

Water Right Conditions Tracking Slip

Groundwater/Hydrology Section

FILE # # G-17889

ROUTED TO: Water Rights

TOWNSHIP/

RANGE-SECTION: 7S/2W-26

CONDITIONS ATTACHED?: [] yes [] no

REMARKS OR FURTHER INSTRUCTIONS:

Reviewer: Karl Wozniak /
Phillip Marcy

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date October 10, 2014
 FROM: Groundwater Section Phillip Marcy/Karl Wozniak
Reviewer's Name
 SUBJECT: Application G- 17889 Supersedes review of _____
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: Richard Kraft County: Marion

- A1. Applicant(s) seek(s) 1.0 cfs from 1 well(s) in the Willamette Basin,
Little Pudding River subbasin Quad Map: Salem East
- A2. Proposed use Irrigation, 120.7 acres Seasonality: March 1 to October 31
- 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	Basalt	1.0	7S/2W-26 SE-SE	670' N, 700' W fr SE cor S 26
2						
3						
4						
5						

* 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	247				340	0-18	1-18	?	?			

Use data from application for proposed wells.

- A4. **Comments:** Owner has previously drilled a test well, MARI 64909, which is open to multiple water-bearing zones in the Columbia River Basalt Group. The application indicates an intent to construct a new well that is similar in construction. However, page 2 of MARI 64909 indicates that the test well will be reconstructed to serve as the production well.
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- A5. **Provisions of the Willamette** _____ 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: The pertinent rules (OAR 690-502-0240) do not apply, since the well will produce from a confined aquifer.
-
- A6. **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
 Name of administrative area: _____
 Comments: _____
-

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) 7i, large water-use reporting;
 - 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: **Special Condition: The well shall be continuously cased and continuously sealed into hard dense basalt at a minimum depth of 240 feet below land surface. If during well construction, it becomes apparent that the well can be constructed to eliminate interference with nearby shallow wells or hydraulically connected streams in a manner other than specified in this permit, the permittee can contact the Department Hydrogeologist for this permit or the Ground Water/Hydrology Section Manager to request approval of such construction. The request shall be in writing, and shall include a rough well log and a proposed construction design for approval by the Department. The request can be approved only if it is received and reviewed prior to placement of any permanent casing and sealing material. If the well is constructed first and then the request made, the requested modification will not be approved. If approved, the new well depth and construction specifications will be incorporated into any certificate issued for this permit.**

The intent of this condition is to construct the well such that it only produces from water-bearing zones in the Winter Water basalt, well below the contact of the Winter Water and the overlying Sentinel Bluffs basalt (230 feet in MARI 64909).

The area beneath the proposed well is underlain by a thin veneer of sediments which is underlain by a thick sequence of Columbia River Basalt. Thick basalt flow interiors generally have very low vertical permeability which leads to thin tabular aquifers that are generally isolated from each other under natural conditions. Test well MARI 64909, adjacent to the proposed well site, is open to multiple water-bearing zones in the basalts. The upper two water-bearing zones from 146-148 feet and from 228-233 feet are correlated to the base of the Silver Falls basalt and the base of the Sentinel Bluffs basalt, both of which are exposed in (and hydraulically connected to) nearby reaches of the Little Pudding River in the hills to the southwest.

These shallow water-bearing zones are also the source aquifers for many domestic wells in nearby rural subdivisions to the southeast. Water levels trends are not currently monitored in any of the domestic wells but at least 41 domestic wells have been deepened out of a total of 249 in sections 25, 35, and 36 of township 7S, range 2W. This suggests that the shallow water-bearing zones are already subject to undue interference. A deep seal into the underlying Winter Water basalt should preclude any effective hydraulic connection with nearby streams and minimize interference with nearby shallow domestic wells.

Water levels in nearby basalt irrigation wells to the north and west show stable water levels over the last twenty years. Limited data indicate that seasonal fluctuations are on the order of 10-20 feet. Many basalt irrigation rights have been issued in the area over the last 30 years but the extent to which all of these rights are exercised in any given year is unknown. However, stable water levels suggest some additional capacity for development. Well logs for nearby basalt irrigation wells show a median yield of about 450 gpm and a range from 60-800 gpm. This indicates that water is likely to be available in the amounts requested.

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	<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"/>

Basis for aquifer confinement evaluation: General knowledge indicates that water-bearing zones are confined in the the basalts

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	Little Pudding River			2800	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Unnamed trib to Pudding R			3800	<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"/>
						<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: The vertical permeability of dense Columbia River Basalt flow interiors is likely to extremely low. This should preclude any effective hydraulic connection with nearby streams if the well is cased and sealed to the depth specified in the special condition listed in section B3.

Water Availability Basin the well(s) are located within: Pudding R> Molalla R- AB Howell Prairie

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 source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and 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"/>
		<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"/>
		<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"/>

C3b. **690-09-040 (4):** Evaluation of stream impacts by total appropriation for all wells determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. **Complete only if Q is distributed among wells.** Otherwise same evaluation and limitations apply as in C3a above.

