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MEMORANDUM

DATE	March 23, 2022
TO	Michael Pinney, PE
	Oregon Department of Environmental Quality
FROM	Tyler J. Molatore, PE
PROJECT NAME	City of Molalla - Wastewater Treatment Plant Upgrades
PROJECT NO.	198.28

This Technical Memorandum is in response to the Predesign Report that The Dyer Partnership submitted for the City of Molalla's Wastewater Treatment Plant (WWTP) Upgrade project to Oregon Department of Environmental Quality (DEQ) on November 30, 2021. The Oregon DEQ reviewed the Predesign Report and furnished review comments on February 4, 2022. The City's responses to the review comments are included in this Memorandum. A revised Predesign Report and corresponding plan set will be circulated under separate cover.

Upon receiving DEQ approval of the Predesign Report, the City plans to immediately proceed with design of the WWTP upgrades. The design process is expected to continue until early 2023. The City appreciates DEQ's review comments and looks forward to working collectively with DEQ on this important project.

Responses to comments submitted by Michael Pinney (DEQ) are included below:

1. **Fig. 1.2.1.1: *"Flow 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 to treat low flows without problem."***

   RESPONSE: The proposed Sequencing Batch Reactor (SBR) is sized based on both the anticipated dry weather and wet weather flows. The SBR consists of four basins, with the actual number of basins on-line variable based on actual influent flows and loads. During low flow and load conditions, the City can operate with only two basins. The four basin SBR offers a great deal of operational flexibility to accommodate varying influent conditions. In addition, the SBR is a time-based process that is designed with variable speed blowers and process instrumentation to adjust air flow and cycle times based on the real-time flows and loads.

   While the 2017 flows were markedly different than 2018 and 2019, there were flows recorded in the time period from 2010 to 2020 that are similar to 2017. Accordingly, all wastewater process areas will be designed for peak flows, as well as low flow conditions.

2. **Fig. 1.2.1.1:** ***"Inflow and Infiltration needs to be dealt with continually, now and in the future."***

   RESPONSE: The City's Wastewater Facility and Collection System Master Plan (The Dyer Partnership, 2018) identified twenty-one collection system improvement projects, all aimed at mitigating infiltration and inflow. The collection system improvement projects were scheduled based on priority. In 2019, the City replaced approximately 1,209 lineal feet of sewer main along Fenton Avenue. In 2020, the City replaced approximately 1,090 lineal feet of sewer main along Patrol Street.

   Smoke testing was also performed as part of the Wastewater Facility and Collection System Master Plan. Since conducting smoke testing in 2018, the City has completed many collection system improvement projects, including: repaired four main line leaks, four sanitary sewer laterals, and grouted several manholes.

   Overall, the City has made significant progress in resolving collection system deficiencies identified during the facilities plan process. The City understands the importance of reducing infiltration and inflow and will continue to make improvements to the collection system.

3. **Table 1.7.2.1: "*Permit limits on a renewed permit are not finalized and need to be labeled so.*"**

   RESPONSE: Additional content was added to note that the assumed permit limits are not finalized.

4. **Table 1.7.2.1:** ***"Note e: This will not be part of a renewed permit."***

   RESPONSE: This assumed permit element has been removed from the discharge permit section.

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."***

   RESPONSE: Locating the grit removal system upstream of the transfer pump station was evaluated. A grit removal system located upstream of the transfer pump station would require a unit sized at the future peak hourly flow rate of 12.07 mgd. Whereas, by locating the grit system downstream of the influent flow equalization basin, the grit system can be sized at the peak day flow of 8.8 mgd.

   The influent flow equalization basin is designed to capture the difference between the peak hourly flow and the peak day flow. The peak instantaneous flow is based on a one in five-year storm event. Considering the anticipated population increase, coupled with the one in five-year storm event, the flow equalization basin will experience infrequent use, perhaps only three or four times in the next twenty years.

6. **Table 3.5.3.5:** ***"These are excellent design target effluent concentrations."***

   RESPONSE: Target effluent concentrations were developed in part to minimize the load and corresponding dissolved oxygen demand on the Molalla River, to facilitate discharge to the Molalla River during May, June, or October.

