



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

**DRAFT**

**REPORT OF EXAMINATION**  
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE 09/25/2000	APPLICATION NUMBER G2-29946	PERMIT NUMBER	CERTIFICATE NUMBER
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NAME Miles Sand & Gravel Company (Fennel Resources)			
ADDRESS (STREET) PO Box 130	(CITY) Auburn	(STATE) WA	(ZIP CODE) 98071

**PUBLIC WATERS TO BE APPROPRIATED**

SOURCE Well
TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 200	MAXIMUM ACRE FEET PER YEAR 114
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QUANTITY, TYPE OF USE, PERIOD OF USE Industrial Use (Uses associated with a gravel mine; washing gravel, etc.)
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**LOCATION OF DIVERSION/WITHDRAWAL**

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL 1,600 ft South and 2,300 ft. West of NE Corner of Section 7					
LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SW1/4 NE1/4	SECTION 7	TOWNSHIP N. 19	RANGE, (E. OR W.) W.M. 5E	W.R.I.A. 10	COUNTY Pierce

The proposed well will be located on Fennel Resources property east of McCutcheon Road.

**RECORDED PLATTED PROPERTY**

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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**LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED**

Parcel A: The Northwest quarter of the southeast quarter of Section 7, Township 19 North, Range 5 East of the Willamette Meridian; except the South 266.46 feet thereof as conveyed to Troutlodge, Inc. by warranty deed recorded January 3, 1984 under recording number 8401030160; also except any portion thereof lying northwesterly of the southeasterly right of way line of McCutcheon County Road; situate in the county of Pierce, State of Washington.

Parcel B: New parcel B as set forth and described on Page 2 of 2 of that certain record of survey for boundary line resolution recorded under recording number 200711305008 and being located in the east half of Section 7, Township 19 North, Range 5 East of the Willamette Meridian in Pierce County, Washington, and lying southerly of the center line of Fennel Creek, and lying northerly of the 50 foot strip conveyed to the City of Tacoma by instrument recorded March 24, 1933 under recording number 1081131.

Parcel C: That portion of government lot 5 of Section 7, Township 19 North, Range 5 East, W.M. in Pierce County, Washington lying southerly of Kelly (Fennel) Creek and Easterly of the Easterly line of the Joseph McCutcheon Road as the same existed on September 16, 1929.

Parcel D: That portion of government lot 6 in Section 7, Township 19 North, Range 5 East, W.M. lying southeasterly of the easterly margin of McCutcheon Road; Except any portion thereof lying South of a line drawn parallel with and 266.46 feet North on the South line of the North half of the Southwest quarter of said Section 7.

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**DESCRIPTION OF PROPOSED WORKS**

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Miles Sand & Gravel Company Fennel Resources facility proposes to secure a water right to withdraw water from the “Deep Artesian Aquifer” (DAA) using an existing well. The well was drilled at Fennel Resources to a total depth 560 feet from a site elevation of 112.5 feet mean sea level (MSL). The well is screened from 470 to 520 feet below ground surface (bgs) through a water-bearing sand zone. A groundwater right was requested to withdraw groundwater at a maximum instantaneous rate (Qi) of up to 300 gallons per minute (gpm) for commercial/industrial purposes, including washing sand and gravel extracted from the Fennel Resources aggregate mine and dust control. Additional discussions with the applicant during preparation of this Report of Examination indicated that a Qi of 200 gpm is sufficient for the gravel washing operation. The applicant has proposed to provide 38.8 gpm (continuous) of a combination of return flows and mitigation water to the shallow aquifer.

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**DEVELOPMENT SCHEDULE**

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Begun	March 1, 2013	March 1, 2016

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**REPORT**

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**Background**

Ground Water Application #:	G2-29946
Applicant Name:	Fennel Resources, Inc.
Priority Date:	September 25, 2000
Source:	Well (1)
Purpose of Use:	Industrial (gravel mine)
Period of Use:	Continuous
Notice of Publication:	October 19 and 26, 2000 in <i>The News Tribune</i>
Protests:	Letter of Protest from the Puyallup Tribe of Indians on November 22, 2000 Letter of Protest from Stop the Pits, Inc. on November 24, 2000
SEPA Compliance:	This application is exempt from the provisions of the State Environmental Policy Act (SEPA), Chapter 43.21 RCW, due to the fact that the cumulative quantity of water constitutes a withdrawal of less than 2,250 gallons per minute (gpm) of groundwater (WAC 197-11-800(4)).

