Oregon DEQ Division 33 Review
Summary Sheet

Application Information

Applicant Name:	Lynnia Woods, Lynnia Pelfrey	**Application Number:**	G-19372
Basin & Sub-basin:	Willamette, Lower Willamette	**Requested Water Amount:**	0.133 CFS further limited to 0.725 AF annually from Well 2 (MULT 102469/102713) in Fairview Lake Basin
Nearest Surface Water:	Fairview Lake	**Nearest Receiving Waterbody:**	Fairview Creek
Proposed Use:	No more than 0.175 AF annually for pond maintenance and 0.55 AF annually for storage in a reservoir to be constructed under Application R-89370	**Requested Period of Use:**	January 1 through December 31 of each year

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.
2.
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.	**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.
3.	**Limit Period of Use:** Water use shall be limited to the period: **November 1 – March 31**
4.	

Seasonal Limitations

Reason for limitation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TMDL: Critical period	☐	☐	☐	☒	☒	☒	☒	☒	☒	☒	☐	☐
WAB: 20% flow threshold exceeded	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other:	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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.]

OWRD IR: The proposed groundwater use will have the potential for substantial interference (PSI) with Fairview Lake, surface water availability must be considered (WARS / no WAB available for proposed use). During the period of use requested, surface water is available (at an 80% exceedance probability) from January 1 through December 31 each year, water is available for the proposed use.

Applicant submitted amended application (page 5) on September 16, 2026, for applications G-19372 / R-89370 with updated proposed use: Storage (fish life, recreation, wildlife)

The Willamette Subbasin Temperature TMDL (2024) is in effect, which includes the Columbia Slough. Reducing flow in waterbodies impaired for temperature particularly during the summer months with the lowest stream flow could result in higher stream temperatures and stressed conditions for ST&E fish species and other aquatic life.

DEQ is recommending period of use be limited to **November 1 – March 31** (WAB data unavailable for the POA) to limit the negative impacts to water quantity and water quality during the TMDL critical period.

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

DEQ review prepared by: Shane Cossel	**Date complete**: 10/21/2026

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

Assessment Unit Name	Assessment Unit Description	Parameter	Status*	Beneficial Uses
Fairview Lake	Lake/Reservoir Unit	pH	Category 5	Fish and Aquatic Life
HUC12 Name: Columbia Slough (Upper)	Watershed Unit (1st through 4th order streams)	Biological Criteria	Category 5	Fish and Aquatic Life
		Copper	Category 5	Fish and Aquatic Life
		Dissolved Oxygen spawn	Category 5	Fish and Aquatic Life
		Iron (total)	Category 5	Fish and Aquatic Life
		Dissolved Oxygen year-round	Category 4A	Fish and Aquatic Life
		Phosphorus	Category 4A	Fish and Aquatic Life
		Temperature year-round	Category 4A	Fish and Aquatic Life

*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.]

pH

pH is a measure of how acidic or basic (alkaline) the water is. Water with a pH greater than 7 is alkaline, water with a pH of less than 7 is acidic. Every species of fish has adapted to a specific range of pH. Fish exposed to changes in pH outside their normal range can be stressed or even die. Stress leaves fish vulnerable to disease, degrading their health. Additionally, alkaline conditions can transform nitrogen in the water column into a more toxic form of ammonia that can poison fish. Withdrawals from the stream will reduce the stream's heat

capacity and cause greater fluctuation in daytime and nighttime stream temperatures. When nutrients and sunlight are sufficiently present, higher stream temperatures lead to more algal growth. During the day, algae absorb carbon dioxide from the water for cell growth, raising pH. At night, photosynthesis stops and algae continue to respire, releasing carbon dioxide and lowering pH. This cycle creates diel fluctuations in pH. Additional withdrawals from a stream that is already impaired for pH will lead to larger diel fluctuations in pH. Fish and aquatic insects are sensitive to imbalances in pH. Low pH levels (below 5) may lead to death and high pH levels (9-14) can harm fish by denaturing cellular membranes. These pH imbalances result in the diminution of the habitat of sensitive, threatened, or endangered fish species.

Biological Criteria
Waters of the State must be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities. Oregon's biological criteria narrative standard is based on EPA guidance recommending using biological community assessments as an indicator for aquatic life beneficial use support. Resident biological communities are the local food webs that support fish and other aquatic life. Reduced flows, habitat loss, and increases in pollutant loads or concentrations may degrade the biological community onsite or downstream and therefore result in the diminution of habitat for ST&E species.

