engineered solutions.

EDI engineered solutions are the result of over 40 years experience in the water and wastewater treatment industry. By applying their advanced technology principles of aeration and biological treatment to challenges facing their customers, EDI has earned the reputation of being an innovator and industry leader.

Does the IDEAL Solution remove ammonia? Even in the winter?
The IDEAL Solution has demonstrated the ability to remove ammonia to less than 0.05 mg/L, even when the water in the reactor was less than 3°C! Thermal insulation may be used to minimize reactor cooling if extremely low temperatures are anticipated.

case study:
Miner, MO  |  Winter Performance Evaluation

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Influent (mg/L)</th>
<th>Effluent (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD</td>
<td>220 +/- 60</td>
<td>4.5 +/- 1.2</td>
</tr>
<tr>
<td>TSS</td>
<td>96 +/- 38</td>
<td>5.3 +/- 1.7</td>
</tr>
<tr>
<td>Ammonia-N</td>
<td>27 +/- 5</td>
<td>0.05 +/- 0</td>
</tr>
<tr>
<td>Nitrate-N</td>
<td>0.06 +/- 0.07</td>
<td>0.11 +/- 0.4</td>
</tr>
<tr>
<td>Nitrite-N</td>
<td>0.13 +/- 0.21</td>
<td>0.22 +/- 0.215</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>32 +/- 3</td>
<td>0.22 +/- 0.215</td>
</tr>
</tbody>
</table>

Note I: Error calculated using Student’s T with 98% confidence interval
Note II: Effluent Ammonia-N consistently below method detection limit of 0.05 mg/L

Project designed by: Lambert Engineering, Sikeston, MO
EDI’s IDEAL™ Lagoon Solution provides full nitrification even in severe winter conditions. IDEAL incorporates a single lagoon/earthen basin to treat a continuous inflow while maintaining biomass equilibrium.

The IDEAL™ Solution delivers high effluent quality for small-to-medium water reclamation facilities while retaining lagoon based operational simplicity.

EDI is the worldwide leading provider for wastewater lagoon solutions. Our innovative design offers simplicity and affordability to both municipal and industrial clients.

IDEAL® Benefits

Front-of-the-Plant Ammonia Removal
Removing ammonia at the front of the plant provides major benefits. Other processes typically look to the back of the plant for ammonia removal where BOD concentration is lowest. The IDEAL Process removes BOD and ammonia upfront where warm, carbon-rich influent water is available to increase biological activity and allow denitrification for easy recovery of oxygen and alkalinity.

Nitrate and Total Nitrogen Removal
Total nitrogen and nitrate restrictions are on the horizon. Converting ammonia to nitrate is only the first step. Denitrification, or removing nitrate, is the second step necessary for total nitrogen removal. The IDEAL Process provides this benefit as a natural function of the process, whereas many other systems require expensive upgrades to achieve similar results.

Long-Term Compliance Planning
Upgrades for advanced system control and maximum pollutant removal are made simple. No modification to the core treatment process is necessary for expansion of performance.

Energy and Chemical Savings
Microbes can use nitrate in place of oxygen. Denitrification that occurs naturally in the IDEAL process reduces oxygen requirements and decreases operational energy cost. The alkalinity recovered during denitrification can decrease or eliminate the need for chemical addition that some plants need for complete nitrification.

Worry-Free Operation During and After Peak-Plus Flow Events
The IDEAL Process has shown an excellent ability to maintain performance during and after heavy flow surges. The IDEAL Process also adjusts easily to varying degrees of organic loading.

Minimum Operator Attention
The IDEAL Process offers simple operation with operator commitment similar to traditional aerated lagoons.

IDEAL® BioReactor

1. Influent Manifold
2. BioReef™ BioCurtain
3. WAS Pump (optional)
4. Effluent Decanter
5. Optional Cover for Cold Climates
6. Aeration Units
7. Blower Building

*Operating sequence adjustable