

Well #

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. W 087527
Water Right Permit No.

(1) OWNER: Name YOSHIDA, TAKESHI (01155) #3 Address MP.39 BERGE RD HOME VALLEY, WA 98648-

(2) LOCATION OF WELL: County SKAMANIA - NW 1/4 SE 1/4 Sec 27 T 3 N., R 8E WM
(2a) STREET ADDRESS OF WELL (or nearest address) BERGE RD, HOME VALLEY

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner's Number of well (If more than one) 03
NEW WELL Method: ROTARY

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 545 ft. Depth of completed well 545 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from -1 ft. to 199 ft.
WELED 4.5 " Dia. from 185 ft. to 545 ft.

Perforations: YES
Type of perforator used SAW
SIZE of perforations 1/8 in. by 6 in.
60 perforations from 485 ft. to 545 ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: NO
Manufacturer's Name
Type Model No.
Diam. slot size from ft. to ft.
Diam. slot size from ft. to ft.

Gravel packed: NO
Gravel placed from ft. to ft. Size of gravel ft.

Surface seal: YES To what depth? 200 ft.
Material used in seal CEMENT & BENTON.
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name Type H.P.

(8) WATER LEVELS: Land-surface elevation
Static level 175 ft. below top of well Date 07/17/96
Artesian Pressure lbs. per square inch Date
Artesian water controlled by

(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 in formation.

MATERIAL	FROM	TO
TOP SOIL	0	4
SAND & GRAVEL	4	63
BROWN CLAY & GRAVEL	63	95
GRAVEL & BOULDERS	95	143
SAND, WATER BEARING	143	155
BOULDERS	155	189
BOULDERS & GRAY TUFT	189	204
GRAY TUFT	204	287
GRAY & BLACK TUFT	287	395
BLACK TUFT	395	440
GREEN & BLACK TUFT	440	456
GRAY TUFT	456	510
GREEN & GRAY TUFT, CREVISED, W.B.	510	522
GRAY BASALT W/ GREEN CLAYSTONE	522	545

Work started 07/16/96 Completed 07/17/96

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? NO If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.

Recovery data
Time Water Level Time Water Level Time Water Level

Date of test / /
Bailer test gal/min. ft. drawdown after hrs.
Air test 70 gal/min. w/ stem set at 535 ft. for 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? NO

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME M-K DRILLING CO.
(Person, firm, or corporation) (Type or print)

ADDRESS BOX 470 DALLESPORE, WA

[SIGNED] License No. 833 & 834 & 973

Contractor's Registration No. MKDRIC134PE Date 08/09/96

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February 18, 1999

RECEIVED

'99 FEB 22 110:10

Ms. Jill Walsh
Permit Department
Department of Ecology
SW Regional Office
P. O. Box 47775
Olympia, WA. 98504-7775

Dear Jill,

Enclosed please find application for water right on one of the wells we have drilled referred to as Well #2. The water will be used for domestic, irrigation and as well as cooling hot mineral water for baths. I don't do well with paper work, so I hope the form is completed correctly. If not, please advise me at: P. O. Box 969, Stevenson, WA. 98648.

My partner as well as the contractor are getting very nervous about the hot water permit. In the near future I will be calling you for an appointment so you can explain to them about waiting for the permit. We will have a lot a questions for you and the director.

Sincerely,



Ed Callahan

P.S. Hope you had a wonderful Valentine's Day.

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TOWNSHIP 3 N., RANGE 8 E. W. M.

SKAMANIA COUNTY, WASHINGTON

1 MILE

6229834
30048
9530





SEE MAP
3-8-34

SEE MAP
3-8-27-C

SEE MAP
3-8-27-C

SEE MAP
3-8-26

SEE MAP
3-8-27-D

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corner of the Murphy D.L.C.; thence East along the North line of said Murphy D.L.C., a distance of 327 feet, more or less, to the centerline of Skamania County Road No. 30360, known as Berge Road; thence along the centerline of Berge Road North 18°00' East a distance of 136.5 feet; thence North 20°58' West a distance of 216.9 feet; thence North 49°15' East a distance of 325.1 feet; thence South 84°18' East a distance of 165.4 feet; thence leaving the centerline of said road North 28°07' East a distance of 65 feet; thence West parallel with the North line of the Murphy D.L.C. a distance of 920 feet, more or less, to a point in the Government meander line on the East side of Wind River; thence Southerly along said Government meander line a distance of 620 feet, more or less, to the Northwest corner of the Murphy D.L.C. and the Point of Beginning.

