# Oregon DEQ Division 33 Review - SUPERSEDING
# Summary Sheet

**Application Information**

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| **Applicant Name:** | Terry Behrens | **Application Number:** | R-88293 |
| **Basin & Sub-basin:** | Willamette Basin & Mid-Willamette Subbasin | **Requested Water Amount:** | 179.1 AF |
| **Nearest Surface Water:** | SF Pudding River | **Nearest Receiving Waterbody:** | SF Pudding River |
| **Proposed Use:** | 2 ponds for storage/irrigation | **Requested Period of Use:** | January 1 to May 31 and November 1 to December 31 |

**Division 33 Geographic Area**

| | |
|---|---|
| ☒ Lower Columbia ☐ Upper Columbia ☐ Statewide | |
| **Upper and Lower Columbia Basins only**: Based upon the review completed below, does the proposed use comply with existing state and federal water quality standards or may conditions be applied to bring the use into compliance? | ☒ No ☐ Yes ☐ Insufficient data |
| **Statewide:** Will the proposed use result in water quality impacts that will cause either "loss" or "net loss" of essential habitat of sensitive threatened or endangered (ST&E) fish species? (Note: the presence of ST&E fish species is determined by Oregon Department of Fish and Wildlife.) | ☐ No ☐ Yes ☐ Insufficient data |

**Recommended Pre-Proposed Final Order Actions**

1. **Herbicide Applications:** When herbicide application is within three feet of water, the permittee is responsible for ensuring that herbicide application laws are met, and that they obtain from DEQ any necessary pesticide application permits, including the 2300-A Pesticide General Permit or the 2000-J NPDES General Permit. Polluted return flows are not allowed to enter waters of the state per ORS 468B.025(1).
2. **Construction Activities:** 1200-C NPDES Stormwater Construction permit coverage is required from DEQ or Agent for construction activities (clearing, grading, excavation, grubbing, stumping, demolition, staging, stockpiling and other land disturbing activities) that will disturb one or more acres, or that will disturb less than one acre of land but is part of a common plan of development or sale that will ultimately disturb one or more acres of land and have the potential to discharge to surface waters or to a conveyance system that leads to surface waters of the state.
3. **In-Water or Riparian Construction**: For in-water or riparian construction, permittee may be required to obtain additional permits from the Oregon Department of State Lands, the U.S. Army Corps of Engineers, and the DEQ Section 401 certification program prior to construction. The applicant must contact these agencies to confirm requirements.
4. **Algal Growth:** In the event of algae growth in the reservoir, the permittee must work to limit or eliminate overland flow from agricultural fields that transport nutrients such as nitrogen and phosphorus entering the reservoir by enhancing vegetative buffers, etc**.**
5. **Hazardous wastes and chemicals:** Hazardous wastes and chemicals, such as diesel or gasoline for powered pumps and their generators, shall be contained so they do not enter the water or soil.

**Mitigation Obligation** ☒ **No** ☐ **Yes**

Prior to issuance of a Proposed Final Order, the applicant shall submit a mitigation proposal that is of no less volume and rate than the permitted use. The proposal shall include water that is sourced upstream of the point of diversion or appropriation, or the uppermost point on the stream at which the potential for surface water interference occurs. If a surface water right is used for mitigation, it shall be transferred instream for the **[month-month]** time period and of similar water quality. The applicant should contact their OWRD caseworker

to discuss flow mitigation options. Flow mitigation is site-specific, therefore DEQ recommends written approval of the mitigation proposal by DEQ prior to issuance of a proposed final order.

**Recommended Permit Conditions**

1. **Water Quality:** All water use under this permit shall comply with state and federal water quality laws. The permittee shall not violate any state and federal water quality standards, shall not cause pollution of any waters of the state, and shall not place or cause to be placed any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means. The use may be restricted if the quality of source stream or downstream waters decrease to the point that those waters no longer meet existing state or federal water quality standards. Permittee is responsible for obtaining any necessary state and federal permits.
2. **Agricultural Water Quality Management Area Rules:** The permittee shall comply with basin-specific Agricultural Water Quality Management Area Rules described in Oregon Administrative Rule Chapter 603-095. The permittee shall protect riparian areas, including through irrigation practices and the management of any livestock, allowing site capable vegetation to establish and grow along streams, while providing the following functions: shade (on perennial and some intermittent streams), bank stability, and infiltration or filtration of overland runoff.
3. **Flow Restrictor:** The permittee shall install a flow control valve on the diversion system to limit use to the permitted rate. The valve shall be in place, functional, and verified by the Certified Water Rights Examiner before a certificate is issued. The valve or a suitable replacement shall remain in place for the life of the water right.
4. **On-Channel Reservoir**: The permittee shall design and operate the water storage facility such that all waters within and below the reservoir meet water quality criteria.
5. **Limit Period of Use:** Water storage shall be limited to the period: Nov 1 – May 31
6. **Live Flow:** Once the allocated volume has been stored, permittee shall pass all live flow downstream at a rate equal to inflow, using methods that protect instream water quality.
7. **Riparian:** If the riparian area is disturbed in the process of developing a point of diversion, the permittee shall be responsible for restoration and enhancement of such riparian area in accordance with ODFW's Fish & Wildlife Habitat Mitigation Policy OAR 635-415.

