

Report on the Feasibility of an Automated, Real-Time, Water- Quality Monitoring Station at Gianelli Pumping-Generating Plant

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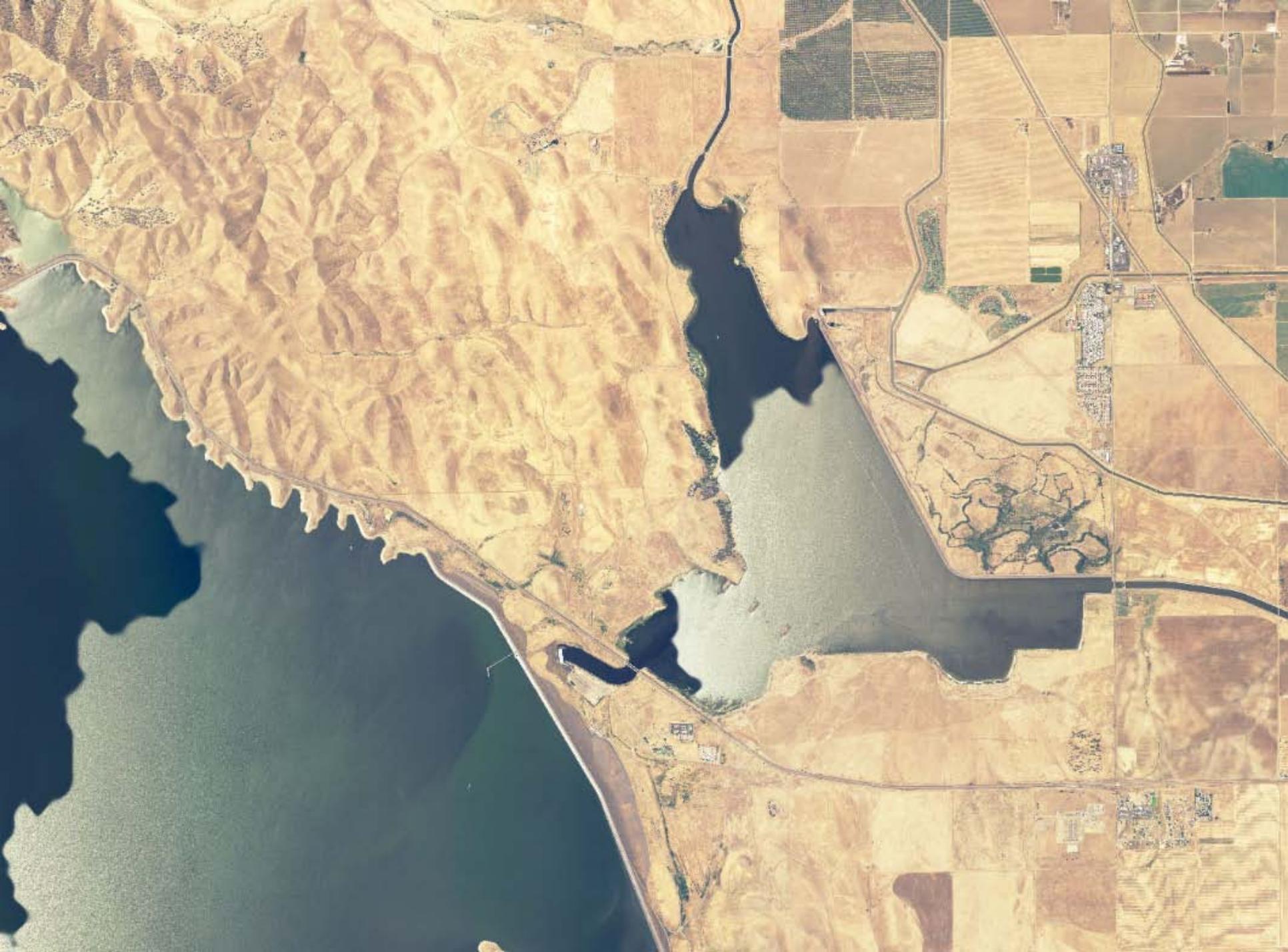
7/27/2011

