55.00	17,050.00	25.00	7,750.00
181.	.30	1,500.00	.10	500.00
182.	70.00	7,000.00	10.00	1,000.00
183.	.30	600.00	.10	200.00
184.	4.00	<u>4,000.00</u>	.50	<u>500.00</u>
Sub-total -		34,942,240.00		42,685,802.50
185.		<u>500,000.00</u>		<u>500,000.00</u>
		34,442,240.00		42,185,802.50
Certified checks furnished		\$2,040,000.00		\$2,000,000.00

COMPLETION OF GRAND COULEE DAM, LEFT
POWERHOUSE, AND FOUNDATION FOR PUMPING PLANT
COLUMBIA BASIN PROJECT, WASHINGTON

Bids will be considered on the following schedule, but no bid will be considered for only a part of the schedule.

S C H E D U L E

Item : No. :	Work or material :	Quantity and price :	Amount
		<i>Interior Con. Co. Pacific Construction</i>	<i>Interior Const. Co.</i>
1	Diversion and care of River during construction and unwatering foundations	For the lump sum of ----- (words) -----dollars	\$ <u>727 000</u>
2	Dismantling and removing temporary suspension bridge and conveyor	For the lump sum of ----- (words) -----dollars	\$ <u>10 000</u>
3	Excavation, all classes, stripping sand and gravel deposits	475,000 cu. yds., at ----- (words) <u>.30</u> (\$ <u>.30</u>) per cu.yd.	<u>142 500</u>
4.	Excavation, common, for foundations of dam, powerhouse, and pumping plant.	10,000 cu. yds. at ----- (words) <u>1.50</u> (\$ <u>7.00</u>) per cu.yd.	<u>15 000</u>
5.	Excavation, rock, for foundations of dam, powerhouse, and pumping plant	210,000 cubic yds. at ----- (words) <u>3.75</u> (\$ <u>7.00</u>) per cu.yd.	<u>787 500</u>
6.	Trimming rock foundations excavated by previous contractors	11,000 cu. yds. at ----- (words) <u>6.00</u> (\$ <u>10.00</u>) per cu.yd.	<u>66 000</u>
7.	Excavation, all classes, in open cut for tunnels	800 cu.yds. at ----- (words) <u>6.00</u> (\$ <u>7.00</u>) per cu yd.	<u>4 800</u>
8.	Excavation, all classes in pumping plant drainage tunnel	900 cu.yds at ----- (words) <u>25.00</u> (\$ <u>20.00</u>) per cu yd.	<u>22 500</u>
9.	Excavation, all classes in tunnels for pumping plant discharge pipes	5,000 cu.yds.at ----- (words) <u>10.00</u> (\$ <u>20.00</u>) per cu yd.	<u>50 000</u>
10.	Excavation, all classes in other tunnels and in elevator shafts	5,000 cu. yds. at ----- (words) <u>19.00</u> (\$ <u>30.00</u>) per cu yd.	<u>95 000</u>
11.	Excavation, common, for roads and railroad.	1,500 cu.yds.at ----- (words) <u>1.50</u> (\$ <u>3.00</u>) per cu.yd.	<u>2 250</u>
12.	Excavation, rock, for roads and railroad	118,000 cu.yds.at ----- (words) <u>2.00</u> (\$ <u>3.50</u>) per cu.yd.	<u>236 000</u>
13.	Excavation of silt and debris from structures	3,000 cu.yds.at ----- (words) <u>2.75</u> (\$ <u>6.00</u>) per cu.yd.	<u>8 250</u>

