

DEQ DIVISION 33 APPLICATION REVIEW SHEET

Recommendations for Water Right Applications that may affect the
Habitat of Sensitive, Threatened or Endangered Fish Species, OAR 690-33-310 through 340.

Application #: G 18486 **Applicant's Name:** King Family Farms Inc.

Application proposes appropriation of 0.20 cubic foot per second (CFS) of water from Well 1 in Pudding River Basin for irrigation of 15.7 acres March 1 through October 31 of each year.

1) Is there a connection to a 303(d) listed water quality limited water body? NO YES

Explain: Pudding River is listed for dissolved oxygen, temperature, biological criteria, *E. coli* and toxics. A TMDL exists for the Molalla-Pudding subbasin and includes temperature, bacteria, pesticides, nitrate, and metals.

Molalla-Pudding TMDL Parameter Reductions

Mercury:

27% Reduction Willamette Basinwide-All Subbasins

Temperature:

Attainment and preservation of effective shade levels on smaller tributaries associated with system potential vegetation will eliminate most anthropogenic nonpoint source heat loads. Surrogate measure is percent effective shade targets and a heat load equivalent of 0.05 °C of the Human Use Allowance. Other important measures— preserving and restoring cool water refuges where salmonids rear and migrate to when the river warms up in the summer; restore instream flow quantity.

Peak temperatures typically occur in mid-July through mid-August and often exceed the salmon and trout rearing and migration criterion and core cold water criterion. Temperatures in late summer in the upper Molalla River and Table Rock Fork occasionally exceed the spawning criterion. The critical period in which WLAs apply is June 1 – September 30 for the Pudding River and May 1 – October 31 for the Molalla River. Point sources within the Pudding or Molalla watersheds, that discharge outside of those respective critical periods, receive an implicit heat load allocation sufficient to cover their current conditions of discharge. All portions of the TMDL except WLAs apply year round.

Sources or Source Categories: Nonpoint source solar loading due to a lack of riparian vegetation from forestry, agriculture, rural residential, and urban activities. Channel form change due to hydrologic modification and current and historic stream area land use. Reduction in stream flow due to consumptive uses.

Bacteria:

75% to 87% reduction summer
70% to 92% reduction fall-winter-spring

Iron:

3-6 mg/l total suspended target to meet 19% to 96% reduction based on stream flow Pudding River and Zollner Creek Watersheds.

Legacy Pesticides:

30% reduction DDT Pudding River and Tributaries
90% reduction Dieldrin Pudding River and Tributaries
15 mg/L Pudding River In stream total suspended solids targets

303(d) 2012 Water Quality Limitations

Water Body (Stream/Lake)	River Miles	Parameter	Season	Criteria	Beneficial Uses	Status
Pudding River	0 to 35.4	DDT 4,4	Year Round	Table 20 Toxic Substances	Drinking water; Resident fish and aquatic life; Anadromous fish passage	Cat 4A: Water quality limited, TMDL approved
Pudding River	0 to 35.4	Dieldrin	Year Round	Table 20 Toxic Substances	Drinking water; Resident fish and aquatic life; Anadromous fish passage	Cat 4A: Water quality limited, TMDL approved
Pudding River	0 to 47.5	Dissolved Oxygen	January 1 - May 15	Spawning: Not less than 11.0 mg/L or 95% of saturation	Resident trout spawning	Cat 4A: Water quality limited, TMDL approved
Pudding River	0 to 53.8	Dissolved Oxygen	Year Round (Non-spawning)	Cool water: Not less than 6.5 mg/l	Cool-water aquatic life	Cat 4A: Water quality limited, TMDL approved

Pudding River	0 to 35.4	E. Coli	FallWinterSpring	30-day log mean of 126 E. coli organisms per 100 ml; no single sample > 406 organisms per 100 ml	Water contact recreation	Cat 4A: Water quality limited, TMDL approved
Pudding River	35.4 to 61.7	E. Coli	FallWinterSpring	30-day log mean of 126 E. coli organisms per 100 ml; no single sample > 406 organisms per 100 ml	Water contact recreation	Cat 4A: Water quality limited, TMDL approved
Pudding River	0 to 35.4	Iron	Year Round	Table 20 Toxic Substances	Aquatic life	Cat 4A: Water quality limited, TMDL approved
Pudding River	0 to 61.8	Temperature	Year Round (Non-spawning)	Salmon and trout rearing and migration: 18.0 degrees Celsius 7-day-average maximum	Salmon and trout rearing and migration	Cat 4A: Water quality limited, TMDL approved
Pudding River	0 to 61.8	Biological Criteria	Year Round	Biocriteria: Waters of the state must be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.	Aquatic life	Cat 5: Water quality limited, 303(d) list, TMDL needed
Pudding River	47.5 to 61.8	Dissolved Oxygen	October 15 - May 15	Spawning: Not less than 11.0 mg/L or 95% of saturation		Cat 5: Water quality limited, 303(d) list, TMDL needed
Pudding River	0 to 61.8	Guthion	Year Round	Table 20 Toxic Substances	Aquatic life	Cat 5: Water quality limited, 303(d) list, TMDL needed
Pudding River	0 to 35.4	Lead	Year Round	Table 20 Toxic Substances	Aquatic life	Cat 5: Water quality limited, 303(d) list, TMDL needed

