

EMERGENCY DROUGHT APPLICATION: GROUNDWATER REVIEW

TO: Water Rights Section Date: 05/05/2021

FROM: Groundwater Section: Michael Thoma
 Reviewer's Name

SUBJECT: Application G- 19109 Re-review; date of original review: ##/##/####

This review is based on authorities laid out in OAR 690-019 Drought Mitigation rules. This is an expedited review to evaluate an emergency request for groundwater use for one season under a Governor’s drought declaration. Notwithstanding groundwater availability, stability of the groundwater resource, and surface water and Scenic Waterway considerations, the Department may issue a drought permit for short-term emergency use provided that there is no injury and that the use is within the public interest as per OAR 690-019-0040(3).

Assessment of temporary emergency-use groundwater permits is based, in part, on the attached memorandum: “Processing Guidelines for 2021 Emergency Drought Applications, Klamath Basin”, dated April 12, 2021.

A. GENERAL INFORMATION:

Applicant’s Name: Wright Family Farm County: Klamath

A1. Applicant(s) seek(s) 0.49 cfs from 2 well(s) in the Klamath Basin
Tule Lake Subbasin

A2. Proposed use: Irrigation: 39.0 acres Seasonality: 2021 Irrigation Season

A3. Well and aquifer data (**attach and number logs for existing wells; mark proposed wells as such under LogID**):

Well	Well Report LogID	Applicant’s Well #	Proposed Aquifer*	Proposed Rate (cfs)	Location; (T/R-S QQ-Q)	Location; metes and bounds
1	KLAM0052964	1	VOLC ROCK	0.49	41.00S-12.00E-14-SE SW	42.0083, -121.3793
2	KLAM0010445	2	VOLC ROCK	0.49	41.00S-12.00E-23-NE NW	42.0029, -121.3796

If no well report is available or the well is proposed, fill out the following table.

Well	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforation or Screen Interval (ft)	Well Yield (gpm)
1	1095	0-274	+1-769	-	-	2000
2	1004	0-90	+1-91	-	-	500

Comments: no comments

B. WATER AVAILABILITY:

B1. Is there information that this drought groundwater use will **injure senior spring or surface water rights** during the duration of the drought declaration? (Yes) (No); If yes, explain:

B2. Is there information that this drought groundwater use will **injure senior groundwater rights** during the duration of the drought declaration? (Yes) (No); If yes, explain:

Seasonal groundwater level fluctuations in response to pumping in this area are generally on the order of 10-20 feet and most wells on groundwater rights are deep enough to accommodate this seasonal interference. However, long-term groundwater level declines have been documented throughout the area and are punctuated by drought-related groundwater pumping. Pumping related to 2021 emergency drought use by this, and other wells, is expected to exacerbate these declines, which has the potential to impact shallow wells.

B3. Groundwater (is) (is not) available within the **capacity of the resource**, Comments:

Groundwater levels have declined noticeably across almost the entire Lost River Subbasin within the past 20 years and over 20 feet in some areas implying that the groundwater resource is over-appropriated as defined in OAR 690-400-0010. Increased use by drought-permit wells and supplemental groundwater rights are anticipated to continue these declines.

B4. There (is) (is not) a preponderance of evidence that the proposed short-term emergency groundwater use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway.

A preponderance of evidence exists to establish that groundwater development occurring in Oregon since 1995 in the Upper Klamath Basin and Lost River subbasin has "measurably reduced" surface water flows within the Klamath Scenic Waterway (refer to attached memo dated 2/19/2013). Short term emergency groundwater uses will further reduce surface water flows in the Klamath Scenic Waterway. The timing and degree (amount of reduction in flow) of additional impacts from the proposed short-term emergency groundwater use is beyond the scope of this review.

B5. At the time of this review, has evidence been provided to the Department that the proposed POD(s) have been equipped with a totalizing flowmeter or other devices suitable to measure the total volume of water pumped? (Yes) (No)

Well #2 (KLAM0010445) does not appear to have a flowmeter or measuring device installed

C. PERMIT CONDITIONS:

If a permit is issued, include the following conditions:

Condition 7B (Interference Condition): Drought permits are junior to existing water rights and are subject to regulation

Condition 7P (Well Tag): If there is no existing OWRD Well ID Tag on the well, one shall be attached

