Groundwater Application Review Summary Form

Application # G- 19348

GW Reviewer Joe Kemper Date Review Completed: 11/22/2024

Summary of GW Availability and Injury Review:

☐ Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Summary of Potential for Substantial Interference Review:

☒ There is the potential for substantial interference per Section C of the attached review form.

Summary of Well Construction Assessment:

☐ The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).

WATER RESOURCES DEPARTMENT

MEMO **_11/22/2024_**

TO: Application G-_19348_

FROM: GW: _Joe Kemper_
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference & General/Local Surface Water Evaluation for Deschutes Ground Water Study Area

The source of appropriation is within or above the _Deschutes__Scenic Waterway

Use the Scenic Waterway condition (Condition 7J).

PREPONDERANCE OF EVIDENCE FINDING UNDER ORS 390.835:

Department has found that there is a preponderance of evidence that the proposed use of groundwater will measurably reduce the surface water flows necessary to maintain the free-flowing character of the ___**Deschutes**__Scenic Waterway in quantities necessary for recreation, fish and wildlife.

LOCALIZED IMPACT FINDING

☐ The proposed use of groundwater will have a localized impact to surface water in the __[River Name]__ River/Creek Subbasin.

If the localized impact box above is checked, then the water use under any right issued pursuant to this application is presumed to have a localized impact on surface water within the identified subbasin. Mitigation of the impact, originating from within the Local Zone of Impact identified by the Department, will be required before a permit may be issued for the proposed use.

If the localized impact box above is not checked, then the water use under any right issued pursuant to this application is presumed to have a general (regional) impact on surface water. Mitigation of the impact, originating anywhere within the Deschutes Basin above the Madras gage, will be required before a permit may be issued for the proposed use.

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 11/22/2024
FROM: Groundwater Section Joe Kemper
Reviewer's Name
SUBJECT: Application G- **19348** Supersedes review of 12/20/2023
Date of Review(s)

PUBLIC INTEREST PRESUMPTION; GROUNDWATER

OAR 690-310-130 (1) *The Department shall presume that a proposed groundwater use will ensure the preservation of the public welfare, safety and health as described in ORS 537.525.* Department staff review groundwater applications under OAR 690-310-140 to determine whether the presumption is established. OAR 690-310-140 allows the proposed use be modified or conditioned to meet the presumption criteria. **This review is based upon available information and agency policies in place at the time of evaluation**.

A. GENERAL INFORMATION: Applicant's Name: **City of Redmond** County: **Deschutes**

A1. Applicant(s) seek(s) 5.12 cfs from 6 well(s) in the Deschutes Basin, Upper Deschutes subbasin

A2. Proposed use Municipal (no additional volume) Seasonality: Year Round

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

POA 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	DESC 55853	6	Deschutes Fm	5.12	15S/13E-21 NW-SE	N 35°38'4" W 2444' fr SE cor S 21
2	DESC 57788	7	Deschutes Fm	5.12	15S/13E-10 SW-SE	1210' N, 1640' W fr SE cor S 10
3	DESC 62721	8	Deschutes Fm	5.12	15S/13E-19 SE-SW	513' N, 2807' W fr SE cor S 19
4	DESC 64783*	9	Deschutes Fm	5.12	15S/13E-9 SW-SW	185' N, 1190' E fr SW cor S 9
5	Proposed	10	Deschutes Fm	5.12	15S/13E-9 NE-NW	1332' S, 2020' E fr NW cor S 9
6	Proposed	11	Deschutes Fm	5.12	15S/13E-9 NE-SW	2530' N, 2160' E fr SW cor S 9

* Alluvium, CRB, Bedrock

POA Well	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Drawdown (ft)	Test Type
1	850	0-98, 374-399	0-550, 850-855	NA	550-850	2700	6	Pump
2	860	0-68, 282-322	0-525, 625-700,	NA	525-625, 700-750, 780-860	2700	3	Pump
3	985	0-275	0-743, 974-985	NA	744-974	2773	76.6	Pump
4	789	0-113	0-520	NA	520-762	3500	4.4	Pump
5	800-1000	0-100	Unknown	NA	Unknown	NA	NA	NA
6	800-1000	0-100	Unknown	NA	Unknown	NA	NA	NA

A4. **Comments:** The application has been amended with the same maximum pumping rate but with no additional volume of groundwater requested. This would allow the applicant to meet peak demands without increasing the amount of water that is allocated in the basin. The rate increase will rely on the permitted volume from the applicant's current water rights (see Table 1 below).
*DESC 64783 was completed since application materials were submitted, so this review correlates the LOGID to this POA.