Item : No. :	Work or material :	Quantity and price :	Amount :
14.	Excavation of concrete	300 cu. yds. at ----- (words) <u>45.00</u> ----- (\$ <u>7.50</u>) per cu.yd.	\$ <u>13 500</u>
15.	Chipping and roughening existing concrete	18,000 sq.ft. at ----- (words) <u>.70</u> ----- (\$ <u>.30</u>) per sq.ft.	<u>12 600</u>
16.	Backfill	1,000 cu.yds. at ----- (words) <u>.75</u> ----- (\$ <u>.50</u>) per cu.yd.	<u>750</u>
17.	Compacted fill	18,000 cu.yds.at ----- (words) <u>1.15</u> ----- (\$ <u>1.00</u>) per cu.yd.	<u>20 700</u>
18.	Riprap	3,000 cu.yds.at ----- (words) <u>3.00</u> ----- (\$ <u>1.50</u>) per cu.yd.	<u>9 000</u>
19.	Rubble masonry walls	600 cu. yds.at ----- (words) <u>14.00</u> ----- (\$ <u>20.00</u>) per cu.yd	<u>8 400</u>
20.	Grouted paving	1,500 sq.yds.at ----- (words) <u>2.85</u> ----- (\$ <u>2.00</u>) per sq.yd.	<u>4 275</u>
21.	Placing 18-inch corru- gated metal pipe culverts	400 lin. ft. at ----- (words) <u>1.75</u> ----- (\$ <u>1.00</u>) per lin.ft	<u>700</u>
22.	Placing water-bound macadam base course	6,000 cu.yds.at ----- (words) <u>3.00</u> ----- (\$ <u>1.50</u>) per cu.yd.	<u>18 000</u>
23.	Crushed rock for wear- ing course, in place	3,200 cu.yds.at ----- (words) <u>3.30</u> ----- (\$ <u>1.50</u>) per cu.yd.	<u>10 560</u>
24.	Hauling and spreading road oil	77,000 gals. at ----- (words) <u>.05</u> ----- (\$ <u>.10</u>) per gal.	<u>3 850</u>
25.	Mixing, compacting, and finishing oil-treated wearing course	24,000 sq.yds. at ----- (words) <u>.40</u> ----- (\$ <u>.15</u>) per sq.yd.	<u>9 600</u>
26.	Constructing guardrails	4,500 lin. ft.at ----- (words) <u>.60</u> ----- (\$ <u>2.00</u>) per lin.ft.	<u>2 700</u>
27.	Laying ties and rails	750 track-ft, at ----- (words) <u>1.70</u> ----- (\$ <u>1.00</u>) per tr.ft.	<u>1 275</u>
28.	Applying rail anchors	850 anchors at ----- (words) <u>.20</u> ----- (\$ <u>.50</u>) per anchor	<u>170</u>
29.	Ballasting railroad track	600 cu.yds.at ----- (words) <u>3.00</u> ----- (\$ <u>1.50</u>) per cu.yd.	<u>1 800</u>
30.	Drilling (B) grout holes not more than 30 feet deep	15,000 lin.ft. at ----- (words) <u>1.90</u> ----- (\$ <u>2.00</u>) per lin.ft.	<u>28 500</u>
31.	Drilling "B" grout holes more than 30 feet deep and not more than 50 feet deep	4,000 lin ft, at ----- (Words) <u>1.90</u> ----- (\$ <u>2.25</u>) per lin.ft.	<u>7 600</u>

