



RETRIEVABLE CASE HISTORIES

JAEGER—AERATION



VIDEO

Marshall MO

The original facility was installed 30 years ago and mechanical equipment needed replacement. The client selected Aeration HP for a non-proprietary process and simple mechanical reasons.

The client selected the D/B option and upgraded to stainless steel parts from HD galvanized. Process upgrade for cyclic aeration and DO/ORP control improved performance for TN and TP.

OBJECTIVES

- Reduce Energy Costs
- Retrievable Diffusers
- Stainless Steel Materials
- No Crane Required for Maintenance
- Portable Racks on Cart
- BNR Performance for TN & TP
- Retrofit of Existing Basin Without Concrete

PRODUCTS USED

- OxyProcess
- OxyLift
- OxyStrip
- OxyTransport
- OxyHoist Trolley

PERFORMANCE

- TN < 2 ppm
- TP < 0.5 ppm

SUMMARY

Jaeger Aeration used *OxyLift*, *OxyStrip*, and *Oxy-process* to provide a retrievable design for the aeration racks and mixers. The prefab design of the walkway allowed a quick installation with no fit-up issues. *Oxylift* and *OxyHoist* provide lower O&M without a crane required for diffuser inspection or maintenance.

Project Timeline: 1 Year



ORIGINAL FACILITY AND START TO EMPTY THE SOUTH BASIN



CONSTRUCTION AND ASSEMBLY OF PREFAB BRIDGES AND RACKS



FINAL ASSEMBLY AND INSTALLATION OF LIGHTING



JAEGER AERATION LLC

Pioneer of Fine-Bubble

<i>Phone</i>	+1 970 535 0554
<i>Fax</i>	+1 970 535 0945
<i>Email</i>	info@jaeger-aeration.com
<i>Site</i>	www.jaeger-aeration.com
<i>Corporate Office</i>	4175 Mulligan Drive Longmont, CO 80504 USA



VIDEO

Farmington MO

The original facility was installed 9 years ago with poor aeration performance since startup. After equipment started to fail, updates were considered.

Staff attended a seminar and interest was piqued for *OxyLift* design and performance. The design was implemented 4 years after budgeting. Energy savings of \$5000-6000/month, and TN<5 ppm

OBJECTIVES

- Reduce Energy Costs
- Retrievable Diffusers
- Stainless Steel Materials
- BNR Performance for TN & TP
- Reduce Energy Costs
- No concrete basins for Anoxic/Anaerobic
- Quick turnaround for basin installation <1 week

PRODUCTS USED

- OxyProcess
- OxyLift
- OxyStrip
- OxyMix

PERFORMANCE

TN<10 ppm

SUMMARY

Jaeger Aeration was the client selection since the Aspirating Aerators failed to achieve their objective. The city learned about the *OxyLift OxyStrip* product benefits and decided to select that technology vs repairing the air assist aspirating mechanical aeration.

Objectives were a 20% reduction in power and a TN<10 ppm.



ORIGINAL FACILITY - SERIES WWTP OPERATIONS



ANCHORING OF SS RAILS WITH COFFERDAM FOR DRY CONDITIONS



FINAL ASSEMBLY



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VIDEO

Hays KS

Facility upgrades needed for TN and TP for NPDES Permit. CMAR group 2 was selected and Jaeger Aeration was a partner in that group redesign from a 5-stage Bardenpho process.

Effluent guarantee is essential as well as the overall budget. J-A design saved over *\$6 million* in capital and *\$150K* per year with lower energy costs.

