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CH2M-HILL Begins Work on Sunnyside Canal Improvement Project

Construction of a re-regulation reservoir similar to this will be constructed in 2004.

The Sunnyside Canal Improvement Project (SCIP), which consists of rebuilding about 30 check structures, constructing three re-regulation reservoirs with a total capacity of over 1000 AF and canal automation will begin this winter.

CH2M-HILL was selected as the engineering firm to provide design and construction management services for the SCIP. CH2M-HILL will be working on the design for the first re-regulation reservoir this winter. The first reservoir is located near McDonald Road, the working name is 58.13 due to the location on the main canal. Construction will begin on the 58.13 re-regulation reservoir fall of 2004. The reservoir will be operational for the 2006 irrigation season.

Re-regulation reservoirs are constructed to regulate the irrigation supply. The purpose is to collect and store water for a relatively short period to improve irrigation water management by regulating the fluctuating flows in the canal system. This type of flow control will allow SVID to reduce or eliminate operational spill.

Operational spill is necessary to manage fluctuations in canal flow. Excess water is spilled back to the Yakima River until it is needed to meet irrigation demands. Due to the several day travel time required to get water from the reservoirs to the landowner through the canals, operational spill is necessary. Re-regulation reservoirs will be able to store excess water for later release and greatly reduce the need for operational spills.

U.S. Bureau of Reclamation and Washington State Department of Ecology will provide 82 1/2 percent of funding and collaborate with the Sunnyside Division Board of Control (SDBOC) to improve the efficiency of the Sunnyside Canal over the next 10 years. Currently the majority of the funding will come from the federal government who has committed over $21 million for improvements with the state committing an additional $6 million.

Busy Construction Season In Progress

Sunnyside Valley Irrigation District (SVID) has a long list of construction projects planned and in many cases already well underway for the winter season.

SVID has an enclosed conduit project planned for Lateral 59.31 to Old Inland Empire Highway. The affected landowners may notice improved water pressure and will have a more flexible control of the deliveries with flow meters after the enclosed conduit is installed. Lateral 59.31 services over 1,200 acres; the enclosed conduit project will include slightly more than 170 acres and install 14,700 feet of pipe. SVID plans to continue enclosing several miles of open laterals in future construction seasons.

Lateral piping projects include Lateral 35.51, Ryder 3.86 overflow, Riverside Avenue extension in Sunnyside, Harrison Hill mainline on Grandview Avenue from Swan Road to Upland Drive in Sunnyside, and 23.10 downstream of siphon #8 for approximately 600 feet.

Crews will be working on several lining projects planned for Snipes 7.84 and Lateral 55.19. The lining projects will increase the overall efficiency of the delivery system by reducing water loss and improving flow characteristics. In addition, these projects will protect local groundwater from the canal's influence.

The Drain Crew has several piping and fencing projects throughout the upper and lower divisions. The piping projects improve water quality while protecting local farmland from erosion and high water tables. Other drain projects will focus on improving access and bank stabilization at various points in the system.

Various other projects are planned including construction of new water delivery boxes, installation of flow meters, and new road crossings and related structures for county road projects. Other projects are construction of walkways for safety, screens to remove debris from the water, and lateral shaping and silt removal.

In This Issue

2004 Assessments	2
Storage Study	2
Access to Irrigation	2
Harrison Hill Service	2
Incremental Pricing	3
Snowpack	3
Weather Outlook	4
Water Conservation	4

2004 Assessments Prepared

The Sunnyside Valley Irrigation District (SVID) is preparing 2004 irrigation assessments for mailing in late December. The assessments pay for operation and maintenance of the distribution and delivery system as well as the costs associated with SVID's continued efforts to improve water quality and increase water conservation.

Assessments for 2004 will include an increase of an average of less than $1.00 per acre. The Board of Directors has set the 2004 irrigation assessments for beneficial use lands at $66.75 per acre. The increase is due in part to increasing costs of labor, petroleum products, and insurance that are major components in the budget and contribute to the increase in assessments.

SVID mails the annual assessments directly to owners, which allows them to more carefully monitor their expenses than if sent directly to a mortgage company. It is the landowner responsibility to notify SVID if the property has changed ownership so that the billing information is correct. This will ensure that the irrigation assessments reach the appropriate person. If you have recently purchased property and do not receive a bill or if you contact has changed, please contact SVID at (509) 837-6980.

Field Study Begins at Block Rock Reservoir Site

The Bureau of Reclamation is conducting a Yakima River Water Storage Feasibility Study to determine the options for additional water storage to benefit the Yakima River Basin. Congress authorized the study in February 2003 and instructed the Bureau to place emphasis on the feasibility of the Black Rock Reservoir.