EXCEPT Public Roads.

SUBJECT TO:

1. General taxes.
Tax Account No. 3-8-27C-105.
Tax Account No. 3-8-27-501.0
2. Covenants, conditions and restrictions and easements as revealed on Bill Lyons (Home Valley) Short Plat #2 recorded September 11, 1978, in Book 2 on page 67 of Skamania County Short Plat Records. (Parcel 1)
3. Easement for water works, sewer, electric light lines and other related activities granted to Home Valley Water District, Skamania County, Washington, by deed dated August 21, 1979, and recorded October 1, 1979, in Book 77 at Page 289 under Auditor's File No. 89622, records of Skamania County, Washington. (Affects Parcel 1)
4. Waiver of damages for reconstruction of County Road No. 3000 (Berge Road), granted to Skamania County by instrument recorded March 20, 1961, in Book 48 of Deeds at page 383 under Auditor's File No. 58239, records of Skamania County, Washington.
(Affects Parcel 1)
5. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
Purpose: Use and maintain water line
Area Affected: Parcel 1

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WELL

SEE MAP
3-B-34

SEE MAP
3-B-27-C

SEE MAP
3-B-26

SEE MAP
3-B-27-D



BACKGROUND:

On March 9, 1993 Toyoe Yoshida applied for a permit to appropriate public ground water from a well at a withdrawal rate of 200 gallons per minute (gpm) for single domestic supply, and the supply of a commercial spa operation. The project site is located within the Wind River drainage in Water Resources Inventory Area (WRIA) 29.

A legal notice of the proposed appropriation was published. There were no protests to the application.

Based on my investigation, and the provisions of Chapters 90.03 and 90.44 Revised Code of Washington, I recommend the issuance of a water right permit.

INVESTIGATION:

In consideration of this request, I reviewed the information submitted with the application, relevant reports, and Department of Ecology's records. I visited the project site on May 6, 1999. These findings were reviewed by staff hydrogeologist Chris Neumiller. References used included the following documents:

Nielson, D.L., and Moran, M.R., 1980. Geologic Interpretation of the Geothermal Potential of the North Bonneville Area. Prepared for the US Department of Energy, Division of Geothermal Energy by the Earth Science Laboratory, University of Utah Research Institute, Salt Lake City, Utah.

Berri, D.A., and Korosec, M.A., 1983. Geological and Geothermal Investigation of the Lower Wind River Valley, Southwestern Washington Cascade Range. State of Washington, Department of Natural Resources, Division of Geology and Earth Resources, Open File Report 83-5, 48 p.

Hinkle, Stephen R., 1996. Age of Ground Water in Basalt Aquifers Near Spring Creek National Fish Hatchery, Skamania County, Washington. US Geological Survey, Water Resources Investigations Report 95-4272, 26 p.

Project Site:

The project site is the proposed Columbia Gorge Hot Spring Health Retreat, located on the east bank of the Wind River, between the communities of Carson and Home Valley in Skamania County. The Wind River valley is a northwest-trending drainage that joins the Columbia River near Carson. The topography is steep and rugged, and this area is sparsely developed. The well is located a few hundred feet east of the Wind River, near its confluence with the Columbia River.

The intent of this application is to secure a water right for a geothermal well located on property owned by Toyoe Yoshida. The applicant would like to develop a spa, and associated resort facility on the site.



area indicate that a major northwest-trending fault system underlies the valley floor. The Wind River Valley area is believed to be a zone of crustal weakness related to regional stress systems that has allowed magma to rise near the surface. Deeper, more regional ground water flow, such as that tapped by the subject well, is probably recharged primarily from precipitation in the more distant uplands, eventually discharging through upward flow beneath the Columbia River.