A5. ☒ **Provisions of the** Deschutes (OAR 690-009) Basin rules relative to the development, classification and/or management of groundwater hydraulically connected to surface water ☒ **are**, *or* ☐ **are not**, activated by this application.
Comments: Impacts to surface water are addressed by the Deschutes Mitigation as defined in basin rule.

A6. ☐ **Well(s) #** _____ , _____ , _____ , _____ , _____ , tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: _____

B. GROUNDWATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. **Based upon available data**, I have determined that groundwater* for the proposed use:

a. ~~☐ **is** over appropriated, ☐ **is not** over appropriated, *or* ☐ **cannot be determined to be** over appropriated during any period of the proposed use. * This finding is limited to the groundwater portion of the over-appropriation determination as prescribed in OAR 690-310-130;~~

b. ☐ **will not** *or* ☐ **will** likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the groundwater portion of the injury determination as prescribed in OAR 690-310-130;

c. ~~☐ **will not** *or* ☐ **will** likely to be available within the capacity of the groundwater resource; or~~

d. ☒ **will, if properly conditioned**, avoid injury to existing groundwater rights or to the groundwater resource:

i. ☒ The permit should contain condition #(s) large water use reporting, 7b (interference);

ii. ☐ The permit should be conditioned as indicated in item 2 below.

iii. ☐ The permit should contain special condition(s) as indicated in item 3 below;

B2. a. ☐ **Condition** to allow groundwater production from no deeper than _____ ft. below land surface;

b. ☐ **Condition** to allow groundwater production from no shallower than _____ ft. below land surface;

c. ☐ **Condition** to allow groundwater production only from the _____ groundwater reservoir between approximately _____ ft. and _____ ft. below land surface;

d. ☐ **Well reconstruction** is necessary to accomplish one or more of the above conditions. The problems that are likely to occur with this use and without reconstructing are cited below. Without reconstruction, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Groundwater Section.

Describe injury –as related to water availability– that is likely to occur without well reconstruction (interference w/ senior water rights, not within the capacity of the resource, etc): _____

B3. **Groundwater availability remarks:** The applicant has six valid water rights for municipal use producing from 11 POAs. Table 1 below summarizes these water rights and their associated wells. The total permitted volume of groundwater from these six water rights is 17,877 acre-feet per year. The total maximum permitted rate from these six water rights is 44.87 cfs. This application is requesting to add 5.12 cfs to the maximum rate of municipal use without increasing the annual volume of water that is allocated under Redmond's six current water rights. By increasing the overall maximum permitted rate from the applicant's wells, the applicant will be able to meet projected peak water demands during the summer months.

The applicant's wells would access the Deschutes regional groundwater system in the high-permeability mixed volcanics, volcaniclastic sediments, and alluvium of the Deschutes Formation. The Deschutes regional groundwater system is predominately recharged by heavy precipitation in the Cascades, and it transmits groundwater via long flowpaths towards large spring complexes that discharge to the Deschutes and Crooked rivers near their confluence. Because the target aquifer is relatively permeable and laterally extensive, impacts from pumpage on water levels (storage) and adjacent streams (stream depletion) are more a function of the total amount of water pumped year-to-year as opposed to the day-to-day pumping rate. Because this application does not request additional annual volumes of water from the Deschutes regional aquifer, there is no need to determine whether the source is over-appropriated (B1a) or whether the proposed use is within the capacity of the resource (B1c). Those items are crossed out above and are not considered in this review.

An injury analysis is conducted to assess whether the increase in maximum permitted rate would cause acute well-to-well interference to a degree that would be considered injury. The target aquifer in the Redmond area has a saturated thickness of at least 510 feet (based on adjacent well logs) and is estimated to be 1000 feet thick based on Sherrod et al (2004) and Lite and Gannett (2002). Water levels in the vicinity have very little seasonal variation (less than 5 feet). Acute well-to-well interference is not expected to exceed 1 foot because repeated aquifer test attempts at city wells have failed to produce

measurable drawdown at adjacent observation wells during long-duration, high-capacity pumping phases. Because of the aquifer thickness, low magnitude seasonal variation, and high permeability, it is unlikely that any increase in well-to-well interference that results from this application would meet the current definition of injury.