**Seasonal Limitations**

| Reason for limitation | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temperature TMDL | ☐ | ☐ | ☐ | ☐ | ☐ | ☒ | ☒ | ☒ | ☒ | ☐ | ☐ | ☐ |
| DO limitations | ☒ | ☒ | ☒ | ☒ | ☒ | ☐ | ☒ | ☒ | ☐ | ☐ | ☐ | ☐ |
| WAB: 20% flow threshold exceeded | ☐ | ☐ | ☐ | ☐ | ☐ | ☒ | ☒ | ☒ | ☒ | ☐ | ☐ | ☐ |
| WRD storage not allowable | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☒ | ☒ | ☒ | ☒ | ☐ | ☐ |

**Additional Reviewer comments ☐ No ☒ Yes**

[Use this space to describe any of the following: reasoning to substantiate permit conditions; examples of additional information that may allow or disallow the use; and why any variations to the standard Division 33 review process were necessary. Designate conditions related to Division 310 with an asterisk.]

**DEQ maintains the original finding of denial per our original review submitted on 12/5/2016.** DEQ also notes that observations made during a 10/28/2019 site visit indicate that the pond excavation was a violation of state Removal-Fill Laws (per DSL closer letter dated 12/16/2020). Furthermore, DEQ advised the applicant about when 1200-C permits were needed and that working without a permit would result in fines (per DEQ email dated 10/28/2020). This excavation project was over an acre and likely required 1200-C permit coverage. To this reviewer's knowledge, the applicant did not apply for a 1200-C permit. DEQ will not pursue enforcement actions

because the soils at the site are currently stabilized. **DEQ strongly recommends the applicant contact DSL and DEQ prior to beginning any additional ground disturbing work near waterways to ensure compliance with water quality laws.**

During the summer, peak stream temperature and low stream flows create critical stream temperatures and head loading conditions that often exceed salmon and trout rearing and migration criterion. To comply with existing state and federal water quality standards, the permittee shall limit the period of use to November 1 – May 31. This limited period of use is protective of months when cumulative diversions are under 20% of natural flow (June – Sept) and months when OWRD determines surface water is available for storage (Nov – Jun).

This in-channel reservoir storage project is upstream of three instream water rights on the Pudding River. Any additional withdrawals may injure these instream water rights and could negatively affect surface water quantity and quality. If OWRD approves the water right, DEQ recommends the permittee not divert water unless these senior instream water rights are satisfied.

- Certificate #59468 confirms the right to 10 cfs year-round to support aquatic life; Priority June 22, 1964
- Certificate #72956 confirms the right to 6.7 cfs year-round pollution abatement; Priority August 5, 1993
- Certificate #72957 confirms the right to 5 cfs (Oct – Aug) and 1.8 cfs (Sept) pollution abatement for pollution abatement; Priority August 5, 1993

The South Fork Pudding River and Pudding River are already water quality limited and do not meet state and federal water quality standards for temperature, dissolved oxygen, E. coli, Guthion, and biocriteria. To prevent releases from further degrading downstream water quality, DEQ recommends the following:

1) Once the allocated volume has been stored, the permittee shall pass all live flow downstream at a rate equal to inflow. DEQ recommends the permittee submit a Bypass Proposal which describes the method by which the permittee will bypass the recommended flows.
2) The permittee shall design and operate the reservoirs such that the releases do not further degrade downstream water quality in accordance with DEQ Water Quality Standards OAR 340-41.
3) The permittee shall restore the riparian area in accordance with ODFW's Fish & Wildlife Habitat Mitigation Policy OAR 635-415.
4) The permittee shall restore and/or enhance downstream riparian vegetation to shade stream surfaces from solar loading.

