DWORSHAK DAM

"BRUCES EDDY"

NORTH FORK CLEARWATER RIVER, IDAHO

U. S. ARMY ENGINEER DISTRICT, WALLA WALLA

CORPS OF ENGINEERS

Access Road Plans

LOG DECKING SITE DOWNSTREAM FROM DENT

FULL USE WILL BE MADE OF EXISTING COUNTY ROADS IN PROVIDING SUITABLE APPROACHES TO THE DWORSHAK RESERVOIR, THROUGH CONSTRUCTION OF BRIDGES AND NEW INTERSECTING ROUTES. THE PRESENT ACCESS ROAD LEADING UPSTREAM FROM AHSAHKA WILL BE UTILIZED TO PROVIDE ACCESS TO A RECREATION AREA JUST ABOVE DWORSHAK, TO BE KNOWN AS THE BIG EDDY SITE.

THE ACCESS REPLACEMENT ROAD TO CLEARVIEW AND ADJOINING RECREATIONAL AREAS, INCLUDING DENT, WILL BE THROUGH USE OF EXISTING COUNTY ROAD LEADING NORTH FROM OROFINO AND CROSSING THE RESERVOIR JUST SOUTH OF DENT. THIS BRIDGE CROSSING WILL BE A 1,980-FOOT SPAN SOME 500 FEET HIGH, AND WILL CONNECT ON THE NORTH SHORE WITH THE PRESENT EXISTING COUNTY ROAD LEADING NORTH TO ELK RIVER.

THE RESERVOIR BRIDGE AT DENT WILL BE A $5.6 MILLION STRUCTURE. THE BRIDGE WILL PROVIDE THE SHORTEST POSSIBLE ROUTE TO ELK RIVER, AND WILL TIE THE TIMBER RESOURCES OF THE COUNTY TOGETHER.

TENTATIVE PLANS ARE FOR ANOTHER RESERVOIR BRIDGE CROSSING UPSTREAM, JUST BELOW THE BRANCH OF THE LITTLE NORTH FORK OF THE CLEARWATER. THIS CROSSING WOULD BE ACCESSIBLE FROM OROFINO VIA HEADQUARTERS, AND WOULD CONNECT WITH THE PRESENT COUNTY ROAD LEADING WEST TO ELK RIVER.

Construction Facts

DWORSHAK DAM WILL BE A STRAIGHT GRAVITY DAM, 693 FEET IN HEIGHT FROM BEDROCK BASE TO CREST, WITH A CREST LENGTH OF 3,300 FEET. THE DAM BASE WIDTH WILL BE 525 FEET, WITH A CREST DECK WIDTH OF 30 FEET, PROVIDING TWO TRAFFIC LANES ACROSS THE DAM.

THE SPILLWAY AND OUTLET WORKS, WHICH WILL RELEASE THE WATER FROM THE RESERVOIR BEHIND THE DAM, WILL BE EMBEDDED IN THE DAM STRUCTURE. CONTROL WILL BE BY 9-FOOT BY 12.5-FOOT TAINTER VALVES. APPROXIMATELY 7 MILLION CUBIC YARDS OF CONCRETE WILL BE REQUIRED TO COMPLETE THE DWORSHAK PROJECT. A ROCK QUARRY WILL BE ESTABLISHED NEAR THE DAMSITE AND THE AGGREGATE NECESSARY TO THE STRUCTURE WILL BE SECURED BY THE CRUSHING OF QUARRY ROCK.

DURING THE PROCESS OF SETTING AND HARDENING OF THE CEMENT MIX INTO CONCRETE, A CHEMICAL ACTION OCCURS WHICH PRODUCES CONSIDERABLE HEATING. TO ASSURE REGULATION OF TEMPERATURE IN ALL CONCRETE STAGES, MILES OF 1-INCH PIPE WILL BE EMBEDDED IN THE DAM TO SUPPLY THE COOLING WATER NECESSARY DURING THE CURING STAGE.

WORK AREA AT DWORSHAK TUNNEL

Fish Facilities

CONFLUENCE OF CLEARWATER AND N. FORK CLEARWATER

THE NORTH FORK OF THE CLEARWATER RIVER SUPPORTS A SIZEABLE RUN OF STEELHEAD TROUT. FEW CHINOOK SALMON INHABIT THE WATERSHED. THESE RUNS WILL BE MAINTAINED DURING THE CONSTRUCTION PERIOD BY TEMPORARY PASSAGE FACILITIES THAT WILL PERMIT ADULT FISH TO UTILIZE THEIR NATURAL SPAWNING AREAS. FOR APPROXIMATELY 6 MONTHS OF EACH YEAR, DURING LOW RIVER FLOWS THESE FISH WILL SWIM THROUGH THE DIVERSION TUNNEL. DURING HIGHER FLOW PERIODS, THE FISH WILL BE TRAPPED AT THE MOUTH OF THE DIVERSION TUNNEL AND TRUCKED AROUND THE CONSTRUCTION AREA. JUVENILE, SEAWARD MIGRANT FISH WILL PASS THROUGH THE DIVERSION TUNNEL.

