

Attachment 1

Antidegradation Review Sheet

ANTIDEGRADATION REVIEW SHEET FOR A PROPOSED INDIVIDUAL NPDES DISCHARGE

1. What is the name of Surface Water that receives the discharge? **Courtney Creek.**

Briefly describe the proposed activity:

Is this review for a renewal OR new (circle one) permit application?

Go to Step 2. **Renewal**

2. Is this surface water an **Outstanding Resource Water** or **upstream** from an **Outstanding Resource Water**?

Yes. Go to Step 5.

No. Go to Step 3. **NO.**

3. Is this surface water a **High Quality Water**?

Yes. Go to Step 8. **YES.**

No. Go to Step 4.

8. Will the proposed activity result in a Lowering of Water Quality in the **High Quality Water**[see OAR 340-041-0004(3)-(5) for a description in rule of discharges that do not result in lowering of water quality or do not constitute a new and/or increased discharge or are otherwise exempt from antidegradation review; otherwise see “Is an Activity Likely to Lower Water Quality?” in *Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and Section 401 Water Quality Certifications.*]

Yes. Go to Step 9.

No. Proceed with Permit Application. Applicant should provide basis for conclusion. Go to Step 21. **NO.**

This is a renewal permit for an existing NPDES discharge. However, the Facility does not currently discharge to Courtney Creek; all waste is currently treated with an onsite sand filter and discharged to a drainfield. No recent effluent data is available to evaluate the water quality impacts to the receiving stream. No discharge will be allowed without written Department authorization. When the permittee is ready to discharge to Courtney Creek they will be required to perform a Mixing Zone/Dilution Study and submit the results for Department review and approval. The Department will then perform the necessary reasonable potential analyses to determine if the discharge is degrading the in stream water quality. The permit will be reopened and modified as necessary to provide adequate limits and a potential waste load allocation if necessary to protect the in stream water quality.

21. On the basis of the Antidegradation Review, the following is recommended:
 Proceed with Application to Interagency Coordination and Public Comment Phase.
 Deny Application; return to applicant and provide public notice.

Action Approved

Section: Water Quality, Western Region-Salem Office

Review Prepared By: Robert A. Dicksa
Phone: 503-378-5039
Date Prepared: December 11, 2006

Please provide the following information and submit with the completed application form to:
Department of Environmental Quality
Water Quality Division—Surface Water Management
811 SW Sixth Avenue
Portland, Oregon 97204-1390

Name: Jerry McFadden
Name of Company: Shell Oil Products
Address: PO Box 261517
Highland Ranch, CO 80130
Phone: 303-346-6043

Note: Facility location is 32980 Hwy 228
Halsey, OR 97348

Contact: Mavis Schaaf
Phone: 541-369-2624

Facility Operated by VANCO
Contact: 541-928-1657

Attachment 2

Wastewater System Classification Worksheet for Operator Certification

OAR 340-049-0020

General Requirements (OAR 340-049-0015) - Each owner of a regulated wastewater system must have its system supervised by one or more operators who hold a valid certificate for the type of system, wastewater treatment or collection, and at a grade equal to or greater than the wastewater system classification as defined in OAR-340-049-0020 and 0025. DEQ will advise system owners of the classification of their systems as a permit action. **As the classification establishes the operator certificate type and grade required for compliance, it needs to be set prior to “start-up” of a new or upgraded and/or expanded facility.**

Wastewater treatment system classifications will be derived from the total points assigned based on criteria shown in OAR 340-049-0025 (see Classification Worksheet). Collection system classifications are based on design population or population equivalent to be served by a wastewater treatment system (see Worksheet).

Upon written notice to the wastewater system owner, DEQ may classify a wastewater treatment system higher than the classification based on accumulated points if the complexity of a treatment system is not reflected in the criteria(see Worksheet examples). If deemed appropriate, DEQ may classify a wastewater collection system higher than the classification based on population when a Class I by population will have significant pumping of sewage including STEP or other pumping that may warrant a Class II designation. In either case, designation must be consistent with the intent of the classification system (see OAR 340-049-0020(4) & (5)).

Classification of Wastewater Systems (OAR 340-049-0020) All wastewater systems regulated under OAR 340-049 will be classified by DEQ as wastewater treatment systems and/or wastewater collection systems, as appropriate, in accordance with the following classification system:

Wastewater Treatment Systems	Wastewater Collection Systems
Class I - 30 total points or less	Class I - 1,500 or less design population
Class II - 31-55 total points	Class II - 1,501 to 15,000 design population
Class III - 56-75 total points	Class III - 15,001 to 50,000 design population
Class IV - 76 or more points	Class IV - 50,001 or more design population

Definitions used in these regulations unless otherwise required by context (see OAR 340-049-0010):

"Average Dry Weather Flow" (ADWF) means the design average dry weather flow capacity of the wastewater treatment system in gallons per day or Million Gallons per Day (MGD), as approved by the Department.

