

MAIN PUMP STATION AND BERKSHIRE PUMP STATION GENERATOR REPLACEMENT

SCOPE OF WORK

- ❖ **Replace the Main Pump Station's Generators with a Single Stationary Generator**
- ❖ **Replace the Main Pump Station's Existing Manual Generator Disconnect with an Automatic Transfer Switch (ATS)**
- ❖ **Evaluate the Main Pump Station's Existing Main Switchboard**
- ❖ **Replace the Berkshire Pump Station's Portable Generator with a Permanent Generator**



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MAIN PUMP STATION GENERATORS



MAIN PUMP STATION AND BERKSHIRE PUMP STATION GENERATOR REPLACEMENT

MAIN PUMP STATION

EXISTING FACILITIES AND DEFICIENCIES

- ❖ Two 500 kW Emergency Standby Generators with Manual Synchronizing Controls
- ❖ Purchased Used in 1996 and Installed in 1997 (Age is now 38 years)
- ❖ Manual Generator Disconnect Switch, Manual Main Utility Disconnect Switch
- ❖ Main Switchboard
- ❖ Manual Synchronizing Controls Have Failed. Only One Generator Can be Operated at a Time, Limiting Station Flow to 14.0 cfs.
- ❖ Generators are Unreliable



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MAIN PUMP STATION

Critical 3 Reasons Why Action is Necessary ASAP

- ❖ **ArcFlash Issue**
 - ◆ **Pasadena Water and Power or Electrician is Required to Transfer Power to Generator**
- ❖ **AQMD Notice of Compliance**
 - ◆ **Have Hired Environ to Assist**
 - ◆ **Will Keep Board Apprised**
- ❖ **Unit #2 Radiator is Leaking**
 - ◆ **Cost is \$17,000. Since both units cannot be run together and parts are harder to find as repairs are needed, it is recommended that this unit not be fixed and cannibalized for spare parts for Unit #1**



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EMERGENCY PUMPING CAPACITY

- ❖ Title 22, Chapter 16, California Water Standards, Requires that a Public Water System's Water Sources Shall Have the Capacity to Meet the System's Maximum Day Demand (MDD) At All Times
 - ◆ 10-Year MDD – 32.23 cfs on 05/03/04
 - ◆ Recent MDD – 25.88 cfs on 04/22/09
 - ◆ MWD Capacity Charge – 24.29 cfs on 08/30/09 – Station Fire
- ❖ Size Generator to Deliver 24.0 cfs (1 MW Generator Required)

MAIN SWITCHBOARD EVALUATION

- ❖ Switchboard Is in Operable Condition
- ❖ Recommend Keeping Main Switchboard and Stocking Spare Fuses for the Disconnect Switches



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PRELIMINARY CONSTRUCTION COST ESTIMATES ⁽¹⁾

ALTERNATIVE	CONSTRUCTION COST	FLOW (CFS)
1 MW Diesel	\$1,200,000	24.0
1 MW Natural Gas ⁽²⁾	\$1,750,000	24.0

⁽¹⁾ Does not include cost for replacing main switchboard.

⁽²⁾ Does not include cost for natural gas service.



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BERKSHIRE PUMP STATION GENERATOR



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BERKSHIRE PUMP STATION

EXISTING FACILITIES AND DEFICIENCIES

- ❖ One 350 kW Portable Emergency Standby Generator
- ❖ Purchased New – 18 Years Old
- ❖ Automatic Transfer Switch (ATS)
- ❖ Generator Can Only Operate One out of four Pumping Units at a Time, Limiting Station Flow to 4.0 cfs
- ❖ Six hours of fuel supply



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BERKSHIRE PUMP STATION

EMERGENCY PUMPING CAPACITY

- ❖ Three Pumping Units Can Deliver 12.0 cfs
- ❖ During Station Fire, Two Pumping Units were Operated the Majority of the Time, the Third Pumping Unit was Needed Periodically
- ❖ 900 kW Generator Required to Operate Three Pumping Units (Deliver 12.0 cfs)



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BERKSHIRE PUMP STATION

PRELIMINARY CONSTRUCTION COST ESTIMATES

ALTERNATIVE	CONSTRUCTION COST	FLOW (CFS)
900 kW Diesel (Three Pumping Units)	\$600,000	12.0



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PROJECT SCHEDULE

- ❖ Design – Four months
- ❖ Construction – One year