OBJECTIVES

- Saved \$6 Million const costs
- Saved \$150K O&M power costs
- Increased redundancy - 28 levels
- BNR effluent without selector basins
- Retrievable diffuser racks and lower O&M
- Provide redesign to achieve capital budget
- Startup process support for BNR effluent

PRODUCTS USED

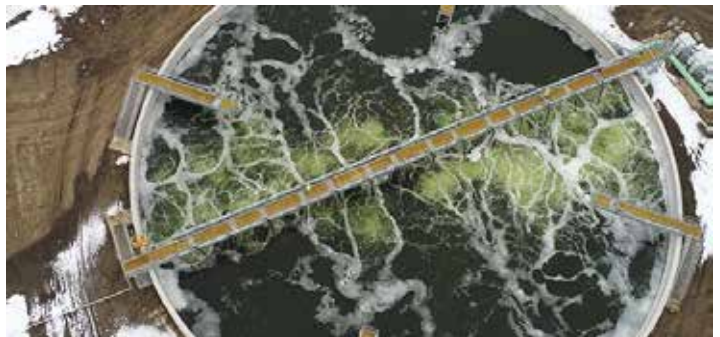
- OxyProcess
- OxyLift
- OxyStrip
- OxyTransport
- OxyCyclic
- OxyBridge

PERFORMANCE

- TN<1-2 ppm
- TP<1.5 ppm biological
- <0.4 ppm with chemical

SUMMARY

Jaeger Aeration partnered with the CMAR contractor to redesign the process to reduce project costs. A single 4.2 million gallon basin was designed with 28 levels of aeration redundancy and 4 levels of mixing redundancy. Prefab bridges incorporating air header, power, and lighting were provided in stainless steel and HD galv construction. Expedited construction for the project allowed the startup to meet promised startup dates.



ORIGINAL FACILITY AND EMPTY AERATION BASIN



CONSTRUCTION AND ASSEMBLY OF EXPANSION BASINS WITH WALK



FINAL ASSEMBLY



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VIDEO

Palmyra MO

The original facility is a two-rotor oxidation ditch that had a difficult time achieving a consistent ammonia permit discharge operating both rotors. Jaeger Aeration was contacted to

replace one of the rotors that stopped operating. Three months later, the equipment was on-site ready for installation. The aeration system was installed without dewatering the basin.

OBJECTIVES

- Retrievable Diffusers
- Stainless Steel Materials
- BNR Performance for TN
- Remove Inefficient Rotors for Diffused Air
- Install Equipment Without Dewatering Ditch
- Retrofit of Existing Basin Without Concrete Changes

PRODUCTS USED

- OxyProcess
- OxyLift
- OxyStrip
- OxyMix
- OxyBlower

PERFORMANCE

Ammonia < 0.1ppm

SUMMARY

Jaeger Aeration was contacted as an emergency replacement for one of two rotors that had broken shafts. The WWTP needed more oxygen quickly. J-A supplied the *OxyLift* retrievable system to be installed without dewatering the basin in 3 months.

A creative method of gravel/grit/sludge removal was used to displace a decade of settled sludge in the basin.



ORIGINAL FACILITY AND PARTIALLY INSTALLED EQUIPMENT V



CONSTRUCTION AND ASSEMBLY OF EQUIPMENT



FINAL ASSEMBLY



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VIDEO

Freeburg IL

A growing population for a suburban St. Louis, MO area needed an increased facility. The city selected Jaeger Aeration for its simplicity and ability to manage I&I.

The city selected the *OxyLift*, *OxyStrip* design with a single bridge for the two aeration basins. Each basin provides a 0.45 MGD ADF capacity. The PWD selected the J-A equipment since only one full-time operator will be onsite.

OBJECTIVES

- Retrievable Diffusers
- Stainless Steel Materials
- BNR Performance for TN & TP
- OxyLift to Provide Retrievable Racks
- OxyStrip Reduces Number of Diffusers
- OxyProcess Cyclic Aeration for Lower O&M

PRODUCTS USED

- OxyProcess
- OxyLift
- OxyStrip
- OxyMix
- OxyBlower

PERFORMANCE

- Ammonia < 0.1 ppm
- TN < 5 ppm
- TP < 1 ppm

SUMMARY

Jaeger Aeration was basis of design with the consolidated HD Galvanized bridge for diffuser and mixer access. A single DO/ORP controller will provide the energy conservation and Anoxic/ Aerobic conditions for the NPDES permit. All the equipment is retrievable above grade and provides a lower O&M and redundancy, which the facility previously did not have.