Because the application does not request an increase in the currently authorized annual volume under the City's existing permits, the resulting permit is not required to set reference levels with permit decline conditions. The applicant's wells are held to the reference levels and permit decline conditions outlined in their current water rights.

C. GROUNDWATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

C6. **SW / GW Remarks and Conditions:** While this application does not request additional annual volume beyond that authorized by the current rights held by the applicant, it is expected to shift the proportion of the additional annual volume pumped to the summer months, as opposed to the current assumption that total authorized volume would be pumped relatively evenly throughout the year. This may change the proportion of consumptive use assumed for the Deschutes Mitigation Program. It is suggested that the WRSD and the Mitigation coordinator assess how this application interacts with the Deschutes Mitigation Program as defined in the basin program rule.

References Used:

Barlow, P.M., and Leake, S.A., 2012, Streamflow depletion by wells—Understanding and managing the effects of groundwater pumping on streamflow: U.S. Geological Survey Circular 1376, 84 p

Gannett, M. W. and Lite, K. E., 2004, Simulation of Regional Ground-Water Flow in the Upper Deschutes Basin, Oregon, USGS Water Resources Investigation Report 2003-4195, 84 p., https://pubs.er.usgs.gov/publication/wri034195

Gannett, M. W. and Lite, K. E., 2013, Analysis of 1997-2008 Groundwater Level Changes in the Upper Deschutes Basin, Central Oregon, USGS Scientific Investigations Report 2013-5092, 34p., https://pubs.er.usgs.gov/publication/sir20135092

Gannett, M. W., Lite Jr, K. E., Morgan, D. S., and Collins, C. A., 2001, Ground-Water Hydrology of the Upper Deschutes Basin, Oregon, USGS Water-Resources Investigations Report 00-4162, 74 p., https://pubs.usgs.gov/wri/wri004162/pdf/WRIR004162.pdf

Groundwater Information System (GWIS). Oregon Water Resources Department. https://apps.wrd.state.or.us/apps/gw/gw_info/gw_info_report/gw_search.aspx Accessed 11/22/2024

Lite, K. E. and Gannett, M. W., 2002, Geologic Framework of the Regional Ground-Water Flow System in the Upper Deschutes Basin, Oregon. USGS Water-Resources Investigation Report 02-4015, 44 p., https://pubs.er.usgs.gov/publication/wri024015

Sherrod, D. R., Taylor, E. M., Ferns, M. L., Scott, W. E., Conrey, R. M. and Smith, G. A., 2004, Geologic Map of the Bend 30-x-60-Minute Quadrangle, Central Oregon. U. S. Geological Survey Geologic Investigations Series Map I-2683. 49p., https://pubs.usgs.gov/imap/i2683/

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #**: _____ **Logid:** _____

D2. **THE WELL does not appear to meet current well construction standards based upon:**

a. ☐ review of the well log;

b. ☐ field inspection by _____;

c. ☐ report of CWRE _____;

d. ☐ other: (specify) _____

D3. **THE WELL construction deficiency or other comment is described as follows:** _____

