



# Oregon

Kate Brown, Governor

## Department of Environmental Quality

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February 4, 2022

ANDY PETERS  
PUBLIC WORKS DIRECTOR  
PO BOX 248  
MOLALLA, OR 97038

**RE: City of Molalla STP**  
**File No: 57613 / Permit No. 101514**  
**Clackamas County**  
**Comments on: Predesign, 30% Drawings and VE Report for Wastewater Treatment Plant Upgrades**

Dear Mr. Peters:

The Oregon Department of Environmental Quality (DEQ) has reviewed the predesign, plans and Draft Value Engineering report for the above project. Dyer Partnership Engineers and Planners submitted the Predesign Report and the Plans for the City of Molalla. The Draft Value Engineering report was submitted by Meng Analysis.

### PROJECT DESCRIPTION

- New wastewater treatment process consisting of:
  - Grit removal;
  - Influent equalization;
  - Sequencing Batch Reactor wastewater treatment;
  - Aerobic biosolids digestion, sludge drying and building;
  - Effluent filter system;
  - UV Disinfection;
  - Non-potable water system;
  - Control building;
  - Accompanying electrical, instruments, and controls.
- Rebuilt or repurposed wastewater treatment plant units;
  - Transfer pump station;
  - Effluent storage lagoons.

### PREDESIGN, 30 PERCENT PLANS COMMENTS:

1. Fig. 1.2.1.1 Flows and loads: the ADWF is based on 2017 flows a very unusual year, resulting in very conservative (high) values. 2018 and 2019 ADWF are 60-70% of those values. Wastewater treatment design should be able treat low flows without problem.
2. Fig. 1.2.1.1: Inflow and Infiltration needs to be dealt with continually, now and in the future.
3. Table 1.7.2.1: Permit limits on a renewed permit are not finalized and need to be labeled so.

4. Table 1.7.2.1, note e: This will not be part of a renewed permit.
5. Grit removal should be after screening and before the equalization basin. Grit removal after the equalization and the transfer pump station defeats the purpose of the grit removal station. Grit removal can be constructed where the present aeration basin is located with minimal additional excavation.
6. Table 3.5.3.5: These are excellent design target effluent concentrations.
7. Table 3.5.3.5: Are ammonia loads from the digesters taken into consideration in the Table?
8. Effluent monitoring locations must be indicated on the plant hydraulic profiles.
9. VE Report: Agreed that SBR should be located on the north side of current Lagoon 2, either in the "Consolidation" site or to the East. Property acquisition can be difficult and time consuming.
10. VE Report: Agree that a phased approach to construction would be less expensive in the short term and may better suit flow needs as they ramp up, but costs are only deferred, not eliminated. DEQ has not heard of pending growth within the UGB but do not doubt some will come. Phase 1 must not compromise EPA treatment unit redundancy requirements.
11. VE Report: Simplified hydraulic gradient improvement will make the plant easier to operate and lower operations costs. Equalization relocation will add some construction costs.
12. VE Report: headcell grit removal. I have not seen these in action before. Grit removal should be after headworks and before equalization and pumping for best use.
13. VE Report: See the Predesign Report for UV and Class C recycled water needs. Class C needs a UV dose of 60 mJ/cm<sup>2</sup> and UV manufacturers will not guarantee disinfection without filtering.
14. VE Report: Permit Conditions: the conditions will be worked out with DEQ permit writers.
15. VE Report: Headworks capacity: this must be examined and resolved.
16. VE Report: Alternate treatment processes: I am open to considering other vendors and other processes. Further examination is needed.

The following are Tim Ruby's comments:

**1. Section 1.1.4, Lagoon Test Report, Page 1-5 (DEQ Requirements for Upgrading Lagoons)**

This section of the report indicates that the lagoon leakage test completed on the facility's existing lagoons in 2017 did not exceed ¼-inch per day. Please note that DEQ requires all existing storage lagoons (including existing irrigation lagoons) that leak more than 1/8-inch of water per day to be upgraded to reduce leakage (see Section 5.6.1, Page 79, of DEQ's 2009 Internal Management Directive "Implementing Oregon's Recycled Water Use Rules"). This DEQ requirement should be clearly understood by all stakeholders and be articulated in the next update of this design report. This is important for all to understand because the city will eventually have to upgrade both of its lagoons to meet DEQ's pond leakage requirements designed to protect groundwater quality.

