

EMERGENCY DROUGHT APPLICATION: GROUNDWATER REVIEW

TO: Water Rights Section Date 05/28/2021
 FROM: Groundwater Section Phillip I. Marcy
 Reviewer's Name

SUBJECT: Application G- 19137

DROUGHT MITIGATION; GROUNDWATER

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). **This review is based upon available information and agency policies in place at the time of evaluation.**

A. GENERAL INFORMATION: Applicant’s Name: John Boyer County: Baker

A1. Applicant(s) seek(s) 2.67 cfs from 1 well(s) in the Powder Basin,
 _____ subbasin

A2. Proposed use Supplemental Irrigation Seasonality: March 1st – October 31st (245 days)

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

Well	Logid	Applicant’s Well #	Proposed Aquifer*	Proposed Rate(cfs)	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	Proposed	1	Alluvium	2.67	8S/38E – 1 NW-NE	None Given
2						
3						
4						

* Alluvium, CRB, Bedrock

Well	Well Elev ft msl	First Water ft bls	SWL ft bls	SWL Date	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Draw Down (ft)	Test Type
1	3472	NA	NA	NA	100-600'	0-40'	0-100'	Unknown	Unknown	NA	NA	NA

Use data from application for proposed wells.

A4. **Comments:** The applicant proposes to construct a well between 100 and 600 feet deep in order to provide supplemental irrigation to lands authorized for surface water irrigation under Certificates 73167 and 4053. No metes and bounds were submitted, well location approximated using latitude and latitude provided by applicant.

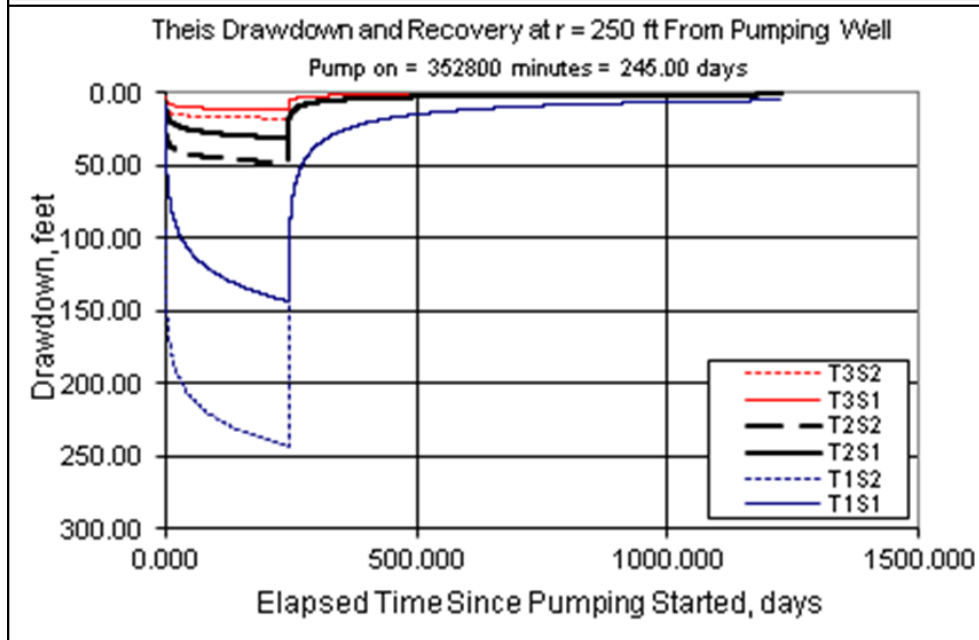
B. GROUNDWATER/SURFACE WATER CONSIDERATIONS:

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: Using aquifer parameters from nearby wells and pump tests, depletion of Rock Creek due to pumping at the proposed POA well is anticipated to reach less than 1.5% of the pumping rate, assuming the proposed well is constructed to produce from greater than 40 feet below land surface, as proposed.

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: The proposed POA location is 240 feet from existing well BAKE 2036, which is authorized under permit G-12804. Using a range of values for hydraulic conductivity from nearby pump tests, seasonal impacts were predicted to range from less than 20 feet to greater than 200 feet, using the maximum proposed rate. Note that BAKE 2036 does not fully penetrate the alluvial aquifer, with a total depth of 160 feet, and therefore no finding of injury was made despite the expected hydraulic interference from this proposed use.

