Committee on Resources
Subcommittee on Water & Power

Witness Statement

TESTIMONY TO THE
SUBCOMMITTEE ON WATER AND POWER
COMMITTEE ON RESOURCES
HOUSE OF REPRESENTATIVES
JULY 13, 2000
By

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Oversight Hearing on Bureau of Reclamation's Title XVI Program
HOUSE OF REPRESENTATIVES
COMMITTEE ON RESOURCES
SUBCOMMITTEE ON WATER AND POWER

Mr. Chairman and members of the Subcommittee, my name is Beverly J. Tweddle, President of the Board of Commissioners of the Lakehaven Utility District. The Lakehaven Utility District ("Lakehaven") is one of Washington State's largest water and sewer utilities providing service to over 100,000 residents. It is located in South King County and encompasses the City of Federal Way and portions of Des Moines, Kent, Auburn, Pacific, Algona, Milton and incorporated King and Pierce Counties. I am here today to discuss the Lakehaven Water Reclamation Program as a prospect for the Reclamation Projects Authorizations and Adjustment Act of 1992. The Lakehaven Water Reclamation Program would be the first Title XVI authorization in the State of Washington.

Program Summary

Lakehaven Utility District is proposing a water reclamation program using innovative, yet proven, technologies to enhance the reliability of existing water supplies and improve the quality of the environment. The proposed activities include the reduction or elimination of local secondary wastewater to the Puget Sound, conjunctive use of reclaimed water, groundwater and surface water, and enhancement of existing wetlands and fish habitat.

The program would take advantage of recent advances in the use of reclaimed water by constructing additional treatment systems at the District's two Wastewater Treatment Plants (WWTP) to further purify all or a portion of the plant's secondary effluent; constructing a transmission and distribution pipeline system to

transport this water to reuse areas; and developing facilities to direct the water to the aquifer system through injection wells, sub-surface infiltration galleries and land applications. The cost for these facilities is estimated to be $38 million.

Background and History

Lakehaven utilizes groundwater sources that are recharged primarily from local precipitation. While development has reduced the ability for these aquifers to naturally recharge, the demand for water from these sources has increased to exceed their safe production limits and has resulted in a reduction in water levels in all local aquifers with a corresponding reduction in well water production. To mitigate declining groundwater levels, Lakehaven, together with Tacoma Water, Seattle Public Utilities, City of Kent, and Covington Water District are entering into a agreement to develop Tacoma's second diversion water right on the Green River. However, water rights limitations, flood control functions of Howard Hansen Dam, habitat maintenance, and concerns over future Endangered Species Act restrictions may limit Lakehaven's ability to utilize this water supply.

Lavehaven has two secondary wastewater treatment plants currently discharging over 6 million gallons of water a day to Puget Sound. The ability to utilize reclaimed water to manage groundwater levels has been proven to be successful in other areas; however, it has not been applied in Washington State. Using reclaimed water to supplement Lakehaven's water supplies would provide needed water supply reliability not only for Lakehaven but also for the rapidly growing South King County area.

In this last State legislative session, Lakehaven sought and the State legislature implemented legislation authorizing the recovery of water, including reclaimed water, stored in underground reservoirs. This legislation was singed by Governor Locke in March.

The state is now set for implementing this important program.

Benefits of the Program

The benefits and opportunities related to this program, in addition to increasing the reliability of water supply on a regional basis, are:

- Conjunctive use of reclaimed water, groundwater and surface water
- Ability to help maintain river/stream levels during periods of drought - would assist in maintaining fishery levels and rebuilding wetlands
- Protection of natural recharge areas
- Water conservation enhancements
- Ability of neighboring water/sewer purveyors to partner in the program, enhancing reliability for their customers

This program will produce exceptional regional benefits and opportunities. It will provide for the water supply needs of the community for many years to come, as well as to enhance the environment. The local groundwater resources that have sustained the population for many, many years have been stressed in recent years by development and periodic droughts to the extent that water tables have declined. These water tables

can be returned to their historic levels by the use of water that now is discharged to Puget Sound, without having to rely on additional surface water sources, such as local rivers that provide for fish habitat. The technology associated with this proposed program is proven economically feasible. Recycling of this limited resource through reclamation is the viable alternative for the future.

The benefits, both locally and regionally, are significant but the cost is also significant and we are requesting that the Federal government become one of our partners in the Lakehaven Water Reclamation Program.

Thank you very much for the opportunity to address the Subcommittee.