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**INVESTIGATION**

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In considering this application, the investigation included, but was not limited to, research and/or review of:

- *Revised Report, Hydrogeologic Services Evaluation Of Potential Surface Water Impacts From Proposed Groundwater Withdrawal And Proposed Mitigation Plan Near McMillin, Washington.* (GeoEngineers, 2009)
- *Monitoring Plan Hydrogeologic Services Fennel Resources Facility Near McMillin, Washington.* (GeoEngineers, 2010)
- Ecology’s Water Rights Tracking System (WRTS) database
- Records of water rights in the vicinity
- Topographic and local area maps
- Available regional hydrogeological information, including Vaccaro (1998)

Golder Associates Inc. provided consulting support for preparation of the Report of Examination (ROE) through Ecology’s Cost-Reimbursement Program.

**Purpose of Use**

Groundwater is requested for industrial supply for a gravel mine, used continuously throughout the year during working hours of the aggregate mine.

**Puyallup River Basin Hydrogeology**

The Fennel Resources well is located within the Puget Sound Regional Aquifer System, which has been defined and studied by Vaccaro and others (1999) (Table 1). Upland areas to the east and west of the Puyallup River valley are composed mostly of unconsolidated soils and receive precipitation principally in the form of rain and snow, a component of which recharges into the groundwater system. In upland areas, the uppermost water table typically occurs within a thin aquifer (the Upper Perched Aquifer [Qvr]) that is perched on the underlying Vashon till (Qvt). The lower permeability till forms a regional confining unit. As a result, a component of flow in the shallow aquifer may be diverted laterally and discharge as springs or seepage, supplementing baseflow to upland streams. Another component of groundwater migrates downward from the Upper Perched Aquifer, through the underlying confining layer, into the “No Name” Springs Aquifer (Qc1).

Groundwater in the ‘No Name’ Springs Aquifer discharges laterally to streams and springs or seeps downward through the underlying fine-grained confining unit (Qf1), which consists of the non-glacial Puyallup or Kitsap Formations that are mostly silts and clays. Beneath this confining unit in the upland areas, another coarse-grained layer (Qc2) occurs, forming an intermediate aquifer. The intermediate aquifer is not present beneath the Puyallup River valley (Jones and others, 1999) or at the Fennel Resources well, where multiple fine-grained confining units (Qf1, Qf2 and Qf3) were encountered (GeoEngineers, 2009).

**Table 1.** Correlation of Nomenclature for Hydrogeologic Units in the GeoEngineers’ (2009) Report and Jones and Others (1999)

Hydrogeologic Units GeoEngineers’ (2009) Report (after GeoResources 2000)	Geologic Symbol	Hydrogeologic Units Tacoma-Puyallup Area (Jones and Others 1999)
Upper Perched Aquifer	Qvr	Vashon recessional Outwash (shallow aquifer)
Vashon Till	Qvt	Vashon Till (semi-confining unit)
“No Name”/Upper Springs Aquifer	Qc1	Aquifer
Puyallup Formation	Qf1	Semi-confining Unit
Intermediate Aquifer	Qc2	Aquifer
Confining Unit	Qf2	Semi-confining Unit
Missing	Qc3	Aquifer
Confining Unit	Qf3	Semi-confining Unit
Missing	Qc4	Aquifer
Confining Unit	Qf4	Semi-confining Unit
Deep Artesian Aquifer	Qdu	Undifferentiated Deposits

According to GeoEngineers (2009), beneath the confining units, the Fennel Resources well encountered a deep aquifer with groundwater under sufficient artesian pressure that it rose above ground, causing the well to flow at the surface. Named the Deep Artesian Aquifer by GeoResources (2000), this aquifer appears to correspond to one encountered by a few deep wells in the Tacoma-Puyallup area, which is described by Jones and others (1999) as the undifferentiated aquifer unit (Qdu).