D4. ☐ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Well Location Map

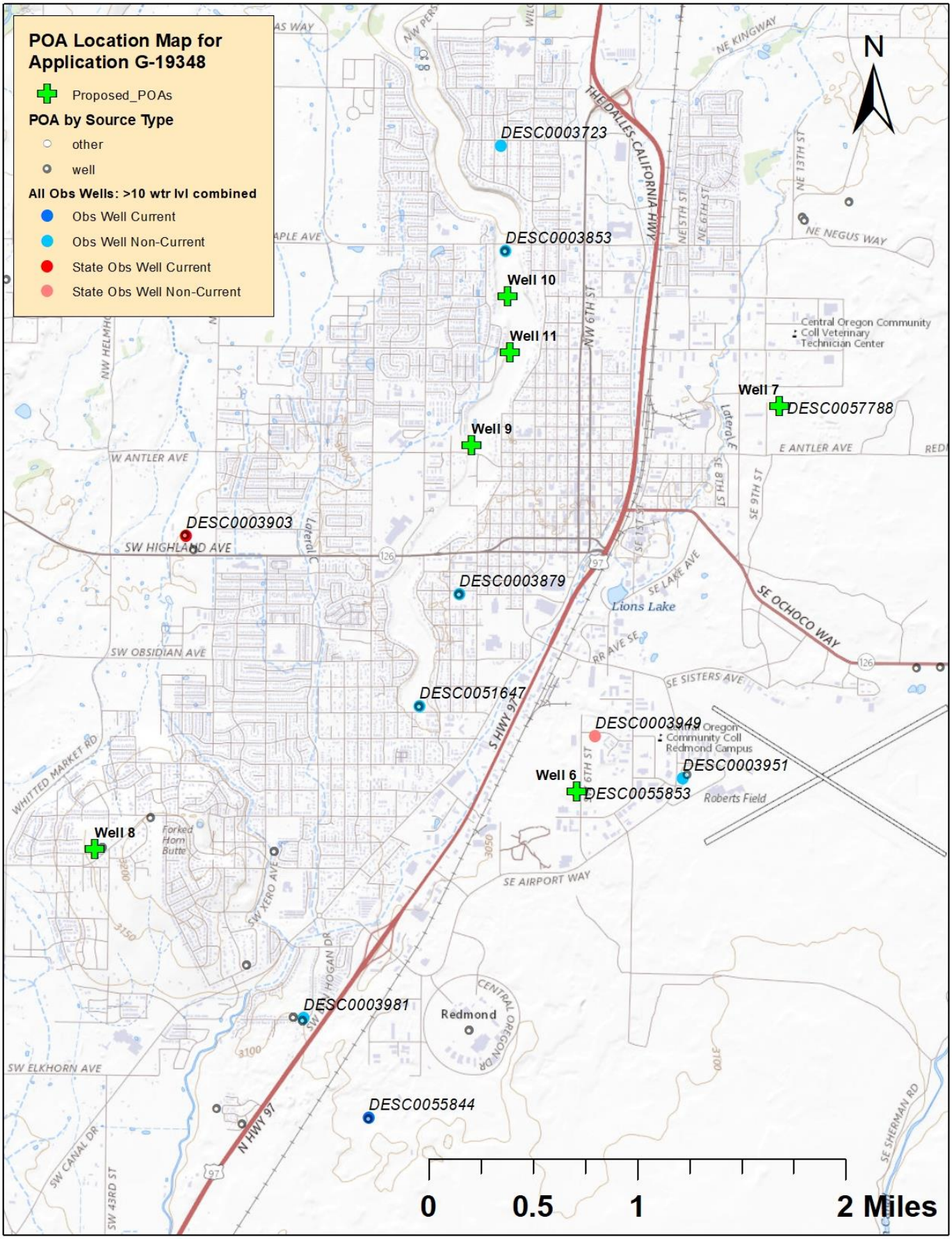

Table 1. Summary of the applicant's current municipal water rights and corresponding POAs.
Note that wells 1 through 5 are not included in this application, but they are referenced in Table 1 for clarification of the source of appropriated volume for this application.

Water Right	Transfer	Priority Date	Rate (cfs)	Volume (AF)	DESC 3853	DESC 3879	DESC 3951	DESC 407	DESC 51647	DESC 55853	DESC 57788	DESC 62721	DESC 64783	Not Yet Drilled	Not Yet Drilled
					WELL 1	WELL 2	WELL 3	WELL 4	WELL 5	WELL 6	WELL 7	WELL 8	WELL 9	WELL 10	WELL 11
Cert. 87796	**T-13391**	11/25/91	5	3620	X	X		X	X	X	X	X	X		
Cert. 89448		3/27/75	3.3	2389	X	X		X	X	X	X	X	X		
Cert. 89447		9/5/69	2.22	1607	X	X		X	X	X	X	X	X		
Cert. 89415		9/25/85	6.9	4995	X	X		X	X	X	X	X	X		
Cert. 82751	**T-14172**	11/7/79	2.45	1774	O	O	X	O	O	O	O	O	O		
Permit G-18157	**T-13528**	1/13/99	25	3492						X	X	X	X	X	X
Total Rate/Volume			44.87	17877.2	Volume designated in water right.		Volume assumes continuous pumping.			**X** = Authorized		**O** = Proposed			