LAKEHAVEN UTILITY DISTRICT

Water Reclamation Program

ADDENDUM 1

OVERVIEW OF THE HYLEBOS CREEK & WATERSHED

The Hylebos Creek and Lower Puget Sound watersheds are located in southwest King County and northwest Pierce County. The two watersheds contain over 36 square miles with 35 miles of streams, eleven named lakes and several hundred acres of wetlands. Among these water features are regionally and locally significant resource areas. These resource areas include the West Hylebos Wetland, The Spring Valley Wetland, and several stream reaches in the Hylebos Creek watersheds.

The Hylebos Creek watershed drains an area of 18 square miles through more than 25 miles of streams. Drainage flows south from the headwater areas in Federal Way and North Lake, which flank both sides of I-5, through a full range of land uses. The tributary from this area flows south through the approximate 120 acre West Hylebos Wetland where it converges with several other tributaries, the largest of which is from Panther Lake. A significant water feature of the West tributary is an uninventoried 95-acre wetland commonly known as Spring Valley.

Wetlands serve as critical fish and wildlife habitat by providing food, cover, water, refuge from predation, breeding and rearing areas, and migration paths for many animals and waterfowl. West Hylebos is a bog wetland area. It is the headwaters of Hylebos Creek which flows into Commencement Bay and Puget Sound and is one of the main drainage areas of Federal Way. The wetland includes 62 kinds of plants, some of which are on the list of rare plants published by the Department of Natural Resources Natural Heritage and Washington Department of Wildlife Nongame Data Systems. Rare plant species found in the wetland include swamp violets, bog orchids and wild azaleas. It also boasts an assortment of plants that range from mosses to Sitka spruce exceeding five feet in diameter. There are over 100 species of birds that populate the park and numerous small mammals. It has been reported that deer have been spotted in the area. The wetland also supports hawk and heron. The Hylebos Creek system provides salmon spawning habitat for chum, coho, and occasionally chinook and steelhead, however, storm flows have deteriorated water quality in and downstream of the West Hylebos Wetland and have destabilized some of the highest quality fish habitat remaining in the area.

The West Hylebos area came to public attention in the mid 1970's when two long-time residents of Federal Way, Francis and Ilene Marckx, began to develop the concept of a public nature center in the area. After a

great deal of work on the part of interested citizens, the matter was brought before the State Parks and Recreation Commission.

King County also recognizes the significant natural attributes of the West Hylebos Wetland. The final Supplemental Environmental Impact Statement to the Federal Way Community Plan refers to the Hylebos Wetland as " …a unique natural resource, not only in Federal Way, but in all of King County." The West Hylebos Wetland area presents a unique opportunity for conservation due to its outstanding ecological value. Although threatened by development on all sides and impacted significantly by surface water changes related to surrounding development, the wetland is, for the most part, undisturbed. It is an excellent example of a complete wetland community, and intact native ecological community, and an environmentally significant site.

HYDROLOGY OF FEDERAL WAY AREA WETLANDS

Federal Way and its surrounding communities are situated on a hydrologically isolated triangle of land known locally as the Federal Way Upland. The Plateau, which is for the most part between 200 and 400 feet above sea level, is bounded on two sides by near sea-level valleys and on the third by the salt water of Puget Sound. This isolation means that all of the water for its streams, lakes, wetlands and aquifers originates as precipitation on the upland. Some of the water is routed as surface flow to streams or is stored in the many lakes and wetlands of the area. Some infiltrates into the glacial sediments to recharge the aquifers. The aquifers which are charged with water in the winter wet season, drain to the streams and associated wetlands as baseflow in the dry summer months. In addition, an appreciable amount of water is stored in the aquifers which serve as the primary water supply for the communities of the upland region.

Ground water in the Federal Way area occurs in several interrelated aquifer systems. The primary of these is a unit known as the Redondo-Milton Channel Aquifer which is a linear feature running north to south through the heart of the upland at an elevation between 300 and 50 feet. This aquifer routes much of its recharged water southward toward the broad valley of Hylebos Creek which is the primary drainage of the upland. At some points, the low permeability glacial tills which tend to confine the aquifer become sufficiently irregular to allow upward leakage of water to land surface in the upper Hylebos Valley. These areas, which have a year-round water supply, have formed impressive wetlands throughout the upper Hylebos Valley. The relationship between the ground water systems and the wetlands is critical to the existence and survival of these unique features.

IMPACTS OF URBANIZATION

In its pristine condition, the Federal Way Upland stored much of the water which fell on it in the hummocky swales of its forests and meadows. As the area became progressively more populated, urbanization required storm sewers which routed water to the surface drainage features, such as Hylebos Creek. The hydrology of the area gradually changed as water which used to infiltrate to charge the ground water systems became stormwater runoff, entering the storm drains and eventually the stream channels which drain the upland.

