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Water Supply Well at Staircase, Olympic National Park

The well at Staircase was constructed in October 1979. It was drilled to 40 feet, but then completed with casing to a depth of 37 feet. The driller's log for the Staircase well shows;

0-10 feet	Large gravel and black sand
10-14 feet	Black sand
14-30 feet	Large gravel and black sand
30-40 feet	Large gravel and small amount of sand

The well completion report shows that 8-inch casing was installed to 37 feet. There is no well screen and no perforations. All of the water enters the well through the bottom opening. There is no report of the yield from the well.

I scaled the distance between the well and the Skokomish River on the topo map at 200 feet. If the actual distance is less than this, WA-DOH would require an assessment of GWI (groundwater under the influence of surface water).

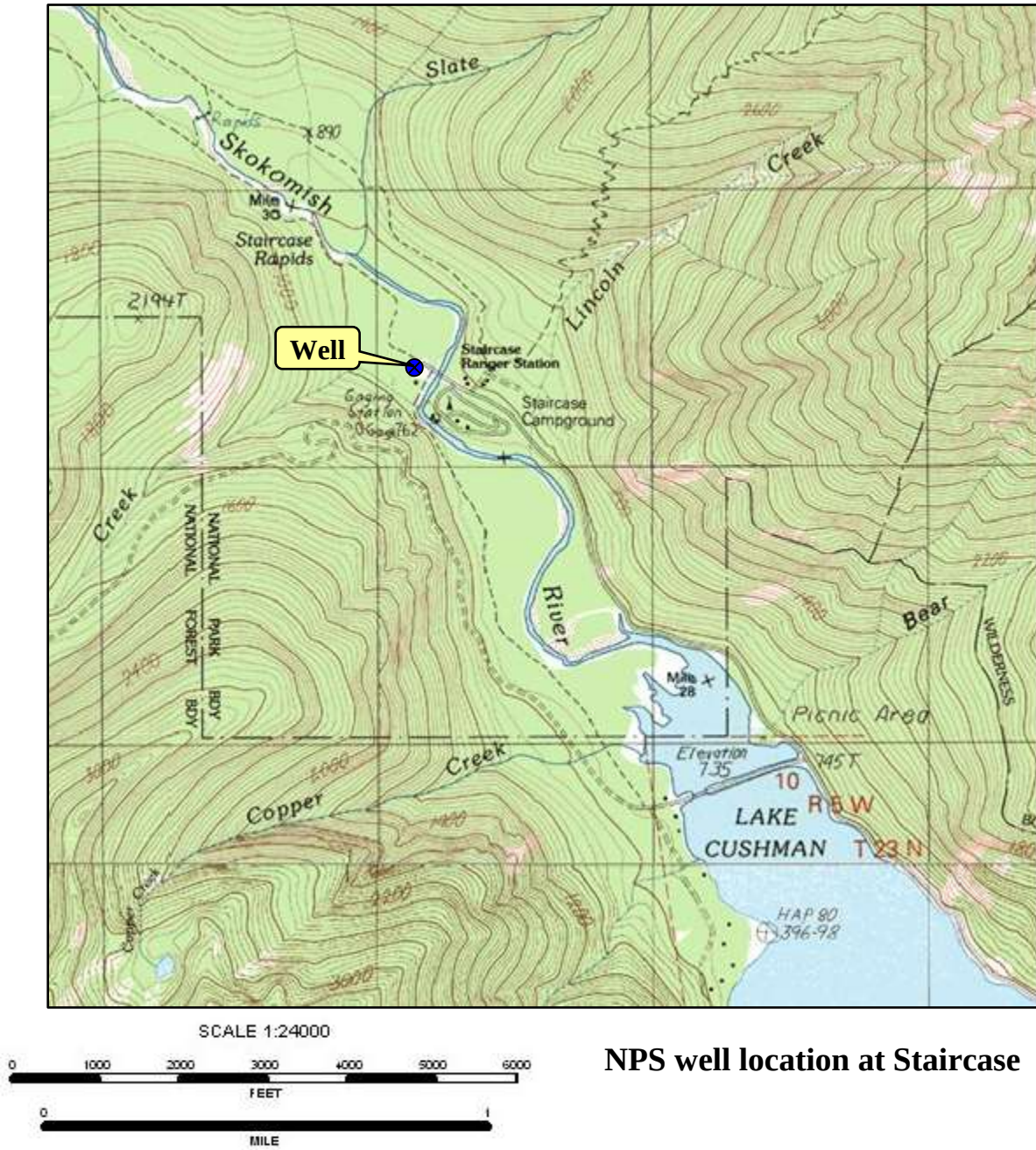
The geologic map shows that most of the valley at Staircase is underlain by glacial outwash (Qao). Glacial outwash is generally very permeable because it is mostly sand and gravel deposited by streams flowing from glaciers. The fine-grained portion of the sediment load is carried further downstream by the running water and high energy of the stream. The driller's log for this well shows exclusively sand and gravel to its full depth of 40 feet.