### Local Hydrogeology

GeoEngineers presented a summary of the local hydrogeology in the evaluation potential surface water impacts conducted for the applicant (2009):

The hydrogeology of the Fennel Resources area consists of layers of aquifers and confining units of glacial and non-glacial origin that extend to considerable depth as part of the much larger Puget Sound regional aquifer system. In the area to the east of Fennel Resources, groundwater flows laterally within the aquifers, generally toward the Puyallup River valley. A portion of the water in each aquifer percolates vertically downward through the confining layers, this portion is known as “leakage” and provides the mechanism of recharge for deeper aquifer layers within the system.

GeoResources (2000) oversaw the drilling of the Fennel Resources well and described the occurrence of four aquifers in the vicinity of the site:

- Upper Perched Aquifer: a shallow upland aquifer perched above the Vashon till found south and east of the site;
- “No Name” Springs Aquifer: coarse-grained deposits within the lower portions of the Vashon advance outwash that tends to give rise to springs within the exposed upland walls of the incised valleys (e.g., Fennel Creek and Puyallup River valleys), with groundwater flowing above the low permeability pre-Vashon (Puyallup Formation);
- The Puyallup Valley Aquifer: permeable zones of Puyallup River valley deposits; and the
- Deep Artesian Aquifer (DAA): separated from the Puyallup Valley Aquifer by multiple fine-grained, low-permeability deposits that form confining units (aquitards).

These local hydrostratigraphic unit descriptions are consistent with the regional sequence of hydrostratigraphic units described by Jones and others (1999) for the Tacoma-Puyallup area.

The Fennel Resources well is screened within the aquifer referred to herein as the “Deep Artesian Aquifer”. The static water level in the well is high enough to reach the ground surface, creating a flowing artesian well. If similar conditions are assumed beneath the adjacent Puyallup River valley, then the water level (or ‘potentiometric surface’) of the Deep Artesian Aquifer will be higher in elevation than the floor of the river valley. This creates a theoretical potential for upward leakage of groundwater to occur from the Deep Artesian Aquifer, through the thick sequence of confining units, and potentially up into the shallow Puyallup Valley Aquifer.

The shallow Puyallup Valley Aquifer is a series of sand and gravel lenses that appear to be in hydraulic continuity with the Puyallup River, and possibly the lowest reaches of Fennel Creek and other tributaries to the Puyallup River. Higher reaches of these tributaries could not be impacted due to their elevation. Upward leakage from the Deep Artesian Aquifer is assumed to contribute to groundwater storage within the shallow aquifer, which is also recharged from above and in turn discharges as seeps and springs into the Puyallup valley river system, potentially providing baseflow to the river and lowest stream reaches. The amount of leakage is likely relatively small, but when the leakage flow is considered over a large area, it may form a measurable portion of the baseflow sustaining streams in the area, more so during the late summer period when the weather is typically dry, and stream flows are at their lowest.

### Instream Flow Regulations

The Fennel Resources well is located within the Puyallup River Basin, Water Resource Inventory Area (WRIA) 10. Washington State Department of Ecology developed an instream resources protection program (IRPP) for WRIA 10 on June

9, 1988 for the purpose of "...retain[ing] perennial rivers, streams, and lakes in the Puyallup River basin with instream flows and levels necessary to provide protection for wildlife, fish, scenic-aesthetic, environmental values, recreation, navigation, and to preserve high water quality standards (WAC 173-510-020). The IRPP established minimum instream flows at three control points for the Upper Puyallup River, Carbon River and Lower Puyallup River; adopted instream flows for four streams and stream and lake closures for six streams and lakes consistent with surface water source limitations (SWSLs) that had been previously established; and closed 15 streams and lakes to further consumptive appropriations. All new consumptive water rights are subject to WAC 173-510, including new consumptive groundwater appropriations that would have a direct, and measurable, impact on streamflows in streams for which closures and instream flows have been adopted (WAC 173-510-050).

Figure 1 (from GeoEngineers, 2009) shows the location of the Fennel Resources well, the control point on the Lower Puyallup River, and Fennel Creek. Minimum instream flows at the Lower Puyallup River control point (station no. 12-1015.00) range between 1,000 cfs and 2,000 cfs throughout the year (WAC 173-510-030(2)). Fennel Creek, a tributary to the Puyallup River, was closed, year-round, to further consumptive appropriations on February 26, 1975 (WAC 173-510-040(3)).