The Bureau of Reclamation's technical staff from Denver, Boise, and Yakima offices joined Washington Department of Ecology and Yakama Nation technical staff on October 28 to conduct a field review. The field review involved looking at the topographic, geologic, design and construction aspects of a potential dam at the Black Rock water storage site. The overall field review involves an assessment of possible Columbia River pumping plants sites in the vicinity of Priest Rapids Dam, and examination of the dam site itself, as well as flow alignments for filling the proposed reservoir and delivering water to the Yakima Basin.

Field investigations include drilling exploratory holes at the potential Black Rock dam site. This is the first of several phases of investigation planned for the develop alternate alignment during the site selection. Reclamation will drill a series of four to six holes to determine the top of bedrock. The 6-inch diameter holes will be drilled to depths of 50-75 feet deep.

In February 2004, a second companion hole will then be drilled to perform detailed ground water test to evaluate the foundation materials and their potential for leakage between individual aquifers.

The propsed reservoir site is approximately 30 miles east of Yakima. With a potential capacity of 1.7 million acre-feet, the proposed reservoir would more than double existing water storage in the Yakima River Basin. Water would be drawn from the Columbia River near Priest Rapids Dam and lifted 1400 feet to Black Rock Reservoir. From there another lift station would send water to the Roza Irrigation District Main Canal near Moxee and the Sunnyside Canal. Reclamation will compare the proposed Black Rock Dam and Reservoir with other storage options during a feasibility study of potential options in the Yakima River basin.

Other options being reviewed in the evaluation process are Bumping Lake Enlargement, Cle Elum Enlargement and construction of a reservoir in Wymer Canyon. The impetus for new storage is the increased frequency and magnitude of droughts in the Yakima River basin and the economic impact on farmers.

Black Rock Reservoir specifically and additional storage generally have been generating support from many local communities and agencies as well as several legislative members.

But I Don't Get Water....

Some landowners receive an assessment that do not utilize irrigation water and are confused as to why they still have to pay the bill. When an irrigation district such as SVID was organized, the formation was to provide irrigation service to the entire area within the geographical boundary of the district. In order to pay for construction, operation and maintenance costs, all lands are assessed based on the benefits to the lands.

According to Washington state law, irrigation districts can establish an annual assessment on all lands, which carry a water right, whether or not irrigation water is used.

Problems develop when acreage, which was irrigated under a single owner's distribution system, is platted into smaller tracts. This may result in difficult or no access to the original water delivery point. The landowner will still have to pay their portion of the original water right acreage because it is an obligation on the land.

SVID is responsible for delivery of water to the original delivery point. If service is desired the landowner may take steps necessary to convey the water to his acreage. The landowner may contact the SVID staff to get information on the location of the delivery box.

Since 1985, state law permits irrigation districts the authority to require the construction of an irrigation distribution system as part of subdivision requirements. This has solved most of the problems associated with serving small tracts of land.

Harrison Hill Project Expands Service

The Sunnyside Valley Irrigation District (SVID) merged the Snipes Mountain Irrigation District into its system in 2001. Since then SVID has been working aggressively to extend irrigation service to lots that previously had to use more expensive city water for irrigating their lands and gardens. Landowners on Harrison Hill in Sunnyside hold water rights that allow them use of irrigation water. Unfortunately, a majority of the Harrison Hill was developed without convenient water deliveries provided by the developers. In 2002, the (SVID) Board passed a board resolution enabling landowners on Harrison Hill the opportunity to get access to irrigation water delivery.

The Harrison Hill project began in the summer of 2003 with over seventy-six new deliveries installed. The Harrison Hill projects have been made possible by the investment of SVID of over $158,000 for engineering and construction costs.

Harrison Hill Project	# Deliveries	Feet Pipe
Phase I – Terry Avenue	23	2,500
Phase II – Valley Vista Way	21	2,000
Phase III — Upland Drive	20	2,800
Phase IV – Grandview Avenue	12	1,900

The Harrison Hill project will continue in 2004 with additional areas being installed. Additional areas will be chosen by a demonstration of landowner interest. A sign-up sheet for interested landowners on Harrison Hill is available in the district office. If you have signed up previously, you do not need to do so again. Once an area is identified for extension of irrigation service, landowners will receive notification with appropriate deadlines for confirming their intention to have an irrigation delivery installed.

Landowners pay a one-time charge of $250.00 per parcel to connect to the irrigation district delivery system. For the connection fee, SVID will install a ¾-inch diameter riser with control valve on the lot for each interested landowner. The flow design for this system is eight gallons per minute per acre. Landowners have been made aware that pressures will vary and a pump may be necessary when connecting to an in ground irrigation system.