Other geothermal sites in the area include Moffetts Hot Springs located about 2 miles northeast of North Bonneville, and Carson Hot Springs located about one mile north of the Yoshida site on the Wind River. Shipherds Hot Springs is located 2,600 feet north of Carson Hot Springs.

Effects on Neighboring Water Users:

This area is fairly remote and residential development is light. Many single family homes are served by springs that are common along the basalt outcroppings along the Columbia River gorge. There are also a smattering of wells that have been drilled into the basalt formations.

Well logs for the area show that 10 wells have been constructed within an approximate one mile radius of the subject well, four by the applicant himself. These wells were all drilled within the NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 27, between May of 1994 and July of 1996. They range in depth from 245 feet to 825 feet bgs. Besides the Yoshida well, the next nearest well appears to be the well drilled for Wiitala in the SW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 27, to a depth of 497 feet bgs.

The nearest ground water right (Certificate G2-20777) was issued for a 39 foot deep well located about $\frac{1}{4}$ of a mile to the east. This certificate authorizes the withdrawal of 60 gpm and 6 acre-feet per year for domestic supply. The only other ground water certificate located within a mile radius of the project site is for a single domestic well located over a mile to the southeast. Within sections 27 and 34, 17 claims have been recorded for both surface and ground water use.

To the south, in Section 34, there were two logs on file, one for a 900 foot well drilled for the Louisiana-Pacific Corp. in 1974. It is under artesian pressure, producing 10 gpm, with a temperature of 84° F. The other well is only 51.7 feet deep.

There are no other wells in this area drilled to the depth of the subject well. I do not anticipate this well having any effect on the domestic wells in this area.

The nearest user of geothermal water is the Carson Hot Springs located about one mile northwest, along the Wind River. This site was formerly known as St. Martin's Hot Springs and has been in operation since the turn of the century. Water rights to the springs, which emerged naturally from the floor of the Wind River valley, are secured by presumed vested water right claims filed by Sidney St. Martin in 1973. The occurrence of thermal waters near Carson results from the intersection of two or more fault zones within the basalts. These faults allow for heated ground water to circulate to the surface.

Water Requirements:

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The intent of this application is to secure a water right for a geothermal well located on property owned by Toyoe Yoshida. The applicant would like to develop a spa, and associated resort facility on the site.



The plans for the Columbia Gorge Health Retreat call for several phases of development. At full build-out the facility will include 21 communal spa tubs, 14 cabins that each include a private tub, 32 condominium units with private tubs, a central spa facility, a 25 room lodge and an area for recreational vehicles. Water pumped from the well will be passed through a series of heat exchangers and used to heat the spa facilities. After passing through the exchangers water will be stored for use in the tubs. From the tubs, water will be treated as needed and used for several possible purposes including greenhouse irrigation/heating and hatchery use.

The production well was constructed between September 1995 and June 1996 under the authority of a preliminary permit. The well was drilled to a total depth of 1,940 feet below ground surface (bgs) and completed at a depth of 1,777 feet bgs. The well normally flows under artesian pressure of 28-30 psi, or about 180 gpm, at a temperature of 95-102° F. However, a pump will need to be installed to gain the additional lift needed to move the water uphill to the spa facility.

A 4-hour pumping test was conducted on August 20, 1996. After ½ hour of step increases, the well was pumped at a constant rate of 295 gallons per minute for 3.25 hours. During this time, the artesian pressure and the temperature remained steady at 5 psi and 155° F, respectively. The pre-test artesian pressure of 28 psi returned over an interval of six minutes, during which the valve was shut off gradually.

Geology/Hydrogeology:

The bedrock stratigraphy of this part of the Columbia River Gorge is composed of about 25,000 vertical feet of Cenozoic volcanic rock. Much of the bedrock in the area is covered by large landslides and recent alluvium.

Three major formations account for nearly the entire stratigraphic sequence. They include, from oldest to youngest, the Ohanapecosh Formation, the Stevens Ridge lavas, and the Grand Ronde Basalt Formation (within the Yakima Basalt Subgroup of the Columbia River Basalt Group). They range in age from Late Eocene to Middle Miocene.