2) What is the potential for this use to impact a water quality limited water body: HIGH MEDIUM LOW

Explain: The groundwater review indicates that the well and surface waters are hydrologically connected. Surface water is not available to be withdrawn from the Pudding River during part of the proposed months of use (June – October). Reduced groundwater recharge and resulting streamflow depletion could impact quantity and quality during the critical summer months when temperatures are already too warm. Based on water availability, the cumulative withdrawal is likely to cause ecological harm from June through September. Scientific literature identified harm occurring when 6-35 percent or greater of daily flow is withdrawn¹.

PUDDING R > MOLALLA R - AB HOWELL PRAIRIE - WILLAMETTE BASIN

Watershed ID	Exceedance Level	Month	Natural Stream Flow	Consumptive Use	Expected Stream Flow	Instream Requirement	Net Water Avail	Percent of flow
152	50	JAN	1210	69.8	1140	10	1130	6
152	50	FEB	1070	60.9	1010	10	999	6
152	50	MAR	909	40	869	10	859	4
152	50	APR	685	21.4	664	10	654	3
152	50	MAY	412	14.3	398	10	388	3
152	50	JUN	183	29.3	154	10	144	16
152	50	JUL	68.7	44.8	23.9	10	13.9	65
152	50	AUG	34.6	37.2	-2.56	10	-12.6	108
152	50	SEP	35.9	22.3	13.6	10	3.62	62
152	50	OCT	74.6	4.35	70.2	10	60.2	6
152	50	NOV	576	18.8	557	10	547	3
152	50	DEC	1150	63.8	1090	10	1080	6

¹ Richter, B. D., Davis, M. M., Apse, C. and Konrad, C. (2012), A Presumptive Standard for Environmental Flow Protection. River Res. Applic., 28: 1312–1321. doi:10.1002/rra.1511

152	50	ANN	385000	25700	360000	7240	353000	7
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3) If the answer to question (2) is HIGH or MEDIUM, will the proposed use still result in diminution of water quality for the habitat of sensitive, threatened, or endangered fish species? NO YES

If YES, how?

LOWER COLUMBIA, Abiqua Creek-Pudding River, Chinook Salmon, Steelhead

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. By reducing groundwater recharge and resulting streamflow, this use is likely to exacerbate the temperature and dissolved oxygen impairments. The assimilative capacity of a waterway is flow dependent. Reduced flows can increase the concentrations of phosphorous, bacteria, pesticides and metals.

Increases in temperature or a reduction in dissolved oxygen adversely impacts sensitive, threatened, and endangered 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. The temperature and dissolved oxygen concentrations of hydrologically connected waterbodies are known to be insufficient for the habitat of sensitive, threatened, and endangered fish. Additional heat or reduction in dissolved oxygen concentrations will further impact these species habitat.

4) Can conditions be applied to mitigate the impact of the use?

NO YES; recommend from Menu of Conditions and skip to question 7.

DEQ recommends that the applicant shall mitigate anticipated impacts to water quality for the habitat of sensitive, threatened, or endangered fish species by providing suitable replacement water. Additional mitigation may be required from other IRT members (example: OWRD may require mitigation for periods when water is not available). Surface flow mitigation is unlikely to provide the same benefit groundwater provides to gaining stream reaches. However, if groundwater mitigation is unavailable within the same aquifer, surface water mitigation will provide suitable mitigation.

Mitigation obligation: Prior to water use under this permit, the applicant shall provide mitigation water that is of no less volume than the consumptive portion of the permitted use. Mitigation water shall be sourced upstream of the point of appropriation, or the uppermost point on the stream at which PSI occurs. If surface water is used for mitigation, it shall be instream for the June 1- September 30 time period. The applicant should contact their OWRD caseworker to discuss flow mitigation options.

Water Quality: The use may be restricted if the quality of the source stream or downstream waters decreases to the point that those waters no longer meet existing state or federal water-quality standards due to reduced flow.

Prohibited Activities: Permittee shall not cause pollution of any waters of the state, or 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, per ORS 468B.025(1). If the Department of Environmental Quality determines that pollution of waters of the state is occurring, the permit holder is not in compliance with ORS 468B.025(1), DEQ shall notify OWRD of the violation.

Agricultural Water Quality Management Area Rules: Permittee must comply with basin-specific Agricultural Water Quality Management Area Rules in OAR 603-095. Livestock management and cropping must protect riparian areas on the property, allowing site capable vegetation along streams to establish and grow to provide the following functions: shade (on perennial and some intermittent streams), bank stability, and infiltration or filtration of overland runoff.

Compliant Flow Restrictor: Applicant shall install an OWRD approved flow restrictor.

5) If conditions cannot be identified to offset impacts, would the proposed use affect the Habitat of Sensitive, Threatened, or Endangered Fish Species? NO YES

If YES, please explain:

6) If a permit is issued, are there any conditions you would like to see included in the permit?