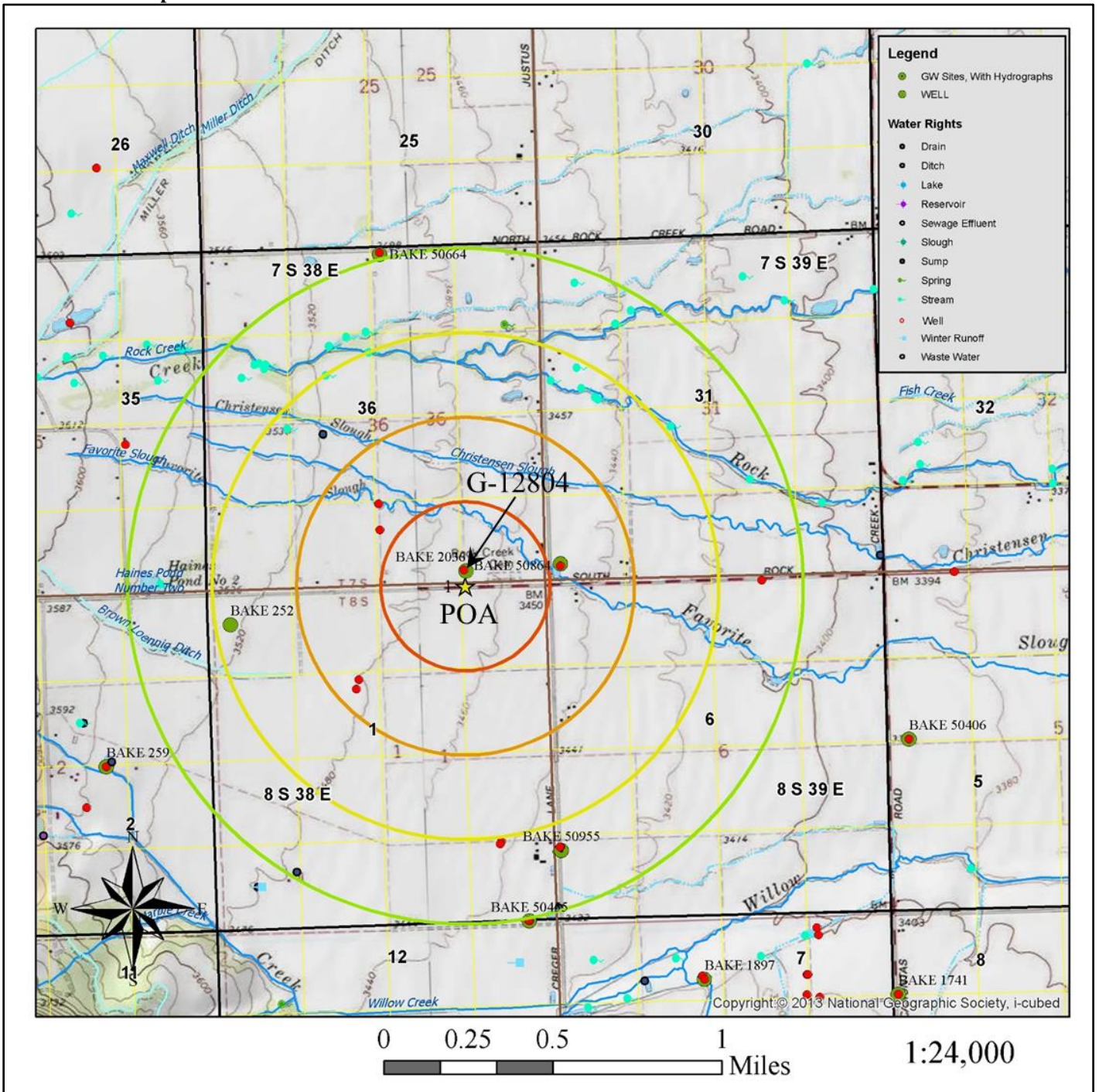
- B3. Groundwater (**is**) (**is not**) available within the **capacity of the resource**. Comments: The proposed use is for one irrigation season under declared drought to supplement surface water rights, and therefore is not anticipated to have long-term impacts to the groundwater resource.
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- 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. Comments: The proposed POA is not located above a Scenic Waterway.
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- B5. **Proposed Permit Conditions:** *If a permit is issued, include:*
If a drought permit is issued, Large Water Use Reporting is recommended to account for groundwater pumping.
In addition, measurement access shall be provided to OWRD staff, and a measuring tube shall be required to assess impacts due to additional pumping in the alluvial aquifer.
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- The POA well shall be constructed to produce groundwater from greater than 40 feet as proposed.
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- B6. **References Used:**
Application file G-19137, OWRD Pump Test Database, GWIS database
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- Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, 2003.
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- Theis, C.V., 1941, The effect of a well on the flow of a nearby stream: Am. Geophys. Union Trans., v. 22, pt.3, p. 734-738.

Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units
Total pumping time	t		245		d
Radial distance from pumped well:	r		250		ft
Pumping rate	Q		1200		gpm
Hydraulic conductivity	K	8.5	50	150	ft/day
Aquifer thickness	b		100		ft
Storativity	S_1		0.01		
	S_2		0.0001		
Transmissivity Conversions	T_ft2pd	850	5000	15000	ft ² /day
	T_ft2pm	0.590278	3.472222	10.41667	ft ² /min
	T_gpd/ft	6358	37400	112200	gpd/ft



A range of values from local pump tests were utilized for estimation of expected seasonal drawdown at nearby BAKE 2036 as a result of pumping at the proposed POA location. The resulting calculations illustrate the effects of a large variability in transmissivity in nearby tested wells.

Well Location Map



Water-Level Measurements in Nearby Wells