Item No.	Work or material	Quantity and price	Amount
32.	Drilling "C" grout holes more than 30 feet deep and not more than 75 feet deep	3,000 lin.ft.at----- (words) <u>1.90</u> -----(\$ <u>2.30</u>) per lin.ft	\$----- <u>5700</u>
33.	Drilling "C" grout holes more than 75 feet deep and not more than 125 feet deep	9,000 lin.ft.at----- (words) <u>1.90</u> -----(\$ <u>2.75</u>) per lin.ft	----- <u>17100</u>
34.	Drilling "A" grout holes not more than 50 feet deep	11,000 lin.ft. at----- (words) <u>2.05</u> -----(\$ <u>2.00</u>) per lin.ft	----- <u>22550</u>
35.	Drilling "A" grout holes more than 50 feet deep and not more than 100 feet deep	11,000 lin.ft.at----- (words) <u>2.05</u> -----(\$ <u>2.25</u>) per lin.ft	----- <u>22550</u>
36.	Drilling "A" grout holes more than 100 feet deep and not more than 150 feet deep	34,000 lin.ft.at----- (words) <u>2.75</u> -----(\$ <u>2.50</u>) per lin.ft	----- <u>93500</u>
37.	Drilling "A" grout holes more than 150 feet deep and not more than 200 feet deep	42,000 lin.ft.at----- (words) <u>3.00</u> -----(\$ <u>4.00</u>) per lin.ft	----- <u>126000</u>
38.	Drilling "A" grout holes more than 200 feet deep and not more than 500 feet deep	4,000 lin.ft. at----- (words) <u>4.00</u> -----(\$ <u>5.00</u>) per lin.ft	----- <u>16000</u>
39.	Drilling drainage holes not more than 25 feet deep	3,000 lin.ft.at----- (words) <u>3.15</u> -----(\$ <u>2.25</u>) per lin.ft.	----- <u>9450</u>
40.	Drilling drainage holes more than 25 feet deep and not more than 50 feet deep	40,000 lin.ft.at----- (Words) <u>3.50</u> -----(\$ <u>2.50</u>) per lin.ft	----- <u>140000</u>
41.	Drilling drainage holes more than 50 feet deep and not more than 75 feet deep	1,000 lin.ft.at----- (words) <u>4.00</u> -----(\$ <u>2.75</u>) per lin.ft	----- <u>4000</u>
42.	Drilling drainage holes more than 75 feet deep and not more than 100 feet deep	2,000 lin.ft.at----- (words) <u>4.50</u> -----(\$ <u>3.00</u>) per lin.ft	----- <u>9000</u>
43.	Drilling drainage holes more than 100 feet deep and not more than 150 feet deep	1,000 lin.ft.at----- (words) <u>5.50</u> -----(\$ <u>3.50</u>) per lin.ft.	----- <u>5500</u>
44.	Drilling drainage holes more than 150 feet deep and not more than 200 feet deep	7,000 lin.ft.at----- (words) <u>6.00</u> -----(\$ <u>4.00</u>) per lin.ft	----- <u>42000</u>
45.	Drilling weep holes	300 lin.ft.at----- (words) <u>1.75</u> -----(\$ <u>1.00</u>) per lin.ft	----- <u>525</u>
46.	Drilling holes for anchor bars and grouting bars in place	600 lin.ft.at----- (words) <u>2.30</u> -----(\$ <u>1.00</u>) per lin.ft	----- <u>1380</u>
47.	Pressure grouting found- ations and tunnels	170,000 cu.ft.at----- (words) <u>1.40</u> -----(\$ <u>1.50</u>) per cu.ft	----- <u>238000</u>

Item : no. :	Work or material	Quantity and price	Amount
48.	Filling pipe or tubing less than 8 inches in diameter by grouting methods	20,000 cu.ft.at----- (words) 1.85-----(\$1.00)per cu.ft	37 000
49.	Manufacturing and placing porous concrete drain tile	131,000 lin.ft.at----- (words) 1.15-----(\$1.00)per lin.ft	150 650
50.	Constructing 6-inch diameter sewer pipe drains	800 lin.ft.at----- (words) 1.15-----(\$1.00)per lin.ft	920
51.	Concrete in dam	5,500,000 cu.yds.at----- (words) 3.53-----(\$5.42)per cu.yd.	19 415 000
52.	Concrete in spillway training walls	3,700 cu.yds.at----- (words) 11.50-----(\$12.00)per cu.yds	42 550
53.	Concrete in trash-rack structures	51,000 cu.yds at----- (words) 25.00-----(\$25.00)per cu.yds	1 275 000
54.	Concrete in cantilevers of twist adjustment slots	3,600 cu.yds.at----- (words) 18.50-----(\$20.00)per cu.yd.	66 600
55.	Concrete lining in tunnels, adits and shafts	2,100 cu.yds.at----- (words) 35.00-----(\$22.00)per cu.yd	73 500
56.	Concrete in control cable gallery extension	240 cu.yds.at----- (words) 30.00-----(\$22.00)per cu.yd	7 200
57.	Concrete in spillway crest and piers	85,000 cu.yds.at----- (words) 15.00-----(\$10.00)per cu.yd	1 275 000
58.	Concrete in sidewalks and parapets on dam	2,300 cu.yds.at----- (words) 30.00-----(\$20.00)per cu.yd.	69 900
59.	Concrete in elevator towers and gallery entrance	4,100 cu.yds.at----- (words) 30.00-----(\$33.00)per cu.yd.	123 000
60.	Concrete in bridges	7,400 cu.yds.at----- (words) 45.00-----(\$26.00)per cu.yd	333 000
61.	Concrete in powerhouse substructure	37,000 cu.yds at----- (words) 15.00-----(\$12.00)per cu.yd	555 000
62.	Concrete in powerhouse intermediate structure	37,000 cu.yds.at----- (words) 24.00-----(\$12.00)per cu.yd.	888 000
63.	Concrete in powerhouse superstructure	30,000 cu.yds.at----- (words) 38.00-----(\$20.00)per cu.yd.	1 140 000
64.	Second-stage concrete in powerhouse	12,000 cu.yds.at----- (words) 19.00-----(\$10.00)per cu.yd.	228 000
65.	Concrete in road structures and paving for gantrycrane pit	900 cu.yds.at----- (words) 35.00-----(\$30.00)per cu.yd.	31 500