## **Pumping Test Results**

GeoEngineers (2009) reported on the hydraulic testing of the Fennel Resources supply well:

*The existing well was drilled at Fennel Resources to a total depth 560 feet from a site elevation of 112.5 feet MSL. The well is screened from 470 to 520 feet bgs through a water-bearing sand zone. ..[T]he artesian water level [is] estimated to have an excess pressure of 3 pounds per square inch (psi) measured at the wellhead (equivalent to approximately 7 feet of water above the top of the well casing and an elevation of approximately 120 feet MSL).*

*The Fennel Resources well was tested by GeoResources on December 16, 1999 at an average pumping rate of 308 gpm for 24 hours. The pumping water level at the end of the test was 278.5 feet below the top of casing, resulting in a specific capacity of 1.1 gpm/foot of drawdown. The drawdown appeared to stabilize after approximately 10 hours, but subsequent analysis of the test data by GeoEngineers suggests this is not indicative of a leaky confined aquifer response. The well appears to be capable of sustained pumping up to a yield of 300 gpm.*

## **Evaluation of Potential Surface Water Impacts**

Pumping of the Fennel Resources well will create drawdown in the Deep Artesian Aquifer and has the potential to reduce leakage from this aquifer to overlying aquifer zones and a corresponding potential to reduce baseflow discharges to Fennel Creek and the Puyallup River. As part of analysis to support the applicants proposed mitigation plan, GeoEngineers conducted a study of the effects on leakage in the aquifer system, using an analytical analysis based on steady state leakage. (i.e., seasonal fluctuations in water levels and the effects of storativity are ignored). The analysis simulated a steady state pumping rate based on continuous pumping of approximately 70 gpm to generate a cone of depression for the analysis. This rate assumes groundwater withdrawals at the maximum  $Q_i$  of 200 gpm for 12 hours for 258 working days per year, and is equivalent to the use of the full  $Q_a$  of 114 acre-feet per year. The drawdown cone was generated using a standard analytical equation for leaky confined aquifer systems (Bear, 1979). Based on this study, GeoEngineers (2009) concluded that:

*Pumping from the Fennel Resources well will cause drawdown of the potentiometric surface in the Deep Artesian Aquifer, in a zone around the well and, where this zone extends beneath the Puyallup River valley, it has the potential to reduce the amount of leakage reaching the shallow aquifer. The estimation of the change in the upward leakage caused by the groundwater withdrawal from the Deep Artesian Aquifer is the focus of the hydrogeologic analysis.*

*The analysis of leakage included the evaluation of the sensitivity to the key hydrogeologic parameters, vertical hydraulic conductivity of the confining layers, and transmissivity of the Deep Artesian Aquifer. The theoretical impact from pumping of the Fennel Resources at a continuous rate of 70.7 gpm (114 acre-feet per year) was estimated to be a potential reduction in upward leakage from the Deep Artesian Aquifer to the shallow Puyallup Valley Aquifer by 33 acre-feet per year (20.4 gpm as a continuous flow).*

*Estimates of consumptive use and return flows were made for the gravel washing proposed at the Fennel Resources site. The estimates take into account the consumptive uses during the gravel washing process (evaporation, dust control and moisture content of aggregate taken off site) and include the return flow (drainage from gravel piles and infiltration of treated water captured from truck washing).*

*For annual average operating conditions including the proposed mitigation, approximately 56.2 acre-feet (34.8 gpm continuous) will be returned to the shallow aquifer. Therefore, the potential impact to surface waters of 33 acre-feet per year is completely offset, with an excess of 23.2 acre-feet per year (14.3 gpm continuous flow) returned to the shallow aquifer system that sustains baseflow to the Puyallup River system.*

Ecology and its consultant for preparation of this ROE, Golder Associates Inc., reviewed the supporting information for this analysis had have concluded that the potential impact of reduced vertical leakage of 33 acre-ft per year represents a conservative estimate that can be used as a basis for establishing mitigation quantities.

