WWTF Upgrade
Deliberative Session Presentation

February 2019
Tim Vadney, PE
Mike Curry, PE
Administrative Order on Consent

- Address current effluent violations
- Total Phosphorus limit: 0.5mg/L

Project Dates

- Complete design of improvements: 5/31/2019
- Initiate construction: 9/1/2019
- Substantial completion: 5/31/2020

I. STATUTORY AUTHORITY

The following FINDINGS are made and ORDER ON CONSENT (“Order”) issued pursuant to Sections 308(a) and 308(a)(3) of the Clean Water Act, as amended (the “Act”), 33 U.S.C. §§ 1318 and 1319(a)(3). Section 308(a)(3) of the Act grants to the Administrator of the U.S. Environmental Protection Agency (“EPA”) the authority to issue orders requiring persons to comply with Sections 301, 302, 306, 307, 306, 318, and 405 of the Act and any permit condition or limitation implementing any of such sections in a National Pollutant Discharge Elimination System (“NPDES”) permit issued under Section 402 of the Act, 33 U.S.C. § 1342. Section 308(a) of the Act, 33 U.S.C. § 1318(a), authorizes EPA to require the submission of any information required to carry out the objectives of the Act. These authorities have been delegated to the EPA, Region I Administrator, and in turn, to the Director of the EPA, Region I Office of Environmental Stewardship (“Director”).

The Order herein is based on findings of violation of Section 301 of the Act, 33 U.S.C. § 1311, and the conditions of NPDES Permit No. NH0100510. Pursuant to Section 309(a)(5)(A) of the Act, § 1319(a)(5)(A), the Order provides a schedule for compliance that the Director has determined to be reasonable.

II. DEFINITIONS

Unless otherwise defined herein, terms used in this Order shall have the meaning given to those terms in the Clean Water Act, 33 U.S.C. §§ 1251 et. seq., the regulations promulgated thereunder.
Facilities Planning Study (2017/2018)
- Outlined $6.5M WWTF upgrade for compliance

10% - 30% Design (2018/2019)
- Additional wastewater sampling performed
- Additional site investigations performed
- Construction market more competitive
- Additional treatment process required for compliance
  - Effluent Filtration (Total Phosphorus)

Estimated Construction Costs have Increased
Project Costs

- Conceptual Design Cost Comparison

<table>
<thead>
<tr>
<th></th>
<th>BASELINE UPGRADE</th>
<th>RECOMMENDED UPGRADE</th>
<th>COMPLETE PROJECT</th>
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</thead>
<tbody>
<tr>
<td>Engineers Estimate of Construction Costs</td>
<td>$5,461,000</td>
<td>$6,351,000</td>
<td>$6,788,000</td>
</tr>
<tr>
<td>Technical Services, Financing, Construction Contingency</td>
<td>$1,814,000</td>
<td>$1,835,000</td>
<td>$1,917,000</td>
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<tr>
<td>Engineers Estimate of Construction Costs</td>
<td>$7,275,000</td>
<td>$8,186,000</td>
<td>$8,705,000</td>
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</tbody>
</table>
Capital vs. Operational Costs

Dewatering System
- Approximately $1M in capital
- Reduces operating cost by $80K/year

Annual debt retirement is less than annual operating costs

Including the dewatering system results in lower total project costs
- Debt retirement + annual O&M

<table>
<thead>
<tr>
<th></th>
<th>Liquid Disposal</th>
<th>Dewatering Disposal</th>
<th>Dewatering and Solar Drying</th>
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<tbody>
<tr>
<td>Capital Costs</td>
<td>$262,500</td>
<td>$875,000</td>
<td>$2,362,500</td>
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<tr>
<td>Total Annual O &amp; M Costs</td>
<td>$111,000</td>
<td>$32,000</td>
<td>$26,000</td>
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<tr>
<td>Total Present Worth</td>
<td>$2,257,500</td>
<td>$1,455,000</td>
<td>$2,834,500</td>
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</tbody>
</table>

• Three Disposal Options
• Dewatering Recommended
  - 8-yr payback
  - Centrifuge technology
  - Cake disposal: twice/month
  - Higher Capital Costs
## Estimated Project Costs

### PDR Level (30%)

<table>
<thead>
<tr>
<th>PROJECT COMPONENT</th>
<th>COST</th>
<th>COMMENTS</th>
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<tbody>
<tr>
<td>Construction</td>
<td>$6,620,000</td>
<td>Refer to Construction Summary</td>
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<tr>
<td>Construction Contingency</td>
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<td>Allowance</td>
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<td>Technical Services</td>
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<tr>
<td>Design Services</td>
<td>$619,000</td>
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<td>Construction Administration</td>
<td>$761,300</td>
<td>Estimated Bidding &amp; C/A Allowance</td>
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<td>Materials Testing</td>
<td>$33,000</td>
<td>Allowance</td>
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<tr>
<td>Direct Equipment Purchase</td>
<td>$15,000</td>
<td>Lab item allowance</td>
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<td>Land Acquisition/ Easements</td>
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<tr>
<td>Legal/ Administrative</td>
<td>$33,000</td>
<td>Allowance</td>
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<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>$8,411,300</strong></td>
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<tr>
<td>Financing</td>
<td>$50,000</td>
<td>Estimated interim interest on Loan value</td>
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**Includes:**
- Brown Street Pump Station
- Sludge Dewatering System

**Excludes:**
- Lagoon demo/closure

**ENGINEER'S ESTIMATE OF PROJECT COST**

$8,461,000
Project Multiplier Factor

Project Multiplier

Site-specific based on local economy, available labor force, construction difficulties, current bidding market, design phase, etc.

Current Project Multiplier (10%): 1.10

Example:

If multiplier reduced to 1.0, then capital cost estimate is reduced by $700K
Current Available Funding

Recommended Project Cost (30%) = $8.5M
Funding Difference = $1.6M

### TABLE 3-1
PROJECT FUNDING SUMMARY

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>FUNDING SOURCE</th>
<th>TOTAL</th>
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<tr>
<td></td>
<td>GRANT</td>
<td>LOAN</td>
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<td>USDA Rural Development</td>
<td>$2,934,000</td>
<td>$3,566,000</td>
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<td>NBRC – Septage Grant</td>
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<td><strong>TOTAL AVAILABLE PROJECT FUNDING</strong></td>
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Comprehensive Technical Review

- Technical Approach
- Engineering calculations
- Cost effectiveness
- Funding
- Operation & Maintenance
- Future Considerations

30% Design Approved by Funding Agencies in January 2019
Preliminary Building Plan
Preliminary Sequencing Batch Reactors