"Industrial Waste" means liquid wastes from an industrial or commercial process discharged into a wastewater system for conveyance and treatment.

"NPDES Permit" means a waste discharge permit issued in accordance with requirements and procedures of the National Pollutant Discharge Elimination System authorized by Section 402 of the Federal Clean Water Act and OAR 340, Division 45.

"Population" means the design population of the wastewater system represented as the number of people or the population equivalent the system is designed to serve. Equivalent population ordinarily is determined based on 70 gallons per person per day average dry weather flow (ADWF) or 0.17 lbs. BOD5 per person per day, whichever is greater.

"Wastewater" or "sewage" means the water-carried human or animal waste from residences, buildings, industrial establishments or other places, together with such groundwater infiltration and surface water as may be present. The admixture of domestic and industrial waste or other by-products, such as sludge, is also considered wastewater or sewage.

"Wastewater Treatment System" or "Sewage Treatment System" means any structure, equipment or process for treating and disposing of, or recycling or reusing wastewater and sludge (including industrial waste) that is discharged to the wastewater system.

"Wastewater Collection System" or "Sewage Collection System" means the trunks, arterials, pumps, pump/lift stations, piping and other appurtenances necessary to collect and carry away wastewater or other liquid waste treatable in a community or private wastewater treatment facility.

"Wastewater System" means "Sewage Treatment Works" defined in ORS 448.405 as any structure, equipment or process required to collect, carry away and treat domestic waste and dispose of sewage as defined in ORS 454.010. Typically, components of a wastewater system include a wastewater collection system and a wastewater treatment system.

"WPCF Permit" means a Water Pollution Control Facilities permit to construct and operate a collection, treatment and/or disposal system with no discharge to navigable waters.

Attachment 2

Wastewater System Classification Worksheet for Operator Certification

OAR 340-049-0020

WW System Common Name: Shell Halsey

Facility ID: 85860 Location: 32980 Hwy 228, Halsey, Oregon

Total Points (from page 3): 18 WWT Class (check): I II III IV

Design Population¹: _____ WWC Class (check): I II III IV

Design ADWF load (Influent MGD) 0.002 Design BOD load (Influent lbs./day) _____

Classified by: Robert Dicksa Date: 1-08-07

Date this classification filed with the Operator Certification office: _____

System start-up date for this classification (new, upgrade or expansion): _____

Is this a change from a prior classification? (check): Yes No

Criteria for Classifying Wastewater Treatment Systems (OAR 340-049-0025)

(1) Design Population or Population Equivalent Points (10 Points Maximum)

- | | |
|---|-----------------------------------|
| <input checked="" type="checkbox"/> Less than 750 | 0.5 points |
| <input type="checkbox"/> 751 to 2000 | 1 point |
| <input type="checkbox"/> 2001 to 5000 | 1.5 points |
| <input type="checkbox"/> 5001 to 10,000 | 2 points |
| <input type="checkbox"/> Greater than 10,000 | 3 points <u>plus</u> 1 per 10,000 |
| Point subtotal | <u>0.5</u> |

(2) Average Dry Weather Flow (Design Capacity) Points (10 points Maximum)

- | | |
|---|----------------------------------|
| <input checked="" type="checkbox"/> Less than 0.075 MGD | 0.5 point |
| <input type="checkbox"/> Greater than 0.075 to 0.1 MGD | 1 point |
| <input type="checkbox"/> Greater than 0.1 to 0.5 MGD | 1.5 points |
| <input type="checkbox"/> Greater than 0.5 to 1.0 MGD | 2 points |
| <input type="checkbox"/> Greater than 1.0 MGD | 3 points <u>plus</u> 1 per 1 MGD |
| Point subtotal | <u>0.5</u> |

(3) Unit Process Points (Check all that apply)

Preliminary Treatment and Plant Hydraulics:

- | | |
|---|----------|
| <input type="checkbox"/> Comminution (includes shredders, grinders, etc.) | 1 point |
| <input type="checkbox"/> Grit Removal, gravity | 1 point |
| <input type="checkbox"/> Grit Removal, mechanical | 2 points |
| <input checked="" type="checkbox"/> Screen(s), in-situ or mechanical | 1 point |
| <input type="checkbox"/> Pump/Lift Station(s) (pumping of main flow) | 2 points |
| <input type="checkbox"/> Flow Equalization (any type) | 1 point |
| Point subtotal | <u>1</u> |