## **Proposed Mitigation Plan**

In order to mitigate for impacts to surface water resources, Fennel Resources has proposed to provide 38.8 gpm (continuous) of water to the shallow aquifer, composed of 1) return flow of 34.8 gpm (continuous) to the shallow alluvial aquifer within

the Puyallup River valley; and 2) mitigation through flow augmentation by direct infiltration of 3.5 gpm (continuous) into the surface deposits near the well to augment the flow of Fennel Creek (GeoEngineers, 2009). The 34.8 gpm from return flow is expected to vary based on seasonal and demand factors. When the water supply well is in use, groundwater will be discharged at an instantaneous rate of 10 gpm into an infiltration trench near the well. Use of an infiltration trench will allow groundwater temperature buffering to occur prior to the mitigation water entering the stream. The proposed 38.8 gpm (continuous) of combined return flows and mitigation augmentation exceeds the estimated impacts to surface waters of 20.4 gpm (continuous).

### **Proposed Monitoring Plan**

The applicant began collecting baseline groundwater level and temperature data in July 2010. The applicant has prepared a monitoring plan to gather data to assess water level and temperature effects associated with the project (GeoEngineers, 2010). The intent of the plan is to monitor groundwater levels and temperatures of the Puyallup Valley Aquifer in two existing monitoring wells located downgradient of the proposed gravel-washing operations and infiltration facilities. The objective of monitoring is to collect data and field measurements of groundwater characteristics that may indicate if there are water level and/or temperature impacts from: 1) pumping of the Fennel Resources facility water-supply well, 2) proposed infiltration directly from the well and 3) return flow of processed wash water (after recycling) to the shallow aquifer.

Water levels are currently collected on a quarterly basis from nine observation wells distributed at the facility. Two of these wells, OW-1 and OW-4, are constructed at lowland elevation with well screens completed in the Puyallup Valley Aquifer. Because the wells are located at the northwest boundary of the facility (hydraulically downgradient), and are located in the shallow aquifer that will receive the return flow and mitigation water, they are considered the best locations for continuous monitoring. Pressure transducers will be installed in the two monitoring wells (OW-1 and OW-4) to allow for continuous hourly water level and temperature monitoring. The applicant proposes to monitor the wells for 6 months after gravel washing production starts and to submit a monitoring report to Ecology at the end of 2011.

### **FINDINGS**

In accordance with state law, the following considerations must be addressed prior to the issuance of a permit:

- Water Availability
- Impairment to Existing Rights
- Beneficial Use of Water
- Detriment to Public Interest

#### **Water Availability**

The proposed point of withdrawal is within the Deep Artesian Aquifer (DAA), which is a confined aquifer in the Puyallup River Basin. The results of the pump test confirm that the DAA is capable of supplying water at the requested rate of 300 gpm. The hydrogeologic analysis of leakage performed by GeoEngineers (2009) indicates that pumping 114 acre-feet of water per year from the existing well will result in less than one foot of drawdown at a radius of approximately 20,000 feet from the well in the shallow alluvial aquifer.

The estimated one ft of drawdown was estimated to result in an impact of 20.4 gpm (0.045 cfs) (continuous) to surface water bodies (Fennel Creek and Puyallup River) which are either closed to new consumptive appropriations (Fennel Creek) or have minimum instream flow requirements (Puyallup River) (GeoEngineers, 2009). This impact was estimated in the Puyallup River at the river gauge control point at RM 6.6, the point of compliance. In order to mitigate for this impact to surface water resources, Fennel Resources has proposed to provide 38.8 gpm (continuous) of combined return flows and mitigation water to the shallow aquifer, composed of 1) return flow of 34.8 gpm (continuous) to the shallow alluvial aquifer within the Puyallup River valley; and 2) mitigation through streamflow augmentation using the direct infiltration of 3.5 gpm (continuous) into the surface deposits near the well to augment the flow of Fennel Creek (GeoEngineers, 2009).

Based on available drawdown at the well, the volume requested, and the proposed mitigation plan, we conclude that water is available at the requested instantaneous rate of 300 gpm and the annual rate of 114 acre-feet per year, since the effects on surface water flows are offset by the combination of return flows and mitigation via the infiltration gallery.

#### **Impairment to Existing Groundwater Rights**

##### **WRTS Database**

A review of the Department of Ecology's online Water Rights Application Tracking System information indicates that there are no senior water right applications that have been filed with Ecology for WRIA 10 in Pierce County (Ecology, 2010). A query of Ecology's Water Rights Tracking System (WRTS) database was performed to identify existing surface and groundwater rights within T19N/R05E-7 (the location of the Fennel well). The query identified a total of 25 existing groundwater certificates, 17 groundwater claims, 23 surface water certificates, 10 surface water claims. There are also 4 surface water certificates of change, 1 surface water change/ROE and 1 groundwater change/ROE.