Dissolved Oxygen
Decreased dissolved oxygen levels adversely impact sensitive, threatened, and endangered fish. Oregon's 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. Columbia Slough does not meet Oregon's year-round or spawning dissolved oxygen standards. Reduced flows may increase water temperature and reduce surface area and turbulence, which can decrease dissolved oxygen. Therefore, reducing flow in waterbodies that are connected to downstream dissolved oxygen-impaired waterbodies, such as Fairview Lake, could result in lower stream dissolved oxygen levels and stressed conditions for aquatic life, particularly during the summer months when stream flow is lowest. If year-round standard triggered: The critical warm period when stream conditions are most likely to exceed the year-round dissolved oxygen standards is July 1 – September 30.

Iron (total)
Iron is common in many rocks and is an important component of many soils. Iron is an essential trace element required by both plants and animals. Ferrous (Fe2+) and ferric (Fe3+) irons are the primary forms of concern in the aquatic environment. Ferrous iron is colorless (clear) while ferric iron will show up as a rust-colored stain in the water. Iron bacteria may also be present in streams associated with mining waste or ground water recharge. A rust-colored slime often forms rocks and other surfaces when iron bacteria are present. Iron and manganese often occur together. High concentrations of these metals can result in discolored water. Where water supplies are used for domestic purposes, elevated iron and manganese concentrations can result in stained plumbing fixtures and an unpleasant metallic taste to the water. Iron deposits can build up in pressure tanks, storage tanks, water heaters, and pipelines, decreasing capacity, reducing pressure, and increasing maintenance. Iron and manganese concentrations of concern are generally established based on aesthetic and economic considerations (unpleasant tastes and coloration) rather than toxicity. A reduction in streamflow will lead to an increased concentration of iron and manganese in the water column. This may result in increased bacterial growth and an increase in aesthetic, recreational and domestic water system impacts. Additionally, increased iron concentrations can cause aquatic species egg hardening, cause negative impacts to the immune system, and clog gills resulting in reduced gas exchange.

Phosphorus/Phosphate
Phosphorus is an essential plant nutrient, but an excess of phosphorus can be detrimental to aquatic life. High phosphorus concentrations can lead to eutrophication, a situation where aquatic plants grow so rapidly that dissolved oxygen concentrations drop below the levels needed to sustain fish and other aquatic life. Phosphate (also referred to as orthophosphate) is a chemical form of phosphorus that is very soluble and

readily available for plant uptake, leading to rapid growth and, in the case of algae, rapid expansion of algal blooms. Columbia Slough is already known to have an excess of phosphorus. A reduction in streamflow will increase phosphorus concentrations. This would cause longer or more severe instances of oxygen depletion, resulting in a diminution of water quality for the habitat of sensitive, threatened, or endangered fish species.

Temperature
Increases in temperature adversely impact sensitive, threatened, and endangered fish. Fish require different temperature based on species and life history stage. Oregon's temperature limits are based on the most sensitive species and the life history stage of those species at the location and season of concern. The Columbia Slough does not meet Oregon's year-round stream temperature standards. Generally, water temperatures increase as flow decreases. Therefore, reducing flow in waterbodies that are connected to downstream temperature-impaired waterbodies, such as Fairview Lake, could result in higher stream temperatures and stressed conditions for aquatic life, particularly during the summer months when stream flow is lowest. If year-round standard triggered: The critical warm period when stream conditions are most likely to exceed the year-round temperature standards is July 1 – September 30.

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, Flow Restrictor, Limit Period of Use

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.]

All Willamette Subbasins (except Yamhill and Tualatin)
Applicable Waterbodies: All perennial and intermittent streams in Willamette Basin excluding specific waterbodies where the 2006 Willamette Temperature TMDL is still applicable. The effective TMDL is the 2024 Willamette Subbasins Temperature TMDL.

DEQ established a temperature TMDL in 2024 for all perennial and intermittent streams in the Willamette Basin. Water temperatures generally increase as flow decreases. Oregon's temperature standard specifies that sources of anthropogenic heating may result in no more than a 0.3 C increase in stream temperature. Since stream temperature heating may occur from cumulative interactions between upstream and local sources, the TMDL applies to all perennial and intermittent surface waters within the Willamette Basin, rather than only 303(d) listed waterbodies.

Maximum 7DADM stream temperatures typically occur in July or August when stream flows are low, solar radiation fluxes are high, and ambient air temperature conditions are warmest. Maximum 7DADM temperatures downstream of some large dam and reservoir operations are shifted from July and August to September, October, and November.

Therefore, reducing flow in waterbodies impaired for temperature, particularly during the summer months with the lowest stream flow could result in higher stream temperatures and stressed conditions for aquatic life.