**2. Section 1.1.3 and 1.7.2 Recycled Water Use Plan and NPDES Permit, Page 1-5 and 1-24 (Expansion of Existing Recycled Water Use Site)**

Section 1.1.3 and 1.7.2 of the report indicate that prior to commissioning of the new WWTP the city intends to amend the facility's current RWUP to add an additional 100+ acres of pastureland to their recycled water program. For planning and scheduling, please note that major modifications to existing Recycled Water Use Programs or Recycled Water Use Plans (RWUPs) are subject to Public Notice under OAR 340-045-0027. Further, be aware that engineering plan drawings and

specifications for any new transmission lines and irrigation systems will need to be submitted to DEQ for plan review/approval. The new transmission line and irrigation system should at a minimum meet all of the engineering requirements listed in the 1992 "Guidelines for the Distribution of Non-Potable Water of the American Water Works Association" (Refer to OAR 340-055-0030 at <https://www.oregon.gov/deq/wq/programs/Pages/Water-Reuse-Recycled-Water.aspx>). The submitted irrigation/soil engineering analyses should at a minimum demonstrate that the facility's Class C treated waters will be distributed/irrigated across the new site to match measured soil infiltration rates and/or vegetated surface to prevent unpermitted runoff and tailwater return requirements. If the city does not intend to upgrade its Lagoon #1 to initially meet DEQ's requirements, it is going to be very important that the city brings the new 100+ acres under irrigation at the time the new treatment plant comes on-line to ensure that the new lined Storage Pond No. 1 will have adequate storage during all months of the year.

**3. Section 2.5.16, Proposed Liquid Stream Equipment and Sizing Criteria, Effluent Storage, Paragraph 5, Page 2-8 (Publication Date of DEQ's Internal Management Directive for Recycled Water)**

Please note that DEQ's Internal Management Directive – Implementing Oregon's Recycled Water Use Rule was published in 2009 and not in 2017. This typo should be fixed in the next update of this design report.

Further, for clarity, reference to "1 by 10<sup>-7</sup>" centimeters per second in this section of the report should be replaced with "1 x 10<sup>-7</sup>" centimeters per second in the next update of the report.

**4. Section 2.6.2, Regulatory Requirements, Paragraph 2, Sentence 4, Page 2-9 (Exceptional Quality Biosolids Vector Attraction Requirements and Pollutant Concentration Limits)**

Please note that only Class A biosolids meeting vector attraction requirements 1 -8 may meet the EQ category [40 CFR §503.33(b)(1)-(8)]. Therefore, it is recommended that the following sentence in this section of the report be rewritten for clarity in the next update of this design report.

...If Class A biosolids meet the vector attraction reduction requirements and the low metals pollutant concentration standards limits under EPA's Part 503 regulations they are considered to be Exceptional Quality.

**5. Section 2.6.2, Regulatory Requirements, Paragraph 4, Sentences 2 and 3, Page 2-10 (The last two sentences of this paragraph should be expanded for clarity in the next update of this design report as follows.)**

...To meet Class B biosolids pathogen reduction requirements, the regulations state that the solids retention time must be at least sixty days at 15 degrees Celsius (deg C). Aerobic digestion may also be used to meet Class B vector attraction reduction requirements for land application and to reduce the quantity of sludge for disposal management.

**6. Section 2.6.3, Biosolids Reuse, Page 2-10 (It is recommended that this section be rewritten as follows in the next update of this design report to provide more detail and clarity.)**

Application of biosolids onto agricultural land must be done in accordance with applicable site restrictions, general requirements and management practices defined in OAR 340-50 and 40 CFR Part 503. Most importantly biosolids must be land applied at a rate that does not exceed the agronomic rate that supplies the nitrogen needs of the plants being grown. In addition, the application of pathogens and regulated pollutants must be monitored and kept within the approved limits. Technical guidance regarding the land application of biosolids was provided by DEQ's Internal Management Directive – Implementing Oregon's Biosolids Program (DEQ, 2005).

**7. Section 2.6.5, Biosolids Dewatering, Page 2-11**

This section of the report indicates that a storage area for the dewatered biosolids will be located immediately adjacent to the screw press area. Please note that, if the city plans to store any biosolids outside the covered screw press area, this area will have to be properly paved, bermed, and equipped for leachate collection and treatment and preferably be covered. Please note that Class A biosolids typically have to be protected from the elements after they are produced to prevent pathogen regrowth and odors before they are used. This is particularly true for biosolids that are heat dried.

**8. Section 3.1.6, Yard Piping, Page 3.1.-3 (Facility Stormwater Collection and Management)**

Please note that any exposed storm and roof drains within the confines of the treatment facility that discharge to surface waters and/or nearby storm water ditches may be subject to separate permitting under the DEQ's Industrial Stormwater Discharge Permit No. 1200-Z. (Refer to Table 1 of DEQ's 1200-Z permit at <https://www.oregon.gov/deq/wq/wqpermits/Pages/Stormwater-Industrial.aspx>). Be aware that storm resistant shelters and process buildings with unsealed zinc or copper roofing materials can be particularly problematic with respect to meeting DEQ's stormwater quality limitations. Please note that the facility may be eligible for conditional exposure from permit coverage if the facility is properly designed for "No Exposure." Please keep this in mind as you work through your final design of yard piping, site drainage, and collection and treatment of impacted stormwaters at the treatment facility.