Overview

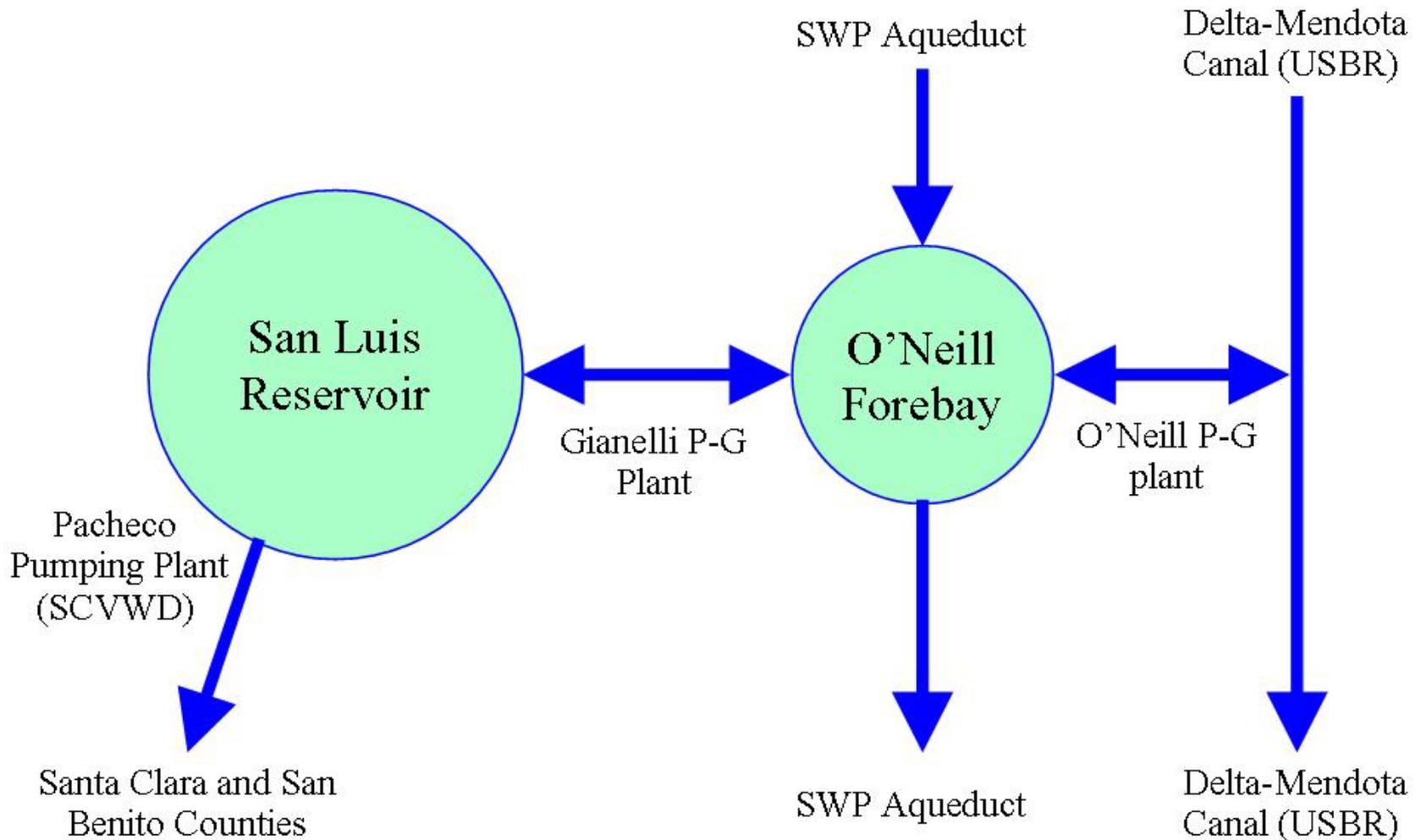
1. Project Description
2. Site Selection Criteria
3. Potential Gianelli sites
4. Mixing Study
5. Project Status
6. Questions
7. Answers (time allowing)

Project Description

- Gianelli P-G Plant is a boundary condition for the DSM₂-Aqueduct Extention Model
- 2005 Report on the model by CHM₂-Hill identified Gianelli/San Luis Reservoir/O'Neill Forebay system as a weak point in the model
- Want a station with EC and Organic Carbon Analyzers that monitors water entering the system at Gianelli