	SW #		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"/>		<input type="checkbox"/>		<input type="checkbox"/>
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: _____

C4a. **690-09-040 (5):** Estimated impacts on **hydraulically connected surface water sources greater than one mile** as a percentage of the proposed pumping rate. Limit evaluation to the effects that will occur up to one year after pumping begins. This table encompasses the considerations required by 09-040 (5)(a), (b), (c) and (d), which are not included on this form. Use additional sheets if calculated flows from more than one WAB are required.

Non-Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
(A) = Total Interf.													
(B) = 80 % Nat. Q													
(C) = 1 % Nat. Q													
(D) = (A) > (C)													
(E) = (A / B) x 100		%	%	%	%	%	%	%	%	%	%	%	%

(A) = total interference as CFS; (B) = WAB calculated natural flow at 80% exceed. as CFS; (C) = 1% of calculated natural flow at 80% exceed. as CFS; (D) = highlight the checkmark for each month where (A) is greater than (C); (E) = total interference divided by 80% flow as percentage.

Basis for impact evaluation: _____

C4b. **690-09-040 (5) (b) The potential to impair or detrimentally affect the public interest is to be determined by the Water Rights Section.**

C5. **If properly conditioned**, the surface water source(s) can be adequately protected from interference, and/or groundwater use under this permit can be regulated if it is found to substantially interfere with surface water:
i. The permit should contain condition #(s) _____;
ii. The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions** Effective hydraulic connection with nearby stream reaches should be precluded if the well is cased and sealed to the depth specified in the special condition listed in section B3.

References Used:

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-water hydrology of the Willamette Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2005-5168.
Gannett, M.W. and Caldwell, R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-A, 32 p.
Tolan, T.L., Beeson, M.H., DuRoss, C.B., 2000, Geologic Map and Database of the Salem East and Turner 7.5-Minute Quadrangles, Marion County, Oregon: A Digital Database, U.S. Geological Survey Open-File Report 00-351.
Tolan, T.L., Beeson, M.H., and Wheeler, K.L., 1999, Geologic map of the Scotts Mills, Silverton, and Stayton Northeast 7.5-minute quadrangles, northwest Oregon – A digital database: U.S. Geological Survey Open-File Report 99-141, scale 1:24,000.
Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 p.

STATE OF OREGON WATER SUPPLY WELL REPORT (as required by ORS 537.765 & OAR 690-205-0210)

MARI 64909

WELL I.D. LABEL# L 103761 START CARD # 209973 ORIGINAL LOG #

10/2/2013

(1) LAND OWNER Owner Well ID First Name RICHARD Last Name KRAFT Company KRAFT MASONRY INC Address 8644 WARNER DR City SALEM State OR Zip 97317

(2) TYPE OF WORK [X] New Well [] Deepening [] Conversion [] Alteration (complete 2a & 10) [] Abandonment (complete 5a)

(2a) PRE-ALTERATION Casing: Dia + From To Gauge Stl Plstc Wld Thrd Seal: Material From To Amt sacks/lbs

(3) DRILL METHOD [X] Rotary Air [] Rotary Mud [] Cable [] Auger [] Cable Mud [] Reverse Rotary [] Other

(4) PROPOSED USE [] Domestic [] Irrigation [] Community [] Industrial/ Commercial [] Livestock [] Dewatering [] Thermal [] Injection [X] Other TEST WELL FOR WATER

(5) BORE HOLE CONSTRUCTION Special Standard (Attach copy) Depth of Completed Well 340.00 ft BORE HOLE table with columns: Dia, From, To, Material, SEAL, Amt, sacks/lbs

How was seal placed: Method [] A [] B [] C [] D [] E [X] Other CHIPS DRY Backfill placed from ft to ft Material Filter pack from ft to ft Material Explosives used: [] Yes Type Amount

(5a) ABANDONMENT USING UNHYDRATED BENTONITE Proposed Amount Actual Amount

(6) CASING/LINER table with columns: Casing, Liner, Dia, From, To, Gauge, Stl, Plstc, Wld, Thrd. Includes shoe location and casing type info.