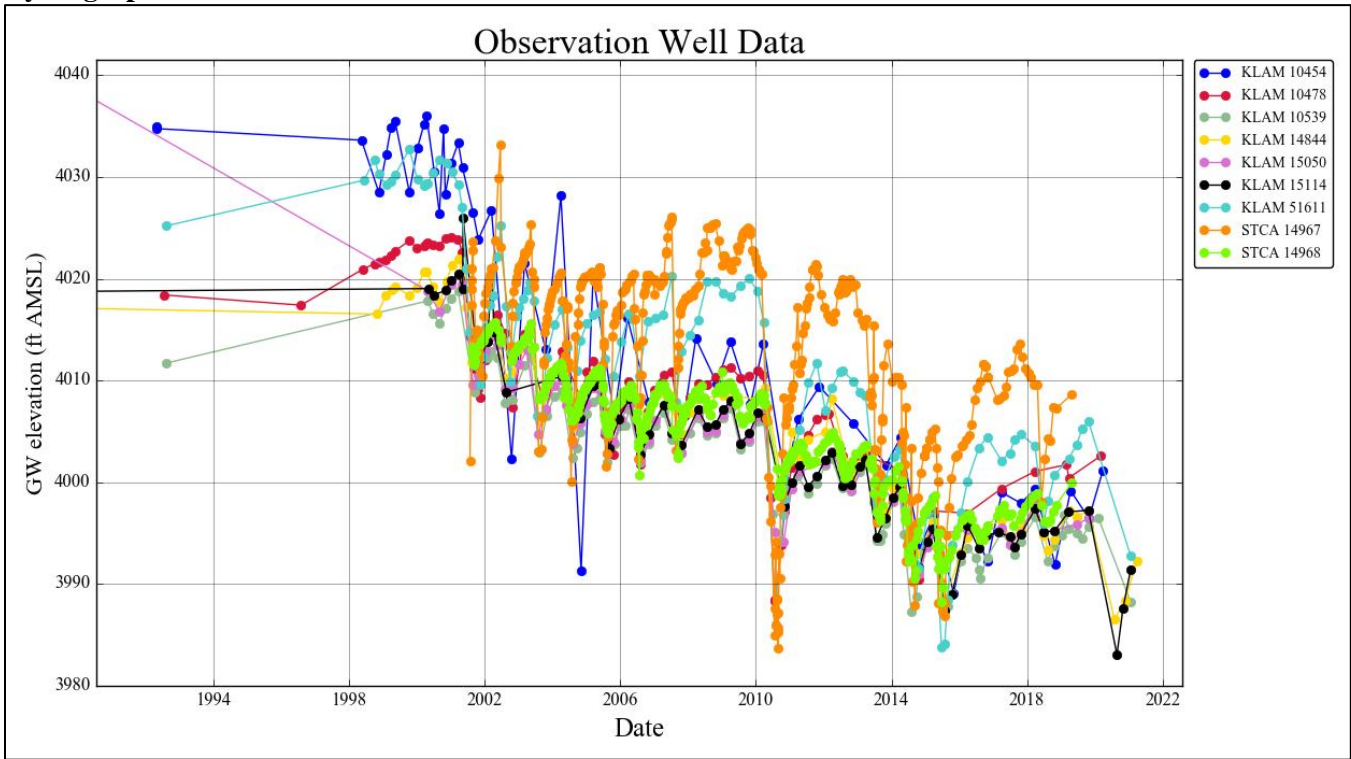
Large Water Use Reporting Condition: totalizing flowmeter and reporting required. Include condition that *“the readings must be reported to the Department by December 1, 2021.”*

Special Condition – Water-Level Measurement Access: *“Prior to use, the well shall be configured to allow a strictly clean water (no oil) static water level measurements with an electric-tape. This can include measurement access via an unobstructed vertical discharge pipe that allows the groundwater level to fluctuate freely within the discharge pipe (no valves), or unobstructed access within the casing to the water level. Otherwise, a dedicated measuring tube must be installed prior to use that has a diameter of ¾ inch (0.75 inch) or greater, and pursuant to figure 200-5 in OAR 690-200.”*