**Interagency consultation: [Describe any substantial interagency consultation. Who was contacted and what was discussed?]**

12/5/2016 – Nancy Gramlich submitted DEQ review; recommended denial
10/15/2019 – OWRD issued notice of reconsideration, Roxy Nayar (DEQ) and Alyssa Mucken (OWRD) discussed DEQ's review and ways to properly condition the permit to address DEQ's concerns. This prompted an inter-agency conversation (DSL, USACE, OWRD, DEQ) about jurisdictional wetland issues.
10/28/2019 - The applicant and agencies conducted a site visit. Following the site visit, Michael De Blasi (DSL) found strong evidence that wetlands were excavated to make the reservoir. Brandon Bertilson (DEQ) contacted Terry Behrens to explain when a 1200-C is needed and that not obtaining the permit would result in higher fines.
12/16/2020 – DSL issued closure letter
3/23/2022 – A. Mucken contacted DEQ to resolve the decision. A. Mucken briefed Pete Markos (DEQ)
3/31/2022. – P. Markos left the agency and A. Mucken briefed Sarah Sauter (DEQ), Kim French (OWRD), and Katie Griffin (OWRD) on 6/30/22.
8/2/2022 – K. French provided photographs as evidence of site stabilization

| **DEQ review prepared by:** **Sarah Sauter** | **Date complete**: 8/2/2022 |
|---|---|

**Antidegradation Policy:**

The purpose of DEQ's Antidegradation Policy (OAR 340-041-0004(1)) is to guide decisions that affect water quality to prevent unnecessary further degradation from new or increased point and nonpoint sources of pollution, and to protect, maintain, and enhance existing surface water quality to ensure the full protection of all existing beneficial uses. Oregon's Antidegradation Policy allows exemptions and conditions for new or increased water use.

1. **Temporary Use or Net Benefit**

Does the applicant propose a temporary use in response to an emergency, a restoration activity that the DEQ has determined provides a net ecological benefit, or a temporary (lasting less than six months) use to protect human health and welfare, for which the applicant has demonstrated that they will minimize adverse effects to threatened and endangered species? ☒ No ☐ Yes

If yes, recommend approval of the application and identify conditions necessary to protect water quality for the habitat of ST&E fish species. You may skip to Question 7.

2. **Outstanding Resource Water**

Does the applicant propose withdrawing directly from an **Outstanding Resource Water** with critical habitat for ST&E fish species? ☒ No ☐ Yes

If yes, then prior to permit issuance, the applicant must provide suitable flow mitigation. You may skip to question 7.

3. **Water Quality Limited**

Is this source **Water Quality Limited** or a tributary to a water quality limited water body? Note: limit downstream review to 6th field HUC for parameters that diminished flow can affect (temperature, dissolved oxygen, pH, etc.). ☐ No ☒ Yes

**Integrated Report 303(d) List Summary Table (2012 DEQ Integrated Report)**

| Stream/Lake | Miles | Parameter | Season | Status* | Affected Beneficial Uses |
|---|---|---|---|---|---|
| South Fork Pudding River | 0 to 6 | Dissolved Oxygen | January 1 - May 15 | Cat 5 | |
| | | Dissolved Oxygen | Year Round (Non-spawning) | Cat 5 | |
| | | E. Coli | Summer | Cat 4A | Water contact recreation |
| | | E. Coli | Fall Winter Spring | Cat 4A | Water contact recreation |
| Pudding River | 35.4 to 61.7 | E. Coli | Fall Winter Spring | Cat 4A | Water contact recreation |
| | 0 to 61.8 | Biological Criteria | Year Round | Cat 5 | Aquatic life |
| | | Temperature | Year Round (Non-spawning) | Cat 5 | Salmon and trout rearing and migration |
| | | Guthion | Year Round | Cat 5 | Aquatic life |
| Pudding River | 47.5 to 61.8 | Dissolved Oxygen | October 15 - May 15 | Cat 5 | |

*Integrated Report Category

**Category 4** - Data indicate that at least one designated use is not supported, but a TMDL is not needed to address the pollutant

**Category 4A** - Clean-up plans (also called TMDLs) that will result in the waterbody meeting water quality standards and supporting its beneficial uses have been approved

**Category 4B** - Other pollution control requirements are expected to address pollutant of concern and will result in attainment of water quality standards

**Category 4C** - The impairment is caused by pollution, not a pollutant. For example, flow, or lack of flow, are not considered pollutants, but may be affecting the waterbody's beneficial uses

**Category 5** - Data indicate a designated use is not supported or a water quality standard is not attained and a TMDL is needed. This category constitutes the Section 303(d) list that EPA will approve or disapprove under the Clean Water Act

Analysis: [If the answer to question 3 is yes, then describe how the use does or does not comply with existing state and federal water quality standards, and how the use may affect ST&E fish species habitat.]

