

Groundwater Application Review Summary Form

Application # G- 19324

GW Reviewer Jen Woody Date Review Completed: 7/11/2023

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

7/11/2023

TO: Application G- 19324

FROM: GW: Jen Woody
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

YES The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries
 NO

YES Use the Scenic Waterway Condition (Condition 7J)
 NO

Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below

Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is unable to make a Preponderance of Evidence finding.

Exercise of this permit is calculated to reduce monthly flows in [Enter] Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 7/11/2023
 FROM: Groundwater Section Jen Woody
 Reviewer's Name
 SUBJECT: Application G- 19324 Supersedes review of n/a
 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: Milton Freewater Cemetery Maintenance County: Umatilla

A1. Applicant(s) seek(s) 0.334 cfs from 1 well(s) in the Umatilla Basin, Walla Walla subbasin

A2. Proposed use Irrigation of 17 acres Seasonality: April 1-November 1

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	UMAT 50069	1	CRBG	0.334	5N/35E S 12 NE 1/4 NE 1/4	470' S, 10' E fr NE cor S 12
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	1187	385	375.84	2/2/2022	706	0-90, 262-368	0-368			150	unkno wn	air

Use data from application for proposed wells.

A4. **Comments:** _____

A5. **Provisions of the** _____ 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. (Not all basin rules contain such provisions.)

Comments: OAR 690-507-0030 contains no provisions related to groundwater hydraulically connected to surface water.

A6. **Well(s) #** 1, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.

Name of administrative area: Umatilla Basin Program OAR 690-507-0030(3)

Comments: OAR 690-507-0030(3) classifies Walla Walla Subbasin groundwater for statutorily exempt uses only as provided in and as consistent with ORS 537.545. The proposed use does not meet the definition of exempt use, and is therefore prohibited by basin rules.

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) _____;
 - 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 a single aquifer within the Columbia River Basalt Group 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’s existing well and the proposed APOAs will produce from one or more water-bearing zones in the Columbia River Basalt Group (CRBG), a series of lava flows with a composite thickness greater than 10,000 feet in the Columbia Plateau. Each flow is characterized by a series of internal features, which generally include a thin rubble zone at the contact between flows and a thick, dense, low porosity and low permeability interior zone. In some cases, sedimentary layers were deposited during the time between basalt flow emplacements. A flow top, sedimentary interbed (if present) and flow bottom are collectively referred to as an interflow zone. Unconfined groundwater occurs near the weathered top of the basalts, but most water occurs in interflow zones under confining conditions at the contacts between lava flows. CRBG flow features result in a series of stacked, thin aquifers that are confined by dense flow interiors. The low permeability of the basalt flow interiors usually results in little connection between stacked aquifers, which results in tabular aquifers with unique water level heads (Reidel et al., 2002).

The CRBG is extensively faulted in the Walla Walla basin. Displacement along faults can provide groundwater flow paths by disrupting continuous horizontal dense flow interiors and connecting interflow zones. Alternatively, fault zones can act as low permeability zones that are resistors to groundwater flow. While the hydraulics of each mapped fault in the basin are not fully characterized at this time, groups of CRBG wells with similar head and water level trends are identified across the basin, indicating wells within each group access the same groundwater source. Water levels from the proposed point of appropriation (POA) and nearby wells that have similar groundwater level elevations and trends are depicted in Figure 3.

As shown in Figure 3, groundwater level trends in nearby wells that access the same groundwater source as the proposed POA meet the definition of declined excessively per OAR 690-008-0001(4)(d) meaning total water level declines in the aquifer exceed 50 feet over the period of record. The groundwater level has declined approximately 90 feet since 1945, leading to the findings in B1a and B1c.

As shown in Figure 4, well to well interference is not expected to prevent nearby wells in the same groundwater source from accessing groundwater. The low storativity and high transmissivity of CRBG aquifers generally result in a wide, shallow cone of depression. Potential drawdown at ¼ mile ranges from 0.5 to 7 feet, based on the range of reasonable aquifer parameters. This leads to the finding in section B1b.

