ATTACHMENT 11

October 2003 Skagit River Flood Control PowerPoint presentation

Prepared by Marian Valentine, P.E., Corps, and presented to Burlington City Council on December 11, 2003.

SKAGIT RIVER FLOOD CONTROL

OCTOBER 2003

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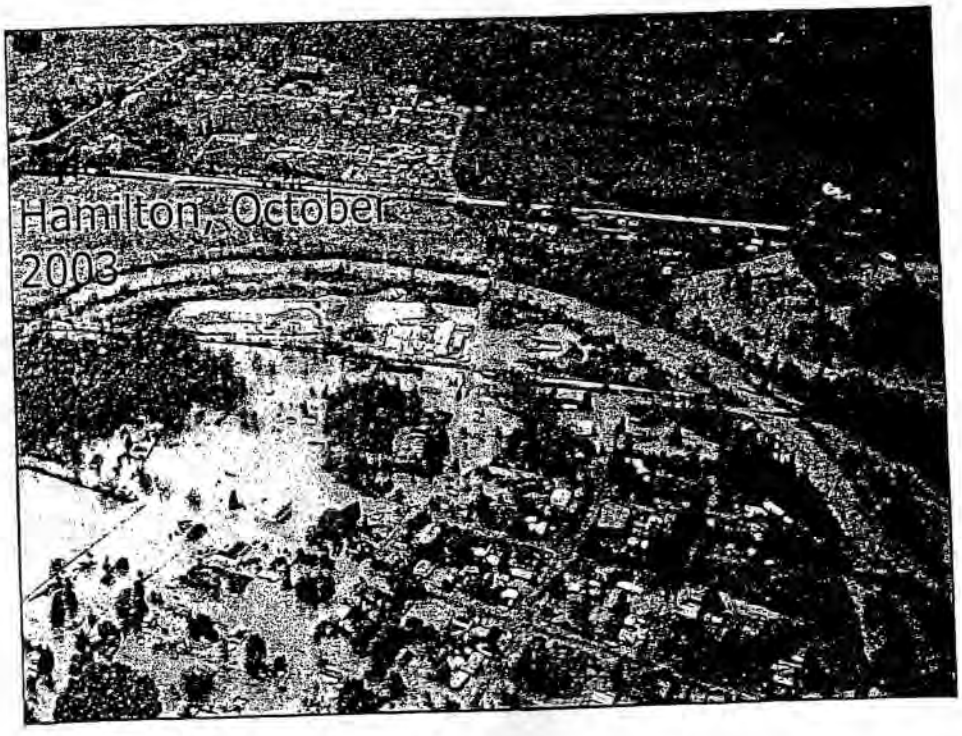
Hydraulics & Hydrology Section
206-764-3543
December 11, 2003

