

Lake Whatcom Water and Sewer District

Sudden Valley WTP Assessment Project

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Presentation Outline

- Project Description & Purpose
- Sudden Valley WTP
- Project Goals
- Project Approach
- Summary of Alternatives
- Next Steps





Project Description & Purpose

- South Shore Water System Assessment
 - Assess conditions at Sudden Valley WTP
 - Provide basis for decision making with regards to WTP modifications and/or continued use
 - Phase I (Previous)
 - Assess existing condition of structures and equipment
 - Compile findings and complete Assessment Report
 - Phase II (Current)
 - Prepare Technical Memoranda (a la carte)
 - Prepare final alternatives analysis (Capital Improvements Plan for the SVWTP)





Project Goals

- Phase I WTP Assessment
 - Assess physical condition of WTP & equipment
- Phase II Alternatives Analysis
 - Assess alternatives for each treatment system
 - Provide recommendations for WTP modifications
 - G1 Maintain exceptional WQ performance record
 - G2 Accommodate immediate need for additional space and separation of chemicals/electrical equipment
 - G3 Provide adequate equipment and process redundancy
 - G4 Improve access and flexibility for equipment repair/rehabilitation and/or future expansion
 - G5 Provide capacity for full buildout flow (1,400 gpm)
 - G6 Provide treatment equipment for 30-50 year time period





Project Approach Schedule

	Board Meeting Dates									
	Sep-09	Oct-14	Nov-11	Dec-09	Jan-13	Feb-10	Mar-10	Apr-14	May-12	
Scope of Work Item	Sep-30	Oct-28	Nov-25	Dec-30	Jan-27	Feb-24	Mar-31	Apr-28	May-26	
1 Project Management										
2.1 Pump Performance Test										
2.2 Chemical Systems Analysis										
2.3 Disinfection Systems Analysis										
2.4 Backwash Systems Analysis										
2.5 Filtration System Analysis										
2.6 Tier 2/3 Seismic and Structural Analysis										
2.7 Structural/Arch Workspace Analysis										
2.8 NACE III Coating Inspection										
2.9 Risk Assessment and Project Prioritization										
2.10 Draft Alternatives Analysis Report										
2.11 Draft Alternatives Analysis Meeting										
2.12 Final Alternatives Analysis Report										
2.13 Alternatives Analysis Board Presentation										
2.14 Financial Analysis Board Meeting										
3 Quality Assurance/Quality Control										
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	р		Planned (labor not started)							
	а		Active (labor underway)							
	С		Completed (no further labor needed)							
	t		Target Completion							

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Sudden Valley WTP - Process Flow



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Summary of Alternatives Alternative 1: Status Quo

- Rehabilitate & maintain use of existing pretreatment (floc tank)
 - Repair coating system
- Rehabilitate & maintain use of existing filters
 - Underdrain & bottom shell investigation/rehab
 - Install additional ladders
 - Repair coating system on Filter 1/2
- Estimated cost: ~\$0.1M 1.0M





- New pre-treatment in a new building
 - Remove old flocculation tank
 - Install new standalone Flocculation, CAC, or DAF





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 - Remove old flocculation tank
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Flocculation – Existing tank.



CAC – Contact Adsorption Clarifier. Typical for package filtration equipment.



DAF – Dissolved Air Flotation treatment package.





- New pre-treatment in a new building
 - Remove old flocculation tank
 - Install new standalone Flocculation, CAC, or DAF
- Rehabilitate existing filters
 - Underdrain & bottom shell investigation/rehab
 - Install additional ladders
 - Repair coating system on Filter 1/2
- Modify WTP to include additional storage etc.





- ~1,900 sf
- •~\$3.5M
- May allow for electrical room in WTP Main building





- Remove existing pre-treatment & media filters
- Construct new building
 - Install new pre-treatment and package filters





































- Remove existing pre-treatment & media filters
- Construct new building
 - Install new pre-treatment and package filters
 - Install new chemical delivery equipment
 - Provide chemical storage and access
- Modify existing WTP
 - New lab/storage space
 - New enclosed electrical room





- ~3,200 sf
- •~\$5.8M







- Remove existing pre-treatment & media filters
- Construct new building
 - Install new membrane filters















- Remove existing pre-treatment & media filters
- Construct new building
 - Install new membrane filters
 - Install new chemical delivery equipment
 - Provide chemical storage and access
- Modify existing WTP
 - New lab/storage space
 - New enclosed electrical room





- ~2,300 sf
- •~\$5.0M







Alternative Comparison Cost, Advantages, & Disadvantages

No.	Description	Capital Cost*	Advantage	Disadvantage		
1	Status Quo	\$0.1M – 1.0M	Capital costLand & permits	 Limited space and access Limited flexibility 		
2	Modified use of Existing Filters	~\$3.5M	Longer run timesWTP MB space	New buildingLand & permits		
3	New Package Filters	~\$5.8M	New technologyLonger run timesWTP MB space	New buildingLand & permitsPilot testing		
4	New Membrane Filters	~\$5.0M	- WTP MB space	 New building Land & permits Pilot testing New technology 		
5	New WTP	~\$9-11M	- Modernize and optimize	Capital costLand & permits		



* Capital costs listed are for these alternatives only, and do not include recommendations or costs listed for other treatment system components. Total costs will be evaluated as part of the final Alternatives Analysis Report.

Alternative Comparison Goal Accomplishment

No	Description	Cost	O&M Cost	G1	G2	G3	G4	G5	G6
1	Status Quo	\$	\$	Х				Х	
2	Modified use of Existing Filters	\$\$	\$	Х		Х		Х	
3	New Package Filters	\$\$\$	\$	Х	Х	Х	Х	Х	Х
4	New Membrane Filters	\$\$\$	\$	Х	Х	Х	Х	Х	Х
5	New WTP	\$\$\$\$\$	\$	Х	Х	Х	Х	Х	Х

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Next Steps

- Technical Memorandum 20434-6
 - Disinfection System Analysis (Present on 1/27/2021)
- Technical Memorandum 20434-7
 - Backwash System Analysis (Present on 1/27/2021)
- Technical Memorandum 20434-8
 - Struc/Arch System Analysis (Present on 2/24/2021)
- Risk Assessment
 - (March, 2021)
- Final Alt. Analysis & Recommendations Report
 - (April/May 2021)





Questions?