Project Description



Project Description

- A station at Gianelli would monitor water as it enters the aqueduct system from San Luis Reservoir
- Site selection – Where should we put the station?
- Site selection depends on many interrelated factors

2. Site Selection

A suitable site for the monitoring station was identified from a set of possible sites

Site Selection - Criteria

- Security
- Access
- Safety
- Cost
- Maintainability
- Representative sampling

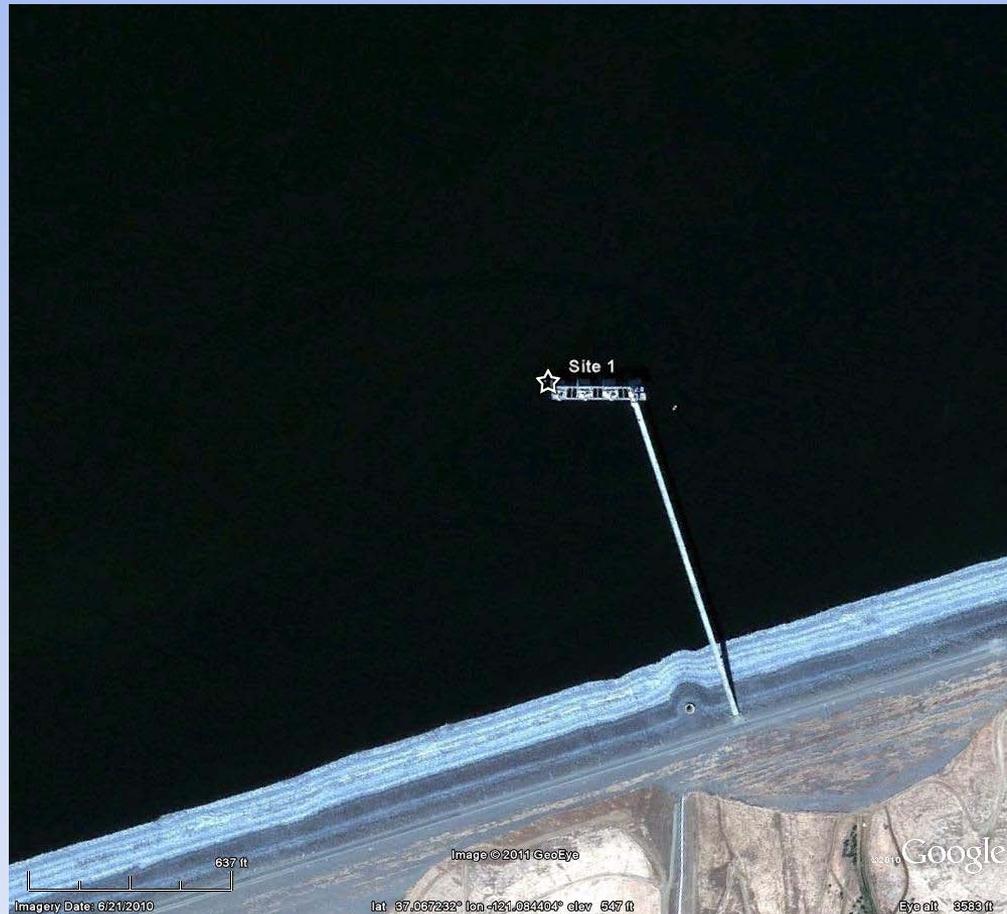
3. Potential Sites



● Potential Station Site

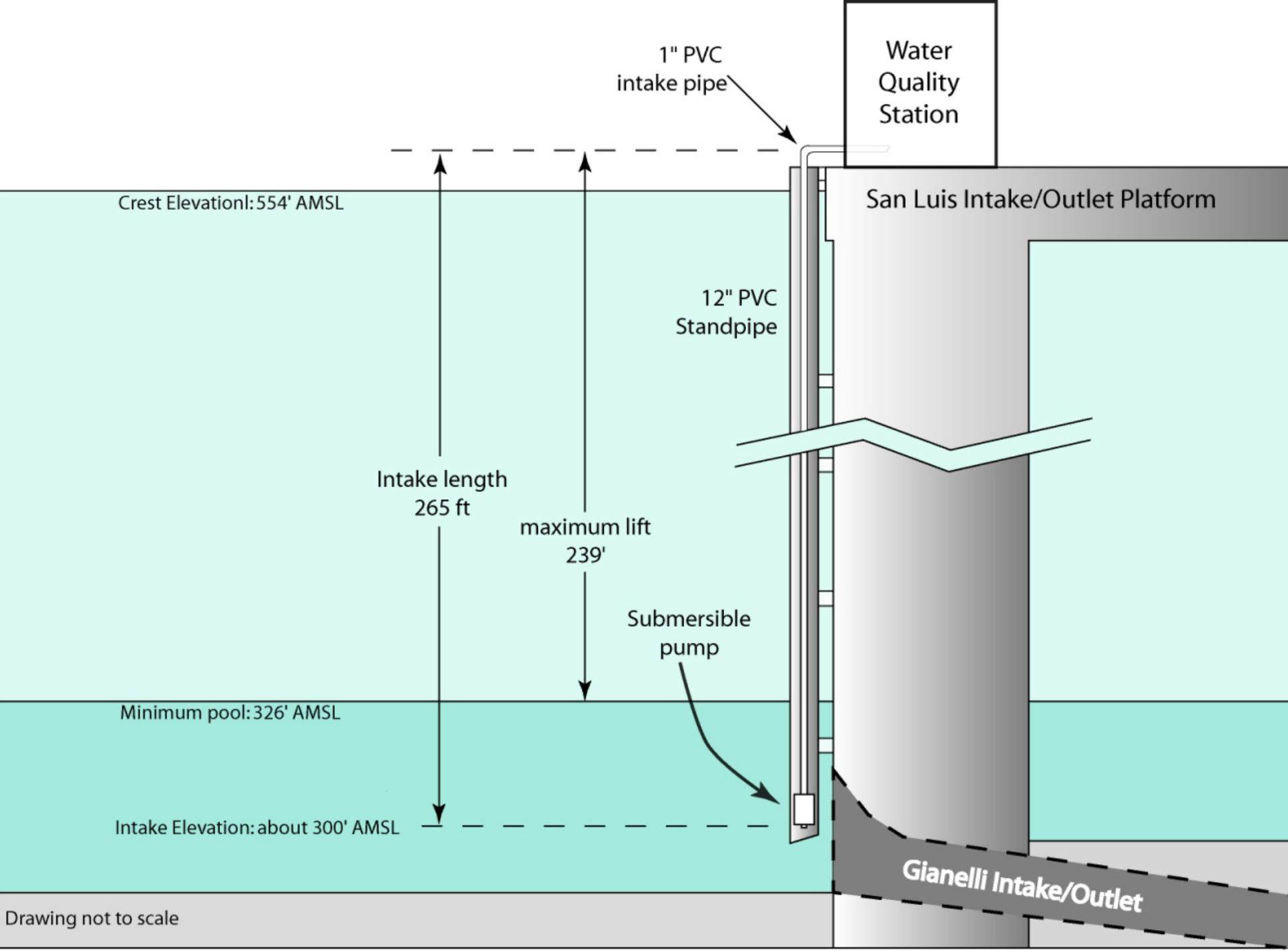
0 100 200 400 Meters

Site 1: at Intake Tower in SL Res.



Site 1: at Intake Tower in SL Res.

- Electricity available
- Secure
- Limited accessibility
- Potentially unsafe location (high winds, heights)
- Intake not practical