7. **Table 3.5.3.5:** ***"Are ammonia loads from the digesters taken into consideration in the Table?"***

   RESPONSE: Solids management processes, such as anaerobic digestion or Autothermal Thermophilic Digestion (ATAD), can contribute large nutrient side-stream loads when redirected back to the liquid stream. Side-streams from dewatered anaerobically digested sludge can range from 900 to 1,500 mg/L of ammonia. For anaerobic digestion and ATAD systems, the related oxygen demand imposed by biological nitrification can be significant.

   Conventional aerobic digesters, in contrast, generally produce high quality side-streams, low in nutrients, though the design and operational approach of the aerobic digester will impact side-stream water quality.

   The proposed aerobic digester is designed to achieve a sixty-day solids retention time. The design includes blowers with variable speed drives, process instrumentation (Dissolved Oxygen and Oxidation Reduction Potential Sensors), and control logic to facilitate cycling between aerobic and anoxic strategies. The design objective is to target nearly complete nitrification. The proposed aerobic digester has a very long sludge age, and will provide an ideal environment for nitrification.

   When properly operated, the side-stream ammonia concentration is expected to be less than 5 mg/L. For design purposes, the anticipated side-stream ammonia concentration is assumed to be less than 20 mg/L. At 20 mg/L ammonia, the additional ammonia load conveyed to the liquid stream is expected to be less than 20 lbs/day. The raw wastewater influent ammonia load is projected at 320 lbs/day. The SBR system, including the aeration system, is designed for an influent ammonia load of 340 lbs/day.

   The Predesign Report has been updated to improve clarity relative to the design flows and loads to the SBR.

8. ***"Effluent monitoring locations must be indicated on the plant hydraulic profiles."***

   RESPONSE: Effluent monitoring locations have been added to the hydraulic profile. For additional clarity regarding effluent monitoring locations, the various effluent parameters and corresponding effluent monitoring locations have been added to the permit section of the Design Data plan sheet.

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."***

   RESPONSE: The City continues to pursue acquisition of the adjacent property to the west of the existing WWTP. If successful, the SBR and solids treatment systems will be relocated to the west.

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 I must not compromise EPA treatment unit redundancy requirements."***

    RESPONSE: This VE Proposal recommends reducing the size of many of the process areas by fifty percent. Proposal P-4, as summarized in the VE Report, recommends the following reductions in process areas:

    - Half-size influent equalization tank.
    - Half capacity transfer pumps.

- Only two SBR cells and a smaller building.
- Biosolids Class B.
- Building and blower space for just one aerobic digester.
- Electrical service and generator for Phase I loads.
- Effluent pump configuration for Phase I only.

Comments and considerations regarding each of the above VE recommendations are listed below.

- Half-size influent equalization tank.
    - RESPONSE: The influent flow equalization tank is sized to detain peak hourly flow associated with a one in five-year storm event. The concept of the influent flow equalization tank is that it facilitates the reduction of size of all downstream process areas. Without the influent flow equalization tank, the process areas downstream would increase in size by 37 percent. The intent of the influent flow equalization basin, due to the infrequent occurrence of the peak hourly flow, as well as the large population projection, is that it will be used rarely. Additional flow equalization volume is provided in excess of theoretical calculations to introduce more operational flexibility.
- Half capacity transfer pumps.
    - RESPONSE: In accordance with Oregon DEQ requirements, the transfer pump station must convey the peak day flow with the largest pump out of service. The current peak day flow is 6.62 mgd, based on historical discharge monitoring reports. Whereas, the future peak daily flow is 8.8 mgd. Phasing of the pump station introduces several challenges. First, reducing the size of the pump station by fifty percent results in a pump station with a capacity of 4.4 mgd, which would result in sewage overflows. If the pump station were sized for a peak daily flow of 6.62 mgd, then it would immediately be at capacity. Given the need to install pumps that provide capacity for the future, and to avoid installing larger pumps in the near future, installing pumps that convey the future peak daily flow is recommended.
- Only two SBR cells and smaller building.
    - RESPONSE: Two SBR cells provides a capacity for approximately 8,000 people. The current population is approximately 10,000 people. Two SBR cells would result in discharge permit non-compliance and is therefore not recommended. Installing three SBR cells was evaluated during development of the Predesign Report. Three cells provide a capacity for approximately 11,954 people. This provides treatment capacity, based on Portland State University population projection data, until year 2027 or 2028 (estimated). This would necessitate an expansion to four cells relatively soon. Constructing four cells up-front takes advantage of contractor mobilization efforts, and provides a great deal of operational flexibility to take basins off-line for maintenance. Regarding the SBR building, reducing the size is not recommended. Three

blowers are recommended for installation up-front, for redundancy purposes. Two blowers, even with only two SBR cells, does not comply with DEQ redundancy standards.