Primary Treatment:

- | | |
|--|----------|
| <input checked="" type="checkbox"/> Community Septic Tank(s) | 2 points |
| <input type="checkbox"/> Clarifier(s) | 5 points |
| <input type="checkbox"/> Flotation Clarifier(s) | 7 points |
| <input type="checkbox"/> Chemical Addition System | 2 points |
| <input type="checkbox"/> Imhoff Tank (or similar) | 3 points |
| Point subtotal | <u>2</u> |

Total Points Page 1 4 Page 1 of 3

¹ See "Population" definition. Use the design average daily per person load for Influent Flow or Influent BOD₅, whichever is greater. This value is also used to determine the Collection System Classification.

Wastewater System Classification Worksheet

Unit Process Points – Continued (Check all that apply)

Secondary, Advanced, and Tertiary Treatment:

- | | |
|---|------------|
| <input type="checkbox"/> Low Rate Trickling Filter(s) (no recirculation) | 7 points |
| <input type="checkbox"/> High Rate Trickling Filter(s) (recirculation) | 10 points |
| <input type="checkbox"/> Trickling Filter - Solids Contact System | 12 points |
| <input type="checkbox"/> Activated Sludge (any type) | 15 points |
| <input type="checkbox"/> Pure Oxygen Activated Sludge | 20 points |
| <input type="checkbox"/> Activated Bio Filter Tower less than 0.1 MGD | 6 points |
| <input type="checkbox"/> Activated Bio Filter Tower greater than 0.1 MGD | 12 points |
| <input type="checkbox"/> Rotating Biological Contactors 1 to 4 shafts | 7 points |
| <input type="checkbox"/> Rotating Biological Contactors, 5 or more shafts | 12 points |
| <input type="checkbox"/> Stabilization Lagoons, 1 to 3 cells without aeration | 5 points |
| <input type="checkbox"/> Stabilization Lagoons, 1 or more cells with primary aeration | 7 points |
| <input type="checkbox"/> Stabilization Lagoons, 2 or more cells with full aeration | 9 points |
| <input type="checkbox"/> Recirculating Gravel Filter | 7 points |
| <input type="checkbox"/> Chemical Precipitation Unit(s) | 3 points |
| <input type="checkbox"/> Gravity Filtration Unit(s) | 2 points |
| <input type="checkbox"/> Pressure Filtration Unit(s) | 4 points |
| <input type="checkbox"/> Nitrogen Removal, Biological or Chemical/Biological System | 4 points |
| <input type="checkbox"/> Nitrogen Removal, Designed Extended Aeration Only | 2 points |
| <input type="checkbox"/> Phosphorus Removal Unit(s) | 4 points |
| <input type="checkbox"/> Effluent Microscreen(s) | 2 points |
| <input type="checkbox"/> Chemical Flocculation Unit(s) | 3 points |
| <input type="checkbox"/> Chemical Addition System(s) (6 points maximum) | @ 2 points |

Point subtotal 0

Solids Handling:

- | | |
|---|-----------|
| <input type="checkbox"/> Anaerobic Primary Sludge Digester(s) w/o Mixing and Heating | 5 points |
| <input type="checkbox"/> Anaerobic Primary Sludge Digester(s) with Mixing and Heating | 7 points |
| <input type="checkbox"/> Anaerobic Primary and Secondary Sludge Digesters | 10 points |
| <input type="checkbox"/> Sludge Digester Gas reuse | 3 points |
| <input type="checkbox"/> Aerobic Sludge Digester(s) | 8 points |
| <input type="checkbox"/> Sludge Storage Lagoon(s) (or tanks, basins etc.) | 2 points |
| <input type="checkbox"/> Sludge Lagoon(s) with aeration | 3 points |
| <input type="checkbox"/> Sludge Drying Bed(s) | 1 point |
| <input type="checkbox"/> Sludge Air or Gravity Thickening | 3 points |
| <input type="checkbox"/> Sludge Composting, In Vessel | 12 points |
| <input type="checkbox"/> Sludge Belt(s) or Vacuum Press/Dewatering | 5 points |
| <input type="checkbox"/> Sludge Centrifuge(s) | 5 points |
| <input type="checkbox"/> Sludge Incineration | 12 points |
| <input type="checkbox"/> Sludge Chemical Addition Unit(s) (alum, polymer, etc.) | 2 points |
| <input checked="" type="checkbox"/> Non-Beneficial Sludge Disposal | 1 point |
| <input type="checkbox"/> Beneficial Sludge Utilization | 3 points |