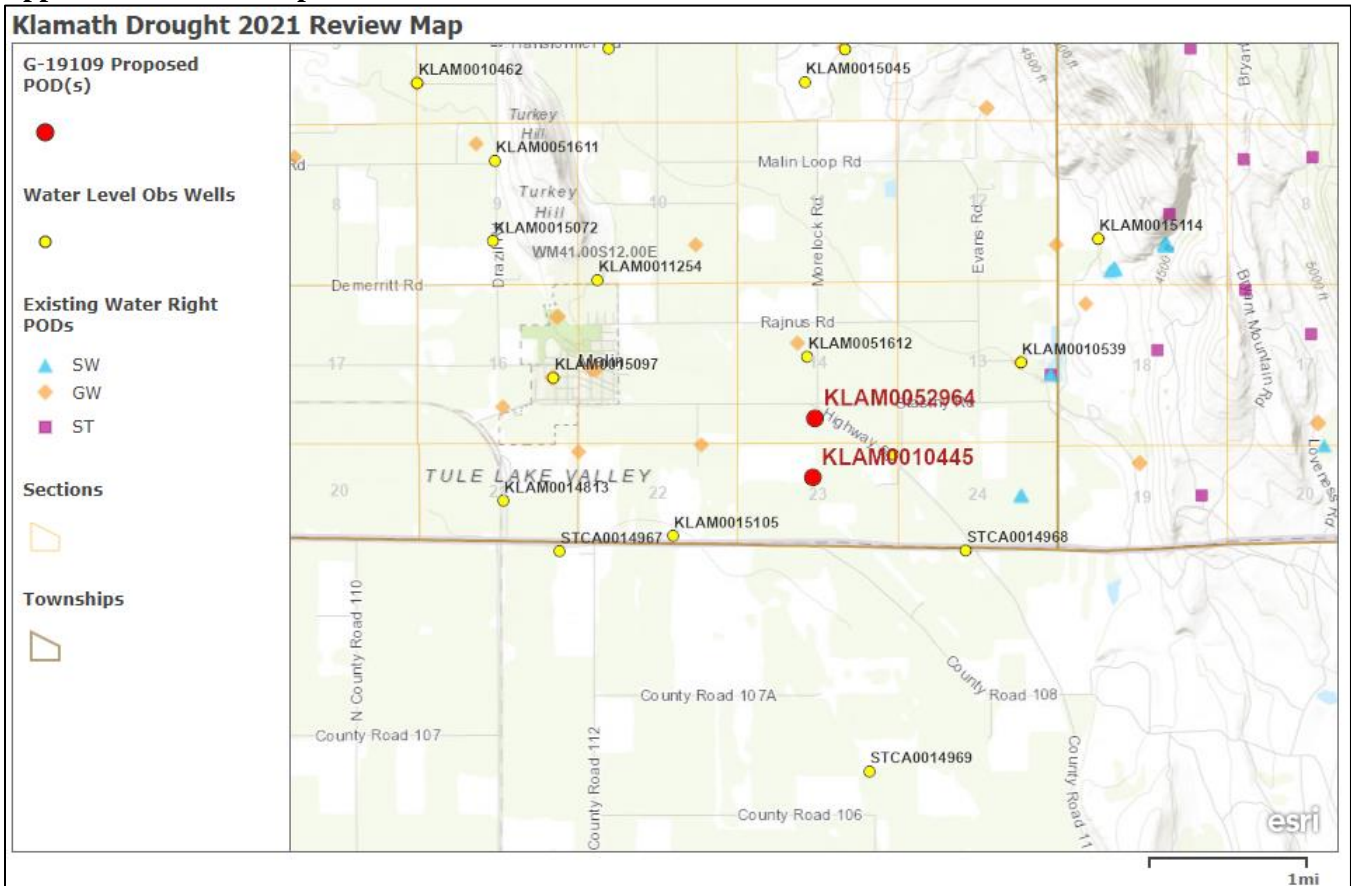
Special Condition - Regulation: *“Groundwater pumping under this permit shall discontinue or be reduced if area wells with permanent primary and/or supplemental groundwater rights are being regulated off due to groundwater level decline or interference with senior water rights unless the Department determines no action is necessary (pumping under this permit can continue) because the groundwater resource can sustain continued groundwater pumping without causing substantial interference with senior water rights.”*

D. SUPPORTING FIGURES AND DOCUMENTS:

Hydrographs for Area Wells



Application Review Map



Memorandum

Oregon Water Resources Department Field Services Division

To: Klamath Basin Drought Application Processing Staff
From: Ivan Gall
Date: April 12, 2021
Regarding: Processing guidelines for 2021 Emergency Drought Applications, Klamath Basin

The Bureau of Reclamation Project area in the Klamath Basin, Oregon and California, is facing an unprecedented water shortage for the 2021 irrigation season. In response to that shortage, the Oregon Water Resources Department (Department) is modifying the criteria we apply for emergency use groundwater permits.

Since 2001, there have been 13 years with a governor-declared drought for the Klamath Basin. Beginning in 2001, groundwater use increased in and around the Bureau of Reclamation project area to provide supplemental water supply during times of shortage. The increased groundwater use resulted in persistent groundwater level declines in and around the project area. There are broad areas with over 20 feet of decline, and some measured wells declined over 30 feet. In recent years, the groundwater declines caused the Department to put two types of limitations on issuance of emergency groundwater permits in and around the project area. First, no permits have been issued after 2015 in areas identified as having greater than 20 feet of groundwater level decline. Second, emergency use permits that have been issued were limited to an annual duty of one-acre foot (AF) per acre.