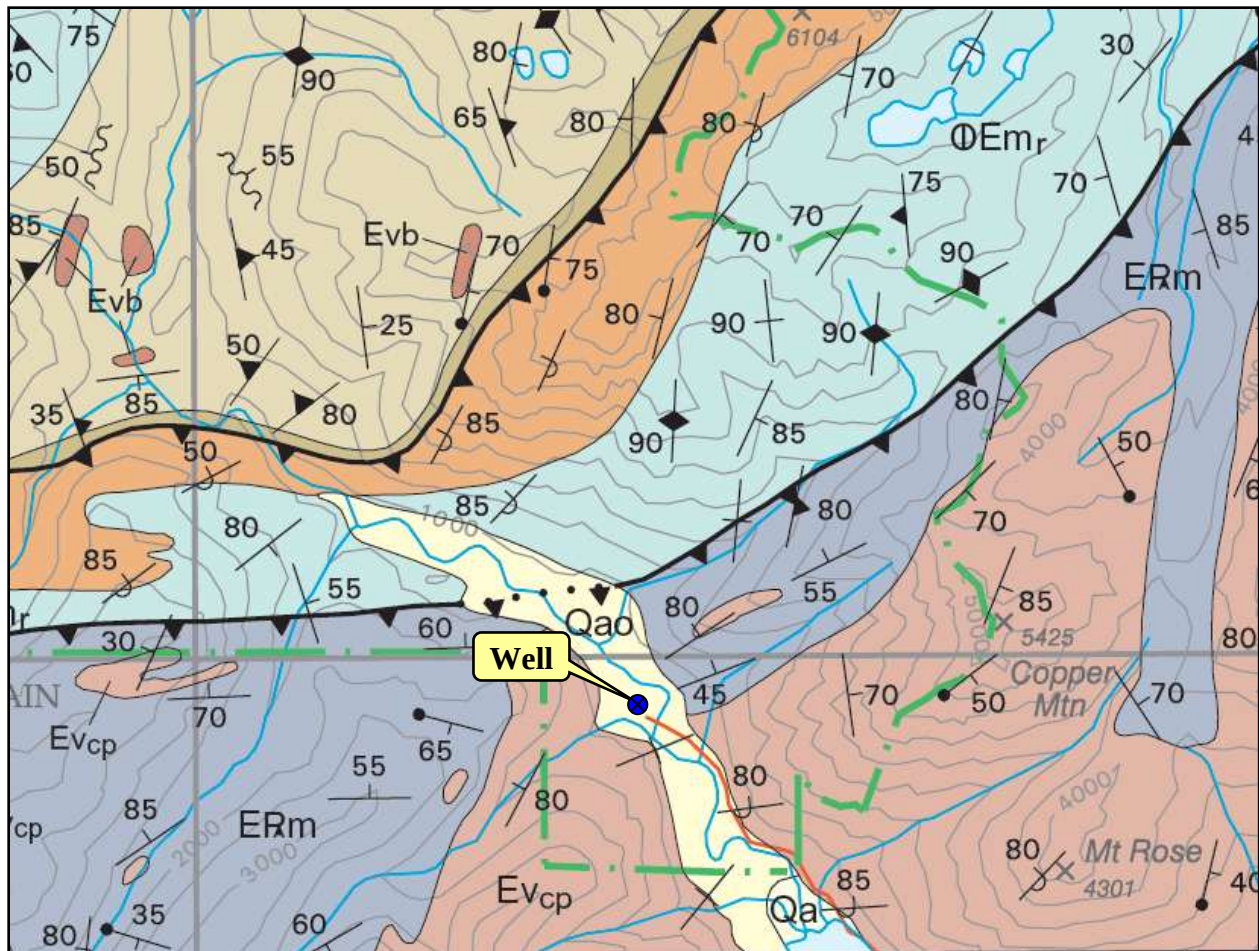
If a GWI assessment is required for this well, it would likely pass and be classified as a groundwater source. The current well location is probably the best site available. It's about as far from the river and creek as possible while remaining in the valley bottom. Bedrock exposed outside the valley or underlying the alluvium is not likely to be a source of abundant good-quality water. Alluvium is the only practical source of groundwater at this location. The area southeast of the river and bridge is mostly occupied with buildings, parking areas, and a campground. There is no location for a new well that would not be susceptible to contamination from surface infiltration. A deeper well could probably be drilled near the existing well to exceed the WA-DOH 50-foot depth requirement for classification as a groundwater source. There is no indication that the current well reached bedrock at its full depth of 40 feet.