Point subtotal 1

Disinfection:

- | | |
|---|----------|
| <input checked="" type="checkbox"/> Liquid Chlorine Disinfection | 2 points |
| <input type="checkbox"/> Gas Chlorine Disinfection | 5 points |
| <input type="checkbox"/> Dechlorination System | 4 points |
| <input type="checkbox"/> Other disinfection systems incl. ultraviolet and ozonation | 5 points |

Point subtotal 2

Total Points Page 2 3

Wastewater System Classification Worksheet

(4) Effluent Permit Requirement Points (Check as applicable):

- | | |
|--|----------|
| <input type="checkbox"/> Minimum of secondary effluent limitations for BOD and/or TSS | 2 points |
| <input type="checkbox"/> Minimum of 20 mg/L BOD and/or Total Suspended Solids | 3 points |
| <input checked="" type="checkbox"/> Minimum of 10 mg/L BOD and/or Total Suspended Solids | 4 points |
| <input type="checkbox"/> Minimum of 5 mg/L BOD and/or Total Suspended Solids | 5 points |
| <input type="checkbox"/> Effluent limitations for effluent oxygen | 1 point |

Point subtotal 4

(5) Variation in Raw Waste Points. (6 points maximum) Points in this category will be awarded only when conditions are extreme to the extent that operation and handling procedure changes are needed to adequately treat waste due to variation of raw waste

- | | |
|--|----------|
| <input type="checkbox"/> Recurring deviations or excessive variations 100% to 200% | 2 points |
| <input type="checkbox"/> Recurring deviations or excessive variations of more than 200% or
conveyance and treatment of industrial wastes by Pretreatment program | 4 points |
| <input checked="" type="checkbox"/> Septage or other hauled waste (control and/or preliminary treatment) | 2 points |

Point subtotal 2

(6) Sampling and Laboratory Testing Points (check as applicable - maximum 11 points)

- | | |
|---|----------|
| <input checked="" type="checkbox"/> Sample for BOD, Total Suspended Solids performed by outside lab | 2 points |
| <input type="checkbox"/> BOD or Total Suspended Solids analysis performed at treatment plant | 4 points |
| <input checked="" type="checkbox"/> Bacteriological analysis performed by outside lab | 1 point |
| <input type="checkbox"/> Bacteriological analysis performed at WWT plant lab | 2 points |
| <input type="checkbox"/> Nutrient, Heavy Metals or Organics analysis performed by outside lab | 3 points |
| <input type="checkbox"/> Nutrient, Heavy Metals or Organics analysis performed at WWT plant | 5 points |

Point subtotal 3

(7) Points For Other Complexities Not Reflected Above: (see OAR 340-049 0020(4) & (5))

- | | |
|--|---------------|
| <input type="checkbox"/> Odor Control (2 points maximum) | 1 to 2 points |
| <input type="checkbox"/> Standby Power Units | @ 1 point |
| <input type="checkbox"/> Solids Composting or Land Application of Biosolids | 10 points |
| <input type="checkbox"/> Alkaline Stabilization (3 points maximum) | 2 to 3 points |
| <input type="checkbox"/> Other Effluent Limits [ammonia, Cl ₂ , temp., etc. (<u>list or attach list</u>)] | @ 1 point |
| <input type="checkbox"/> Pond(s) (advanced treatment polishing or irrigation holding) | 2 points |
| <input checked="" type="checkbox"/> Effluent Land Disposal - Evaporation (surface or subsurface) | 2 to 4 points |
| <input type="checkbox"/> Effluent direct Reuse or Recycle | 6 points |
| <input type="checkbox"/> SCADA or similar for data (limited to extensive total process operation) | 2 to 6 points |
| <input type="checkbox"/> Chemical/Physical advanced waste treatment following secondary | 10 points |
| <input type="checkbox"/> Chemical/Physical advanced waste treatment w/o secondary | 15 points |
| <input type="checkbox"/> Biological or Chemical/Biological advanced waste treatment | 12 points |
| <input type="checkbox"/> Reverse Osmosis, Electro-dialysis or Membrane Filtration techniques | 15 points |
| <input type="checkbox"/> Other complexities (<u>list or attach list</u>): <u>Sand Filter</u> | <u>1</u> |

Point subtotal 3

Total Points Page 3 11

Total Accumulated Points (3 pages) 18

A COPY OF THIS COMPLETED WORKSHEET IS TO BE FILED WITH THE OPERATOR CERTIFICATION PROGRAM, WATER QUALITY DIVISION, PRIOR TO SYSTEM START-UP