##### **Analysis**

The hydrogeologic analysis of leakage performed by GeoEngineers (2009) suggests that pumping 114 acre-feet of water per year from the existing well will result in less than 1 foot of drawdown at a radius of approximately 20,000 feet from the well

in the shallow alluvial aquifer. This 1 foot of drawdown would be the result of the creation of a potential long-term cone of depression within the DAA which would eliminate the flowing artesian conditions in the vicinity of the well and potentially reverse the natural upward leakage that currently occurs from the DAA to the overlying aquifer (GeoEngineers, 2009). GeoEngineers (2009) performed a search of Ecology's well log database and did not identify any known wells completed in the DAA within that radius of influence.

The 1 ft of drawdown was estimated to result in an impact of 20.4 gpm (0.045 cfs) (continuous) to surface water bodies (Fennel Creek and Puyallup River). These surface water bodies are closed to new consumptive appropriations (Fennel Creek) and have minimum instream flow requirements (Puyallup River) (GeoEngineers, 2009). GeoEngineers (2009) also evaluated whether pumping the Fennel well would impact surface water sources in WRIA 12 that are closed to further consumptive appropriations and determined that the closed streams would not be impacted by pumping from the Fennel well based on the hydraulic response.

Based on the modeling performed by GeoEngineers (2009), pumping from the well will impact streams that are closed to new appropriations. The applicant has proposed a mitigation plan in order to offset the impact to the streams.

### **Beneficial Use**

Water used for industrial purposes is considered a beneficial use under RCW 90.54.020(1).

### **Public Interest**

No detriment to the public interest was identified during the investigation of the subject application. Although pumping from the well will impact streams that are closed to new appropriations and subject to minimum instream flow requirements, the estimated consumptive impact will be offset through a combination of return flows and mitigation.

### **Protests**

Two protests were received during the statutory 30-day protest period. A letter of protest was received on November 22, 2000 from the Puyallup Tribe of Indians and on November 24, 2000 from Stop the Pits, Inc., a community group of citizens.

#### Protest from Puyallup Tribe of Indians

The Puyallup Tribe of Indians sent a letter of protest on November 22, 2000. The Tribe is concerned about potential impacts to Fennel Creek and Canyon Falls Creek from groundwater being intercepted by the well or leakage induced from the overlying water-bearing zones that supply baseflows to the creeks. The Tribe pointed out that the two creeks are closed to further appropriation per WAC 173-510 and that any "instream flow depletion in these systems is likely to impair salmonid habitat as well as interfere with the Tribe's reserved treaty fishing right with a priority date of time immemorial."

A hydrogeologic analysis of leakage performed by GeoEngineers (2009) indicates that pumping 114 acre-feet of water per year from the existing well will result in less than 1 foot of drawdown at a radius of approximately 20,000 feet from the well in the shallow alluvial aquifer. The 1 ft of drawdown was estimated to result in an impact of 20.4 gpm (0.045 cfs) (continuous) to surface water bodies (Fennel Creek and Puyallup River). In order to mitigate for this impact to surface water resources, the applicant has proposed to provide 38.8 gpm (continuous) of return flows and mitigation water to the shallow aquifer as discussed above. The applicant will also monitor water level and temperature impacts from use of the Fennel Resources well and the associated mitigation activities. Therefore, although pumping from the well will impact streams that are closed to new appropriations and subject to minimum instream flow requirements, the estimated consumptive impact will be offset through mitigation.

#### Protest from Stop the Pits, Inc.

Stop the Pits, Inc., a community group of citizens, sent a letter of protest on November 24, 2000. Stop the Pits, Inc. is concerned about impairment to existing, or senior water rights; impairment to existing wells and surface water rights within 2,000 feet of the site of the proposed well; vertical leakage between confined aquitards; impairment to Canyon Falls and Fennel Creeks, which are closed to further appropriation; water is not available for appropriation because the Puyallup River has established instream flows; the site is within the boundaries of Tacoma Water's service area; there could be a "take" under the Endangered Species Act (ESA); and degradation of the natural environment.