Summary

1. The existing well may already meet the WA-DOH requirements for classification as a groundwater source, i.e., more than 200 feet from a stream.
2. The existing well could probably pass the WA-DOH tests for certification as a "groundwater" source.

3. If necessary, a new well could be drilled adjacent to the existing well to deeper than 50 feet.
4. Bedrock underlying and adjacent to the valley is unlikely to be a good source of groundwater.





Park boundary shown as a dashed green line.

Road is shown as a solid red line, ending at Staircase.

A portion of the Mount Olympus 1:100,000 geologic map
by Wendy J. Gerstel and William S. Lingley, Jr. (2003).

Description of geologic map units

Qa – Alluvium: well-sorted gravel, sand, silt, and clay deposited by running water in and along streams.

Qao – Alpine glacial outwash, unconsolidated. Well-stratified deposits of cobble and pebble gravel in a sandy matrix. The outwash is derived solely from Olympic Peninsula rocks, which distinguishes these deposits from those left by continental glaciation.

EP_{Am} – Marine sedimentary rocks: gray-to-black sandstone, siltstone, and argillite, commonly laminated and rhythmically bedded

Ev_{cp} – Marine basalt rocks: pillow basalts, basalt breccias, and volcanoclastic sandstone and sedimentary rocks.

File Original and First Copy with
Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. _____

Permit No. _____

(1) OWNER: Name National Park Service Address 4th and Pike Building Seattle WA 98101(2) LOCATION OF WELL: County Jefferson NE NW 1/4 Sec. 4 T. 23 N. R. 5 W. M.Bearing and distance from section or subdivision corner Staircase Ranger Station and Campground Unsurveyed(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☒(4) TYPE OF WORK: Owner's number of well (if more than one) 1
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐(5) DIMENSIONS: Diameter of well 8 inches
Drilled 40 ft. Depth of completed well 40 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8 " Diam. from 0 ft. to 37 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.Perforations: Yes ☐ No ☒Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
perforations from _____ ft. to _____ ft.
perforations from _____ ft. to _____ ft.
perforations from _____ ft. to _____ ft.Screens: Yes ☐ No ☒Manufacturer's Name _____ Model No. _____
Type _____
Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.Gravel packed: Yes ☐ No ☒ Size of gravel: _____
Gravel placed from _____ ft. to _____ ft.Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal: Cement grout
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____(7) PUMP: Manufacturer's Name _____
Type: _____ H.P. _____(8) WATER LEVELS: Land-surface elevation _____ ft.
Static level 17.6 ft. below top of well Date 10/12/79
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test: _____ gal./min. with _____ ft. drawdown after _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Gravel, large and Sand black	0	10
Sand black	10	14
Gravel, large, and Sand black	14	30
Gravel, large and small amount of Sand	30	40

RECEIVED

DEC 4 - 1979

DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICEWork started 10/9, 1979. Completed 10/12, 1979.

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME McClanahan Well Drilling
(Person, firm, or corporation) (Type or print)Address 141 NE Beacon Drive X Grants Pass, OR 97526(Signed) Guy L. Thompson
(Well Driller)License No. 1089 DEPT. OF ECOLOGY Date October 22, 1979

(USE ADDITIONAL SHEETS IF NECESSARY)