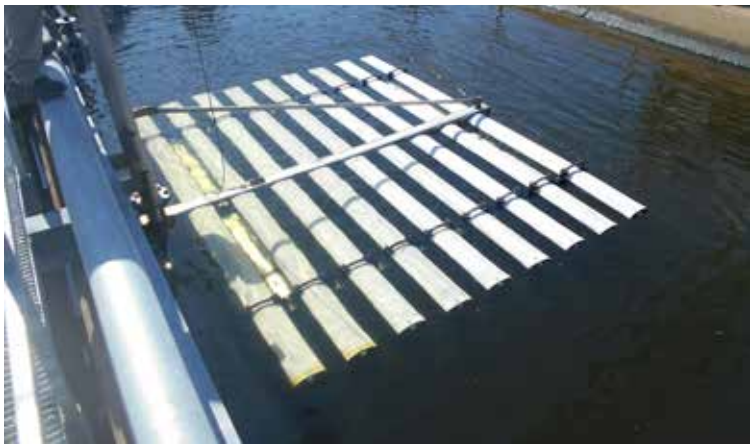
Pictures of Dixon, MO WWTP After Upgrade
with OxyProcess Technology & the OxyLift™ OxyStrip™ Diffuser



Design:

- 650 SCFM air total
- 5 racks of 18 diffusers each
- 90 diffusers total
- 228.6 sq ft of active diffuser membrane
- OxyStrip™ Diffuser: 1.5 meter silicone material
- 2.58 sq ft membrane active area per diffuser

- Each diffuser rack is full and individually retrievable—without de-watering the basin
- Local tree service boom truck for diffuser retrieval
- One strip diffuser rack = 100 disc diffuser equivalent
- Each rack can be retrieved & transported to the diffuser maintenance area
- Flexible design: 5 levels of redundancy
- Submersible mixer and PLC controls provide 24/7 mixing operation of the oxidation ditch
  - Aeration only as necessary for biomass growth

Performance, Redundancy, and Diffuser Innovation

OxyStrip™ Retrofit

Dixon, MO is an older railroad community, its history dating back to the Civil War. As the town grew beyond the capacity of a lagoon process, the lagoon was converted to a peak flow basin for stormwater control and an oxidation ditch was installed as the main treatment plant. The rotor ditch was operated for years with general maintenance. However, as mechanical plants age, the maintenance and activity increases to a condition of equipment failure. During this time the railroad activity moved out of town and Dixon began to experience a steady decline of its population and city budgets became stretched and reallocated. Meanwhile the WWTP started to violate permit limits for Ammonia and BOD. The plant received a letter from the attorney general and Department of Natural Resources (DNR) on lengthy NPDES permit violations. They needed to fix the plant and prevent Notice of Violations (NOV) fines. Funding became the town's next big issue and how to manage the improvements, while keeping costs low. The city engineer had many decisions to evaluate.

NPDES permit limits & actual influent/effluent quality are as follows:

NDPES	Influent	Effluent	NPDES Limit
Flow	.3 mgd		
BOD, avg	250 ppm	< 2.5 ppm	ND
TKN avg.	30 ppm	< 1.2 ppm	
Ammonia		0.0 ppm	< 0.7 ppm
$NO_3 + NO_2$	n/a	1.3 ppm	n/a
TP	4 ppm	< 1.0 w/o chem	n/a
Power savings vs. previous plant		33 % savings per year	
Infinite Recycle of MLSS		No Anoxic No Anaerobic Selector	

The city engineer, the DNR, and the State Attorney General commenced discussions on current and future goals for the WWTP—in addition to possible funding sources for the plant. A temporary floating aerator was installed as a measure of good faith; however, treatment did not improve significantly. The town's engineer, interviewed several engineering firms and everyone suggested a new plant with additional flow capacity and upgrades for TN and TP. Each of these firms' estimates, based on the needed flow, was between $4-6 million—depending on hydraulics and sludge management. Regardless, these estimates were not achievable since the community finances were limited and no grant money was available. The city engineer needed to upgrade the system with limited sewer plant funds and in a short time frame. He contacted Jaeger Aeration for a solution and contracted with their local representative for the installation and supply of the system. Jaeger Aeration reviewed the plans and determined that a retrievable SND system, an OxyProcess System, was the proper approach for long term TN and TP upgrades.

Although the city does not recycle water to non-contact water sources, the water quality coming from the WWTP certainly could be. By saving $10,000-12,000 per year of power costs, the future UV system it is now economical for the plant to consider a future UV system; the power savings and energy cost will offset themselves from the overall plant O&M.

DO Control: Blower: 4 hrs/day Mixing: 24 hrs/day

Operator Maintenance and Performance

Running with limited staff makes maintenance a challenge at a small municipality. The perceived easy operation of mechanical aeration proved to be expensive in operating costs and labor intensive with all of the lubrication and care required to keep everything running. The retrievable diffuser system is an efficient and effective solution for the upgrade. The complete project was accomplished for less than $400,000 and achieved a better water quality than the engineering firms indicated was required or even possible. The OxyProcess system has provided the community with easy maintenance, redundancy, and the best water quality in the area. Other comparable local plants fail to meet this water quality while employing 4 full-time operators; Dixon's plant relies on only one operator to successfully run the plant.

Learn more about the product:

(970) 535 - 0554 or **info@jaeger-aeration.com**

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