

# Summary of Presentation for Wild Wings CSA Water Supply Update

July 7, 2021

## Slide #1

- The presentation is provided to update the community about the current water supply shortages and actions being taken to help mitigate the issue.
- Justin Shobe and Bill Gustavson from Luhdorff & Scalmanini have been working with the County and are presenting the information.

## Slide #2

- The topics of the presentation are listed on this slide.

## Slide #3

- State-wide water supplies are diminished this year due to dismal snowpack and impacted surface water flows. This photo of Lake Tahoe and the snowpack was taken by Bill Gustavson on a flight in April 2021. The snowpack was so bad this year, DWR did not even mobilize the crew to collect a depth measurement.

## Slide #4

- As an overview of the hydrologic cycle, there is a direct relationship between precipitation, snowpack, surface flows, and groundwater recharge.
- When snowpack is diminished there is less groundwater recharge and reduced surface water flows. Groundwater pumping also increases to meet the water demands.
- Lower recharge and increased pumping both contribute to the decline in water levels.

## Slide #5

- Brief overview of the Wild Wings map.
- The locations of the two community wells are shown with the treated mains “Potable Water system” and the raw water mains that go to the ponds to serve the golf course “irrigation supply”.

## Slide #6

- The illustration of the wells shows the important key points to the issues we are facing.
- Canvas Back is the shallower well that is currently having the pump issues. The pump is set to the bottom (340 ft deep) and cannot be lowered any more. This is the well that has arsenic above the maximum contaminant level and therefore is only used for irrigation supply. It is allowed to be used in the Potable Water System as a backup well in emergencies but is limited to 5 consecutive days and 10 days out of the year total.

- Pintail is the deeper well. It is the primary supply for the Potable Water System as arsenic levels are below the maximum level. The pump in this well is at 380 ft deep and can be lowered.

#### Slide #7

- The hydrograph of Canvas Back shows the water levels for the last two years. The upper line shows the static water level when the pump is off. The pump drawdown is the lower line.
- As of July 7, the levels were 50 ft deeper than they were one year ago, and 65 ft deeper than they were two years ago. The levels will continue to decline throughout the summer.

#### Slide #8

- The summary of the Canvas Back Water Supply issues are noted on this slide.
- The existing pump cannot produce water because of the depth of the water levels and unique characteristics of this pump.
- The well is needed for irrigation demands in the golf course and as a backup supply if Pintail needs to go offline for repairs.
- The new pump was selected to increase capacity given the lower water levels.
- There is a shortage of pump in stock right now because of many factors so we chose a pump amongst those readily available.

#### Slide #9

- The pump curve shows the old pump and the historical operation of 1200 to 1550 gallons per minute.
- At today's water level condition, this pump is not able to produce any flow.
- The selected pump has much higher head, but a lower flow rate so that it can produce water at today's condition.
- At today's water level condition, the new pump will produce about 900 gpm and if water levels decline to 300 feet deep it will still produce about 600 gpm.
- If water levels decline much further it will fall below the suction of the pump and become too deep for this well because of how shallow the well is constructed.

#### Slide #10

- The hydrograph of Pintail shows the water levels for the last two years. The upper line shows the static water level when the pump is off. The pump drawdown is the lower line.
- As of July 7, the levels were 45 ft deeper than they were one year ago, and 60 ft deeper than they were two years ago. The levels will continue to decline throughout summer.

#### Slide #11

- The summary of the Pintail Water Supply issues are noted on this slide.
- The existing pump will not meet the maximum domestic demands of the Potable System if water levels continue declining, which is 450 gpm. This is an absolute minimum flow to meet water demands, The pump flow should be maintained much higher to reduce the pump operation time.

- The new pump was selected to increase capacity given the lower water levels.
- There is a shortage of pumps right now because of many factors so we chose a pump amongst those readily available.

#### Slide #12

- The pump curve shows the old pump and the historical operation of 1050 to 1250 gallons per minute.
- At today's water level condition, this pump is doing about 850 gpm.
- Flow will drop off quickly as water levels decline further. If water levels decline to 300 feet (another 80 feet), this well will not be able to meet the minimum requirement for the community of 450 gpm.
- The selected pump has much higher head, but a lower flow rate.
- At today's water level condition, it will do about the same as the current pump, about 850 gpm.
- If water levels decline to 300 feet deep it will still produce about 700 gpm.
- The pump will be lowered 120 feet bringing its depth to 500 ft deep to allow plenty of submergence.

#### Slide #13

- The summary of the plans for changing pumps is noted on this slide.

#### Slide #14

- Conserving water is what the community can do to help.
- The wells must be sized to operate at the minimum requirement of the community, which is based on the Maximum Day Demand, and is determined to be 450 gallons per minute.
- By reducing demand during summer months you not only reduce help the groundwater basin, but more importantly it will also reduce the amount of work the pumps have to do and improve the ability for those wells to be able to keep the system pressurized.

#### Slide #15

- A well replacement at the Canvas Back site would target the deeper aquifers similar to Pintail so that a deeper pump can be installed and there is more reliability in water supply with lower water levels.
- LSCE reviewed the Canvas Back site for well replacement considerations.
- The site itself within the walls is too small to fit the drilling operations for a new well, however a new well could be placed right next to the site. Land would have to be acquired from the golf course.
- Based on the existing well records there is enough deeper aquifer material here to be able to construct a deeper well at this location.
- It is possible for the deeper well to have lower arsenic, similar to Pintail, however there is no guarantee. Treatment could still be required.

- **The benefit of placing the well near the Canvas Back site is to re-use as much of the existing facilities as possible to keep the cost lower. The tank could be used and some of the piping and controls too.**
- **The cost to drill a well of this depth and size is about \$750,000. This is a ball-park current day cost. This is only the drilling and does not include the piping, pump, and controls.**