

Supercritical Water Oxidation Solids Treatment

*Presented by:
Robert Thompson
Assistant General
Manager*

*Operations
Committee
September 7, 2022*



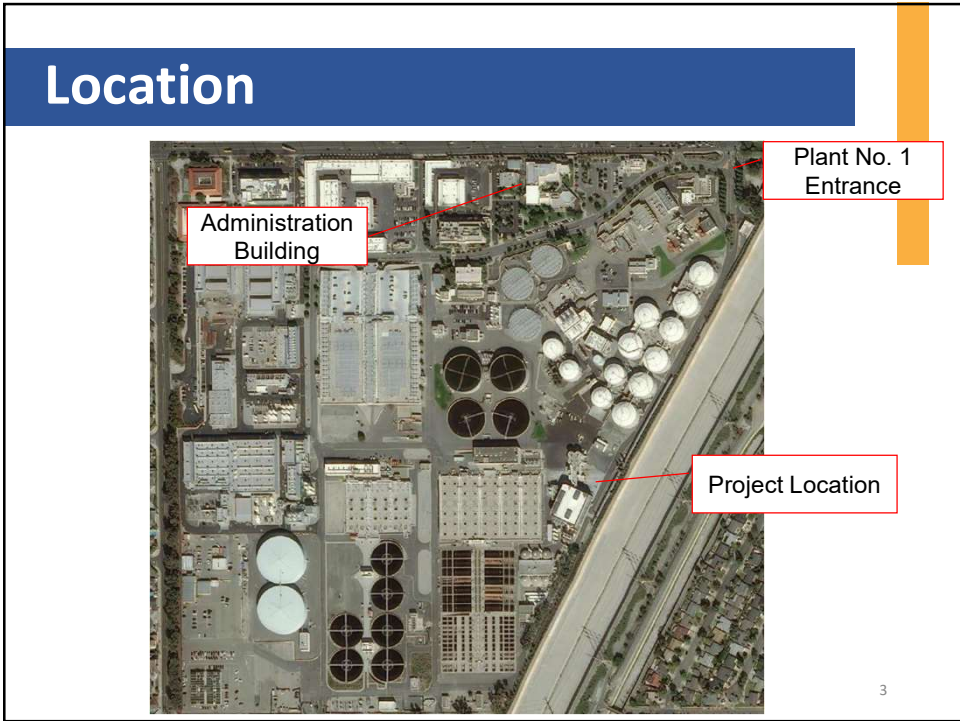
1

Follow Up Information

- Positive Test Results
- Staff Seeking Regional Partners
- Federal Funding Update
- Cost/Schedule Update

2

2



3

Fate of Chemicals in Solids

	SCWO Process		
<div style="background-color: #90ee90; padding: 5px; display: inline-block; text-align: center;"> 7 N Nitrogen 14.007 </div>	N Forms <ul style="list-style-type: none"> Organic Urea, ammonium Heterocycles 	→	Vent gas N species are mostly transformed to N ₂ gas Gas composition <3 ppm _v NH ₃ <5 ppm _v NO _x <3 ppm _v SO _x No odor
<div style="background-color: #ffcc00; padding: 5px; display: inline-block; text-align: center;"> 15 P Phosphorus 30.974 </div>	P Forms <ul style="list-style-type: none"> Organic Phosphate 	→	Solid minerals Phosphate precipitates Ca ₃ (PO ₄) ₂ MgNH ₄ PO ₄ ·6H ₂ O
<div style="background-color: #00bfff; padding: 5px; display: inline-block; text-align: center;"> 16 S Sulfur 32.066 </div>	S Forms <ul style="list-style-type: none"> HS⁻, COS, organic Mercaptans 	→	Sulfates, Hydrates CaSO ₄
	Emerging Contaminants <ul style="list-style-type: none"> Pharmaceuticals PFAS, 1,4-D 	→	Mineralized to CO ₂ Fluoride dissolved, CaF ₂
	Metals	→	-Dissolved -Precipitates

4

4

Tests of OC San Sludge



- Southern California Air Quality Management District asked for air emissions data as part of the permitting process.
- OC San Biosolids sent to the existing one-ton-per-day unit.
- Test results are promising.

5

5

Staff Are Seeking Partners

- The Board directed staff to seek out local research partners to share in the risks, costs, and potential rewards.
- Staff are having positive discussions with other agencies.
- Federal Funding Opportunities look promising for \$3M to \$3.4M.

6

6

Project Budget

Project Item	Current	Projected
374Water Contract (Equipment and Operation)	\$5,139,000	\$5,139,000
Public Works Site Prep and Utilities	\$370,000	\$1,855,000
OC San Costs (Staff, Permitting, Etc.)	\$254,000	\$439,000
Contingencies	\$1,127,000	\$1,167,000
Total Project Cost	\$6,890,000	\$8,600,000

Staff will bring a budget increase request, if necessary, with the award of the Public Works Site Prep and Utilities Contract. Sufficient funding exists in the Research Program at the current estimate.

7

7

Project Schedule

Milestone	Date
Site Prep Project Advertised	September 2022
Fabricate Nix 6 and Solids Feed	October 2022
Site and Utility Construction	March 2023
Install and Commission Unit	August 2023
374Water Startup and Operation	December 2023
OC San Own and Operate	March 2024

8

8