FACT SHEET
And
NPDES WASTEWATER DISCHARGE PERMIT EVALUATION

Department of Environmental Quality
Western Region – Salem Office
750 Front Street NE, Suite 120, Salem, OR 97301-1039
Telephone: (503) 378-8240

PERMITTEE:	Shell Oil Products Company LLC PO Box 261517 Highland Ranch, CO 80130 File Number: 85860
SOURCE LOCATION:	I-5 and Hwy. 228
SOURCE CONTACT:	Jerry McFadden Telephone Number: 303-346-6043
PERMIT WRITER:	Robert Dicksa Telephone Number: 503-378-5039
PROPOSED ACTION:	Renewal of a National Pollutant Discharge Elimination System (NPDES) wastewater discharge permit
SOURCE CATEGORY:	Minor Domestic
TREATMENT SYSTEM CLASS:	Level I
COLLECTION SYSTEM CLASS:	N/A
PERMIT APPLICATION DATE:	February 14, 2005
PERMIT APPLICATION NUMBER:	982274

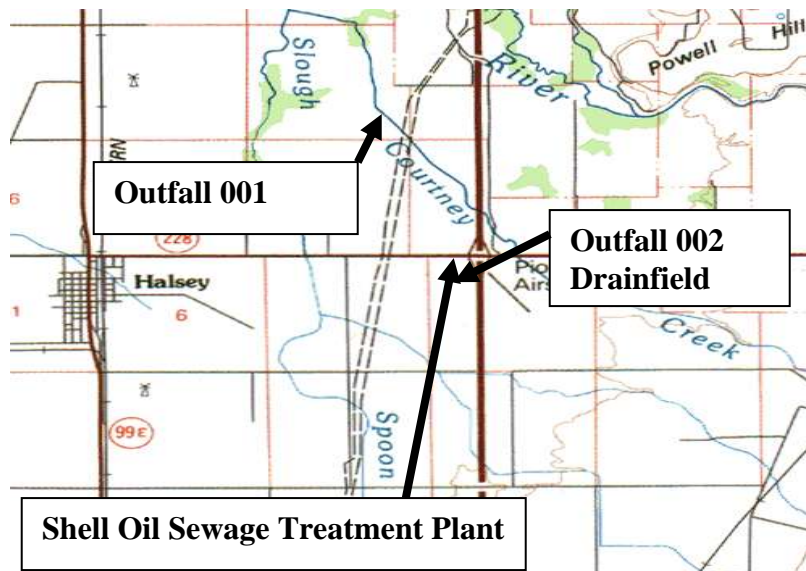
BACKGROUND

Introduction

Shell Oil Products Company LLC operates a wastewater treatment facility located in Halsey, Oregon (**See Figure 1**). Wastewater is treated and discharged to Courtney Creek in accordance with National Pollutant Discharge Elimination System (NPDES) Permit number 101920. The Permit for the facility was issued on August 16, 2000 and expired on July 31, 2005.

The Department received a renewal application on February 23, 2005. A renewal permit is necessary to discharge to state waters pursuant to provisions of Oregon Revised Statutes (ORS) 468B.050 and the Federal Clean Water Act. The Department proposes to renew the permit.

Figure 1: Shell Oil Products Wastewater Treatment Facility



Facility Description

Shell Oil Products Company owns and operates a sand filter wastewater treatment facility at a convenience store and fuel station located at I-5 and the Halsey exit near Halsey, Oregon. Wastewater from the service station flows by gravity to a septic tank. Septic tank effluent flows by gravity into a 1,500 gallon concrete dosing tank. This effluent is then pumped to a 2,952 square foot intermittent sand filter. Effluent from the sand filter flows by gravity to a 1,500 gallon concrete dosing tank. The sand filtered effluent is pumped to a low pressure distribution (LPD) drainfield during the summer season (May 1 through October 31).

During the winter season (November 1 through April 30), the permit allows the sand filtered effluent to be disinfected with chlorine and discharged to Courtney Creek at River Mile 1.7. While the system is designed to discharge to Courtney Creek during the winter season, due to very low influent flows; the effluent has been discharged year around to the drainfield for the last eight years.