The Ohanapecosh Formation in the vicinity of the Wind River is believed to be greater than 19,000 feet thick and primarily consists of consolidated volcanoclastic deposits, with lesser amounts of interbedded pyroclastic flows and lava flows. The uppermost portion of this formation contains proportionately more lava flows. Minerals within these lava flows have been weathered to clays and it may act as an aquitard, providing some level of confinement to underlying geothermal resources present in the deeper formation. The overlying Stevens Ridge lavas and Grand Ronde Basalt Formation are composed of basaltic-andesites and black glassy basalt, respectively. The remainder of the sequence includes younger, localized igneous intrusions and Quaternary Trout Creek basalt.

In general, the basaltic material is fairly impermeable, so geothermally heated water migrates through fractures and faults within the formations. Hot springs and geothermal wells in this area are associated with structural features, and geophysical and geologic studies of the Wind River

The proponents of this project have determined that the total water demand for the geothermal well is will be approximately 30,000 gallons per day, at full build out. This amounts to 33.6 acre-feet per year, and a continuous withdrawal rate of about 21 gpm.

The purposes of use authorized by this permit are defined as "general domestic and commercial supply," and will not be further restricted. Water from the geothermal well may be used for heating, the filling of spa tubs, and ultimately for irrigation in the proposed greenhouses, provided the total quantity of water pumped does not exceed 33.6 acre-feet per year.

FINDINGS AND CONCLUSION:

This appropriation is for a beneficial use, and will not impair existing rights or be detrimental to public's welfare.

RECOMMENDATION:

I recommend that this application be approved and a permit be issued to allow appropriation of 200 gallons per minute from a well, 33.6 acre-feet per year, for the purposes of general domestic\commercial use. The period of use will be used year-round as needed.

This permit is subject to the following provisions.

Provisions

bf
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bc
s
dn
by

fd

The statutory permit fee for this application is \$20.00.

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area indicate that a major northwest-trending fault system underlies the valley floor. The Wind River Valley area is believed to be a zone of crustal weakness related to regional stress systems that has allowed magma to rise near the surface. Deeper, more regional ground water flow, such as that tapped by the subject well, is probably recharged primarily from precipitation in the more distant uplands, eventually discharging through upward flow beneath the Columbia River.

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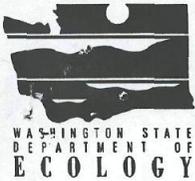
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Water Requirements:



For Department of Ecology Use							
UIC Site ID		WRIA		WQMA		Date Entered	Confirmation Mailed

DRAFT
UNDERGROUND INJECTION CONTROL PROGRAM REGISTRATION FORM

1. Facility/Site Information:

Name: Columbia Gorge Hot Spring
Address: MP #39 Berge Road
City/State/Zip: Home Valley, WA **County:** Skamania
Telephone #: 503/238-7117 (Portland business office)
Cross Streets: North/South Berge Road East/West State Hwy 14

2. Latitude: 46° ' " N **Longitude:** 122° ' " **Meridian (E/W):** W
Township: 3N **Range:** 8E **Section:** 27 **1/4 Section:** NW **1/4 Section:**

Nature of business and materials handled:
 Health Retreat and Spa. Geothermal water will meet space heating and water supply requirements of a proposed Japanese-style spa. U.S. DOE funding is partially funding direct heating use project.

Potential contaminant source(s): For <10% of flow, diverted to spa pools: Disinfection by hydrogen peroxide for Phase 1 of project. For >90% of flow, non-consumptive use through closed loop system using stainless exchangers. No contaminant sources.

Pollution prevention methods: For <10% of flow diverted to spa use, disinfection by-products breakdown to non-toxic hydrogen and oxygen; use of soaps will be limited to shower areas with separate sanitary waste stream; required showering before use of spas will limit body oils in spa water. Signs will warn bathers not to contaminate spa waters. Regular cleaning of spa pools and facilities.

Site geology: (See attached report)

Has a Water Quality Permit been issued for the site? No NPDES No State Waste Discharge No

Is this facility a REMEDIATION site? Yes No

If "yes", remediation type: CERCLA RCRA MTCA Independent MTCA Order NA
 Other: _____

Pollution Treatment Methods:



* Use EPA 32 class system if known.