- Biosolids Class B.
    - RESPONSE: The current design targets Class B biosolids, not Class A.
- Building and blower space for just one aerobic digester.
    - RESPONSE: The aerobic digestion system is to be phased based on a Phase I design year of 2035. This requires two blowers, with additional space allocated for a third blower, required in the future based on the projected population. The aerobic digestion system will be modified to reduce the blower size by decoupling digester mixing and aeration. This results in significantly lower blower horsepower requirements, reducing capital and life-cycle costs. This will also slightly reduce the aerobic digester building footprint.
- Electrical service and generator for Phase I loads.
    - RESPONSE: The largest loads associated with the SBR site are related to the blowers, pumps, and disinfection system. There is not an opportunity to phase the blowers, the largest load, therefore phasing the electrical service and generator is not feasible.
- Effluent pump configuration for Phase I only.
    - RESPONSE: Only two effluent pumps are currently installed. The third effluent pump is already planned for expansion in the future. The existing 750 kW generator is sized to accommodate operating two effluent pumps simultaneously, to convey peak day flows, in accordance with DEQ requirements.

Given the above considerations, the City did not accept Proposal P-4 and is proceeding with installing the system components as per the current design, and deferring the following items in the future (as indicated in the Predesign Report):

- Effluent pump station expansion to three pumps.
- Effluent storage and recycled water land area expansion based on actual population growth.
- UV disinfection system expansion to target Class A recycled water quality.
- Aerobic digestion expansion.
- Replacement of the existing 750 kW standby generator.
- Existing lab upgrades.

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."***

    RESPONSE: This Proposal recommends moving the equalization process downstream of the grit removal system. The proposed solution would require increasing the transfer pump station and grit removal system capacity from 8.8 mgd to 12.07 mgd. Diurnal flow equalization, as recommended, would also require re-pumping of equalized flows from the transfer pump station to the SBR, thereby increasing life-cycle costs. Additional comments and considerations in response to this VE Proposal are included below.

    - The Proposal states that the "equalization basin is deep in the ground." The equalization basin is the same elevation as the existing aeration basin, which is already configured for an influent flow equalization basin.

    - If diurnal flow equalization is incorporated into the design, it would likely require aeration (blowers, diffusers, controls, instrumentation) for odor control and to maintain solids in suspension.

    - The Proposal suggests reducing the elevation differential between the transfer pump station and the effluent storage ponds. These process areas are existing and elevations are therefore fixed.

    Due to the above comments and considerations, the City is not pursuing VE Proposal H-1.

12. **VE Report:** ***"Headcell grit removal. I have not seen these in action before. Grit removal should be after headwords and before equalization and pumping for best use."***

    RESPONSE: This Proposal recommends the use of a Headcell grit removal system rather than the basis of design (Pista Grit system). Brief counter arguments are summarized below:

    - Capital cost of the two grit removal systems has historically been statistically equivalent, or reasonably similar.

    - The potable water demand for the Headcell is greater than 110 gpm. According to S&L, on one particular system the non-potable water demand was 86,000 gpd for the Headcell, versus only 600 gpd for the S&L option.

    - The systems have similar grit removal efficiencies.

    - Long-term operational costs, according to S&L are lower for the Pista Grit system than the Headcell. Additional information pertaining to this comment is attached in Exhibit A.

    Again, grit removal located prior to the transfer pump station and the influent flow equalization basin would require a grit removal system sized at 12.07 mgd, versus the current design capacity of 8.8 mgd.

    The Dyer Partnership has had good experience with the Pista Grit system in western Oregon. The City has opted to proceed with the Pista Grit System.

13. **VE Report:** ***"See the Predesign Report for UV and Class C recycled water needs. Class C needs a UV dose of 60mJ/cm² and UV manufacturers will not guarantee disinfection without filtering."***

    RESPONSE: The UV system, to achieve Class C standards, is sized at a UV dose of 60 mJ/cm^2. Effluent filtration is required during the production of recycled water to aid in particulate removal to achieve the required total coliform effluent requirements.

14. **VE Report:** ***"Permit Conditions: the conditions will be worked out with DEQ permit writers."***

    RESPONSE: Understood.