Incremental Pricing Encourages Water Conservation

Many landowners have shown interest in having access to an irrigation system that provides the opportunity to receive water on a modified demand basis. The Board began working with landowners who were interested in the construction of an enclosed conduit system that would provide them with the opportunity to turn water off and on according to their own schedule. These systems are limited in number but for those landowners served it is a decided improvement in the level of service.

Some of the advantages to an enclosed conduit system include:

- ï Gravity pressure allows pump horsepower to be reduced or in some cases eliminated
- ï Conserves water
- ï Improves water quality
- ï Modified on-demand system with orders still coordinated through ditchrider
- ï Eliminate lateral seepage and high ground water problems
- ï Eliminate lateral spill reducing pressure on the drain system

Incremental pricing is applied to the lands that receive this on-demand delivery option and those taking delivery directly from the Sunnyside Canal. Incremental pricing was designed to reduce water usage while being revenue neutral. The rate for each acre-foot of water use in excess of 3.0 acre-feet per acre is set annually by the Board of Directors.

On incremental pricing deliveries without flow meters, water usage will be computed as the amount that has been ordered. This procedure encourages better water usage management through improved communications with the ditchrider to order water delivery on and off. This policy also discourages the practice of over irrigating or letting the irrigation water run when it is not needed.

Incremental pricing was structured as another tool to improve water management. It is important to encourage communication with SVID staff. Communication is necessary to deliver the amount of water actually required. This information is used by the watermaster and ditchriders to make adjustments in the delivery system in a timely manner. "As we all know there is intense competition for water. The best way to keep regulators and third party interests at bay is to operate as efficiently as practical" states Don Schramm.

The Board of Directors continues to refine the policy to make it user friendly. The Bylaws, Rules and Regulations were amended to expand the application of pooling of water use records subject to incremental pricing for leased land with the same farm operator. Pooling was previously only available on lands in the same ownership.

Water use for two or more parcels anywhere in the district subject to incremental pricing may be pooled at the request of the landowner or operator. Water use on parcels subject to incremental pricing may also be pooled with parcels not subject to incremental pricing. All parcels pooled will be subject to incremental pricing. The Pooling Agreement will take effect for the entire irrigation season as soon as it is requested. Pooling Agreements must be approved by August 1. Water use is pooled for billing purposes only. All other delivery policies and procedures still apply.

Snowpack Important Factor In Water Supply Forecasting

Most of the usable precipitation in the Yakima River Basin originates as mountain snowfall. The snow accumulates during the winter and spring before the snow melts and becomes stream flow.

Fall precipitation influences the soil moisture conditions prior to the snowpack formation and improves the effectiveness of the snowpack production of runoff.

The process by which we receive water from the mountain snowpack is more complex than it appears. Runoff from precipitation in the form of snow is delayed and estimates of snowmelt runoff are made prior to the occurrence. The forecasts of natural runoff in most outlooks are based mainly on measurements of precipitation, snow water equivalent and runoff.

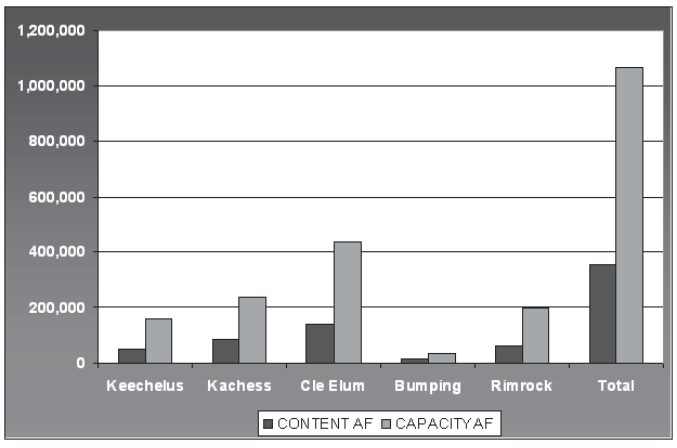
The complex relationship between the snow pack and the amount of runoff depends on many factors, primarily moisture content of the soil, ground water contributions, precipitation patterns, fluctuation in air temperature, use of water by plants, and frequency of storm events. The condition of the soil before the snowpack develops affects the amount of runoff. Dry soil tends to absorb more of the melting water than wet soil. How the snowpack accumulates determines its density (amount of water per unit volume of snow) and texture (crystalline structure).