Most of the year including some of the winter discharge months, Courtney Creek does not have enough flow to adequately dilute and mix with the discharge of treated effluent. Therefore, the proposed permit will contain several Schedule C conditions that the permittee will be required to meet prior to any discharge to the creek. The conditions will require that the permittee develop a hydrographic curve based on the real-time flow in Courtney Creek and that the treated effluent be discharged according to the hydrographic curve. This will insure that there is adequate flow in the receiving stream prior to discharging treated effluent. Currently, there is no existing flow recording gauge in Courtney Creek that will accurately measure the river flow in the vicinity of the effluent outfall. Therefore, in order to get an accurate real-time flow of Courtney Creek on a daily frequency, a recording device will also be required to be installed prior to allowing a discharge of treated effluent. Upon discharging to the creek, the proposed permit will require the permittee to

conduct a Department approved mixing zone/dilution study. Upon approval of the mixing zone/dilution study data, the Department will conduct a reasonable potential analysis for temperature, chlorine, ammonia, and dissolved oxygen (DO). If there is reasonable potential to violate the standards for these water quality standards parameters, then permit effluent limits will be established and the permit will be re-opened and modified to include any new limits.

Biosolids Management and Utilization

Waste sludge accumulations are regularly pumped out and transported by Hanks Septic Service, for further treatment and land application. The receiving treatment facility is responsible for ensuring compliance with the federal biosolids regulations (40 CFR Part 503) and the permit for that facility is the governing authority. This permit requires reporting of the transportation of biosolids when they are hauled to other facilities and the submittal of an annual summary.

Inflow and Infiltration (I/I)

There are no documented sources of I/I at this facility, so no I/I reduction program or annual reports will be required.

Pretreatment

The permittee does not have a formal pretreatment program, nor is one required for this source.

Groundwater

In 2004, the Department declared a "Groundwater Management Area" in the southern Willamette Valley in an effort to address widespread nitrate groundwater contamination. As a part of this effort, the Department has been focusing attention of those permits that are being renewed within the management Area to evaluate if the facilities could potentially be contributing the area's groundwater contamination. The site that is the subject of this permit is not located within the boundaries of the management Area, but is nearby, so Department personnel performed a hydrogeologic review to evaluate whether the system and associated drainfield could pose a threat to nearby groundwater beneficial uses.

According to the National Soil Conservation Service soils maps, the system is located in an area with relatively low permeability silty and clayey soils (primarily Amity silt-clay loam). Well logs available from a recent investigation conducted under the oversight of DEQ's Underground Storage Tanks Program confirms that shallow water-bearing zone hydraulic conductivities are low. In addition, the well log from the site's water-supply well confirms the presence of a lower permeability clay layer at a depth of about ten to fifteen feet below ground surface. The lower permeability soils and underlying clay layer will likely protect local groundwater resources from superficial contaminant sources.

Based on these observations, the Department finds that the likelihood of adverse impacts to groundwater and groundwater beneficial uses in the vicinity of the site's on-site septic system are low. As a result, no groundwater monitoring or additional groundwater characterization is being recommended for this site during this permit cycle.

Schedule A of the proposed permit prohibits adverse impacts to groundwater and a condition in Schedule D states that no groundwater evaluations will be required during this permit cycle.

Stormwater

Stormwater is not addressed in this permit. General NPDES permits for stormwater are not required for facilities with a design flow of less than one MGD.

Pollutants Discharged

The current permit allows treated wastewater to be discharged to Courtney Creek at River Mile (RM) 1.7, and sets limits on the following pollutants: Five-day Biochemical Oxygen Demand (BOD5), Total Suspended Solids (TSS), and *E. coli* Bacteria. The discharge is also regulated for pH and pollutant removal efficiency. A removal efficiency of 85% for BOD and TSS has been included based on an assumed influent concentration of 200 mg/l from the septic tank. In addition, the maximum flow to the treatment facility shall not exceed 0.002 million gallons per day (MGD). The proposed permit will regulate the same pollutants however, no discharge will be allowed until specific Schedule C conditions of the proposed permit are met. Once the Schedule C conditions have been satisfied, the Department may grant approval for discharge to Courtney Creek and the permittee will then be required to monitor for chlorine residual, temperature, ammonia, and dissolved oxygen.

Outfalls

Outfall 001

The proposed permit will allow the treatment facility to discharge treated effluent through Outfall 001 to Courtney Creek at River Mile 1.7 during the winter months (November 1 – April 30). However, no discharge will be allowed until the permittee meets the Schedule C conditions included in the proposed permit. No discharge to state water is allowed from May 1- October 31 without written authorization from the Department.

Outfall 002

On a year around basis, the permittee is allowed to discharge treated effluent through Outfall 002 to an onsite drainfield. The discharge to the onsite drainfield shall be disposed of in such a manner as to prevent:

1. Surfacing of the water on the ground surface;
2. Surface water runoff or subsurface drainage through drainage tile;
3. The creation of odors, fly and mosquito breeding and other nuisance conditions;
4. The overloading of land with nutrients or organics; and,
5. Impairment of existing or potential beneficial uses of groundwater.