Conditions in Hylebos Creek and the Lower Puget Sound watersheds stem from many interacting factors. Peak stormwater flows in the watersheds have increased dramatically compared to undeveloped conditions. These increases result from urban development, such as highways and shopping centers, that create areas of extensive impervious surfaces which cover aquifer recharge areas. Development which continues to cover aquifer recharge areas, especially around Panther Lake, together with groundwater pumping for drinking water supplies, may exacerbate lost groundwater recharge and may continue to diminish the summer base

flow that is vital to the West Hylebos Wetland and other downstream reaches.

When stormwater discharges interact with the stream systems, soils, geology, and habitat in the basins, it profoundly impacts the drainage capacity of these systems, stream channel erosion, sedimentation, habitat conditions, wildlife populations, and groundwater volumes. Existing conditions contrast markedly from the historic state. At one point, Hylebos Creek is believed to have supported one of the most productive salmon bearing stream systems in Puget Sound. Only remnants of the once excellent pre-development fish and wildlife habitat remain.

OVERVIEW OF THE LAKEHAVEN WATER RECLAMATION PROGRAM

The Lakehaven Water Reclamation Program is a key element of an Integrated Water management and Environmental Enhancement Plan proposed by the Lakehaven Utility District. Although it is still in a formative stage of development, this innovative plan seeks balanced solution to the water supply issues facing the District. Such solutions include the balance between new water supplies and demand-side management such as water conservation and reclaimed water, the balance between water supply development and environmental resource protection, and the balance between new initiative and long-term rate stability.

The Lakehaven Utility District (LUD) provides water and wastewater service to over 100,000 people in the Central Puget Sound area and is the largest special purpose water and sewer district in the state of Washington. LUD operates two wastewater treatment plants. The Redondo Plant has a capacity of 5.47 million gallons per day (mgd) and an average daily flow of approximately 2.4 mgd. The Lakota Plant has a capacity of 10 mgd and an average daily flow of approximately 3.6 mgd. Both plants provide secondary treatment and discharge to Puget Sound.

The Lakehaven Water Reclamation Program provides an opportunity to provide several of the benefits envisioned in the plan. The program is a local water resource development project which is intended to maximize water reuse and preserve precious groundwater resources while providing significant regional environmental benefits. After additional treatment is provided, reclaimed water would be distributed for direct irrigation as well as for groundwater recharge.

Direct uses of reclaimed water would include landscape irrigation of golf courses, parks, schools and common areas of multi-family residential units as well as temporary uses such as construction dust control and street cleaning. In the future, reclaimed water may also be utilized for toilet flushing, commercial laundries and cooling towers.

Reclaimed water would also be utilized for groundwater recharge at a location of significant aquifer outflow to the Hylebos Wetland. Artificial recharge at this location will provide more consistent inflows to the Hylebos Wetland. It will also create a hydraulic barrier to leakage of natural recharge and will preserve this higher quality groundwater for increased groundwater production. The increased production can then be utilized for improved reliability of regional water supplies and will enable regional water suppliers to better meet instream flow requirements.

BENEFITS TO THE HYLEBOS WETLAND

Although it is only one element of a comprehensive restoration effort, the availability of reclaimed water provides a unique opportunity to enhance and restore the environmental resources of the Hylebos Wetland.

By reducing demands on the groundwater basins and providing groundwater recharge at the location of significant basin outflow, base flows to the Hylebos Wetland can be enhanced and stabilized. Because reclaimed water supplies are reliable, water will be available for environmental enhancement even during periods of drought. Consequently, a stabilized hydrology, together with other restoration efforts, should provide significant environmental benefits to the Hylebos Wetland, particularly to its anadromous fisheries.