All of the concerns/issues except two were also identified by the Puyallup Tribe of Indians and were addressed in the previous section. The first is the concern that the site is within the boundaries of Tacoma Water's service area and that the Valley Water District's water supply well is nearby. Stop the Pits, Inc. notes that the FEIS states that the well is within the service area of the Tacoma Water District which may provide an alternate water source for Fennel Resources if the well is not an option. Fennel Resources is not required to connect to an existing water system to obtain its water supply and Valley Water District did not submit a protest to Fennel Resources' groundwater right application. The second concern is the potential degradation of the natural environment. Fennel Resources has proposed a mitigation plan that offsets the impacts to the surface water resources, so there is no detriment to the public interest.

### **RECOMMENDATIONS**

It is recommended that a groundwater permit be issued for an industrial use (gravel mining) at an instantaneous rate of **200 gpm** and maximum annual volume of **114 acre-feet**. The permit shall be issued subject to the following provisions.

**PROVISIONS**

**Water Level Monitoring:** In order to protect the ground water resource, static water level in the well shall be measured at a minimum semi-annually (March/April and September/October of each year). The water level data shall be maintained and made available to Ecology upon request.

**Water Use:** An approved measuring device shall be installed and maintained for each well used under this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use," Chapter 173-173 WAC.

Water use data shall be recorded weekly. The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to the Department of Ecology by January 31st of each calendar year.

Reported water use data shall be submitted via the Internet or by using the enclosed forms. To set up an internet account, access <https://fortress.wa.gov/ecy/wrx/Meteringx/>. If you have questions or need additional forms, contact the Southwest Regional office.

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

**Water Allocation:** The applicant is advised that the certificate will issue for only that quantity of water that has been withdrawn and applied to actual beneficial use. Such quantity applied to actual beneficial use shall not exceed the quantity specified in this report of examination and will be calculated on the basis of the best information available to Ecology, including metering data and/or water duty analysis. The applicant is advised that the quantity of water allocated by this permit may be reduced at the time of final certification to reflect system capacity and actual usage.

**Monitoring Requirements:** The monitoring plan submitted by GeoEngineers (2010) as modified by this Report, is incorporated in this ROE as Attachment 1. Monitoring shall take place for a minimum of 5 years and may be extended by Ecology if it appears necessary. Yearly monitoring reports shall be submitted to Ecology by January 31st of each calendar year along with water use measurements. The report shall document how the proposed mitigation adequately addresses potential impacts of the project to groundwater levels and temperatures in the Puyallup Valley Aquifer, and stream flows in Fennel Creek and the Puyallup River. The reports may also propose adaptive modifications to the mitigation plan to be approved by Ecology. Ecology reserves the right to order the applicant to stop pumping the water supply well, should the data indicate that detrimental effects to the local aquifer system are occurring and not being mitigated.

A water right certificate shall not be issued until a final investigation has been made.

**CONCLUSION**

In accordance with chapters 90.03 and 90.44 RCW, I find there is water available for this beneficial appropriation from the source in question and that the appropriation as authorized will not impair existing rights or be detrimental to the public interest. Therefore, a permit should be issued, subject to the above-indicated provisions.