Item No	Work or material	Quantity and price	Amount
66	Concrete in bulkheads	40 cu.yds.at----- 35.00 (words) -----(\$30.00)per cu.yd.	\$ 1400
67.	Concrete backfill in shafts, galleries, gutters, and bulkhead recesses	900 cu.yds.at----- 15.00 (words) -----(\$10.00)per cu.yd.	13 500
68.	Concrete backfill in grout ring blockouts about outlet conduits	220 cu.yds.at----- 75.00 (words) -----(\$20.00)per cu.yd.	16 500
69.	Concrete backfill around penstock pipes	41,000 cu.yds.at----- 7.00 (words) -----(\$10.00)per cu.yd.	287 000
70.	Concrete backfill in pipes 8 inches nominal diameter and larger	600 cu.ft.at----- 2.25 (words) -----(\$1.00)per cu.ft.	1 350
71.	Concrete backfill in twist adjustment slots	28,000 cu.yds.at----- 8.00 (words) -----(\$8.00)per cu.yds	224 000
72.	Furnishing and installing steel tunnel-liner plates	125,000 pounds,at----- .09 (words) -----(\$0.06)per pound	11 250
73.	Placing reinforcement bars and fabric	50,000,000 pounds,at----- .023 (words) -----(\$0.17)per pound	1,150 000
74.	Special finishing of concrete surfaces	35,000 sq.yds.at----- .90 (words) -----(\$1.00)per sq.yd	31 500
75.	Finishing lighting recesses	2,200 recesses at----- 5.75 (words) -----(\$2.00)per recess	12 650
76.	Concrete cover around reinforcement-bar dowels	40 cu.yds,at----- 28.00 (words) -----(\$30.00)per cu.yd.	1 120
77.	Insulating reinforcement bars and conduit	250,000 intersections,at----- .06 (words) -----(\$0.15)per in'ter	15 000
78.	Welding reinforcement bars	7,100 welds,at----- .85 (words) -----(\$1.50)per weld	6 035
79.	Removing protective covering from reinforcement bars	59,000 lin.ft.at----- .30 (words) -----(\$0.30)per lin.ft.	17 700
80.	Painting reinforcement bar dowels	23,000 lin.ft.at----- .20 (words) -----(\$0.10)per lin.ft.	4 600
81.	Splicing broken reinforcement bars	700 splices, at----- 4.00 (words) -----(\$5.00)per splice	2 800
82.	Testing reinforcement-bar dowels and welded splices	500 tests, at----- 9.00 (words) -----(\$5.00)per test	4 500
83.	Removing concrete bulk heads in unwatering and pipe galleries	8 bulkheads,at----- 100.00 (words) -----(\$100.00)per bulkhd	800
84.	Removing precast concrete bulkheads covering 30-inch diameter man-holes in the unwatering galleries	9 bulkheads, at----- 25.00 (words) -----(\$10.00)per bulkhd	225

