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Skagit River Basin public water supplies.

On 1/22/64, Mr. Skrinde and I met with Mr. Fred Ovenell who is the ~~engineer~~ manager of Skagit County PUD #1. He supplied us with information both on his system and a little bit of the history of the Anacortes system.

Skagit County PUD #1 Water System

The PUD entered the water business in 1939 when it purchased from the People's Water and Gas Company the systems serving Mr. Vernon, Burlington, and Sedro Woolley. In 1940 they tied these three systems into one with a gravity line from the Cultus Mountain watershed. The capacity of that line was about 3.25 mgd. In 1954 the PUD installed a Ranney well near the Skagit River in the vicinity of Avon. The nominal capacity of this well is 4 to 5 mgd, varying with the River stages. The usual iron content is 1.5 ppm, again varying from .5 to 2.5 with River stages.

As of 1960 the total capacity of their system was 10 mgd. This is broken down into 3 1/2 mgd for the gravity line, 4 mgd for the Ranney well, and 2 1/2 mgd for the Skagit River Filtration Plant at Mt. Vernon. They also have a stand-by well in Sedro Woolley with a capacity of about 3 mgd. In 1961 a 24" transmission line was installed from the Judy Reservoir. This line has a capacity of 10 to 11 mgd but a booster pump could be installed to increase this capacity to 16 to 17 mgd for peaking purposes.

In August of 1962, R. W. Beck and Associates completed a study for the PUD on development of Cultus Mountain Watershed for gravity water supply. Mr. Ovenell gave both Mr. Skrinde and me copies of this report which recommends a 5 step program for ultimate development of the watershed. The first step, raising the elevation of Judy Dam 15', is underway and expected to be completed during the fall of 1964. It is estimated that this development will make available 5 mgd in excess of present peak demands and this excess should take care of the needs at least through the next 5 years. This step will double the capacity of Judy Reservoir from 450 billion gallons to 930 billion gallons. The ultimate capacity of Judy Reservoir, 1800 billion gallons, can be achieved by raising the dam elevation an additional 20'.

The present peak demands on the PUD system are exerted for about a six weeks period from latter July through early September when food processing plants in Mt. Vernon and Burlington use in excess of 4 mgd, most of which is for fluming peas. In Mr. Ovenell's opinion, future industrial demands within their service area will be mainly for increases in food

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processing industries. Both Birds Eye and National have expressed an interest in setting up plants in this region. Also mentioned in this discussion was long range water supply needs. Mr. Ovenell advised of the following studies: (1) a U.S.G.S. study on Day Lake and Day Creek in which it is estimated some 80 to 100 mgd could be obtained, (2) the R. W. Beck study of 1954 for the PUD of which he loaned me a copy, (3) John Graham study for Sedro Woolley, Burlington, and Mt. Vernon, and, (4) the Skagit County Planning Commission in Mt. Vernon has done some work along this line, (5) Puget Sound Power and Light did an economic study on the area and suggested contacting Mr. Stewart Neel in Bellevue regarding this.

Anacortes Water Supply

The following information on the Anacortes system was supplied by Mr. Bill Galleghar, the City Engineer and Mr. Earl Diller, City Manager.

Anacortes purchased their system in 1919 from the Anacortes Water and Power Company. The original sources of water supply consisted of lakes on Fidalgo Island, but as early as 1902, a water right on the Skagit River had been obtained for 15 cfs (9.7 mgd). In 1957, another right on the Skagit was obtained in the quantity of 32.3 cfs (20.9 mgd) and in February of '63 a right for 120 cfs (77.5 mgd) was received. Their total rights on the Skagit now are 167.3 cfs or 108 mgd. The City still holds rights on Lake Campbell for 1,000 acre feet (presumably per year) and on Lake Erie for 4 cfs.

In 1928 the City first went to the Skagit River for a supply by putting in a pumping station near Avon. In 1955, to accommodate the new Shell oil refinery going in on March Point, the City put in two Ranney wells near Avon (Big Bend area), with a new river crossing and a 24" transmission line to town. Each of these wells has an average output of 15.2 mgd and a minimum of 12.0 mgd with low river stages. The transmission line has a capacity of 24 mgd. In 1958, when the Texas Company expressed a desire to put in a refinery on March Point, the City installed an iron removal plant consisting of pressure anthrafilt filters with a capacity of 24 mgd.

This is essentially the system that is used today except that the old river pumping plant is activated during peak summer demand periods to supply an additional 5 mgd. This water is chlorinated and discharged to the Ranney wells which in turn discharge to the filter plant. The river pumping plant operates automatically to shut off when turbidity of the river water exceeds 10 (?) turbidity units. Some portions of the transmission line to town have been changed to 36" and a booster station has been installed on the line at the point where the refinery water supply takes off.

The present water use commitment for the City is about 22 million gallons a day, the majority of which is for the two refineries and Scott Paper Company. Breakdown on the use is as follows:

Shell	- 5.0 mgd (Actual 1963 use, 1.25 billion gallons
Texaco	- 4.2 mgd (1.24 billion gallons, actual 1963 use)
Scott	- 6.0 mgd
Naval Air Station	- 2.5 mgd (through separate 12" line)
Anacortes	- 2.5 mgd
La Conner	- 1.0 mgd
PUD	- 0.1 mgd (for 250 homes on Fidalgo Island and a strawberry cannery seasonal use at Avon)

The Shell Refinery recently expanded their operation and will use another 1/2 to 3/4 mgd this year. Other industries have been making inquiry; among them a new oil refinery which would require about 6 mgd and an aluminum plant which would require about 10 mgd.

Since the city's present use is near the capacity of their system, they are engaged in several studies to determine the best source of future water supply. Stevens and Thompson have been doing a preliminary study which will be used to obtain an HHFA grant for a long range water supply investigation. The University of Washington (Sylvester and Carlson) are making a study to determine if Whistle Lake, which was the original water supply source, would be suitable from a water quality standpoint for use as terminal storage. The present capacity of Whistle Lake is 600 million gallons and by adding a 10' dam it is anticipated that an additional 200 million gallons capacity could be gained. The Lake watershed is entirely owned by the City ~~but~~ and has not been developed for recreational and residential purposes.

Mr. Diller, the City Manager, seemed extremely interested in Skagit River development plans as they may relate to their water supply needs, even to putting in a long gravity line from the reservoir site to town. Their pumping costs for the present system are about $140,000 per year and these, he felt, could be largely eliminated by the gravity system.

cc: Ray Skrinde ✓