Owner/Operator Information:

Owner Name: Mr. Takeshi Yoshida (SKS Properties LLC)
Owner Address: PO Box 42068
City/State/Zip: Portland, OR 97242
Telephone #: 503/238-7117
Operator/Contact Name: Kathleen Callison, Attorney at Law
Operator/Contact Address: 802 Irving St SW
City/State/Zip: Tumwater, WA 98512
Telephone #: 360/705-3087

Well and Ground Water Information: Production well drilled 1996; injection well to be drilled approx 600' to the SE (downgradient), site to be determined.

Number of wells: 1 Active Temp. Abandoned _____ Permanently Abandoned _____
Well depth (feet): 1940N bgs. Well Type(s)/Used*: _____
Ground water depth (feet): Flowing artesian

Based on: Well Log : Measurement Estimate

Depth of highest ground water (feet): See attached well log 6/15/96
Distance to nearest drinking water source (feet): Approximately 1320N
Distance to nearest surface water source (feet): Injection well will be approx. 500N from Wind River
Date of well closure (if applicable): N/A
Well closure method (if applicable): N/A

Injected Fluid Information:

Injection start date: 2003 Injection completion date: Ongoing
Injected fluid source: Geothermal Volume (gals.): 700 gpm

Injected fluid constituents/concentration: (See attached lab reports). Water to be injected back into production aquifer in substantially the same condition as withdrawn. One well to be drilled to intersect aquifer with water chemistry and physical characteristics same as or similar to existing source well.

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* Use EPA 32 class system if known.

COLUMBIA GEOSCIENCE

22495 NW QUATAMA ROAD
HILLSBORO, OR 97124 USA

TEL (503) 640-9877
FAX (503) 640-6965

Kathleen Callison,
Attorney at Law
802 Irving Street SW
Tumwater, Washington 98512

13 September 2001

Columbia Gorge Hot Spring

Injection Well Registration

Geology

The geology of the lower Wind River area is composed of the Oligocene Ohanapacosh Formation, overlain with late Quaternary and Recent river deposits, alluvium and land slide debris. The Ohanapacosh Formation has been intruded by Oligocene and Miocene diorite and quartz diorite stocks and subvolcanic sills and dikes. The two notable exposures of diorite in the lower Wind River area are the Oligocene Buck Mountain intrusive just to the northeast of the project area, and the Wind Mountain quartz diorite just to the east of the project area.

The most detailed geologic information for the project site is provided by data from the 1940 foot deep geothermal production well completed in 1996 on the Yoshida property, approximately 700 feet to the north of the proposed injection well location. The lithologic section of that well is described following:

- 0-70 ft. Colluvium, alluvium.
- 70-1927 ft. Ohanapacosh Formation, intercalated volcanoclastic rock, volcanoclastic sediments, tuff, mudflow deposits, fluvial (river) deposits and paludal (marsh) sediments.
- 1927-1940 (TD) Fractured brittle rock. Lost circulation, therefore no samples recovered for identification, though it is tentatively identified as diorite.

The top 70 feet of the section is composed of unsorted boulders and cobbles with pebble, sand and silt matrix (colluvium). The material is erosion debris from up-slope volcanic and volcanoclastic rock. In addition to colluvium, minor amounts of stream and river deposits, including coarse rounded flood deposits (alluvium) are present.

The portion of the Ohanapacosh Formation encountered in the geothermal production well consists of interlayered volcanic ash and pyroclastic beds, mudflow deposits and reworked

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volcaniclastic beds. Local beds of stream, river and marsh sediments are present. The intercalated tuff and sedimentary beds of the Ohanapacosh Formation typically show very low permeability. These beds are not brittle, and tend to undergo plastic deformation rather than breakage when strained. Fracture permeability in the Ohanapacosh Formation is usually localized and discontinuous.

The subvolcanic diorite encountered in the lower 13 feet of the geothermal production well is brittle and breaks when strained. When fractured or faulted this rock has the potential for high fracture permeability.