Historical records are used to predict the precipitation and snowfall accumulation probability during the preparation of runoff forecasts. The amount of runoff generated by snowpack melting in the spring is always a topic of interest in the Yakima Valley. When in excess, snowpack can cause devastating floods, but when absent, it can threaten areas with extreme drought.

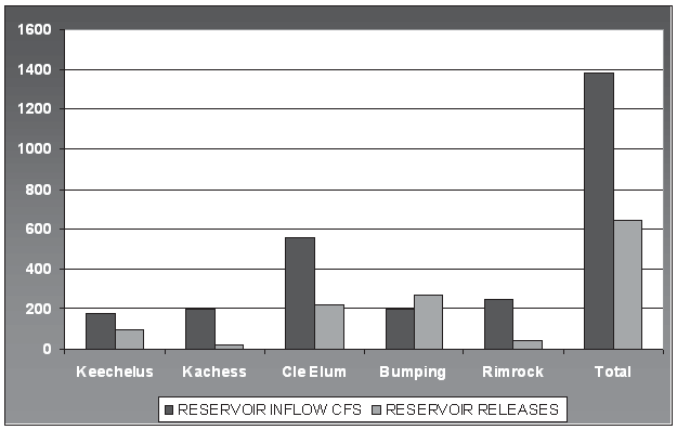
How is the depth of snowpack converted into an amount of spring runoff? A general rule of thumb is that for every ten inches of snow, one inch of water is generated. This measurement is an estimation, as not all snow is created equal. Light and fluffy snow contains less water than the thick slushy variety. The range of water produced by snow can vary from 0.4 inches of snow producing 0.10 inches of water to 5 inches of snow producing 0.10 inches of water.

Variations in snow density can result from the temperature of the air when snow was produced, to differences in the temperature of the location where the snow accumulates. Snow in large drifts is compressed by the weight of the snow on top of it. Density and structure affect how fast the snowpack melts and how much water it yields. The snow's density is measured and converted to inches of water. Data collected is averaged over an area and projections are made based on how quickly the area is expected to warm up. A snowpack begins to melt when its temperature from top to bottom equalizes at 32 degrees F. Mountain snowpack do not melt steadily. Melting varies due to influences from the weather, ground temperature, and exposure to the sun's rays.

Status of Yakima River Basin Reservoirs

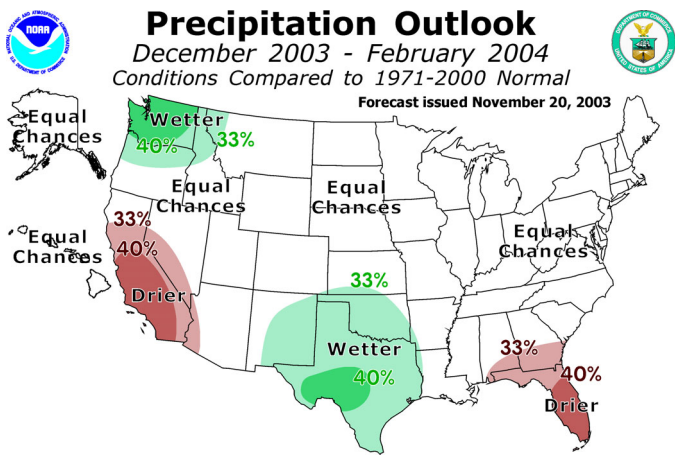


Reservoir Inflow vs. Reservoir Releases



Wet Winter Weather Outlook Good News For Irrigators

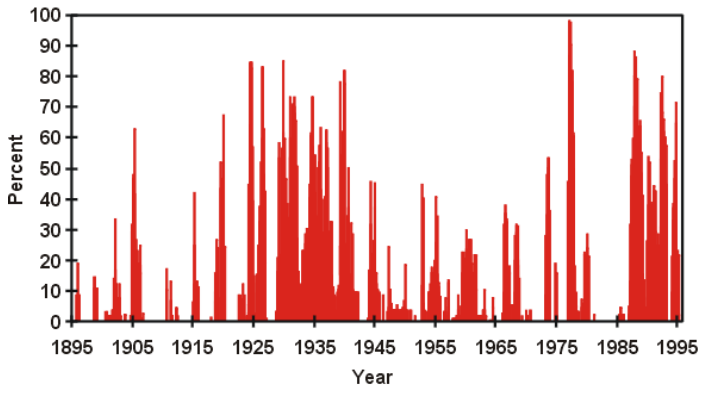
For December, January, February, National Oceanic and Atmosphere Administration (NOAA) forecasters are calling for above average precipitation as well as above average temperatures for our region. Odds are better than average for abnormally wet conditions in the Northwest.