Refer to conditions listed in question 4.

7) Your recommendation under OAR 690-033-0330 (2): Approval
 Approval without conditions
 Denial, unless conditions and mitigation are met

DEQ Representative signature: Heather Tugaw Date: October 12, 2017

WRD Contact: **Caseworker:** Barbara Poage, Water Rights Division, 503-986-0900 / Fax 503-986-0901

MENU OF CONDITIONS FOR WRD, ODFW, DEQ AND AG

The following condition will be included in any permit issued unless ODFW explicitly requests that it be omitted:

The permittee shall not construct, operate or maintain any dam or artificial obstruction to fish passage in the channel of the subject stream without providing a fishway to ensure adequate upstream and downstream passage for fish, unless the permittee has requested and been granted a fish passage waiver or exemption through the Oregon Department of Fish and Wildlife. The permittee is hereby directed to contact an Oregon Department of Fish and Wildlife Fish Passage Coordinator before beginning construction of any in-channel obstruction.

- fishself** The permittee shall install, maintain, and operate fish screening and by-pass devices consistent with current Oregon Department of Fish and Wildlife (ODFW) standards. Fish screening is to prevent fish from entering the proposed diversion while by-pass devices provide adequate upstream and downstream passage for fish. The required screen and by-pass devices are to be in place and functional prior to diversion of any water. Permittee shall obtain written approval from ODFW that the installation of the required screen and by-pass devices meets the state's criteria or the permittee shall submit documentation that ODFW has determined screens and/or by-pass devices are not necessary.
- fishapprove** The permittee shall install, maintain, and operate fish screening and by-pass devices consistent with current Oregon Department of Fish and Wildlife (ODFW) standards. Fish screening is to prevent fish from entering the proposed diversion while by-pass devices provide adequate upstream and downstream passage for fish. The required screen and by-pass devices are to be in place and functional, and approved in writing by ODFW prior to diversion of any water. The permittee may submit evidence in writing that ODFW has determined screens and/or by-pass devices are not necessary.
- fishdiv33** 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 and Wildlife Habitat Mitigation Policy OAR 635-415. For purposes of mitigation, the ODFW Fish and Wildlife Habitat Mitigation Goals and Standards, OAR 635-415, shall be followed.
- The use may be restricted if the quality of the source stream or downstream waters decrease to the point that those waters no longer meet existing state or federal water quality standards due to reduced flows.
- The permittee shall install, maintain, and operate fish screening and by-pass devices consistent with current Oregon Department of Fish and Wildlife (ODFW) standards. Fish screening is to prevent fish from entering the proposed diversion while by-pass devices provide adequate upstream and downstream passage for fish. The required screen and by-pass devices are to be in place and functional, and approved in writing by ODFW prior to diversion of any water. The permittee may submit evidence in writing that ODFW has determined screens and/or by-pass devices are not necessary.
- fishmay** Notwithstanding that ODFW has made a determination that fish screens and/or by-pass devices are not necessary at the time of permit issuance, the permittee may be required in the future to install, maintain, and operate fish screening and by-pass devices to prevent fish from entering the proposed diversion and to provide adequate upstream and downstream passage for fish.
- b52** Water may be diverted only when Department of Environmental Quality sediment standards are being met.
- b5** The water user shall install and maintain adequate treatment facilities meeting current DEQ requirements to remove sediment before returning the water to the stream.
- b51a** The period of use has been limited to _____ through _____.
- b57** Before water use may begin under this permit, a totalizing flow meter must be installed at each diversion point.
- b58** Before water use may begin under this permit, a staff gage that measures the entire range and stage between full reservoir level dead pool storage must be installed in the reservoir. The staff gage shall be United States Geological Survey style porcelain enamel iron staff gage style A, C, E or I. Additionally, before water use may begin under this permit, if the reservoir is located in channel then weirs or other suitable measuring devices must be installed upstream and downstream of the reservoir, and, a gated valve outlet must be installed. A written waiver may be obtained from the local Watermaster if in his judgment the installation of the weir(s) will provide no public benefit.
- futile call** The use of water allowed herein may be made only at times when waters from the (NAME OF SURFACE WATER) would not otherwise flow into a tributary of the _____ River or sufficient water is available to satisfy all prior rights, including rights for maintaining instream flows.
- 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 and Wildlife Habitat Mitigation Policy OAR 635-415. For purposes of mitigation, the ODFW Fish and Wildlife Habitat Mitigation Goals and Standards, OAR 635-415, shall be followed.
- wq** The use may be restricted if the quality of the source stream or downstream waters decrease to the point that those waters no longer meet existing state or federal water quality standards due to reduced flows.
- fence** The stream and its adjacent riparian area shall be fenced to exclude livestock.
- blv** Water must be diverted to a trough or tank through an enclosed water delivery system. The delivery system must be equipped with an automatic shutoff or limiting flow control mechanism or include a means for returning water to the stream source through an enclosed delivery system. The use of water shall not exceed 0.10 cubic feet per second per 1000 head of livestock.