



Katie Hobbs
Governor

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY



Karen Peters
Cabinet Executive Officer
Executive Deputy Director

**Notice of Proprietary Treatment Product Listing
Pursuant to Arizona Administrative Code R18-9-A309(E)
ADEQ LTF #98581**

1. Proprietary Treatment Product Name, Model, and Description

Product Name: Lowridge® OSCAR

Models: XO₂

Description: The Lowridge® OSCAR - XO₂ system utilizes the aeration process in conjunction with a distribution manifold buried in a sand filter for wastewater treatment. The system consists of two tanks, each with two compartments, designed for wastewater treatment before it is delivered to the sand filter. These two tanks are divided into a 2/3rd and 1/3rd split configuration, allowing water to flow between chambers and tanks through hydraulic displacement. The inlet to the system is situated in the 2/3rd compartment of the first tank, which functions as a trash/septic chamber designed for the separation of settleable and floatable solids. From there, the wastewater flows into the 1/3rd side of the tank through a tee baffle. Aeration is provided in this chamber through two diffusers located near the bottom of the tank on the inlet side, creating a circulation pattern within the chamber. After leaving the aeration chamber, partially treated wastewater progresses through a tee baffle into the 2/3rd compartment of the second tank for further clarification. Wastewater enters the 2/3rd compartment of the second tank through a port. Subsequently, the wastewater moves from the clarifying chamber into the final 1/3rd compartment of the second tank through a port located below the liquid level.

The final chamber serves as a pump/return tank for dosing the sand filter. In the pump chamber, the expected average waste strength will be 29* mg/L BOD₅, 7.8 mg/L TSS, and fecal coliform of 19,200 CFU/100 mL or Log₁₀5.3 (95th percentile). Wastewater is pumped from the pump/return chamber into the distribution line leading to the OSCAR. Effluent from the pump chamber is dosed through a 120-mesh disc filter to the OSCAR coils, which are installed in ASTM C-33 sand. Dosing to the OSCAR is activated by a float switch located in the pump tank. The OSCAR is dosed through the OSCAR coils. This listing is applicable for design flows less than 3,000 gallons per day. During test conditions: (i) influent alkalinity ranged between 276 and 335 mg/L as CaCO₃, with an average of 306 mg/L, (ii) influent pH ranged between 6.8 and 7.4, with a median of 7.1, (iii) influent 30-day average BOD₅ ranged between 143 and 160 mg/L, with an average of 150 mg/L, and (iv) influent TSS ranged between 116 and 139 mg/L, with an average of 127 mg/L.

* 30-day average CBOD₅ to BOD₅ conversion using a conversion factor of 1.16.

Phoenix Office

1110 W. Washington St. | Phoenix, AZ 85007
602-771-2300

Southern Regional Office

400 W. Congress St. | Suite 433 | Tucson, AZ 85701
520-628-6733

azdeq.gov

2. Manufacturer Information

Name: Lowridge Onsite Technologies, Inc. (Lowridge)
 Address: PO Box 1179
 City/State/Zip: Lake Stevens, WA 98258
 Phone: 425-750-4922
 Fax: 425-335-3622
 Website: <https://oscaronsite.com/>

3. Recognized Treatment Performance

Parameter	Statistical Measure	Value
5-Day Biochemical Oxygen Demand (BOD ₅), mg/L	30-day arithmetic mean	3.9
Total Suspended Solids (TSS), mg/L	30-day arithmetic mean	2.0
Total Nitrogen as Nitrogen (TN), mg/L	five-month arithmetic mean	53*
Total Coliform, CFU/ 100 mL	95 th percentile	333 (Log ₁₀ 2.5)

*Default values used due to lack of submitting 3rd party test data as required per R18-9-E308(B)(1)(c).

4. Product Applicability and Limitations for Use for a Recognized General Permit Technology

<p>Applicability: This listing is only for Lowridge® OSCAR-XO₂ and is an aerobic treatment unit discharging to a modified Wisconsin mound system specified in A.A.C. R18-9-E308.</p>
<p>Limitations:</p> <ul style="list-style-type: none"> A. The XO₂ part of the system (i.e., the two tanks) must receive wastewater that meets the definition of typical sewage in R18-9-101(48), and OSCAR part of the system (coils and sand) must receive treated effluent that is treated to a level equal to or better than that specified in R18-9-E302(B). B. The product shall conform to the following. See OSCAR -XO₂ Treatment System Design Manual dated October 2023. C. During the first two years after installation, there shall be 2 inspections. Annual inspections: All components listed on the O&M manual check list. D. The OSCAR coils must sit on a 6-inch bed of ASTM C-33 sand (i.e., media, fine wash sand) and be buried beneath another 6 inches of ASTM C-33 sand. E. Each coil shall be comprised of 25 feet of tubing with 50 emitters spaced out every 6 inches. F. Each coil shall cover a min. of 25 sq. ft. G. A single emitter, on the OSCAR coil shall discharge 0.42 gph once fully pressurized, and each OS-50 coil shall discharge 62.6 gpd.