A LARGE ARTIFICIAL PROPAGATION STATION LOCATED SEVERAL MILES DOWNSTREAM FROM THE PROJECT IS PRESENTLY PLANNED AS A PERMANENT METHOD OF MAINTAINING NORTH FORK STEELHEAD POPULATIONS. TRANSFER OF THE STEELHEAD RUN TO THIS HATCHERY WILL BE CLOSELY TIMED WITH RESERVOIR FILLING AND FLOODING OF NATURAL SPAWNING AREAS.

Logging Operations

WITH COMPLETION OF DWORSHAK DAM, THE 53-MILE-LONG RESERVOIR WILL BE USED TO TRANSPORT DOWNSTREAM, LOG BOOMS FROM THE TIMBER OPERATIONS FURTHER UP RIVER. A LOG-HANDLING RAMP WITH UNLOADING FACILITIES TO BE SERVICED BY AN 800-FOOT BY 300-FOOT DECKING AREA NEAR THE SOUTH SHORE OF THE DAM FOREBAY, IS BEING PLANNED.

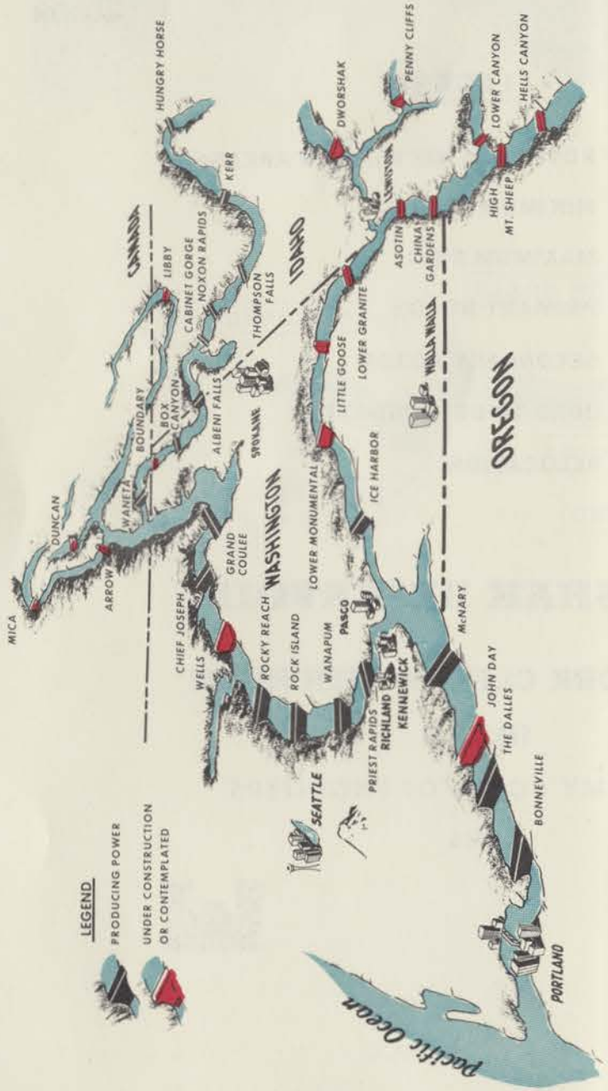
LOGS WILL BE HANDLED THROUGH THE USE OF A RAIL RAMP CAR WHICH WILL DESCEND DEEP INTO THE POOL WATER. THE RAIL RAMP CAR, OPERATING BY CABLE, ON BEING PULLED UP THE RAMP WILL PICK UP THE BOUND BUNDLES OF LOGS FLOATING DOWN-RESERVOIR, AND LIFT THEM OUT OF THE WATER TO HIGHER GROUND AT THE DECK AREA. HERE IT WILL BE POSSIBLE FOR VARIOUS OPERATORS TO IDENTIFY THEIR LOGS.

THE LOG BUNDLES WILL THEN BE LOADED UPON HIGHWAY TRUCKS TO BE MOVED TO DOWNSTREAM MILLS OR TRANSPORTED TO OTHER AVAILABLE MILL SITES. THE RAIL RAMP CAR FACILITIES WILL OPERATE ABOUT 10 MONTHS OUT OF THE YEAR AND, IF NEEDED, ON A DOUBLE-SHIFT BASIS.

TIMBER CLEARING GETS UNDERWAY NEAR DAM SITE

Schematic Map

THIS MAP SHOWS THE SERIES OF COLUMBIA BASIN MULTI-PURPOSE PROJECTS, INCLUDING THE THREE CANADIAN TREATY STORAGE DAMS.



Operational Plan

ARTIST'S CONCEPTION OF DWORSHAK DAM

DWORSHAK DAM AND RESERVOIR REPRESENTS A MOST IMPORTANT UNIT IN THE CORPS OF ENGINEERS' COMPREHENSIVE PROGRAM FOR THE FULL DEVELOPMENT OF THE WATER RESOURCES OF THE COLUMBIA-SNAKE RIVER DRAINAGE AREA. THE NORTH FORK OF THE CLEARWATER IS A MAJOR FLOOD PRODUCING STREAM. THE DWORSHAK PROJECT WILL SERVE TO REGULATE THE CLEARWATER RIVER FLOW FROM AHSAHKA TO ITS CONFLUENCE WITH THE SNAKE AT LEWISTON.