**9. Section 3.6.3, Design Criteria, Page 3.6-2, Oregon Class A Recycled Water Criteria**

It is recommended that you expand this section of the report when it is next updated to be consistent with OAR 340-055-0012(7)(c)(A) for Class A waters in Oregon which stipulates that filtration equipment used before disinfection must be capable of producing effluent that does not exceed an average of 2 NTU within a 24-hour period, 5 NTU more than five percent of the time during a 24-hour period, and 10 NTU at any time.

**10. Section 3.8, Effluent Storage Ponds, Page 3.8-1 thru 3.8-16)**

***a. Proposed Modifications to Lagoon No.1 (Lagoon to be Recommissioned as Effluent Storage Pond No. 2)***

This section of the report indicates that during the current upgrade project Lagoon No. 1 will be drained and cleaned of accumulated solids, and, if necessary, its native clay liner will be spot repaired. The report further indicates that after the upgrade project, Lagoon No. 1 will often sit empty and will primarily be used during wet springs and falls and for

emergency purposes. Please be advised that, if after the upgrade project the use of Effluent Storage Pond Lagoon No. 1 becomes commonplace, the DEQ will have to require the city to upgrade the pond to meet current state standards, complete leak testing, and possibly install monitoring wells at the site depending on the lagoon upgrade approach chosen. Subject to city input, DEQ may place a condition of this nature in the city's NPDES permit renewal. Further, DEQ questions if the bottom and sides of the pond should be protected against the effects of desiccation during periods when the pond is empty to preserve its ability to retain waters and protect groundwater. Possibly a protective soil cover might be needed, but DEQ is open to discussing this issue with the city as the project design proceeds.

***b. Separation Distance Between the Bottom of the Storage Ponds and the Highest Recorded or Indicated Seasonal Groundwater Table Elevation***

This section of the report does not discuss what the design separation distances will be between the bottom of the recommissioned Effluent Storage Ponds and will need to be defined as part of design. This is important to understand to ensure that the design will not be affected by contact with groundwater. Further, it is noted that drawing 700-M-4 includes details for an underdrain associated with Effluent Storage Pond No. 1 which is proposed to be lined with a new 60-mil thick, linear, Low-Density Polyethylene (LLPDE) type elastomeric membrane. The details of this underdrain system, its ability to maintain a separation distance between the bottom of the pond and groundwater, and where it will discharge to must be well defined as part of design.

***c. Final Effluent Water Balance***

DEQ appreciates the effort and work expended in developing the pond water balances presented in the report. For clarity, the report should detail if the precipitation derived from the NOAA Molalla Station represents a high precipitation or wet year (1 year in 10 recurrence interval) or is based on a single high precipitation year that took place during the period 2015 – 2020. This should be detailed in the next update of this design report. Nevertheless, the preliminary effluent water balance depicts that the city in the very near-term (in the next 8-years) will likely need to upgrade/line Effluent Storage Pond No. 2 (currently known as Lagoon #1) and further expand the facility's recycle water use program consistent with the population growth anticipated. This will be particularly true if the next facility NPDES permit remains the same in not allowing the facility to discharge any treated waters to the Molalla River in May, June, and October when crops do not require a lot of water and when the winter rainy season is ending and beginning.

**11. Positioning of Flow Meter FM-7, Drawing No. 20-P-2, General Process Diagram – Liquid Stream**

This flow meter is currently positioned to measure discharges from Effluent Storage Pond #1 (which is a good thing). However, the flow meter appears to be positioned such that it would not be able to measure flows associated with the by-pass line leading from the new non-potable water tank to the final effluent line that will discharge to the Effluent Pump Station. This problem could possibly be fixed by placing a separate flow meter on the non-potable by-pass line or by re-positioning FM-7 downstream of where the by-pass line will connect to the final effluent line that will discharge to the Effluent Pump Station.

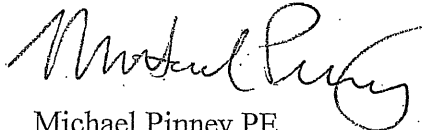
**NEXT STEPS:**

Please address the comments at the earliest convenience.

**INQUIRIES:**

Please contact me at (971) 227-1765 or at Mike.Pinney@deq.oregon.gov for additional information.

Respectfully,



Michael Pinney PE  
Senior Environmental Engineer

Encl: Certification of Proper Construction,

CC /w: Mr. Brian Allen P.E., Dyer Partnership Engineers and Planners, Inc., 1330 Teakwood Avenue,  
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eCC w/o:

Tiffany Yelton-Bram, Manager, Source Control Section, NWR-WQ