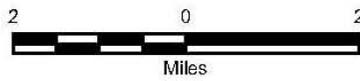
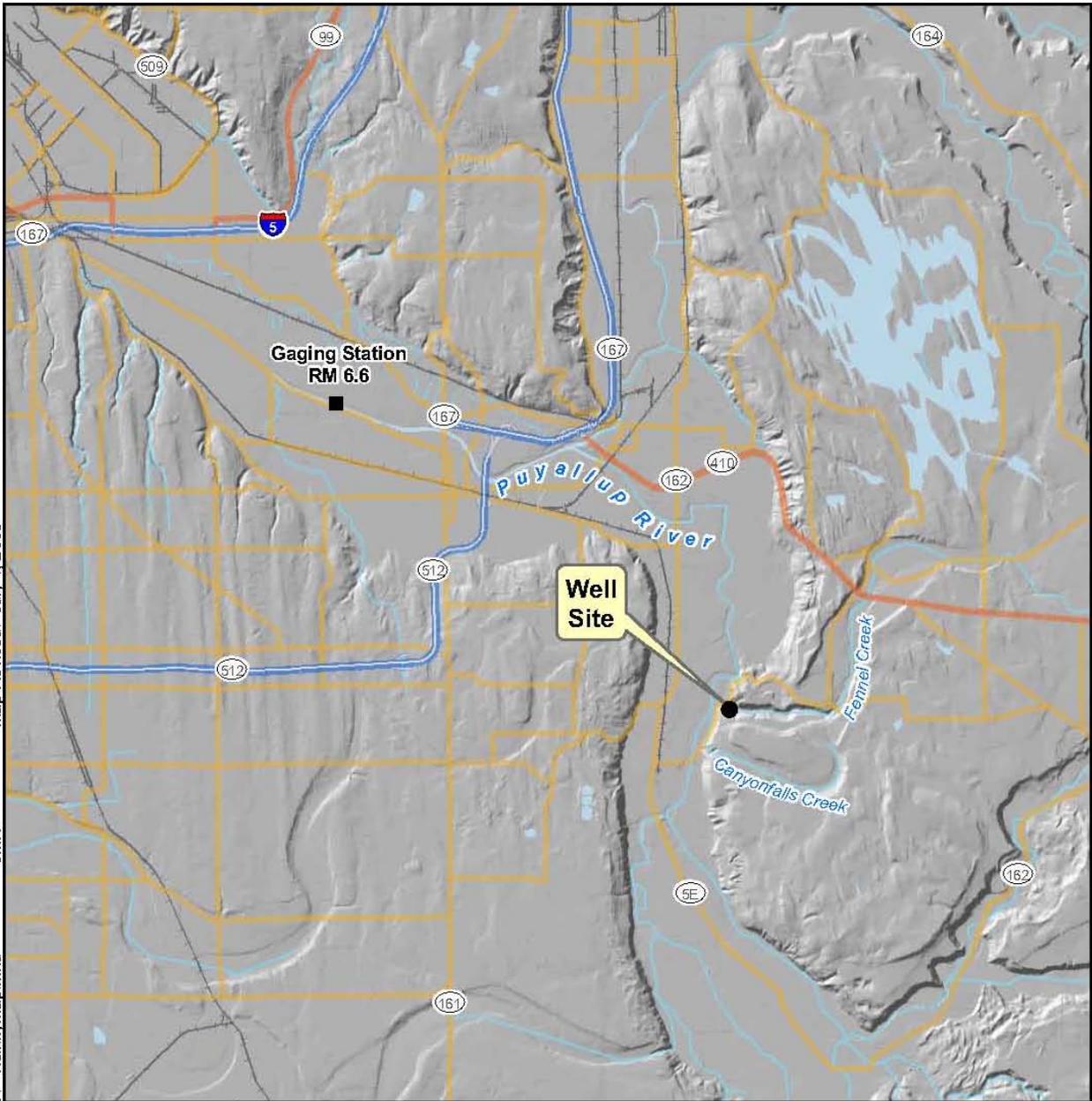
REVIEWED BY \_\_\_\_\_  
Phil Crane

DATE \_\_\_\_\_

## **REFERENCES**

- Bear, Jacob, "Hydraulics of Groundwater: New York, McGraw-Hill", 569p. 1979.
- GeoEngineers, 2009. Revised Report, Hydrogeologic Services Evaluation Of Potential Surface Water Impacts From Proposed Groundwater Withdrawal And Proposed Mitigation Plan Near McMillin, Washington. Prepared for Fennel Resources. August 19, 2009.
- GeoEngineers, 2010. Monitoring Plan Hydrogeologic Services Fennel Resources Facility Near McMillin, Washington For Miles Sand & Gravel Company. December 1, 2010.
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Office: ORCH Path: P:\111355024\GIS\135502405 Figure1 VicinityMap.mxd Map Revised: July 1, 2009 JMK



**Notes:**

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
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Data Sources: ESRI Data & Maps, Street Maps 2008  
 Projection: NAD\_1983\_UTM\_Zone\_10N  
 Datum: D\_North\_American\_1983  
 North arrow oriented to grid north

<b>Vicinity Map</b>	
Fennel Resources Near McMillin, Washington	
<b>GEOENGINEERS</b>	<b>Figure 1</b>