ORIGINAL FACILITY ROTOR DITCH



CONSTRUCTION AND ASSEMBLY OF EQUIPMENT



FINAL ASSEMBLY



JAEGER AERATION LLC

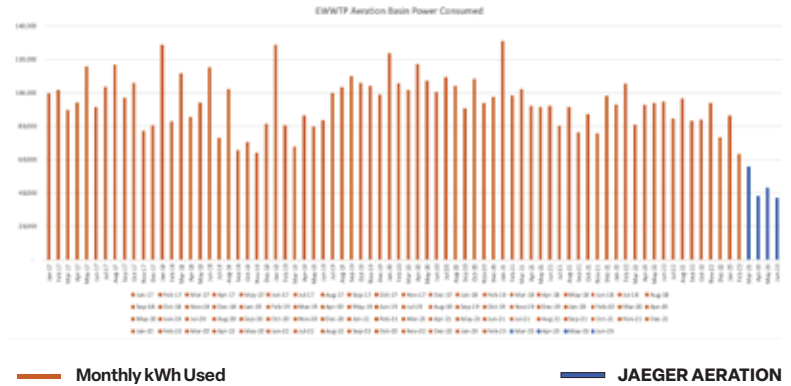
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Energy Savings (Farmington MO)

Farmington MO is a classic upgrade from the mechanical aeration to the retrievable OxyStrip OxyLift design. The energy consumption was confirmed by a dedicated power meter and monthly monitoring. The graph to the right shows that the long-term power consumption of 80,000 - 90,000 kWh/month which we reduced to < 40,000 kWh/month. Saving over \$6000/month.



OBJECTIVES

- Levels for Future Permits
- Lower O&M Costs for a TN and TP
- Increase Equipment Reliability and Lower Maintenance Costs
- Increase DO Levels in Aeration Basin

PRODUCTS USED

- Strip Diffuser
- OxyLift Racks
- OxyProcess Design Cyclic Aeration
- OxyMix with KSB Mixers