For the 2021 irrigation season, the Department will be allowing wells across the west side of the project area to apply for emergency use groundwater permits for a duty of 2.5 AF per acre. For the east side of the project area, in the Lost River Basin, some applications may be denied if wells are likely to injure water right holders with spring rights, or for wells near Bonanza Big Springs. Like prior years, no emergency groundwater permits will be issued for wells located in the Upper Basin around and above Upper Klamath Lake due to hydraulic connection with surface water. Groundwater Section drought application reviews will reflect these location criteria. Proof of flow meter installation on each well will be required prior to permit issuance.

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Memo: Analysis of Groundwater Pumping Impacts on Scenic Waterway Flows



State of Oregon
Water Resources Department

Memorandum

To: Barry Norris – Administrator, Technical Services Division
Dwight French – Administrator, Waterrights Division
Tom Paul – Deputy Director
Doug Woodcock – Administrator, Field Services Division

From: Ivan Gall – Manager, Groundwater Section *I.G.*

Date: February 19, 2013

Subject: Analysis of Groundwater Pumping Impacts on Klamath Scenic Waterway Flows

In 1971 the Oregon Legislature created the Scenic Waterway Act, codified by Oregon Revised Statutes 390.805 to 390.925, to preserve for the benefit of the public Waldo Lake and selected parts of the state's free-flowing rivers. The Klamath Scenic Waterway was part of the Act and includes the Klamath River from the John Boyle Dam powerhouse downstream to the Oregon-California border. Under the Act, the Water Resources Commission is allowed to allocate small amounts of surface water for human consumption and livestock watering, as long as issuing the water right does not significantly impair the free-flowing character of these waters in quantities necessary for recreation, fish and wildlife, and the amount allocated may not exceed a cumulative total of one percent of the average daily flow or one cubic foot per second (cfs), whichever is less.

In 1995 the Scenic Waterway Act was modified to address the impact of groundwater uses that, based upon a preponderance of evidence, would measurably reduce the surface water flows within a scenic waterway. "Measurably reduce" means that the use authorized will individually or cumulatively reduce surface water flows within the scenic waterway in excess of a combined cumulative total of one percent of the average daily flow or one cfs, whichever is less.

In 2012 the United States Geological Survey (USGS), in cooperation with OWRD and the US Bureau of Reclamation, completed groundwater flow and management models for the Upper Klamath Basin. The 2012 groundwater flow model uses generally accepted hydrogeologic methods and the relevant field data to model the cumulative effects of groundwater pumping within the Klamath Scenic Waterway, and provides a comprehensive methodology for analyzing the relevant field data necessary to determine whether the cumulative use of groundwater in the Klamath Basin will measurably reduce the surface water flow necessary to maintain the free-flowing character of the Klamath Scenic Waterway.

In September 2012 the OWRD Groundwater Section conducted two model simulations. The two simulations used the 2012 USGS flow model, incorporating groundwater permits issued (61.96 cfs) since adoption of the 1995 Scenic Waterway Act amendment up through 2004. Each simulation was run to steady-state, where inflows and outflows for that model run balanced. An evaluation of the water budgets showed that groundwater discharge to the Klamath Scenic Waterway decreased by 5.88 cfs as a result of the 61.96 cfs of groundwater uses issued between 1995 and 2004. These results indicate to the OWRD that a preponderance of evidence exists to establish that groundwater development occurring in the Upper Klamath Basin in Oregon since 1995 has "measurably reduced" surface water flows within the Klamath Scenic Waterway.

In January 2013 the OWRD Groundwater Section conducted flow model simulations to evaluate impacts to streams from pumping groundwater within the Lost River subbasin. Groundwater pumping was simulated by placing wells in the model that correspond to the center of 39 townships in the southeast part of the Klamath Basin in Oregon. Each of the simulations was run to steady-state, where inflows and outflows for that model run balanced. These results indicate that the scenic waterway is impacted by pumping groundwater in all of the townships evaluated in Oregon in the Lost River subbasin. In summary, a preponderance of evidence exists to establish that groundwater development occurring in Oregon since 1995 in the Upper Klamath Basin and Lost River subbasin has "measurably reduced" surface water flows within the Klamath Scenic Waterway.

References:

Gannett, M.W., Lite, K.E., Jr., La Marche, J.L., Fisher, B.J., and Polette, D.J., 2007. Ground-water hydrology of the upper Klamath Basin, Oregon and California: U.S. Geological Survey Scientific Investigations Report 2007-5050, 84p.

Gannett, M.W., Wagner, B.J., and Lite, K.E., Jr., 2012. Groundwater simulation and management models for the upper Klamath Basin, Oregon and California: U.S. Geological Survey Scientific Investigations Report 2012-5062, 92p.