

# Supercritical Water Oxidation Solids Treatment

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## Follow Up Information

- Risk/Reward Sharing
- Cost of Treatment
- Fate of Chemicals

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## Fate of Chemicals in Solids

**7 N**  
Nitrogen  
14.007

**15 P**  
Phosphorus  
30.974

**16 S**  
Sulfur  
32.066

 **Emerging Contaminants**

 **Metals**

**SCWO Process**

→ **N Forms**

- Organic
- Urea, ammonium
- Heterocycles

→ **P Forms**

- Organic
- Phosphate

→ **S Forms**

- HS<sup>-</sup>, COS, organic
- Mercaptans

→ **Emerging Contaminants**

- Pharmaceuticals
- PFAS, 1,4-D

→ **Metals**

**Vent gas**  
N species are mostly transformed to N<sub>2</sub> gas

**Gas composition**


- <3 ppm<sub>v</sub> NH<sub>3</sub>
- <5 ppm<sub>v</sub> NO<sub>x</sub>
- <3 ppm<sub>v</sub> SO<sub>x</sub>
- No odor

**Solid minerals**  
Phosphate precipitates Ca<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>  
MgNH<sub>4</sub>PO<sub>4</sub>·6H<sub>2</sub>O

**Sulfates, Hydrates**  
CaSO<sub>4</sub>

**Mineralized to CO<sub>2</sub>**  
Fluoride dissolved, CaF<sub>2</sub>

**-Dissolved**  
**-Precipitates**



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## Proposed Project Budget

Project Item	Cost
374 Water Contract (Equipment and Operation)	\$5,139,000
Public Works Site Prep and Utilities	\$250,000
OC San Laboratory Support	\$120,000
OC San Staff Costs/Operation	\$254,000
Contingencies	\$1,127,000
Total Project Cost	\$6,890,000

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## Proposed Project Schedule

Milestone	Date
Award Contract to 374 Water	December 2021
Site Design and Bid	December 2021 – August 2022
Fabricate Nix 6 and Solids Feed	December 2021 – July 2022
Site and Utility Construction	August 2022 – September 2022
Install and Commission Unit	September 2022 - October 2022
374 Water Startup and Operation	November 2022- January 2023
OC San Own and Operate	February 2023 – November 2023

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