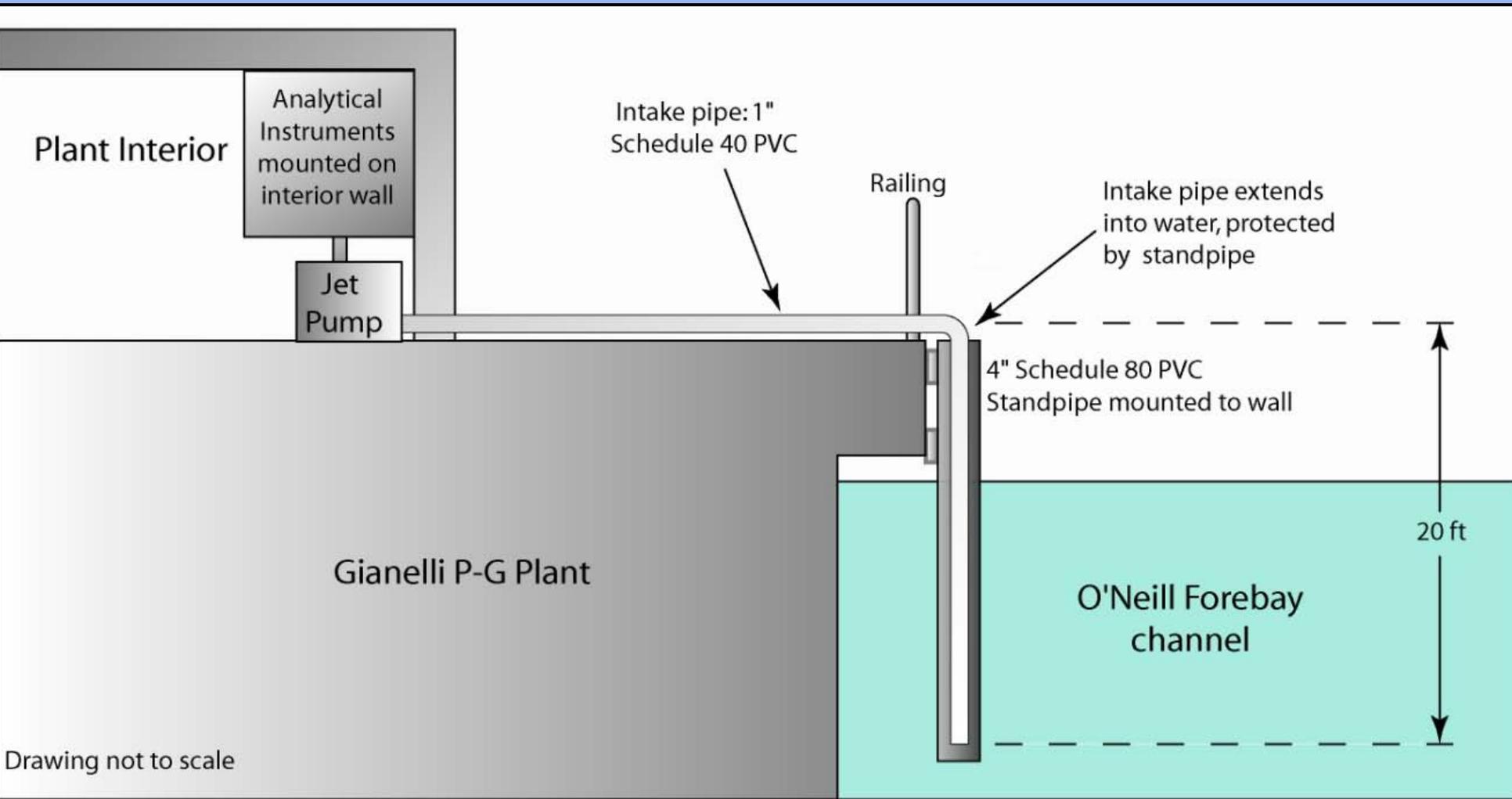
Drawing not to scale

Site 2: S side of P-G Plant



Site 2: S side of P-G Plant

- Within plant, mounted on wall
- Electricity available
- Secure
- Limited accessibility
- Intake practical
- Limited space in plant (but probably ok for Sievers)
- Similar, but less space, to Jones installation we saw yesterday



Drawing not to scale

Site 3: N Side of P-G Plant



Site 4: On N Side of Channel

- No electricity
- May not be as secure (we found out the hard way)

Site 5: S side of Channel

- Near plant
- SLFD indicated they would want architecture of building this close to plant to match plant architectural themes. Expensive.