The dominant structure in the project area is the Wind River Lineament. This structure is a northwest-trending lineament controlling the location of the Wind River drainage. Four geothermal features occur on the lower (southeast) three miles of the lineament; Shipherds Hot Spring, Carson Hot Spring, Yoshida geothermal well, and a warm gas-rich well. The Wind River Lineament is described as a high-angle fault zone or a tectonic strain zone. Limited outcrops along the Wind River Valley preclude detailed measurements required to confirm offset of formations across the lineament.

Hydrology

The Yoshida project is located in a small area on the east side of the Wind River near the confluence of the Wind River and the Columbia River. The proposed location for the injection well is approximately 700 feet toward the south from the 1940 ft. production well completed in 1996. Due to the close proximity of the two wells the working premise is that the geology and hydrology of the proposed injection well will be very similar to that of the production well. It is recognized that an intrusive contact can vary significantly in depth over small distances, and thus the depth to the top of the intrusive in the proposed injection well should be recognized as an estimate.

The lithology of the geothermal production well completed in 1996 consists of alluvium, Ohanapacosh Formation and diorite intrusive. The surface alluvium consists of 70 feet of poorly sorted alluvium, predominantly boulders and gravel with variable-sized finer matrix. This section provides the porosity and permeability for a shallow aquifer fed by precipitation. The amount of water found in this zone will likely be variable from location to location and would be affected by seasonal fluctuations in precipitation. The alluvial section at the proposed location for the injection well could be thicker than that measured in the production well. Surface casing will be placed through this shallow portion of the injection well to isolate shallow groundwater and to keep loose debris from interfering with deeper drilling.

Underlying the alluvium is the Ohanapacosh Formation. The section of the Ohanapacosh Formation observed in the production well shows approximately 1860 feet of intercalated volcaniclastic rock, volcaniclastic sediments, tuff, mudflow deposits, fluvial (river) deposits and paludal (marsh) sediments. While some local horizons within this section may host minor groundwater the overall character of this portion of the Ohanapacosh Formation is one of low



permeability. This formation separates near-surface aquifers from the deeper geothermal aquifer and acts as an aquiclude, confining the underlying geothermal water. Casing will be set through the Ohanapacosh Formation in the injection well.

No samples were recovered of the brittle fractured rock encountered in the bottom 13 feet of the production well due to lost circulation of the drilling fluid into the fractures while drilling. With no sample recovery it is not possible to positively identify the lowest rock unit of the production well. The evidence shows the rock to be harder and more brittle than that of the Ohanapacosh Formation. Resistivity surveys conducted for Mr. Yoshida in 1992 were interpreted to show a diorite intrusive to extend under the project area in the vicinity of the fractured production zone encountered at the bottom of the production well. For the purposes of this report the brittle fractured rock at the bottom of the production well is tentatively identified as diorite, related to the diorite of Buck Mountain which crops out just to the northwest of the project area. A flow test of geothermal water from the lower 13 feet of the production well demonstrates a sustained flow rate of 180 gallons per minute for a period of eight hours (A.M. Janssen Well Drilling Co., 1996).

The Carson Hot Spring, the Shipherds Hot Spring and the Yoshida geothermal well all have geothermal water issuing from fractures in diorite along the Wind River Lineament. The source of the geothermal water appears to be deep convecting meteoric water flowing upward in the fractures of the Wind River Lineament and discharging from the fractured diorite along the lineament. No production interference tests have been conducted to confirm a common hot aquifer for the three geothermal features. Berri and Korosec (1983) note the juxtaposition of the geothermal fluid and tectonic lineaments. They propose fracture permeability within the lineaments is the geothermal aquifer.

The geothermal aquifer observed at the bottom of the production well is assumed to extend under the proposed location for the injection well. The geothermal production zone in the well completed in 1996 is fractured brittle rock underlying and confined by approximately 1800 feet of low permeability Ohanapacosh Formation. Similar fractures in a similar setting in the proposed injection well at a distance of 700 feet along the Wind River Lineament will very probably be in the same geothermal aquifer.

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SOURCES

A.M Janssen Well Drilling Co., 1996, Water Well Report to the State of Washington.