(7) PERFORATIONS/SCREENS Screens Type Material Perf/ Casing/ Screen Screen Liner Dia From To Scrns/slot width Slot length # of slots Tele/ pipe size

(8) WELL TESTS: Minimum testing time is 1 hour Pump [] Bailer [] Air [X] Flowing Artesian Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)

Temperature 51 F Lab analysis [] Yes By Water quality concerns? [] Yes (describe below) TDS amount From To Description Amount Units

(9) LOCATION OF WELL (legal description) County MARION Twp 7.00 S N S Range 2.00 W E/W WM Sec 26 SE 1/4 of the SE 1/4 Tax Lot 200 Tax Map Number Lot Lat Long DMS or DD

1/4 MILE WEST OF HOWELL PRAIRIE ROAD, WEST ON STATE ST SOUTH OF NWN GAS FACILITY

(10) STATIC WATER LEVEL Date SWL(psi) + SWL(ft) Existing Well / Pre-Alteration Completed Well 9/30/2013 126

WATER BEARING ZONES Depth water was first found 146.00 SWL Date From To Est Flow SWL(psi) + SWL(ft)

(11) WELL LOG Ground Elevation Material From To Soil brown 0 2 Clay med-soft brown 2 7 Clay yellow-brown mix sticky 7 19 Siltstone, gritty, brown, decomposed 19 56 Sandstone med brown-gray mix 56 81 Basalt med grey 81 146 Basalt altered multicolor Vantage 146 160 Basalt hard grey 160 228 Basalt altered multicolor Tsb 228 230 Basalt hard grey 230 233 Basalt hard very fractured 233 238 Basalt semi fractured black med hard Tgwud 238 260 Basalt altered multi colored 260 265 Basalt hard grey 265 336 Basalt altered multi colored 336 340

Geologic units per correlations by Karl Wonnink, See Talon & Bacon gas maps

Date Started 9/27/2013 Complete 9/30/2013

(unbonded) Water Well Constructor Certification I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

(bonded) Water Well Constructor Certification I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

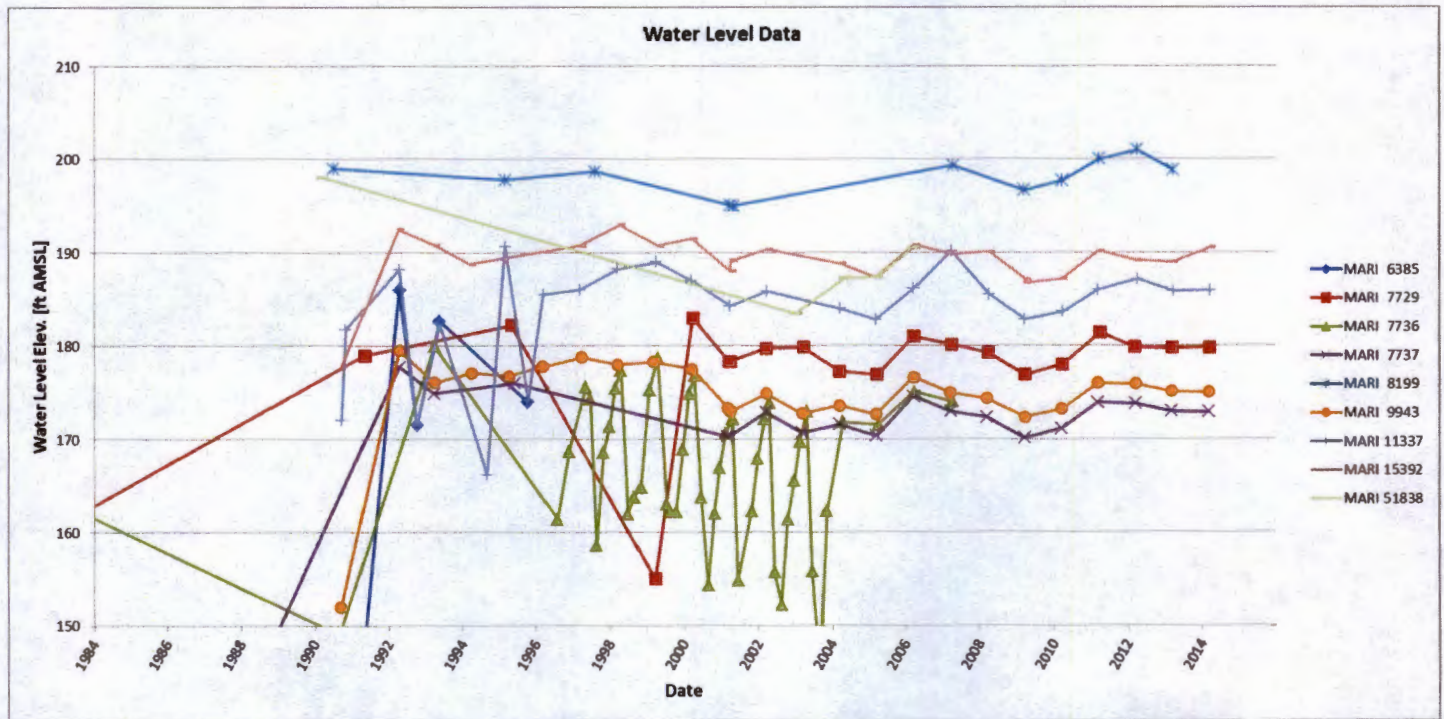
D2. **THE WELL does not appear to meet current well construction standards based upon:**

- 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.

Water Levels in Nearby Basalt Wells



G-17889, Kraft