The effluent from the treatment unit to the drainfield shall not exceed the following maximum concentrations:

Parameter	Limitation
BOD5	30 mg/L
TSS	30 mg/L

Mixing Zone Analysis

Federal regulations (40 CFR 131.13) allow for the use of mixing zones, also known as “allocated impact zones”. When using mixing zones, acute toxicity to drifting organisms must be prevented and the integrity of the water body as a whole may not be impaired. Mixing zones allow the initial mixing of waste and receiving water, but are not designed to allow for treatment.

EPA does not have specific regulations pertaining to mixing zones. Each state must adopt its own mixing zone regulations that are subject to review and approval by EPA. In States that lack approved mixing zone regulations, ambient water quality standards must be met at the end of the pipe.

The Department has adopted the two-number aquatic life criteria and developed mixing zone regulations with respect to that. The regulations are primarily narrative and essentially require the permit writer to use best professional judgment in establishing the size of the mixing zone. Based on EPA guidance and the Department’s mixing zone regulations, two mixing zones may be developed for each discharge that reflect acute and chronic effects: 1) The acute mixing zone, also known as the “zone of initial dilution” (ZID), and 2) the chronic mixing zone usually referred to as “the mixing zone”. The acute mixing zone is designed to prevent lethality to organisms passing through the ZID. The chronic mixing zone is designed to protect the integrity of the entire water body as a whole. The allowable size of the mixing zone should be based upon the relative size of the discharge to the receiving stream, beneficial uses of the receiving stream, location of other discharges to the same water body, location of drinking water intakes, and other considerations. More specific guidance is available from EPA regarding criteria used in appropriately sizing a ZID. Primarily the ZID must be designed to prevent lethality to drifting organisms.

The Department’s mixing zone regulations state the mixing zone must be less than the total stream width as necessary to allow passage of fish and other aquatic organisms. Early recommendations regarding the size of the zone of passage originated from the Department of Interior (1968). They recommended a zone of passage of 75 percent of the cross-sectional area and/or volume of flow of the receiving stream. Based on this recommendation, the Department’s standard practice is to allow no more than 25 percent of the stream flow for mixing zones.

The current permit allows a mixing zone consisting of that portion of Courtney Creek beginning ten feet upstream, extending 50 feet downstream and half the width of the stream from the point of discharge.

In accordance with Department policy, the proposed permit will be amended to contain the following mixing zone language:

The allowable mixing zone is that portion of Courtney Creek where the effluent mixes with 25 percent of the stream flow but in no case will extend farther than one fourth the width of the stream from point of discharge and from a point ten feet upstream of the outfall to a point 50 feet downstream of the outfall. The Zone of Initial Dilution (ZID) is defined as that portion of the allowable mixing zone that is within two feet of the point of discharge.

However, as stated previously, the permittee does not currently discharge to Courtney Creek due to low influent flows. At such time as the permittee does request permission to discharge to Courtney Creek, the Department will require that the permittee perform a mixing zone/dilution study. This information will be used to develop a new mixing zone and zone of immediate dilution. The data will also be used to perform a reasonable potential analysis for chlorine, temperature, ammonia, and dissolved oxygen. If there is a reasonable potential for these parameters to violate water quality standards and/or impact the beneficial uses of the receiving stream, then permit effluent limitations will be developed and the permit will be modified to include each specific limitation.

Receiving Stream Impacts

The discharge is within the Willamette basin and Middle Willamette sub-basin. The designated beneficial uses of the receiving stream are: public and private domestic water supply, industrial water supply, irrigation, livestock watering, fish and aquatic life (including salmonid rearing spawning and migration), wildlife and hunting, fishing, boating, water contact recreation, aesthetic quality and hydro power. The water quality standards for the Willamette Basin (OAR 340-041-0345) were developed to protect the beneficial uses of the basin.

Section 303(d) of the Clean Water Act requires the establishment of a Total Maximum Daily Load (TMDL) in water bodies in which the technology based effluent limitations are not stringent enough to implement the water quality standards. The Willamette TMDL was issued on September 21, 2006, and approved by the EPA on September 26, 2006. OAR 340-041-0345 states no wastes shall be discharged and no activities shall be conducted which cause violations of the water quality standards in the Willamette Basin. Courtney Creek is not included on the Department's List of Water Quality Limited Water Bodies (also called the 303(d) List) as water quality limited for any parameters at any time of the year. The TMDL does not address Courtney Creek because it was not listed for any parameters.