Flood of 1951 - Skagit River Valley


Farmland Flooding, October 2003


Hamilton, October 2003

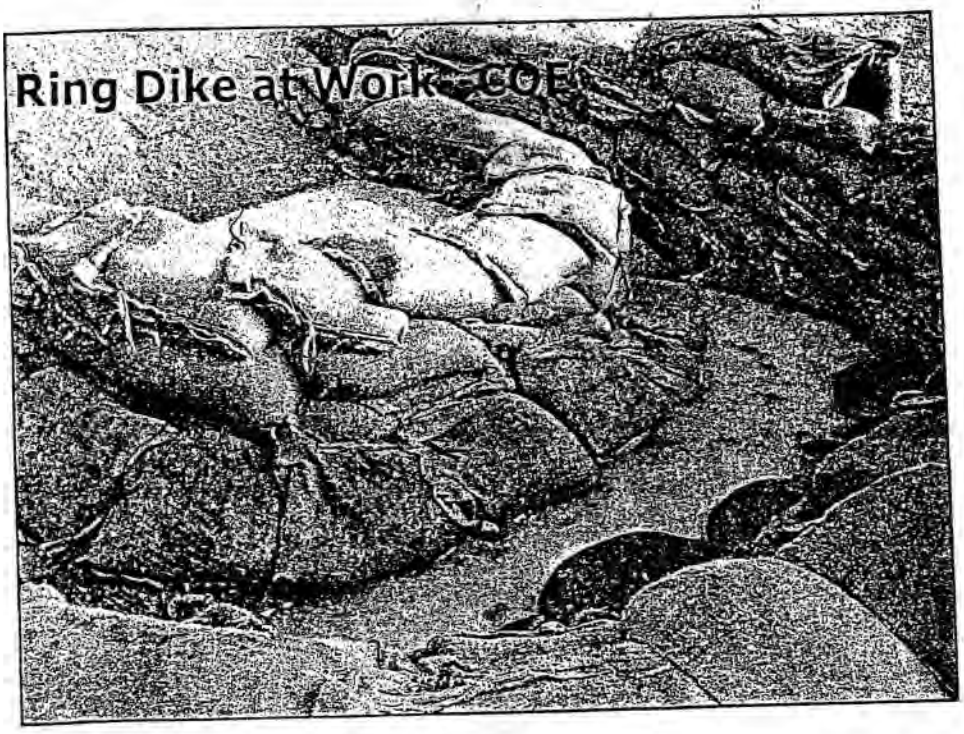
Flood Control Responsibilities

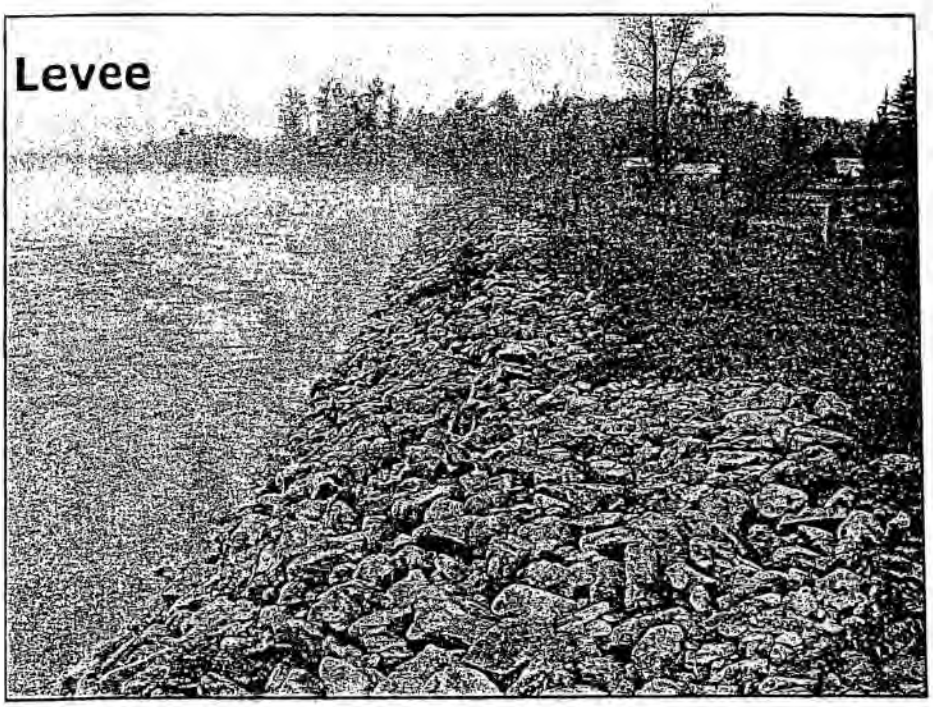
- National Weather Service
- Corps of Engineers
- Puget Sound Energy
- City of Seattle

CORPS OFFICES

- **PLANNING BRANCH:** Oversight and alternatives formulation of flood damage reduction study; Mona Thomason, Steve Babcock
- **EMERGENCY MANAGEMENT OFFICE:** Sandbagging and levee repair; Eric Winters
- **HYDRAULICS & HYDROLOGY SECTION**
  - WATER MANAGEMENT: Real-time reservoir regulation for flood control; **Marian Valentine**, Ken Brettmann
  - TECHNICAL STUDIES: H&H studies in support of flood damage reduction study; Ted Perkins