Critical Periods: Lower Willamette Subbasin excluding Johnson Creek watershed **April 1 through October 31**

Lower Willamette TMDLs
In addition to the 2019 Willamette Basin Mercury TMDL and the 2024 Willamette Subbasins Temperature TMDL, the following TMDLs are also applicable to the Lower Willamette Subbasin:

Columbia Slough TMDL (1998) has TMDLs for E. Coli, DDT, dieldrin, PCBs, dioxin, dissolved oxygen, total phosphorus and lead

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, Flow Restrictor, Limit Period of Use

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.

No WAB data available for the POD

Watershed ID	Exceedance Level	Month	Natural Stream Flow	Consumptive Use	Expected Stream Flow	Reserved Stream Flows	Instream Requirement	Net Water Available	Percent of Flow

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.]

Flow Restrictor, Limit Period of Use

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]

Water Quality

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.

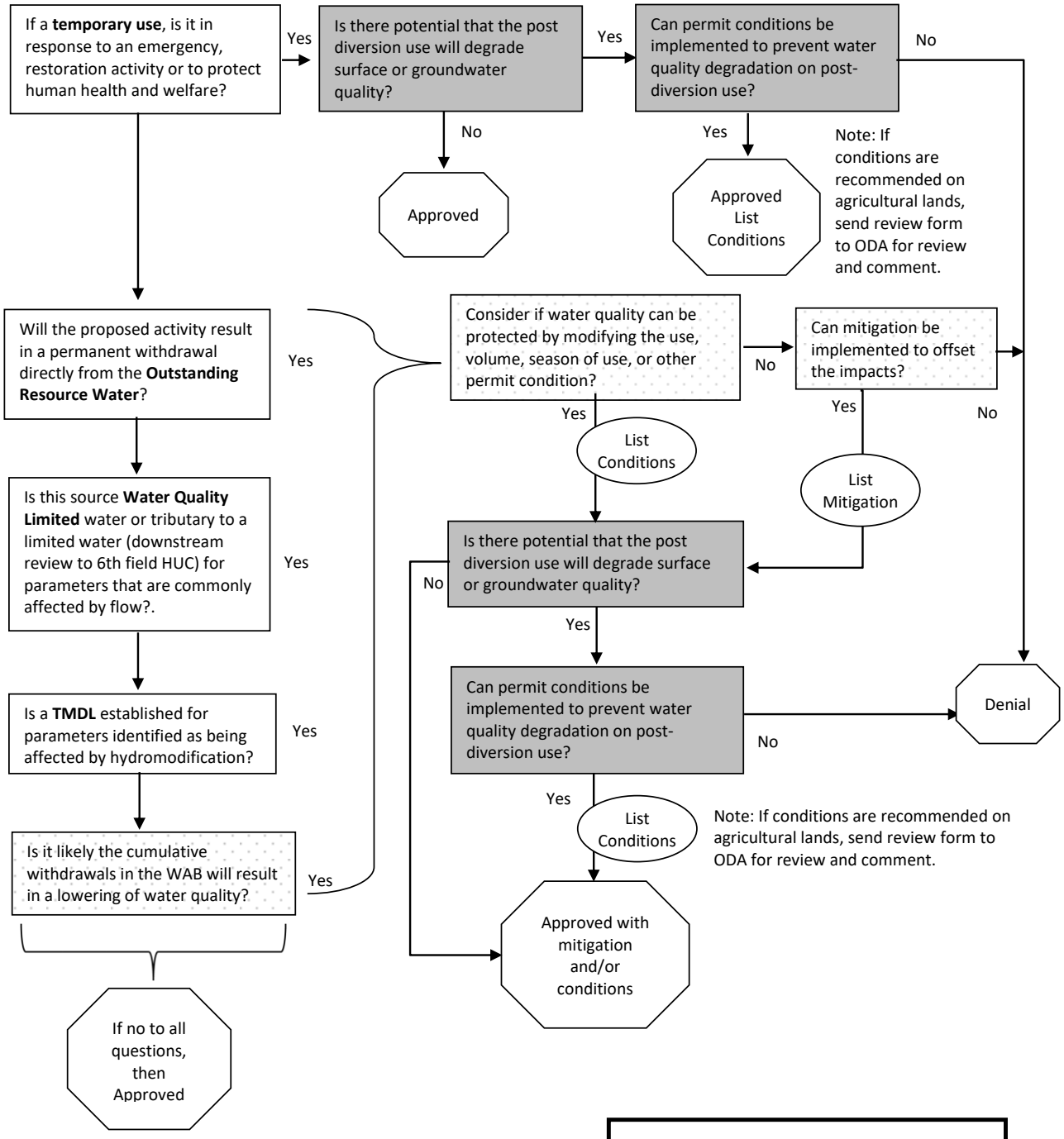
Example:

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).