15. **VE Report:** ***"Headworks capacity: this must be examined and resolved."***

    RESPONSE: There are two influent screens, each with a capacity of 9.25 mgd. The 2043 peak hourly flow is 12.07 mgd. The capacity of the influent screening system is sufficient.

    There are some discrepancies in various documents showing the influent trunk sewer size to be 18-inch, 21-inch, and 24-inch. The City and The Dyer Partnership are investigating this discrepancy and potential implications.

    The elevation differences identified for the influent screening system between the proposed upgrades and past record drawings are related to utilization of different vertical datums. All elevations will be re-evaluated and confirmed during design.

16. **VE Report:** ***"Alternate treatment processes: I am open to considering other vendors and other processes. Further examination is needed."***

    RESPONSE: Due to the limited number of Aqua Nereda systems installed, the City has opted to maintain the path of using a conventional continuous flow SBR design.

Responses to comments issued by Tim Ruby (DEQ) are summarized below:

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 ⅛-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."

   RESPONSE: The Predesign Report has been updated to include this requirement.

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 minimum meet all of the engineering requirements listed on the 1992 "Guidelines for the Distribution of Non-Potable Water of the American Water Works Association" (refer to OAK 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."

   RESPONSE: The City understands these requirements.

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 $^{-7}$" centimeters per second in this section of the report should be replaced with "1 x 10 $^{-7}$" centimeters per second in the next update of the report."

   RESPONSE: The Predesign Report has been updated based on these comments.

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)(l)-(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."

   RESPONSE: The Predesign Report has been updated based on this comment.

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."

   RESPONSE: The Predesign Report has been updated based on this comment.

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)."

   RESPONSE: The Predesign Report has been updated based on this comment.

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."

   RESPONSE: The City intends to landfill dewatered biosolids therefore does not anticipate the need for long term storage of dewatered biosolids. The City does understand storage requirements and will evaluate the need for backup and/or redundant areas for dewatered biosolids during the design phase.

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 surfaces 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/wg/wgpermits/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 storm waters at the treatment facility."

RESPONSE: These details will be addressed during final design.

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."

RESPONSE: OAR 340-055-0012(7)(c)(A) does not apply to Phase I of the Wastewater Treatment Plant Upgrades. The City is not targeting Class A recycled water during Phase I upgrades. Phase I upgrades will target Class C recycled water. The effluent filtration system is provided to remove particulate removal to improve disinfection efficacy.

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."

RESPONSE: The City understands that upgrades to Effluent Storage Pond No. 2 may be required in the future. The effects of desiccation associated with Lagoon No. 1 will be evaluated during design.

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."

RESPONSE: The existing lagoons are clay lined and originally constructed using berms built up from the original ground elevation. The WWTP site slopes from the south to north with an elevational drop of around 25 feet, as referenced from the south of the Lagoon No. 1 to the north of Lagoon No. 2. The 1977 design drawings also indicate the presence of field tiles, with which the City is investigating their presence and functionality. To ensure groundwater doesn't impact the liner, the underdrain system for Effluent Storage Pond No. 1 will be addressed during 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."

RESPONSE: The water balance for future conditions is based on the projected maximum month dry weather flow, precipitation data, evaporation allowance, and zero leakage. The maximum month dry weather flow has the largest impact on the volume of effluent storage required. For example, for a wet weather condition, the projected (estimated) maximum month dry weather flow in 2030 is 77 mg (2.48 mgd). In contrast, the projected total precipitation anticipated in May or October results in less than 3 mg collected in both of the existing lagoons (~ 24 acres). Nevertheless, the precipitation data included in the water balance was from the National Oceanic and Atmospheric Administration station for the City of Molalla. The one in ten-year monthly precipitation probabilities and quintiles were analyzed as part of the water balance. This information has been incorporated into to the Predesign Report.

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."

RESPONSE: There are two main flow meters associated with measuring the flow that will be conveyed to the effluent pump station. One effluent flow meter is located immediately prior to the disinfection system. When the final effluent from the SBR is directed to the effluent pump station, and thus bypassing the effluent storage ponds, this flow meter will be used to log total effluent flows.

When stored final effluent is directed from Effluent Storage Pond No. 1 to the effluent pump station. Another flow meter is located on outlet from Effluent Storage Pond No. 1. These two flow meters provide a means to determine the total flow conveyed to the effluent pump station.

END OF MEMORANDUM