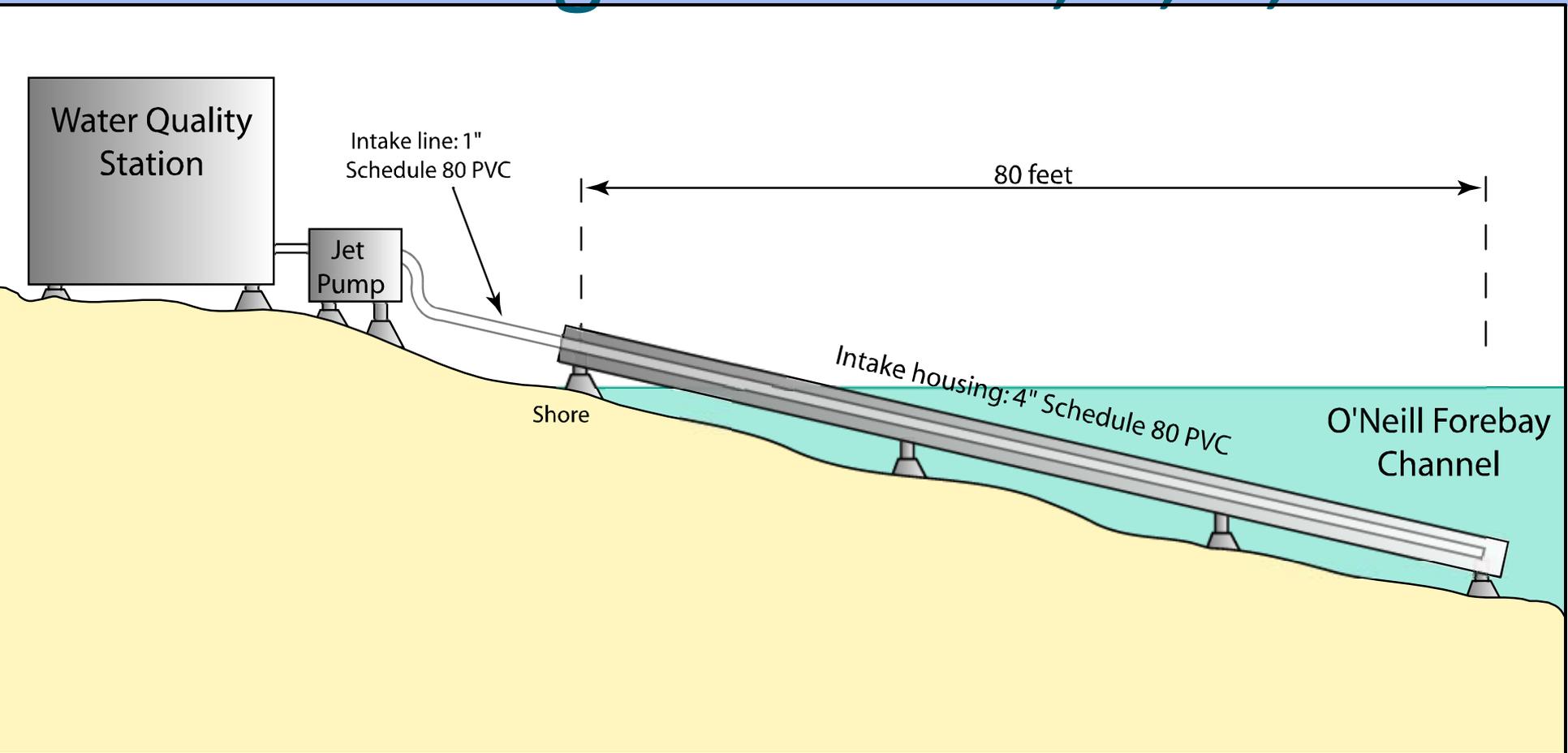
Site 6: S Side of Channel

- Secure
- Excellent access
- Electricity close
- Level, graded site good for building
- Intake will need to be designed

Site 7: Near Hwy 152 Bridge.

- No power close (expensive)
- Less secure than site 6, but probably ok
- Site would need grading – more expensive
- Mixing probably ok

Intake design – Sites 4, 5, 6, 7



4. Representative Sampling

Representative sampling is a key site criteria. A mixing study was conducted to examine whether several different sites within the channel below Gianelli were representative of water moving through the plant, primarily during generation.