- H. The distribution line shall be looped back into a headworks assembly (i.e., location that receives the effluent from the 2nd tank prior to dosing the OSCAR) to allow for periodic flushing of the coils.
- I. One back flushing event of the disc filter shall occur after every 90 dosing cycles.
- J. One flushing event of the coil shall occur after each back-flush event of the disc filter.
- K. The water used for back flushing must be sent to the inlet (sewer line prior to its entry to the 2/3rd portion of the 1st tank) of the system.
- L. The headworks (i.e., location that receives the effluent from the 2nd tank prior to dosing the OSCAR) shall contain a 130-micron 120 mesh disc filter appropriately sized by the manufacturer.
- M. The pretreatment/trash chamber shall have a 733 gallons compartment or larger, compartment A (e.g., Infiltrator IM-1060 tank).
- N. The aeration chamber shall have a 361 gallons compartment or larger, compartment B (e.g., Infiltrator IM-1060 tank).
- O. The clarification chamber shall have a 733 gallons compartment or larger, compartment A (e.g., Infiltrator IM-1060 tank).
- P. The discharge chamber shall have a 361 gallons compartment or larger, compartment B (e.g., Infiltrator IM-1060 tank).
- Q. The design of the OSCAR - XO₂ shall follow the design, installation, and operation and maintenance details and conform to the requirements listed under R18-9-E308(D), (E) & (F). Also, see the exception section in 5.
- R. If there is conflict between the manufacturer's specifications and 18 A.A.C. 9, Articles 1 and 3, the provisions of the Arizona Administrative Code shall prevail.
- S. This product listing supersedes prior product listing actions and any prior approved supporting documents.
- T. The use of a disinfection device (per R18-9-E320) with this product is prohibited.
- U. The product, including the pretreatment works, is subject to A.A.C. R18-9-A312(F)(2) through (4).
- V. This approval listing EXCLUDES appurtenances which are considered to be an alarm, control panel, control, switch, timer, wiring, other electrical devices, & installation components; which are subject to both the manufacturer specifications and any more restrictive requirement in 18 A.A.C. 9, Article 3.
- W. ADEQ does not approve design or operation manuals for proprietary products. However, "if manufactured components are used, an applicant shall design, install, and operate the on-site wastewater treatment facility following the manufacturer's specifications" as per R18-9-A312(F)(2).

5. Alternative Criteria and Exceptions for Use under the Recognized General Permit Technology

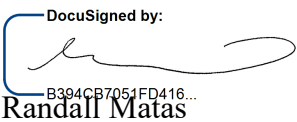
Alternative:	None
Exceptions:	<ul style="list-style-type: none"> a. The design criteria must follow the OSCAR - XO₂ Treatment System Design Manual, dated October 2023. The requirements for the design criteria contained in R18-9-E308 (C)(3) are waived. b. The wastewater is delivered into the engineered media by a series of “coils” of Netafim drip tubing. There is no aggregate around or under the tubing. Effluent is dosed directly into the engineered media. Primary plumbing is 1-inch PVC such 40 pipe and 1/2-inch diameter polyethylene tubing. The requirements for the design criteria contained in R18-9-E308 (D)(1) are waived. c. The application rate of liquid dosed to the OSCAR is 2.5 gallons per square foot of the ASTM C-33 engineered sand. The requirements for the design criteria contained in R18-9-E308 (D)(2) are waived. d. Cover material is ASTM - C33 sand. To prevent wind or water erosion prior to the establishment of vegetative cover, ASTM C-33 sand can be covered with an additional layer of decomposed granite or other loose aggregate that is less than 1 inch in size. The requirements for the design criteria contained in R18-9-E308 (D)(3) are waived. e. Some soil can be placed on OSCAR, but is not required to be graded. Final cover can be shredded bark, decomposed granite 1 inch or less, washed rock 1 inch or less. The requirements for the design criteria contained in R18-9-E308 (D)(4) are waived. f. There is no aggregate infiltration bed. An infiltrative bed is not required. The requirements for the design criteria contained in R18-9-E308 (D)(5)(a) are waived. g. No filter fabric shall be used. The requirements for the design criteria contained in R18-9-E308 (D)(5)(b) are waived. h. Minimum ASTM – C33 sand depth for Performance Category A shall be 6 inches. The requirements for the design criteria contained in R18-9-E308 (D)(6)(a) are waived. i. The slope of the OSCAR cap and cover material will be 1 vertical and 1 horizontal. The requirements for the design criteria contained in R18-9-E308 (D)(7) are waived. j. Each end of the coils will be attached to either a supply or flush manifold and will have no “end” to access. An inspection port will be installed in the coil area and one in the adjacent area. See drawings for example. The requirements for the design criteria contained in R18-9-E308 (D)(8)(a) and (b) are waived. k. No clean outs will be provided. Only secondary effluent will be dosed to the OSCAR and the supply and flush lines are automatically flushed every 90 doses. (A dose cycle is every 3.5 minutes). The requirements for the design criteria contained in R18-9-E308 (D)(9) are waived. l. Cut down trees within the coil area is the only location where tree removal is required. Trees should be removed “IF” the trunk will be ringed, resulting in tree death. The requirements for the design criteria contained in R18-9-E308 (E)(1)(a) are waived. m. “Plowing” can be accomplished with the teeth of an excavator or backhoe to a depth of 2-3 inches. The teeth must be scraped lengthwise in the basal area, parallel to the contour of the site. The requirements for the design criteria contained in R18-9-E308 (E)(1)(c) are waived. n. Follow the installation instruction found in the OSCAR-XO₂ installation manual, AZ 2023. The requirements for the design criteria contained in R18-9-E308 (E)(3) are waived.