Text from DEQ's 12/5/2016 review:

South Fork Pudding River is limited for dissolved oxygen in July and August. Pudding River and tributaries have TMDLs for temperature, mercury, iron, pesticides, and bacteria. A dissolved oxygen TMDL is established for the Pudding River Jan – May. TMDLs are also pollution reductions for waterbodies that do not meet water quality standards.

Diverting or storing flows from natural channels to fill reservoirs during low flow periods may substantially diminish the assimilative capacity of the stream while also increasing solar loading to the stream because of greater travel times and increased surface area in a ponded area.

The release of water from off-channel reservoirs to surfaces waters may increase temperatures, impact levels of DO, and contribute sediment loads. The timing, duration and magnitude of such effects for temperature and DO is dependent on the season. Sediment load can be a contributing factor to mercury and pesticides.

Diversion is proposed for June. DEQ defines the critical period for cool temperature as June – September 30 for the Pudding River and its tributaries. Releases of impounded off-channel reservoir water to surface waters needs to meet WQ standards to protect aquatic life. Pudding River and tributaries are limited for dissolved oxygen January – May & July thru Aug. Mercury & pesticide TMDL reductions apply year-round and are based on meeting Total Suspended Solids benchmarks via best management practice implementation.

Water managers have identified ecological harm occurring when flows are reduced by 6-35% of daily flow. The Pudding River and tributaries are already limited for DO (Jan – May) and Temperature (June – Sept). Without accounting for the "requested amount" to be diverted Nov – May, flows are already reduced by 5-163% of daily flow (WAB).

Reduction of flow over 29% (June) of natural flow has potential to cause medium ecological harm if water that does not meet water quality standards is released to surface waters. June diversions/withdrawal for reservoir fill also poses medium ecological harm for increasing temperatures and decreasing DO.

Reduction of flow, or discharge to, over 45% (July – Sept) of natural flow has potential to cause a high ecological harm if water that does not meet water quality standards is release to surface waters.

Recommended Conditions: [Consider if water quality can be protected by limiting the rate and quantity of water used, period of use, or by including other permit conditions.] **Water Quality, Limit Period of Use, Live Flow, Riparian**

**4. Total Maximum Daily Load Summary**

Are there TMDLs established for parameters identified as being affected by flow modification? ☐ No ☒ Yes

Analysis: [List TMDL, identify the load allocation, and if flow modification is a contributing factor. Describe how the use does or does not comply with existing state and federal water quality standards and how the use may affect ST&E fish species habitat.]

The Molalla-Pudding Subbasin Temperature TMDL to lower temperature has been established because surface water is too warm for cold water fish. Dissolved Oxygen is too low seasonally for aquatic life. Discharge/release of impounded water and flow reductions from diversions have the potential to impact DO & temperature which currently does not meet seasonal water quality standards certain times of year. Pond construction and discharge/release of impounded water has potential to contribute mercury and pesticides.

Recommended Conditions: [Consider if water quality can be protected by limiting the rate and quantity of water used, period of use, or by including other permit conditions.] **Water Quality, Limit Period of Use, Live Flow, Riparian**

**5. Cumulative Withdrawals Effects**

Is it likely that the proposed activity, together with existing withdrawals in the OWRD's Water Availability Basin (WAB), will lower water quality and impair aquatic life? ☐ No ☒ Yes

**Water Availability and Cumulative Impacts Summary Table**

Percent of natural flow = (consumptive use/natural stream flow)*100. See Appendix for additional instructions.