Item No.	Work or Material	Quantity and price	Amount
85.	Cutting, bending or removing existing temporary metal sealing strips	4,000 lin.ft.at----- (words) .70-----(\$1.00)per lin.ft.	\$-----2800
86.	Repairing and completing installation of existing metal sealing strips	4,000 lin.ft.at----- (words) 1.40-----(\$1.00)per lin.ft.	5600
87.	Installing metal sealing strips in contraction and expansion joints	425,000 lin.ft.at----- (words) .60-----(\$.68)per lin.ft.	255 000
88.	Installing metal sealing strips in construction joints in powerhouse	8,000 lin.ft. at----- (words) 1.15-----(\$.75)per lin.ft.	9200
89.	Installing contraction joint grout tubing and fittings	1,400,000 pounds, at----- (words) .17-----(\$.06)per pound	238 000
90.	Installing metal tubing and fittings for concrete cooling system	4,700,000 pounds, at----- (words) .09-----(\$.06)per pound	423 000
91.	Dismantling cooling headers and fittings	1,250,000 pounds, at----- (words) .09-----(\$.02)per pound	112 500
92.	Installing cooling headers and fittings	750,000 pounds, at----- (words) .09-----\$.05)per pound	67 500
93.	Installing cover plates on grout grooves	137,000 lin.ft., at----- (words) .60-----(\$.26)per lin.ft.	82 200
94.	Installing expansion-joint filler	147,000 sq.ft. at----- (words) .25-----(\$.15)per sq.ft.	36 750
95.	Placing joint filler in twist adjustment slots	11,000 sq.ft. at----- (words) .25-----(\$.15)per sq.ft.	2750
96.	Removing joint filler from twist adjustments slots	10,000 sq.ft. at----- (words) .45-----(\$2.00)per sq.ft.	4500
97.	Installing timber support in twist adjustment slots	2,000 lin.ft. at----- (words) 1.75-----(\$2.00)per lin.ft.	3 500
98.	Placing sand fill in twist adjustment slots	25,000 cu.yds. at----- (words) 1.25-----(\$1.50)per cu.yd.	31 250
99.	Removing sand, gravel tile, timber, and canvas sealing strips from twist adjustment slots	28,000 cu.yds. at----- (words) 3.50-----(\$2.00)per cu.yd.	98 000
100.	Placing and relquefying asphalt seals	6,000 lin.ft. at----- (words) 2.00-----(\$2.50)per lin.ft.	12 000
101.	Installing bituminous-saturated felt roofing, complete with flashing	59,000 sq.ft. at----- (words) .30-----\$.08)per sq.ft.	17 700
102.	Installing bituminous mastic on roofs	59,000 sq.ft. at----- (words) .20-----\$.10)persq.ft.	11 800