Warm and wet winter weather conditions usually mean that there is enough precipitation to adequate fill the reservoirs. Unfortunately, warm weather means more precipitation will fall as rain rather than snow. With above average precipitation forecasted, enough precipitation should still fall as snow to keep the snowpack near normal. Snowpack is a key indicator to watch during the winter months since 60% of Yakima basin demand is met through snowpack. Currently the National Weather and Climate Center reports slightly above-average water content in the current snowpack.

Last winter's jet stream patterns were relatively persistent while this winter the jet stream should have more frequent jet stream swings, resulting in more variable weather patterns and regimes lasting from one to several weeks.

Percent Area of the Pacific Northwest Basin Experiencing Severe to Extreme Drought 1895–1995



Areas currently affected by extreme to exceptional drought, located mostly across the Interior Northwest, will need a sustained period of stormy weather into next spring to ensure appreciable relief from multi-year precipitation deficits.

Precipitation at the five Yakima Basin sites in the Cascades is above normal in October and November. Total precipitation for two months is 154 percent average. The months of October through January provides 60 percent of the annual rain and snowfall in the Yakima Basin watershed. The watershed is divided into two sections, with the northern basin sites reporting an average of 117 percent of normal and the southern basin sites reporting 115 percent of normal. This is an excellent start to the new water year.

The Sunnyside Valley Irrigation District publishes **THE WATERFRONT** biannually for landowners. All articles, letters and other items submitted to Sunnyside Valley Irrigation District (SVID) for use in SVIDís landowner newsletter become the property of SVID which is authorized to use any item submitted, without payment or compensation to the person submitting the item, in any newsletter or other publication of SVID. SVID reserves the right to edit all items submitted. Douglas Simpson, Chairman. Robert Golob, Dave Michels, John Newhouse, Michael Hogue, Directors. Officers: James W. Trull, District Manager; Donald Schramm, Assistant Manager; Patricia Bailey, Secretary-Treasurer. Address comments to: Melodie Smith, Editor, P.O. Box 239, Sunnyside, WA 98944.

Water Conservation Helps - Additional Water Storage Needed

The Yakima River Basin faces some form of rationing in one out of every three years. Once every ten years the rationing level is considered severe with some irrigation districts rationed to less than 40% of entitlement with river flows and temperatures being outside of preferred limits for fish and wildlife. The economic impacts to agriculture due to a severe drought in the Yakima Basin can run into the hundreds of millions of dollars while fish and wildlife impacts are more difficult to measure.

ANNUAL RUNOFF
3.5 Million Acre Feet
AVAILABLE STORAGE
1 Million Acre Feet
ANNUAL NEED
2.8 Million Acre Feet

The average annual runoff of 3.5 million acre feet (MAF) is sufficient to meet all current basin needs. The average annual demand for irrigation and minimum fish & wildlife needs is roughly 2.8 MAF with 2.5 MAF during the irrigation season and 0.3 MAF during the late fall through winter months. Some of the remaining 0.7 MAF is necessary to meet fish & wildlife needs above minimum levels.

The Yakima Basin water supply is difficult to manage due to the wide range of annual runoff of 1.5 to 5.5 MAF. The storage capacity available in the Yakima Basin is only 1.0 MAF. The five available reservoirs can only hold enough water to meet 40% of all water demands during the irrigation season. Additional storage is necessary for enough storage for carryover from one or several years to the next. The challenge is, and always has been, choosing when Yakima Basin runoff should be stored for later use to provide more benefit for irrigation or fish and wildlife.

The vast majority of water conservation on a farm does not change the consumptive water use, the amount of water the crop requires to grow. Consumptive water use can only be reduced by giving crops less water than they need for maximal growth (i.e., deficit irrigation), or by shifting to less water intensive crops. The "conserved" water is the water that would normally make its way back to the Yakima River via surface or sub-surface flow. This has been documented through U.S. Bureau of Reclamation studies & modeling and many years of tracking water supply through the Total Water Supply Available (TWSA) process. In many cases, conserved water is available for reuse downstream before it leaves the Yakima basin. For this reason, water conservation is not the same as energy conservation such as purchasing a low energy refrigerator. The saved energy in the case of purchasing a more efficient refrigerator was not previously used by another homeowner down stream.

Using current best management practices, overall application efficiency (from the River to the plant) in the range of 60 to 70% is considered very good. Even if all irrigation water could be delivered at 100% efficiency, there still would not be enough water to meet even minimum fish & wildlife needs in a drought year. In some cases, water conservation can make minor amounts of water available for landowners within the TWSA process but at a cost of hundreds of million dollars for approximately 0.1 MAF of conserved water.