PUDDING R > MOLALLA R - AB HOWELL PRAIRIE **(DEQ's 12/5/2016 review)**

| Watershed ID | Exceedance Level | Month | Natural Stream Flow | Consumptive Use | Expected Stream Flow | Reserved Stream Flows | Instream Requirement | Net Water Available | Percent of Flow |
|---|---|---|---|---|---|---|---|---|---|
| 152 | 80 | JAN | 603 | 69.2 | | | 10 | | 11% |
| 152 | 80 | FEB | 649 | 60.4 | | | 10 | | 9% |
| 152 | 80 | MAR | 587 | 42.5 | | | 10 | | 7% |
| 152 | 80 | APR | 451 | 24.1 | | | 10 | | 5% |
| 152 | 80 | MAY | 235 | 17.1 | | | 10 | | 7% |
| 152 | 80 | JUN | 111 | 32.2 | | | 10 | | 29% |
| 152 | 80 | JUL | 43.6 | 47.8 | | | 10 | | 110% |
| 152 | 80 | AUG | 24.7 | 40.2 | | | 10 | | 163% |
| 152 | 80 | SEP | 22.7 | 25.3 | | | 10 | | 111% |
| 152 | 80 | OCT | 38.9 | 7.35 | | | 10 | | 19% |
| 152 | 80 | NOV | 233 | 18.5 | | | 10 | | 8% |
| 152 | 80 | DEC | 608 | 68.9 | | | 10 | | 11% |
| | | | | | | | | | |

Monthly flow in Cubic Feet per Second (CFS). Annual flow in Acre Feet (AF)). Highlight months that exceed 20% of percent of flow.

**6. Flow Modification Compliance with State and Federal Water Quality Standards**

Based on responses to questions 3, 4, and 5, is the use in compliance with state and federal water quality standards or can compliance with state and federal water quality standards be assured, and ST&E habitat loss prevented through flow mitigation and/or by imposing permit condition(s)?

☐ No ☒ Yes

Recommended Conditions: [If water quality can be protected by modifying or limiting the amount diverted, period of use, or other permit conditions, then select appropriate condition from the conditions list.] **Limit Period of Use, Live Flow**

**7. Compliance with other State and Federal Water Quality Standards**

ORS 468B.025 prohibits pollution of waters of the state. Are there additional water quality impairments that would result from this proposed used by degrading surface water or groundwater quality?

☐ No ☒ Yes

If water quality can be protected by applying permit conditions, then select all appropriate conditions from the standardized menu of conditions.

Recommended conditions: [List conditions] **Agricultural Water Quality Management Area Rules, Herbicide Applications, On-Channel Reservoir, Construction Activities, In-Water or Riparian Construction, Riparian**

## PRE-PROPOSED FINAL ORDER ACTIONS

DEQ recommends that the applicant provide suitable replacement water as mitigation for anticipated impacts to water quality and more specifically the habitat of sensitive, threatened, and endangered fish species. Additional mitigation may be required from other Interagency Review Team members (for example: OWRD may require mitigation for periods when water is not available). Surface water flow mitigation is unlikely to provide the same benefit that groundwater can provide to gaining stream reaches. However, if groundwater mitigation is unavailable within the same aquifer, surface water mitigation may provide suitable mitigation.

**Flow Mitigation Obligation:**
Prior to issuance of a Proposed Final Order, the applicant shall submit a mitigation proposal that is of no less volume and rate than the permitted use. The proposal shall include water that is sourced upstream of the point of diversion or appropriation, or the uppermost point on the stream at which the potential for surface water interference occurs. If a surface water right is used for mitigation, it shall be instream for the *month - month time period* and of similar water quality. The applicant should contact their OWRD caseworker to discuss flow mitigation options.

**Riparian:** If the riparian area is disturbed in the process of developing, modifying or repairing a point of diversion under this water use permit, the permittee shall be responsible for restoration and enhancement of such riparian area in accordance with the Oregon Department of Fish and Wildlife's Habitat Mitigation Policy described in Oregon Administrative Rule OAR Chapter 635-415. Prior to development, modification or repairs at the point of diversion, the permittee shall submit, to the Oregon Water Resources Department, either a Riparian Mitigation Plan approved in writing by Oregon Department of Fish and Wildlife (ODFW) or a written declaration from ODFW that riparian mitigation is not necessary. The permittee shall maintain the riparian area for the life of the permit and subsequent certificate per the approved Riparian Mitigation Plan. The permittee is hereby directed to contact the local Oregon Department of Fish and Wildlife Fish Biologist prior to development of the point of diversion.

**Water Storage Construction**: The applicant shall locate the reservoir outside of the stream's natural channel. *identify waterbody and set back to prevent stream capture and justification for distance selected.*

(Note to reviewer: The 1200C permit requires a 50-foot setback, which is cited from the National General Construction Permit OAR-660-023-0090(5). Requiring the storage reservoir to be outside of the mapped 100 year floodway may also be a protective buffer. )

**Construction Activities:** 1200-C NPDES Stormwater Construction permit coverage is required from DEQ or Agent for construction activities (clearing, grading, excavation, grubbing, stumping, demolition, staging, stockpiling and other land disturbing activities) that will disturb one or more acres, or that will disturb less than one acre of land but is part of a common plan of development or sale that will ultimately disturb one or more acres of land and have the potential to discharge to surface waters or to a conveyance system that leads to surface waters of the state.