Item No	Work or material	Quantity and price	Amount
103.	Placing 2-inch cork insulation on roofs	9,000 sq.ft.at ----- 1.25 (words) ----- (\$1.10) per sq.ft.	2 250
104.	Lightweight concrete in floors	600 cu.yds.at ----- 20.00 (words) ----- (\$20.00) per cu.yd.	12 000
105.	Placing bonded-concrete floor finish	30,000 sq.yds.at ----- 4.50 (words) ----- (\$1.50) per sq.yd.	135 000
106.	Placing cement wall base	6,000 lin.ft.at ----- .90 (words) ----- (\$.50) per lin.ft.	5 400
107.	Manufacturing and placing precast terrazzo floor slabs, 3 inches thick	500 sq.ft at ----- 2.50 (words) ----- (\$1.00) per sq.ft.	1 250
108.	Installing terrazzo treads, risers, and wall base for stairs	600 lin.ft.at ----- 2.75 (words) ----- (\$1.50) per lin.ft.	1 650
109.	Installing bonded-terrazzo floors and landings 1 1/2 inches thick	8,000 sq.ft.at ----- 2.25 (words) ----- (\$.50) per sq.ft.	18 000
110.	Installing unbonded terrazzo floors and landings 3 inches thick	5,000 sq.ft.at ----- 2.25 (words) ----- (\$.60) per sq.ft.	11 250
111.	Installing terrazzo-cove wall base	1,500 lin.ft.at ----- 1.75 (words) ----- (\$1.50) per lin.ft.	2 625
112.	Applying liquid floor hardener	30,000 sq.yds. at ----- .15 (words) ----- (\$.05) per sq.yd.	5 400
113.	Installing glass block panels	8,000 sq.ft.at ----- 1.15 (words) ----- (\$.50) per sq.ft.	9 200
114.	Manufacturing and placing precast reinforced concrete framing members for glass block panels	120 cu.yds.at ----- 70.00 (words) ----- (\$5.82) per cu.yd.	8 400
115.	Installing structural glass partitions	500 sq.ft.at ----- 1.15 (words) ----- (\$1.00) per sq.ft.	575
116.	Installing structural glass wainscot, including base	11,000 sq.ft.at ----- 1.15 (words) ----- (\$.50) per sq.ft.	12 650
117.	Constructing suspended ceilings	1,100 sq.yds.at ----- 2.85 (words) ----- (\$1.00) per sq.yd.	3 135
118.	Hollow walls of metal lath and plaster	60 sq.yds.at ----- 4.50 (words) ----- (\$5.00) per sq.yd.	270
119.	Plaster on concrete walls and ceilings	1,500 sq.yds.at ----- 2.20 (words) ----- (\$1.00) per sq.yd.	3 300
120.	Installing terra-cotta units	500 sq.yds.at ----- 5.75 (words) ----- (\$1.50) per sq.yd.	2 875

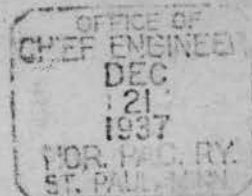
Item No	Work or material	Quantity and price	Amount
139.	Installing track rails	1,860,000 pounds, at ----- (words) .023 ----- (\$.015) per pound	\$ 42 780
140.	Installing trash-rack guides and supports	5,200,000 pounds, at ----- (words) .021 ----- (\$.027) per pound	109 200
141.	Installing trash-rack sections	18,600,000 pounds, at ----- (words) .009 ----- (\$.015) per pound	167 400
142.	Cleaning and painting interior surfaces of penstocks	43,000 sq. yds. at ----- (words) .70 ----- (\$.50) per sq. yd	30 100
143.	Installing metal tubing brass, steel and cast-iron pipe, fittings, and valves less than 6 inches nominal diameter	430,000 pounds, at ----- (words) .10 ----- (\$.075) per pound	43 000
144.	Installing metal tubing brass, steel and cast-iron pipe, fittings, and valves 6 inches and greater, nominal diameter	4,200,000 pounds, at ----- (words) .06 ----- (\$.06) per pound	252 000
145.	Removing leaded-in cast-iron plugs	300 plugs, at ----- (words) 7.00 ----- (\$ 2.00) per plug	2 100
146.	Removing grouted-in cast-iron bulkheads	7 Bulkheads, at ----- (words) 25.00 ----- (\$ 10.00) per bulkhd	175-
147.	Removing grouted-in concrete and wooden pipe covers	11 covers, at ----- (words) 10.00 ----- (\$ 5.00) per cover	110
148.	Installing steel or iron pipe handrails	46,000 pounds, at ----- (words) .09 ----- (\$.10) per pound	4 140
149.	Installing aluminum pipe handrails and curbs	10,000 pounds, at ----- (words) .30 ----- (\$.20) per pound	3 000
150.	Installing metal stairways	341,000 pounds, at ----- (words) .035 ----- (\$.05) per pound	11 935-
151.	Installing metal frames gratings, platforms and covers for floor openings	437,000 pounds, at ----- (words) .045 ----- (\$.03) per pound	19 665-
152.	Installing metal drain inlets	50,000 pounds, at ----- (words) .045 ----- (\$.05) per pound	2 250
153.	Installing metal protectors for concrete edges	9,000 pounds, at ----- (words) .12 ----- (\$.10) per pound	1 080
154.	Installing metal bearing-plate assemblies	100,000 pounds, at ----- (words) .045 ----- (\$.06) per pound	4 500
155.	Installing drainage and sump pumps and accessories for drainage, sewage disposal, and draft-tube unwatering purposes.	50,000 pounds, at ----- (words) .045 ----- (\$.075) per pound	2 700