APPENDIX A

Birds Observed at West Hylebos Wetland

BIRDS

Pied-billed Grebe

Western Grebe

Canadian Geese

Double Crested Cormarant

Great Blue Heron

Green heron

Mallard Duck

Gadwall

Baldpate

Pintail

Green Winged Teal

Shoveller

Wood Duck

Ring Neck Duck

Greater Scaup

Lesser Scaup

American Golden Eye

Barrow's Golden Eye

Buffle Head

Scoter

Hooded Merganser

American Merganser

Red-breasted Merganser

Red-headed Duck

Ruddy Duck

Coot Cackling Duck

Blue Winged Teal

American Wigeon

European Wigeon

Cinnamon Teal

Sharp Shinned Hawk

Cooper's Hawk

Red-tailed Hawk

Bald Eagle

Osprey

Ruffed Grouse

California Quail

Ring-necked Pheasant

Black-bellied Plover

Killdeer

Wilson Snipe

Spotted Sandpiper

Greater Yellow Legs

Glaucous Winged Gull

Foresters Tern

Mourning Dove

Band-tailed Pigeon

Barn Owl

Great Horned Owl

Night Hawk

Rufous Hummingbird

Pileated Woodpecker

Common Flicker

Red-breasted Sapsucker

Downy Woodpecker

Hairy Woodpecker

Olive-sided Flycatcher

Western Flycatcher

Traill's Flycatcher

Barn Swallows

Violet-green Swallows

Tree Swallows

Cliff Swallows

Purple Martin

Steller's Jay

Crow

Bush Tit

Western Wood Peewee

Red-breasted Nuthatch

Winter Wren

Bewicks Wren

Varied Thrush

Robin Swainson's Thrush

Hermit Thrush

Black-capped Chickadee

Chestnut-backed Chickadee

Golden-crowned Kinglet

Rudy-crowned Kinglet

Cedar Waxwing

Northwestern Shrike

Starling

Solitary Virio

Warbling Virio

Yellow Warbler

Wilson's Warbler

Orange Crowned Warbler

Yellow-throat

Black-throated Gray Warbler

Solitary Warbler

McGillivary Warbler

Audubon Warbler

Longtailed Chat

House Sparrow

Red-winged Blackbird

Brewer's Blackbird

Cow Bird

Western Tanager

Evening Grosbeak

Cassins Purple Finch

House Finch

Pine Siskin

Goldfinch

Chipping Sparrow

Fox Sparrow

Golden-crowned Sparrow

Song Sparrow

Towhee

Junco (dark-eyed)

APPENDIX B

Flora and Fauna Observed at West Hylebos Wetland

MAMMALS

Raccoon

Coyote

Muskrat

Mink

Douglas Squirrel

Flying Squirrel

Gray Squirrel

Townsend Mole

Coast Mole

Meadow Mice

Deer Mice

White-footed Mice

Jumping Mice

Shrew

Little Brown Bats

Varying Hare

Weasels

Porcupine

Mountain Beaver

Striped Skunk

Beaver

Cottontail Rabbit

AMPHIBIA

Red-legged Frog

Bull Frog

Northwest Tree Frog

Western Toad

Northwestern Salamander

Other Salamander species

REPTILIA

Painted Turtle

Northwest Alligator Lizard

Rubber Boa Snake

Garter Snake

FLORA

Snowberry

Blackberry

Cascara

Indian Plum

Stinging Nettle

Hedge Nettle

Horestail

Big Leaf Maple

Creeping Buttercup

Black Cottonwood

Thimble Berry

Bracken Fern

Red Alder

Douglas Daisy

Waterleaf Vine Maple

Wild Bleeding Heart

False Lily of the Valley

Gooseberry

Licorice Fern

Salmon Berry

Salal

Skunk Cabbage

Labrador Tea

Hardback

Western Red Cedar

Bedstraw

Mosses

Lichens

Liverworts

Spruce Tree

Pacific Yew

Swamp Current

Twisted Stalk

Wood Fern

Lady Fern

Douglas Fir

Wild Roses

Red Osier Dogwood

FLORA (CONT.)

Black Twinberry

Red Elder

Wild Crab Tree

Swamp Violets

Western Hemlock

Swamp Laurel

APPENDIX C

Glossary of Terms

Aquifer: A layer or group of sediments that can store and transmit water and can yield economically

significant quantities of water to wells and springs.

Aquitard: A layer of low permeable sediments that retards or impedes, but does not prevent, the flow of water from one aquifer to another. It does not readily yield water to wells or springs, but may serve as a storage unit for ground water.

Confined Aquifer: An aquifer that is overlain by a confining layer or aquitard. Recharge to confined aquifers occurs either in a recharge area, where the aquifer is exposed to the surface, or by slow downward leakage through a confining layer or aquitard.

Hummocky Terrain: A hummock is a small rounded or conical knoll, mound, or hill.

Till: A heterogeneous mixture of clay, silt, sand, gravel, and boulders that is unsorted, and generally unconsolidated, and is deposited directly by and underneath a glacier.

Unconfined Aquifer: An aquifer that is close to the land surface and has permeable sediments. Recharge to this aquifer can be from downward seepage through the unsaturated zone. This aquifer contains the water table, which is the surface of the saturated part of the aquifer.

Wetland: Lands transitional between terrestrial and aquatic systems that have a water table usually at or near the surface or a shallow covering of water, hydric soils, and prevailance of hydrophytic vegetation.

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