**In-Water or Riparian Construction**: For in-water or riparian construction, permittee may be required to obtain additional permits from the Oregon Department of State Lands, the U.S. Army Corps of Engineers, and the DEQ Section 401 certification program prior to construction. The applicant must contact these agencies to confirm requirements.

**Herbicide Applications**: When herbicide application is within three feet of water, the permittee is responsible for ensuring that herbicide application laws are met, and that they obtain from DEQ any necessary pesticide application permits, including the 2300-A Pesticide General Permit or the 2000-J NPDES General Permit. Polluted return flows are not allowed to enter waters of the state per ORS 468B.025(1).

**STANDARIZED MENU OF CONDITIONS**

**Water Quality**: All water use under this permit shall comply with state and federal water quality laws. The permittee shall not violate any state and federal water quality standards, shall not cause pollution of any waters of the state, and shall not place or cause to be placed any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means. The use may be restricted if the quality of source stream or downstream waters decrease to the point that those waters no longer meet existing state or federal water quality standards. Permittee is responsible for obtaining any necessary state and federal permits.

**Agricultural Water Quality Management Area Rules**: The permittee shall comply with basin-specific Agricultural Water Quality Management Area Rules described in Oregon Administrative Rule Chapter 603-095. The permittee shall protect riparian areas, including through irrigation practices and the management of any livestock, allowing site capable vegetation to establish and grow along streams, while providing the following functions: shade (on perennial and some intermittent streams), bank stability, and infiltration or filtration of overland runoff.

**Flow Restrictor:** The permittee shall install a flow control valve on the diversion system to limit use to the permitted rate. The valve shall be in place, functional, and verified by the Certified Water Rights Examiner before a certificate is issued. The valve or a suitable replacement shall remain in place for the life of the water right**.**

**Limit Rate**: Water withdrawal shall be limited to *Enter CFS or AF for the defined period, or a month by month rate or volume*.

**Limit Period of Use**: Water use shall be limited to the period: *start date through end date*.

(Note to reviewer: Do not split the irrigation season. Require mitigation if water is not available during the requested time period.)

**Limit Diversion**: The permittee shall not divert water under this water use permit unless streamflow in the *waterbody name* is at or above *CFS* cubic foot per second, as determined at Gaging Station ID .

**Off-Channel Stored Water Releases**: The permittee shall not release polluted water from this off-channel reservoir into waters of the state except when the release is directed by the State Engineer to prevent dam failure.

**On-Channel Reservoir**: The permittee shall design and operate the water storage facility such that all waters within and below the reservoir meet water quality criteria. The permittee shall develop a reservoir operations plan that details how water quality criteria and standards will be met. A Certified Water Rights Examiner shall verify that the reservoir operations are consistent with the plan before a certificate is issued. The reservoir operator shall maintain a copy of the plan and make it available for review upon request.

**Restrict Reservoir Release:** To prevent pollution downstream, the permittee shall not release water from the reservoir when the flow at Gaging Station ID (*gage name*) is below the Mean Daily Discharge of *CFS* (discharge which was equaled or exceeded for 90% percent of the time) except when the release is directed by the State Engineer to prevent dam failure.

**Live Flow**: Once the allocated volume has been stored, permittee shall pass all live flow downstream at a rate equal to inflow, using methods that protect instream water quality.

**Lining**: The permittee shall line the reservoir with *include material or allowable infiltration rate* to minimize seepage and protect groundwater quality per Oregon Administrative Rule 340-040. The liner is to be in place,

inspected, and approved by the Certified Water Rights examiner prior to storage of water.[*] If the liner fails, the water user shall replace it within one calendar year.

**Site-Specific Condition**: The permittee shall

[*] OAR 690-410-0010(2)(a), OAR 690-310-0120, OAR 690-310-0140

## Appendix: General Overview, Instructions for Water Availability Analysis, and Process Flow Chart

### General Overview

The purpose of OAR Chapter 690, Division 33 is to aid the Oregon Water Resources Department (OWRD) in determining whether a proposed use will impair or be detrimental to the public interest with regard to listed sensitive, threatened, or endangered (ST&E) fish species. Oregon's stream temperature, dissolved oxygen (DO), pH and several other water quality standards are based on the life cycle needs of salmonids and other resident fish and aquatic life. Exceeding the standards can disrupt the life cycle of a ST&E fish species and may cause death. In addition, OWRD must consider water quality impacts as part of a public interest review, OAR 690-310-0120. Water quality impacts and conditions unrelated to ST&E species should be noted as "Division 310" in the recommendations to OWRD. The DEQ's Water Right Application Review Procedures document contains a full description of the review process.