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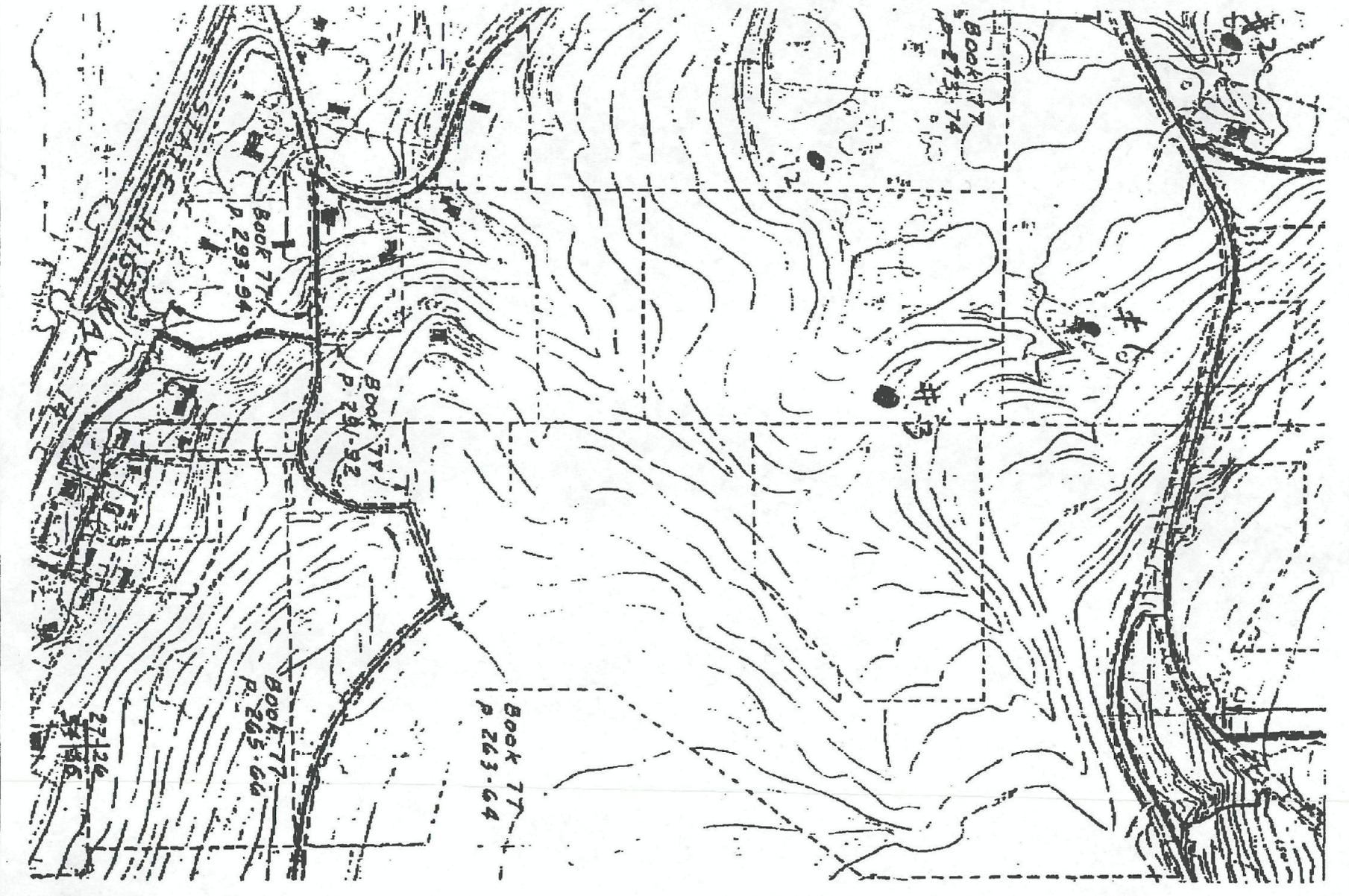
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Ext. A Proposed Well Location: Topographic Map

SHEET NO. 2 of 2



Columbia Gorge Hot Onsen

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