PERFORMANCE

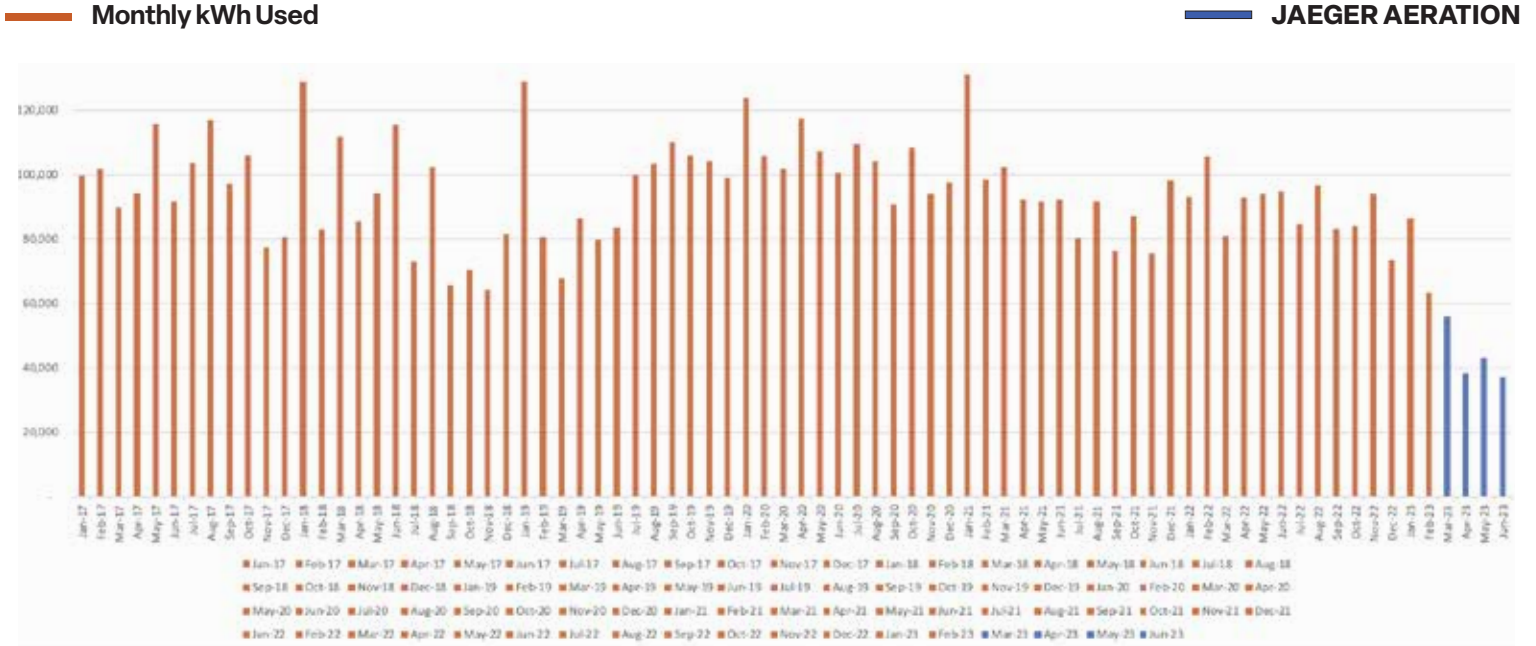
- Ammonia < 0.5 ppm
- TN < 5.0 ppm
- TP < 1.0 ppm

SUMMARY

The previous aerators were designed to provide the on/off aeration design. However, were unable to achieve a consistent nitrification. Low DO in the oxidation ditch was the normal operation ignoring diurnal loading.

The OxyLift OxyStrip design was based on expected loading and awareness of the AOR required. Blowers are controlled with VFD to match incoming loading throughout the day.

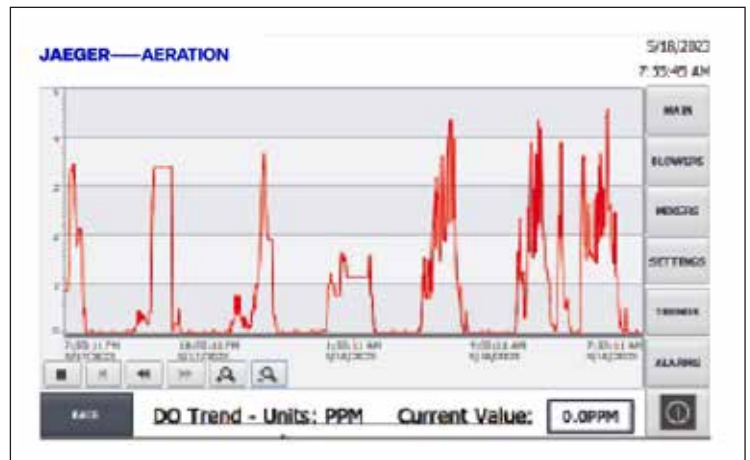
Farmington East WWTP Power Consumption



Mechanical failures every other year adjusted power consumption as illustrated above in kWh consumed. The kWh/mo power use is 80,000 - 90,000 kWh/mo. After our upgrade, we are using <40,000 kWh/mo.

SAVING AFTER THE UPGRADE PER MONTH:

Cost Savings	\$6,000
CO ₂ Reduction	21.6 metric tons
Coal Usage	24,290 pounds



12 hrs DO Trend (7PM - 7AM)

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