The two main categories of Division 33 reviews are based on the geographic distribution of ST&E fish species:

- **For Proposed Uses in the Columbia River Basin,** reviews must determine whether a proposed use complies with existing state and federal water quality standards. Upper Columbia applications specifically require applicants to provide evidence that the proposed use complies with existing state and federal water quality standards. Geographic scope: Columbia River Basin (includes all waters that ultimately drain into the Columbia River).

- **For Proposed Uses Statewide,** review is conducted under the "Statewide review" procedure. Statewide reviews must determine whether a proposed use may affect ST&E fish species habitat. The statewide review procedure is intended to identify permit conditions that can prevent the "loss" or "net loss" of essential habitat of ST&E fish species. When permit conditions cannot be identified that meet this standard, then the DEQ recommends denial of the permit. Geographic scope: all areas outside the Columbia River Basin where OWRD determines ST&E fish species are present.

### Instructions for Populating the Water Availability Summary Table using data from OWRD's WAB (Section 5)

- Open OWRD's Water Availability Reporting System.
- Search for the water availability basin of interest. Select 50% exceedance. The 50% exceedance stream flow is the stream flow that occurs at least half of the time.
- The water availability analysis will display a nested list of watersheds that contain the POD. Select the highest nesting order WAB that contains the POD.
- Download to an Excel spreadsheet. Percent of flow is calculated using this equation:

$$Percent\ of\ Flow = \frac{\text{Consumptive Use}}{\text{Natural Stream Flow}} * 100$$

You may choose to add the proposed rate (or storage amount) to the consumptive use.

**Instructions for Water Availability Analysis**

**To complete Section 6, review and consider the cumulative impact of consumptive withdrawals using the OWRD WAB.** All water withdrawals and the following factors should be considered when conducting a water availability analysis.

- **Instream Flow:** Consider the percent of natural flow removed from the stream in each month (see right-most column in Water Availability and Cumulative Impacts Summary Table). Based on best professional judgment, evaluate if the cumulative withdrawal is likely to cause impairment to aquatic life or water quality. Water quality standards are established to protect aquatic life. In scientific literature, researchers have identified ecological harm occurring when flows are reduced by >6-35% of daily flow[1]. Consider the seasonality of any listings and season of withdrawal to determine impact for each month of the year.
- **Antidegradation:** Rule 340-041-0004 applies*:* withdrawals cannot cumulatively increase a waterbody's temperature by more than 0.5 degrees Fahrenheit or cause a 0.1 mg/l decrease in dissolved oxygen from the upstream end of a stream reach to the downstream end of the reach so long as it has no adverse effects on threatened and endangered species. See OAR 340-041-0004(3)-(5) for a description in rule of activities that do not result in lowering of water quality.
- **Flow modification**: Consider if cumulative withdrawals are contributing to flow modification and a likely limiting factor in the waterbody at certain times of the year. Temperature and dissolved oxygen are flow-related parameters. When streamflow is reduced, assimilative capacity is reduced. As a waterbody heats up, dissolved oxygen concentrations decline. Reduced stream flows (including groundwater inputs to streamflow), exacerbate temperature and/or dissolved oxygen impairments.
- **Temperature**: Increases in temperature or a reduction in dissolved oxygen adversely impacts ST&E fish. Fish require different temperature and concentrations of dissolved oxygen based on species and life history stage. Oregon's temperature and dissolved oxygen limits are based on the most sensitive species and the life history stage of those species at the location and season of concern. Additional heat or reduction in dissolved oxygen concentrations will further impact these species habitat. Reduced flows can also increase the concentrations of phosphorous, bacteria, pesticides and metals.

**Instructions for Calculating "Limit Diversion" Rate**

This condition is selected to limit withdrawals once the cumulative withdrawals in the watershed have exceeded the protective threshold of 20 percent and/or the ISWR is not fully protective of aquatic life. A different value can be selected, but the reviewer should state why a particular percent was selected.

"Natural stream flow" is obtained from OWRD's Water Availability Reporting System. The condition is applied on a monthly timeframe based on OWRD's data.

"Natural stream flow" – (percent of flow * "natural stream flow") = Expected Stream Flow

The applicant would have to stop using when instream flows drop below the Expected Stream Flow.