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

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	Columbia River Basalt Group	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: CRBG aquifers in this area exhibit low storativity values indicative of confined aquifers.

C2. **690-09-040 (2) (3):** Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Walla Walla River	810	550	2000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: There are hundreds of feet of dense CRBG between the water bearing zone and the bed of the Walla Walla River. No efficient hydraulic connection is expected at this location.

Water Availability Basin the well(s) are located within: Watershed ID #: 30710208

C3a. **690-09-040 (4):** Evaluation of stream impacts for each well that has been determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water (SW) source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that SW source, not lower SW sources to which the stream under evaluation is tributary. Compare the requested rate against the 1% of 80% *natural* flow for the pertinent Water Availability Basin (WAB). If Q is not distributed by well, use full rate for each well. Any checked box indicates the well is assumed to have the potential to cause PSI.

Well	SW #	Well < ¼ mile?	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

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.**

Figure 1. Water Availability Tables

Water Availability Analysis Detailed Reports

WALLA WALLA R > COLUMBIA R - AB BIRCH CR
UMATILLA BASIN

Water Availability as of 7/10/2023

Watershed ID #: 30710208 ([Map](#))

Exceedance Level:80%

Date: 7/10/2023

Time: 8:08 AM

Water Availability Calculation

Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	143.00	118.00	24.80	0.00	0.00	24.80
FEB	172.00	118.00	53.60	0.00	0.00	53.60
MAR	234.00	137.00	97.40	0.00	0.00	97.40
APR	277.00	195.00	82.40	0.00	0.00	82.40
MAY	188.00	243.00	-55.40	0.00	0.00	-55.40
JUN	117.00	248.00	-131.00	0.00	0.00	-131.00
JUL	81.30	201.00	-120.00	0.00	0.00	-120.00
AUG	70.00	181.00	-111.00	0.00	0.00	-111.00
SEP	77.90	181.00	-103.00	0.00	0.00	-103.00
OCT	87.30	177.00	-89.50	0.00	0.00	-89.50
NOV	99.90	165.00	-65.30	0.00	0.00	-65.30
DEC	121.00	132.00	-10.70	0.00	0.00	-10.70
ANN	139,000.00	127,000.00	41,200.00	0.00	0.00	41,200.00

