

SUMMARY OF WELL 4A REHAB (CIP PROJECT)

Well 4A has exhibited a decline in specific capacity as identified through the bi-annual well testing program. The well is about 22 years old and has never undergone a well rehabilitation. To halt decline and recoup capacity, the pump must be pulled out of the well and a rehabilitation program must be conducted on the well structure. The work must be completed when the water demands in the system are low, as Well 4A is a critical supply. To complete this work the well must be taken offline for 2 to 3 months to pull the pump, collect data within the well to finalize the rehabilitation program, conduct the well rehabilitation program, conduct maintenance on the pumping equipment and reinstall the pump after the well rehabilitation is complete.

Two contractors will be involved with the Well 4A Rehab: a pump contractor; and a well contractor. The pumping equipment in Well 4A includes a submersible motor (Byron Jackson) that can only be worked on by one of two qualified pump contractors in northern California, they are: Kirby's Pump & Mechanical, or Pump Repair Service. The well rehabilitation can be conducted by any qualified, licensed well drilling contractor.

PROPOSED WELL 4A SCHEDULE

Milestone Activity	Dates
1. Develop bidding documents (LSCE)	July 2018
2. Pump Contractor (PC) – bidding and award	August – September 2018
3. Well Contractor (WC) – bidding and award	August – September 2018
4. (PC) remove pump, during seasonal low water demands, take pump offsite to rebuild bowl assembly	October or November 2018
5. (PC) well video log and scale sample, to be used by LSCE to verify and/or refine the well rehab program	October or November 2018
6. (WC) mobilize well rehabilitation program, about 1 week of actual onsite work	December 2018 or January 2019
7. (PC) reinstalls rebuilt pump and motor, extends pump 80 feet deeper in the well with new column and cable	January or February 2019
8. Final testing to confirm post-rehab performance	February 2019
9. Well 4A back online	February 2019

SUMMARY OF WELL 2 REHAB (CIP PROJECT)

Well 2 is approximately 47 years old and is equipped with an oil-lubricated pump assembly that was installed in 2003. The pump uses food-grade oil to lubricate the lineshaft bearings. As with most oil-lubricated pumps, oil tends to leak into the well casing. A substantial amount of food-grade oil has accumulated in Well 2, which is not a health concern, but it has made it difficult to collect accurate data to monitor well performance. The well specific capacity appears stable based on production flowrates alone. Recent well testing shows a significant decline in the overall efficiency of Well 2, which indicates possible issue with the pump bowls, bearings or motor. This is not surprising due to the age of the pump. To avoid loss of Well 2 during high system demands, the pump will be replaced at the same time as Well 4A in Fall 2018/2019. The oil-lubricated pump will be replaced with a water lubricated assembly, the motor starter will be replaced, and the oil will be removed from the well. The pump work and well work can be included in the Well 4A bid items and completed at the same time as the Well 4A rehab.