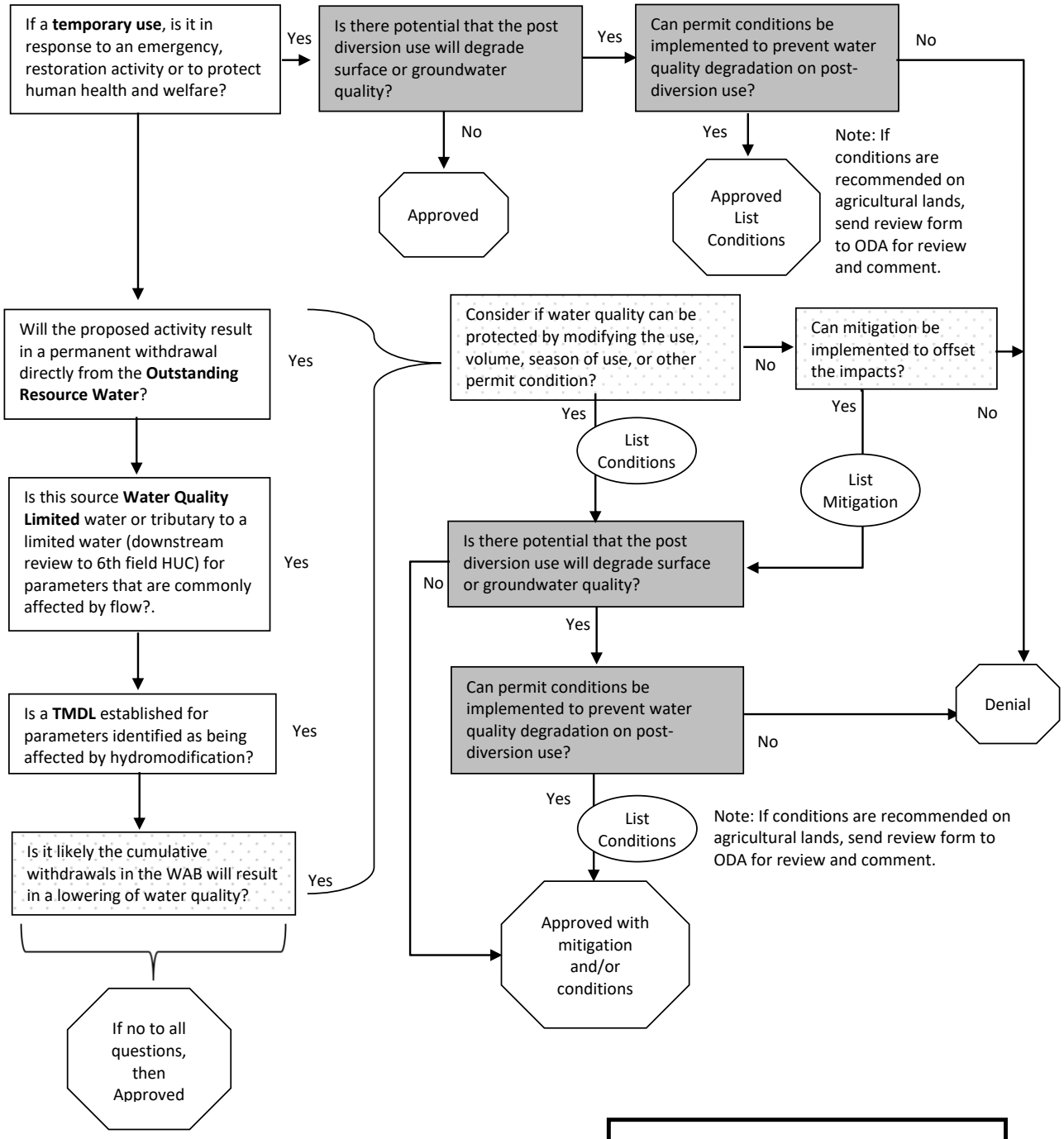
Example:

Natural stream flow for a particular month = 1200 CFS

1200 CFS – (.2 * 1200 CFS) = 960 CFS

[1] Richter BD, Davis MM, Apse C, Konrad C. 2011. *Short Communication, A Presumptive Standard For Environmental Flow Protection.* River Research and Applications. Published online in Wiley Online Library (wileyonlinelibrary.com), DOI: 10.002/rra.1551

**DEQ Water Right Review Flow Chart**




Each yes will need to be explained by how the use does not comply with existing state and federal water quality standards and how the use may affect sensitive, threatened or endangered fish species habitat.

Note: Review based on DEQ's anti-degradation rule (340-041-0004).