DWORSHAK RESERVOIR WILL HAVE A MAXIMUM POOL ELEVATION OF 1,600 FEET ABOVE SEA LEVEL AND A MINIMUM OF 1,445 FEET. THE DWORSHAK RESERVOIR, AT MAXIMUM POOL, WILL EXTEND 53 MILES UPSTREAM AND COVER AN AREA OF 17,000 ACRES. THE WATER STORAGE CAPACITY OF THE RESERVOIR WILL BE 3,500,000 ACRE-FEET OF WHICH 2 MILLION ACRE-FEET WILL BE USABLE FOR FLOOD CONTROL AND POWER PURPOSES. THIS 2 MILLION ACRE-FEET OF USABLE RESERVOIR WATER WILL NECESSITATE SEASONAL DRAWDOWN OF 155 FEET FROM MAXIMUM TO MINIMUM POOL LEVEL.

IN ITS OPERATIONAL PLAN, THE DRAWDOWN OF THE DWORSHAK RESERVOIR FROM MAXIMUM TO MINIMUM ELEVATION WILL BE DURING THE LATE FALL AND WINTER SEASON WHEN DOWNSTREAM RIVER FLOWS ARE AT A MINIMUM. DURING THE SPRING AND SUMMER RECREATIONAL SEASON, THE RESERVOIR LEVELS WILL BE REPLENISHED AND, AS FAR AS POSSIBLE, HELD TO NEAR THE MAXIMUM LEVELS.

Project Statistics

GENERAL

Drainage area (square miles)	2,440
Annual runoff, minimum (acre-feet)	2,157,000
Annual runoff, mean (acre-feet)	4,082,000
Annual runoff, maximum (acre-feet)	6,680,000
River flow, minimum (c.f.s.)	250
River flow, mean (c.f.s.)	5,638
River flow, maximum (c.f.s.)	100,000

RESERVOIR

Normal pool elevation (m.s.l.)	1,600
Minimum pool elevation (m.s.l.)	1,445
Gross Capacity (acre-feet)	3,453,000
Usable capacity (acre-feet)	2,000,000
Length of reservoir (miles)	53
Shore line (miles)	183
Pool area at elevation 1,600 (m.s.l.) (acres)	17,000
Pool area at elevation 1,445 (m.s.l.) (acres)	9,000

DAM

Height of dam, foundation to crest (feet)	693
Length of crest (feet)	3,300
Power Generation	
3 Initial units, KW	400,000
6 Ultimate units, KW	1,060,000
Concrete, approximate (cubic yards)	6,000,000
Construction time (years)	7
Power-on-line, estimate	1972
Cost, approximate	$210 Million

DWORSHAK DAM

"BRUCES EDDY"

NORTH FORK CLEARWATER RIVER, IDAHO

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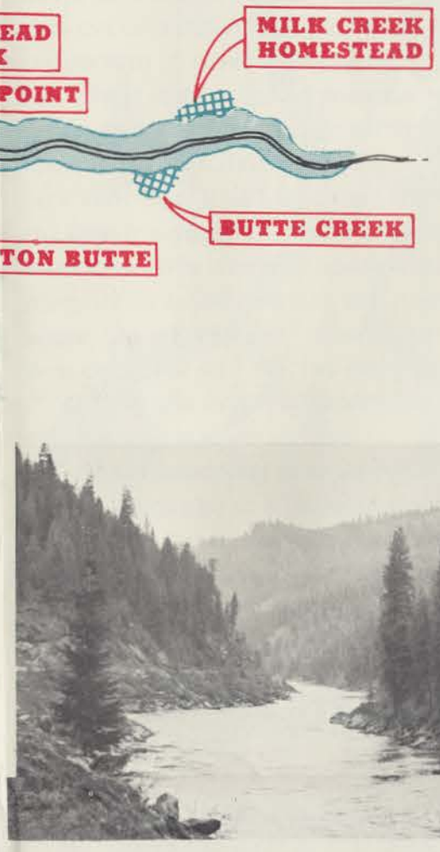
HEAVILY TIMBERED SLOPES OF THE NORTH FORK CLEARWATER RIVER, IDAHO

VICINITY MAP

SCALE IN MILES
50 0 50 100

ABANDONED LOGGING CAMP NEAR BIG BEND CORNER



NORTH FORK CLEARWATER DOWNSTREAM FROM DENT

LEGEND

- POTENTIAL RECREATION AREAS
- MINIMUM POOL
- MAXIMUM POOL
- PRIMARY ROADS
- SECONDARY ROADS
- ROAD TO BE INUNDATED
- RELOCATION

OLD HOMESTEAD AT FOOT OF DENT GRADE

DWORSHAK RESERVOIR

NORTH FORK CLEARWATER RIVER

IDAHO

U. S. ARMY CORPS OF ENGINEERS

1965