Ring Dike behind Levee - COE

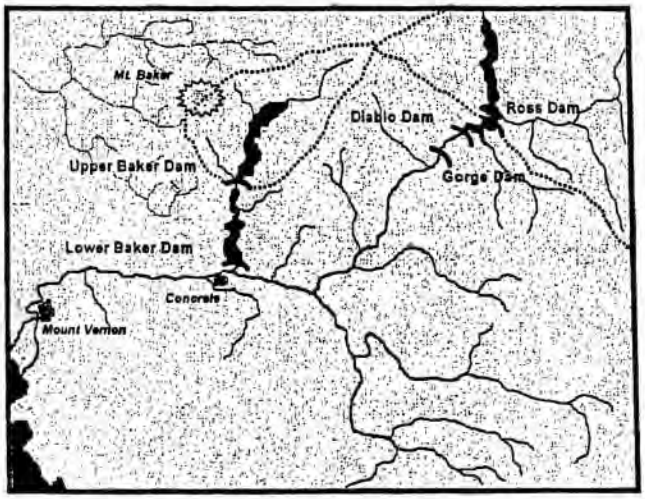

Ring Dike at Work - COE

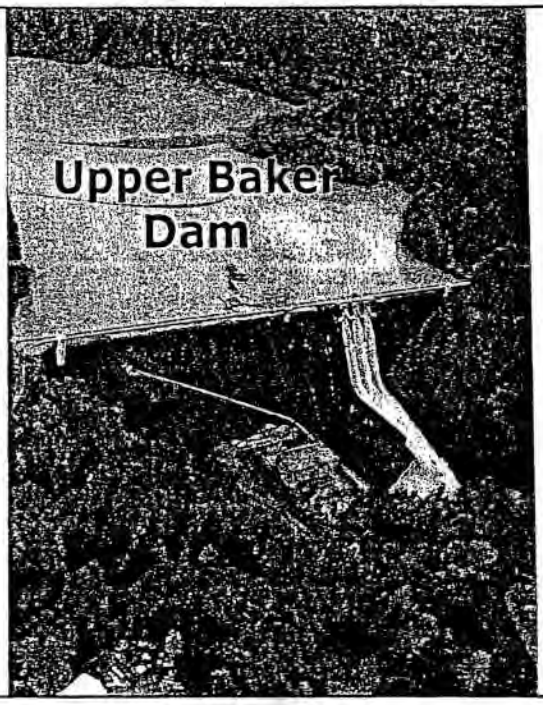


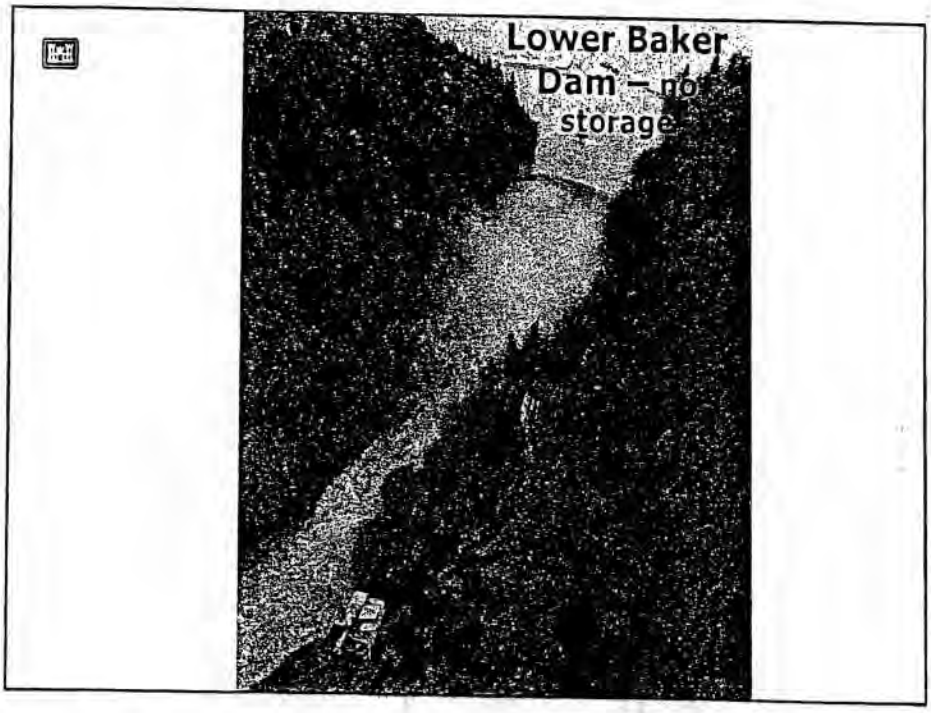
Flood Control Objective

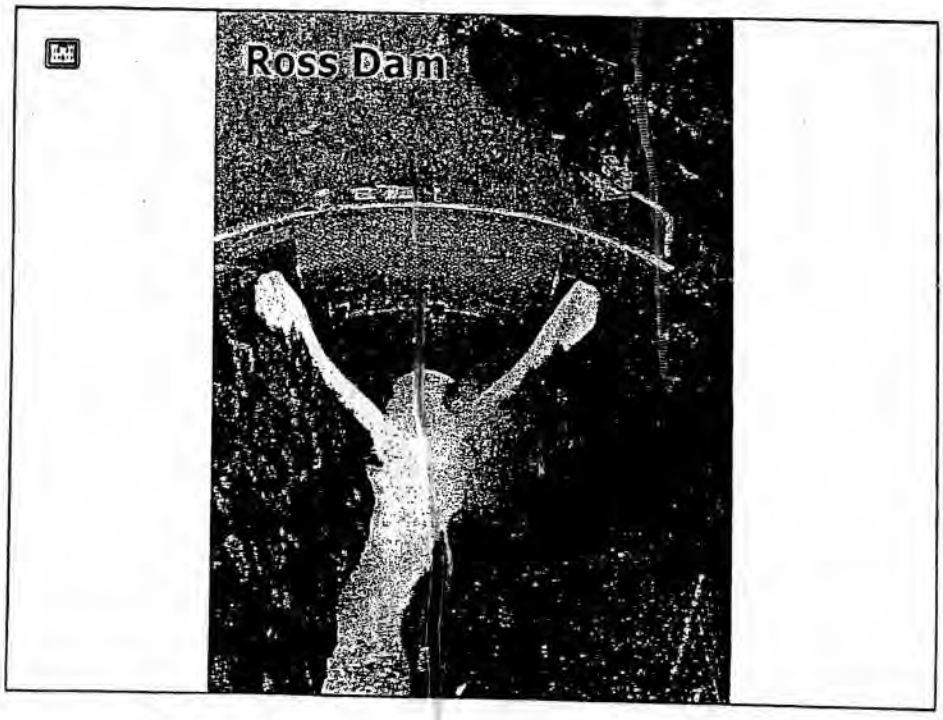
Reduce flood damages in the Skagit River below Sedro Woolley to the greatest extent possible by reducing outflow from Upper Baker and Ross dams

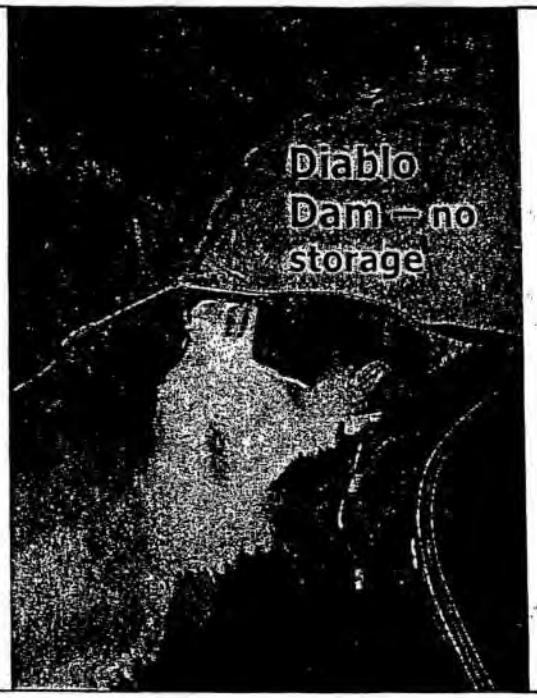
SKAGIT BASIN






Lower Baker
Dam – no
storage


Ross Dam



Authorized Flood Control Storage

Flood Control Storage in acre-feet

	20 Oct	1 Nov	15 Nov	1 Dec
Upper Baker	12,000	16,000	74,000	74,000
Ross Dam	27,000	43,000	60,000	120,000
Total	**39,000**	59,000	134,000	**194,000**

20% on 20 Oct

DAM OPERATIONS

- Outflow from Upper Baker and Ross dams was shut off at the critical time prior to the peak flow approaching Concrete.
- Ross Dam inflow was about 50,000 cfs 8-10 hours before the peak hit Concrete. The outflow was zero.
- Upper Baker Dam inflow was about 20,000 cfs 2 hours before. The outflow was zero. Lower Baker Dam was just passing 4,600 cfs ~~of local inflow.~~

Not necessarily

Note: The 4,600 cfs was not local inflow, but was due to a root wad stuck in a spillway gate which prevented PSE from closing it. Source, Puget Sound Energy.

- The dams control about 40% of the basin.
- About 60% of the basin is uncontrolled.
- The Sauk River alone contributed over 100,000 cfs to the peak at Concrete.
- The Cascade River contributed about 25 – 30,000 cfs.
- Uncontrolled flow into Gorge and Diablo reservoirs contributed 25 – 30,000 cfs.

No FC

PEAK AT CONCRETE

- 166,000 cfs, 42.2 ft, @ 6:15 am on 21 October

PEAK AT MT. VERNON

- 129,000 cfs, 36.2 ft, @ midnight on 21 October

WHAT IF.....

➢ Only the authorized amount of flood control space had been available in the dams.

➢ This storm had been preceded by a normal summer/fall, rather than a drought.

THEN.....

- The dams would have filled close to the top early in the storm.
- Flooding would have been nearly as bad as if the dams had not been there at all.
- The peak stage of the Skagit River at Concrete would have about 5 feet higher.
- The peak stage at Mt. Vernon would have been about 4.5 feet higher, if sandbags were raised all along the river. The river would be only about 2.5 feet higher with an average amount of levee failure.