Item No.	Work or material	Quantity and price	Amount
183.	Transporting freight of all kinds on the construction railroad for the Government or its agents, other than the contractor, in less than carlots between delivery yard and siding at Government warehouse	2,000 cwt. at----- (words) ----- .30-----(\$.10) per cwt.	----- 600
184.	Transporting freight of all kinds for the Government or its agents, other than the contractor between Government siding at head of Grand Coulee and powerhouse	1,000 tons at----- (words) ----- 4.00-----(\$.50) per ton	----- 4 000
185.	Purchase of camp and construction facilities from the Government by the contractor.	<u>SUBTOTAL</u> For the lump sum of five hundred thousand dollars NET TOTAL FOR SCHEDULE	\$ 34 942 240 \$500,000.00 500 000 \$----- 34 442 240

NOTED BY
R. W. C. ✓
J. P. D. ✓
J. C. S. ✓
C. J. M. ✓



8731



Spokane, Washington
December 18, 1937

NOTED
H. E. S. ✓
D. M. D. ✓
T. K. Y. ✓
E. L. L. ✓
R. D. V. ✓

Mr. Bernard Blum:

Coulee Dam

Herewith rather interesting clipping from the Spokesman-Review of December 18 telling of the changes taking place in the personnel of the contractors' force to handle the completion of the high dam.

[Handwritten signature]

District Engineer

HMT-k
encl

[Handwritten notes and signatures]
Mr. Stevens
Mr. Clark
note
12/21 B.B.

VICE PRESIDENT
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Spokesman Review
Dec. 18 1937

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MWAK HEADS OUT AT COULEE DAM

Interior Construction Chiefs
to Be in Charge—Follow
Boulder Policy.

All officers and executive personnel of the MWAK company will relinquish their duties in connection with the further construction of Grand Coulee dam as soon as the bid of the Interior Construction company is formally approved by the reclamation bureau.

On the eve of his departure for Seattle last night it was disclosed that Edgar F. Kaiser, recently in charge of construction at Bonneville, will be the general manager at Grand Coulee. He is the son of Henry J. Kaiser, president of the Interior Construction company.

Other MWAK Men to Leave.

Tom Walsh, president of MWAK and chairman of the board for the Interior Construction company; Guy F. Atkinson, vice president; Colonel M. J. Whitson, vice president; W. E. Kier, vice president; Sam Mason II., treasurer, and George Atkinson, general manager, all will leave by the first of the year, it was officially revealed last night.

This does not mean that the MWAK company is disposing of its interests in the Interior Construction company, with which it merged when submitting the recent low bid of \$34,442,240.

MWAK Retains Interests.

"Whatever interest we hold individually in the new company will be retained," it was explained by one of the MWAK officials, who declined to be quoted by name. "But it is felt that in the interest of good organization, authority and responsibility should be concentrated in one place. In no sense is the MWAK company selling out, but Edgar Kaiser will be in charge under the new contract."