6. Documents Used as the Basis for this Proprietary Treatment Product Listing Notice

Application for Treatment Product Listing:	April 26, 2023
Manufacturer's Warranty:	Refer to LTF # 98581. Lowridge Onsite Technologies, Inc. Limited Warranty, April, 2023.
Manufacturer's Specifications:	Refer to LTF # 98581: OSCAR -XO ₂ Treatment System Design Manual dated October 2023.
Installation Manual:	Refer to LTF # 98581: OSCAR-XO ₂ Installation Manual Dated April 2023.
Operation & Maintenance Manual:	Refer to LTF # 98581: OSCAR-XO ₂ Treatment System O&M and Troubleshooting Manual April 2023, AZ.
Owner's Manual:	Refer to LTF # 98581: OSCAR-XO ₂ Treatment System Homeowner's Manual April, 2023, AZ
3 rd Party Test data:	Refer to LTF # 98581: NSF/ANSI Standard 40 Final Report – Lowridge Onsite Technologies, Inc. September 2022.

7. Terms and Conditions for this Proprietary Treatment Product Listing Notice

- A. This Notice of Proprietary Treatment Product Listing shall remain in effect until any of the following occurs:
1. Applicable provisions of the Arizona Administrative Code, Title 18, Chapter 9, Article 3 are revised;
 2. Documents used for the basis of this listing are altered or modified;
 3. Manufacturer claims which are relied upon for this listing are later determined to contain an error or omission;
 4. The manufacturer requests termination of this listing;
 5. A listing error or omission is identified; or
 6. The manufacturer and ADEQ mutually agree to reissue this notification to incorporate correction or update for any reason.
- B. This Notice of Proprietary Treatment Product Listing does not apply when the:
1. Listed proprietary treatment product is modified or operated in a manner that conflicts with Arizona law or the documents used for the basis of this listing action in Section 6.
 2. Listed proprietary treatment products are used in a manner that cannot achieve the performance in Section 3 above.
- C. This Notice of Proprietary Treatment Product Listing applies solely to the product specified in Section 1 above.
- D. The manufacturer is responsible for notifying ADEQ of changes to the contact information at the following address:
- Attention: Product Listing Supervisor
 Engineering Review Desk
 1110 West Washington Street
 Phoenix, AZ 85007.
- E. The listing by ADEQ of any proprietary product or service is not an endorsement by ADEQ or the State of Arizona. ADEQ does not endorse, represent, guarantee, warranty or defend the use of any product which is authorized for use pursuant to A.A.C. R18-9-A309(E). Product providers are a direct source unrelated to ADEQ or the State of Arizona. Use of any listed product is at the user’s risk and the State assumes no liability.

Signature:	 <p>DocuSigned by: <small>B394CB7051FD416...</small> Randall Matas</p>	Date Signed:	10/16/2023
Title:	Water Quality Division Deputy Director		

ADEQ LTF # - 98581
 Reviewer: Karthik Kumarasamy | PhD, PE