Figure 2. Well Location Map

G-19324 Milton Cemetery T5N/R35 E- Section 12

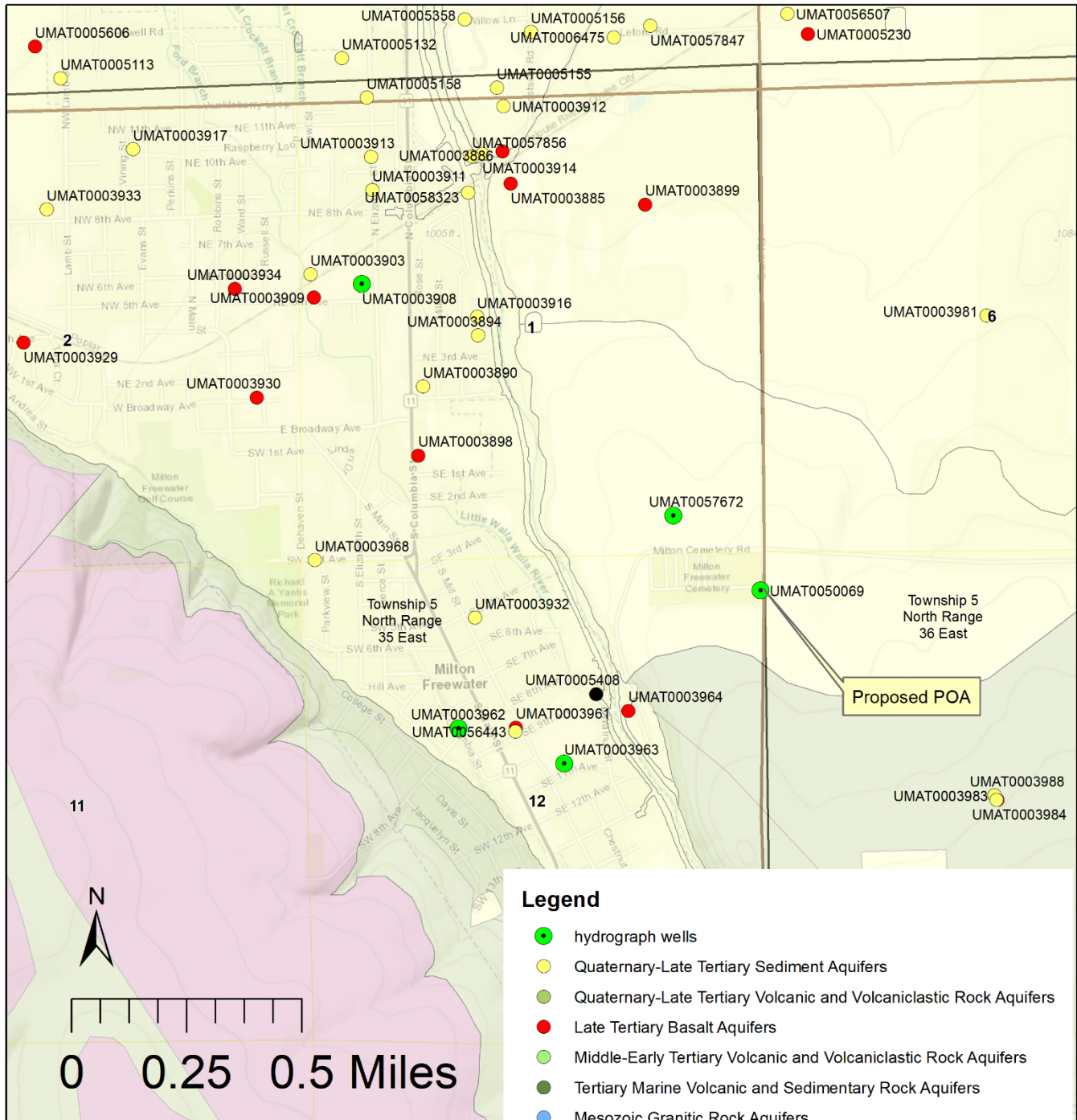


Figure 3. Water-Level Measurements in Nearby Wells

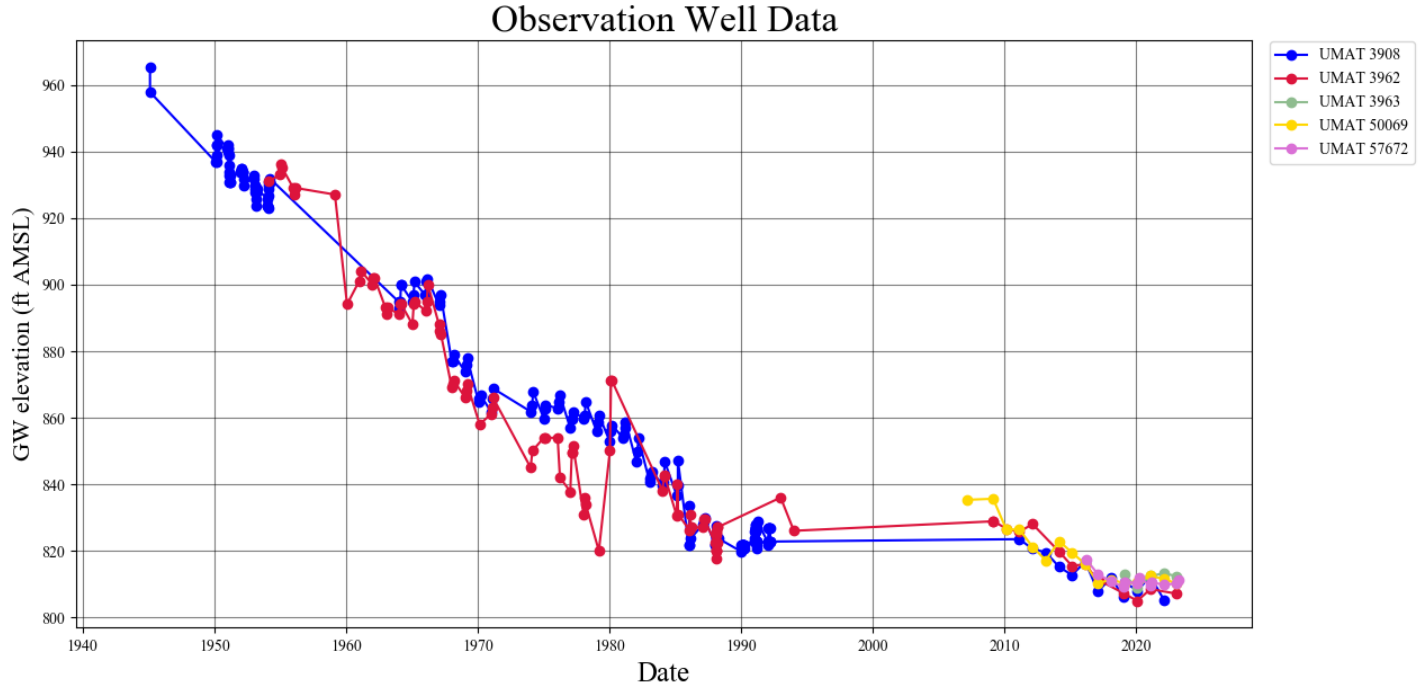
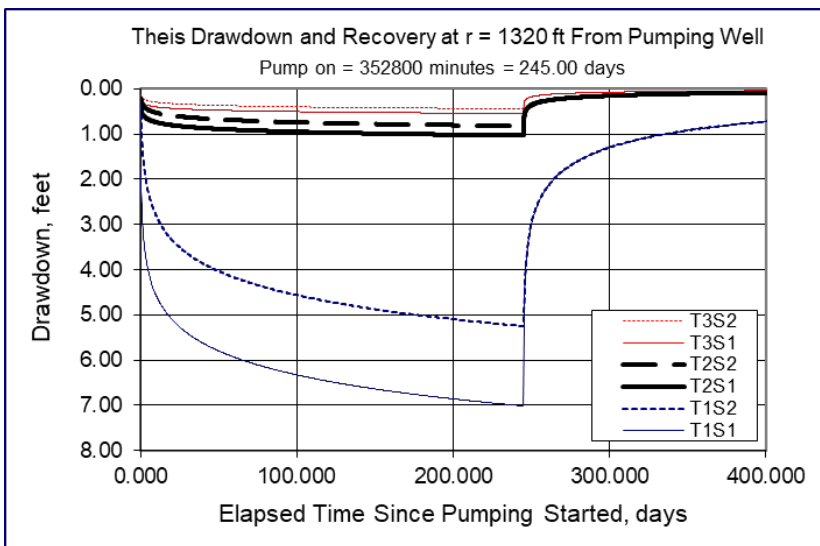


Figure 4. This well to well interference analysis



Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units
Total pumping time	t		245		d
Radial distance from pumped well:	r		1320		ft
Pumping rate	Q		150		gpm
Hydraulic conductivity	K	30	250	500	ft/day
Aquifer thickness	b		100		ft
Storativity	S_1		0.0001		
	S_2		0.001		
Transmissivity Conversions	T_f2pd	3000	25000	50000	ft ² /day
	T_ft2pm	2.08333333	17.3611111	34.7222222	ft ² /min
	T_gpdpft	22440	187000	374000	gpd/ft