Representative Sampling

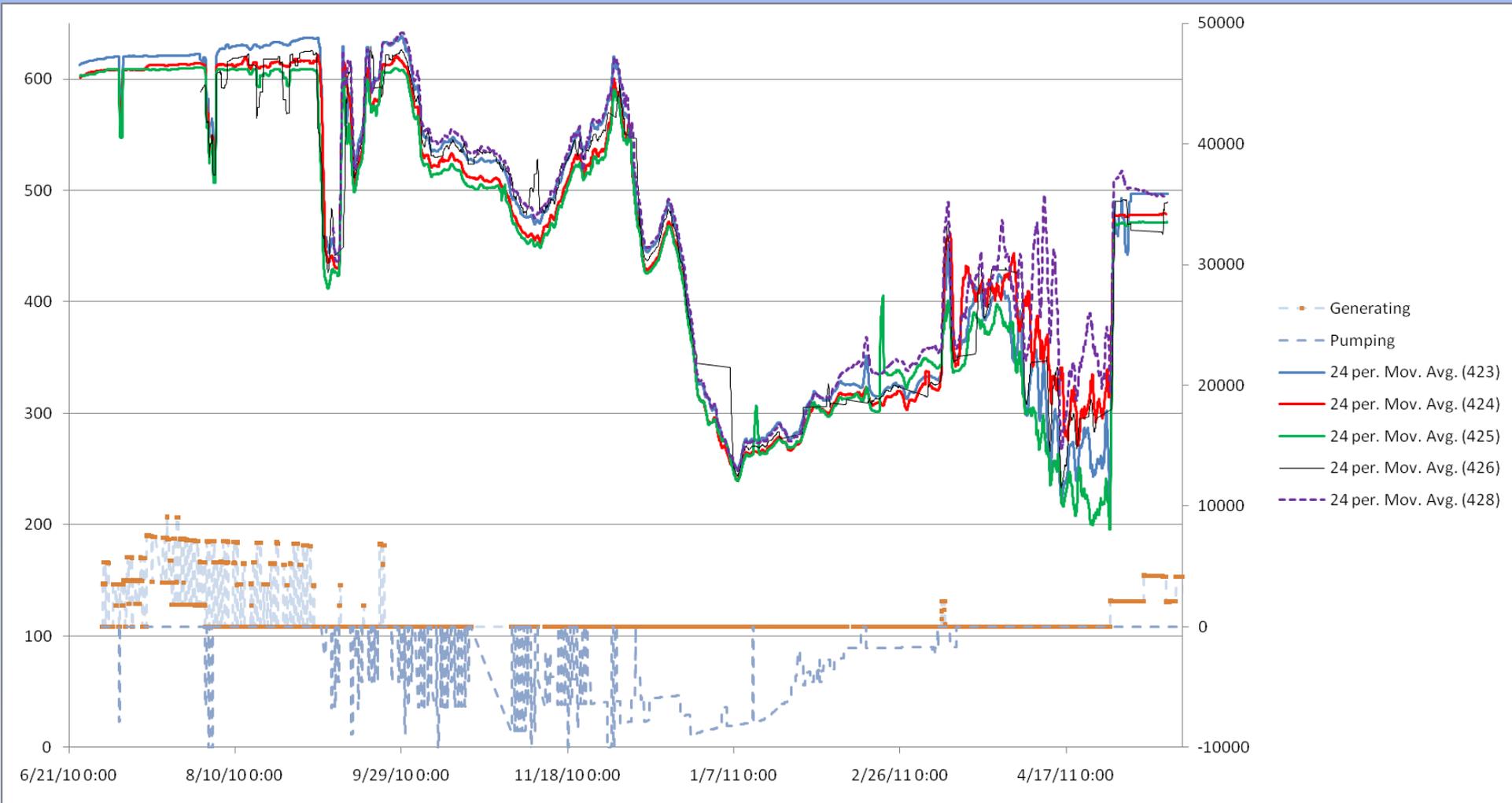
- Water from selected site should be representative of water moving through plant
- Water moves through bidirectionally through plant
- More important (for use with model) for water to be representative of water moving through plant during generation