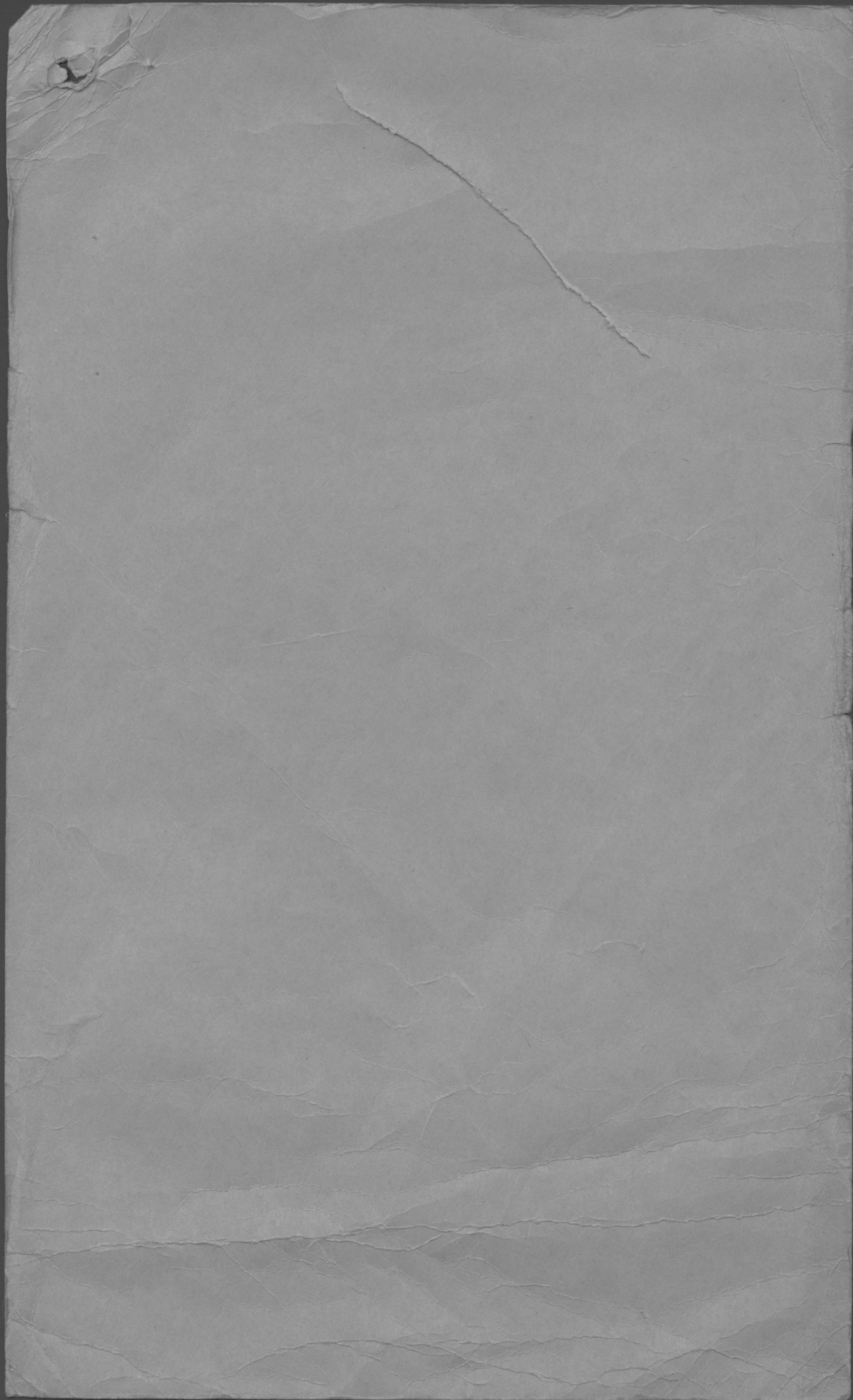
It was explained that the Coulee Trading company, operating the big general store and other activities in Mason City, will be liquidated, and the operation of these functions carried on by the new executives. It is expected that J. F. Reis will be in charge of these enterprises, including the residential section and dormitory buildings. The new general superintendent will be C. P. Bedford, whose assistant will be H. P. Davis. Most of the new executives will come to Grand Coulee direct from Bonneville.

Merger Was Matter of Expediency.

That some of the MWAK executives joined with the Interior Construction company reluctantly in submitting a bid for the completion of the dam, which was almost \$8,000,000 under the only other tender, is generally understood. The merger of the two interests was only effected at the last minute, and as a matter of expediency, according to inside information.

The companies composing the Interior Construction company before its merger with MWAK were formerly identified with the Six Companies, builders of Boulder dam. It is anticipated that the policies and methods employed at Boulder dam and at Bonneville will be incorporated into the new set-up at Grand Coulee.

Mr. Kaiser, Colonel Whitson, and other executives of the new contracting firm, were in conference in Spokane yesterday. Most of the officials were on their way to spend the holidays at their respective homes.



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