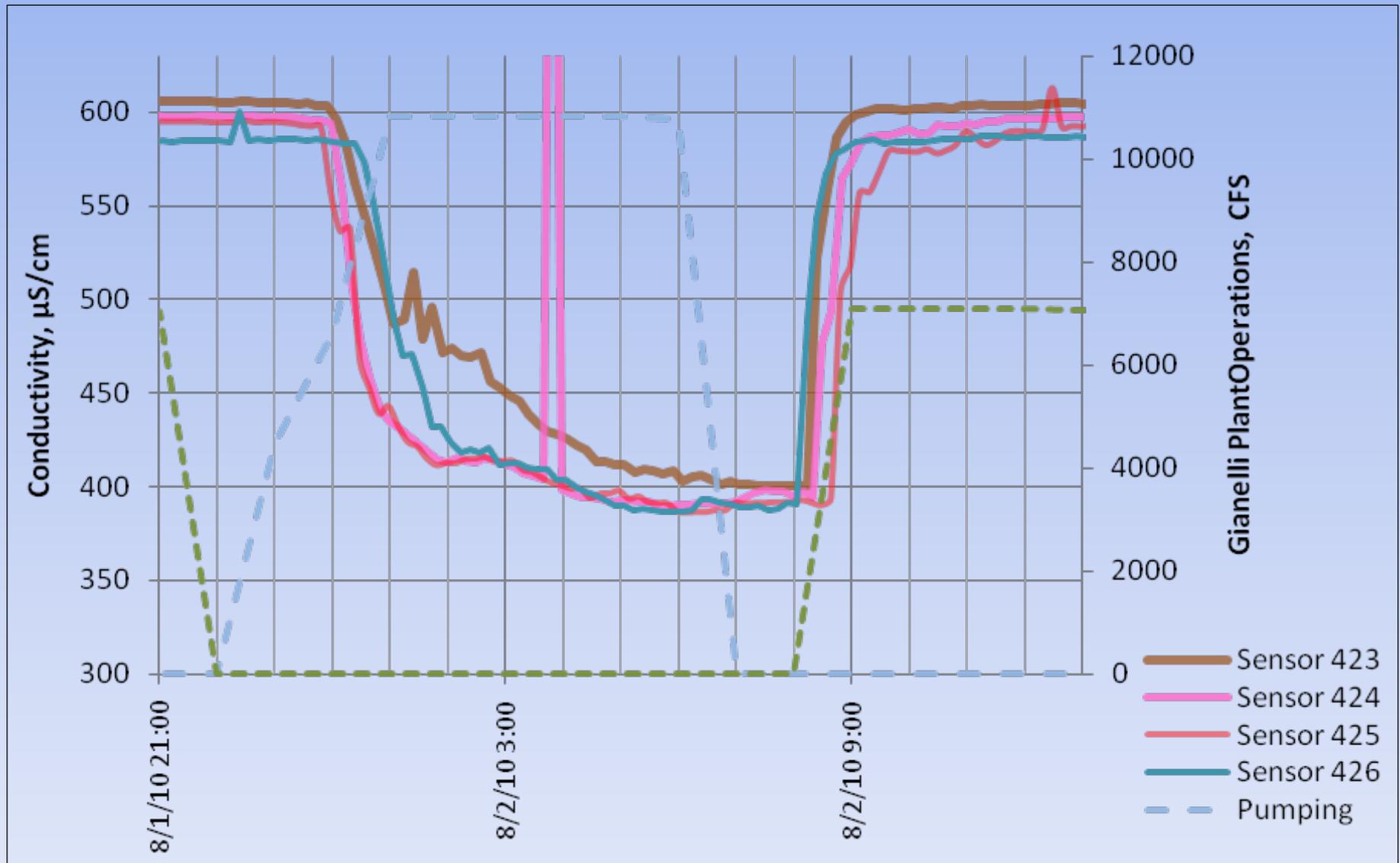
● MonitoringLocations

0 50 100 200 Meters

Mixing Study – Data Collected



Mixing Study – findings



Mixing study side-effects

- Sometimes a by-product (or side-effect) ends up being more important than the main purpose
- Example, Viagra was originally studied as a hypertension medication.
- Side effect(the relationships established with SLFD) may be most important result of the mixing study

Mixing study side-effects

- Mixing study meant working closely with SLFD over the last year.
- Regular discussions with the FD, and regular site visits
- Good working relationships established
- Helped to smooth process as we transitioned to the design and construction of the station

5. Project Status

Project Status

- Decision made to place station at Site 6
- Prefabricated building on a simple foundation
- Electrical will need to be run about 100ft to building
- An intake was designed to pull water from the channel.

Project Status

- Building constructed and has been delivered to Bryte (stay tuned for more on that in next talk)
- SLFD told me on Monday that they will be pouring the concrete pad for the building this week
- Intake was designed with help from Division of Engineering and has been finalized (more from Arin on this)

Project Status – Next Steps

- Intake projected to be installed in channel in September, depending on operations
- Electrical will be brought to site after concrete pad is complete
- Building can be delivered to site after pad and electrical are done
- Project should be complete by early October

Questions?