Antidegradation Review

OAR 340-041-0004 describes the Environmental Quality Commission's (EQC) Antidegradation Policy for Surface Waters. In summary, the policy is intended to guide the decisions that affect water quality such that unnecessary degradation from point and non-point sources of pollution is prevented. The Department must make certain findings and consider certain issues before renewing the permit.

The Department performed an Antidegradation review and has determined that Courtney Creek is a High Quality Water during the period of allowed discharge (**See Attachment 1**).

Temperature

Water temperature affects the biological cycles of aquatic species and is a critical factor in maintaining and restoring healthy salmonid populations throughout the state. It is the policy of the Environmental Quality Commission (EQC) to protect aquatic ecosystems from adverse temperature changes caused by anthropogenic activities. The purpose of the temperature criteria listed in OAR 340-041-0028 is to protect the designated beneficial uses that are temperature sensitive, including salmonids in waters of the state.

The Department utilizes Fish Use Designation and Salmon and Steelhead Spawning Use Designation maps to identify applicable temperature criteria for each basin. The Willamette Basin maps are contained in OAR 340-041, Figures 340A and 360B, respectively. According to the approved use designation maps, no spawning occurs in the area of the outfall. Therefore, the applicable numeric temperature criterion is 18 °C.

The permittee does not currently discharge to Courtney Creek; all waste is currently treated with an onsite sand filter and discharged to a drainfield. No effluent data is available for temperature and to evaluate the impacts to the receiving stream. No discharge will be allowed without written authorization from the Department. At such time that the permittee is given permission to discharge to Courtney Creek, they will be required to monitor and report the effluent temperature on the monthly Discharge Monitoring Reports (DMRs). The Department will use the data to perform a temperature reasonable potential analysis to determine if the discharge is violating the in-stream water quality standard for temperature. If there is a reasonable potential for impacts due to temperature, the Department will establish an effluent thermal load limitation and the permit will be re-opened and modified as necessary to include the limits to comply with any waste load allocations established by the TMDL.

Compliance History

This facility was last inspected May 18, 2001 and was found to be operating in compliance.

The monitoring reports for this facility were reviewed for the period since the current permit was issued, including any actions taken relating to effluent violations. The permit compliance conditions were reviewed and all inspection reports for the same period were reviewed. No violations of the permit were documented during the period when the current permit was in effect. Therefore, this facility is considered to have operated in compliance with the current permit. The Discharge Monitoring Reports for 2004 -2005 were reviewed and the data summarized. Based on the influent and effluent data, the facility should be able to comply with the proposed permit limits and compliance conditions.

PERMIT DISCUSSION

Face Page

The permittee is authorized to construct, install, modify, or operate a wastewater collection, treatment, control and disposal system. Permits discharge of treated effluent to Courtney Creek and to an on site drainfield within limits set by Schedule A and the following schedules. All other discharges are prohibited. The treatment classification for the system has been determined to be a Level I. The collection system classification is not applicable. The treatment classification remains unchanged from the previous permit (**See Attachment 2**).

Schedule A - Waste Discharge limitations

Outfall 001

The maximum flow to the treatment facility shall not exceed 0.002 Million Gallons per Day (MGD). The influent to the treatment unit shall not exceed the following maximum concentrations:

Parameter	Limitation
BOD5	400 mg/L
TSS	200 mg/L
TKN	150 mg/L

BOD and TSS concentration and mass limits

Based on the Willamette Basin minimum design criteria, from November 1 - April 30, a minimum of secondary treatment or equivalent control is required. Secondary treatment for this facility is defined as monthly average concentration limit of 30 mg/L for BOD5 and 30 mg/L for TSS.

The Department is proposing concentration limits at least as stringent as the basin minimum design criteria. The proposed monthly average BOD5 concentration limit is 10 mg/L with a weekly average limit of 15 mg/L. The proposed monthly average TSS concentration limit is 10 mg/L with a weekly average limit of 15 mg/L.

The winter mass limits for biochemical oxygen demand (BOD₅) and suspended solids (TSS) are based on a flow of 0.002 MGD and the BOD₅ and TSS concentrations of 10 mg/L and 10 mg/L, respectively. All mass load limitations are rounded to two significant figures.

BOD₅ and TSS

The limits are:

- (1) May 1 - October 31:

No discharge to state waters is permitted.

- (2) November 1 - April 30:

Parameter	Average Effluent Concentrations		Monthly Average lb/day	Weekly Average lb/day	Daily Maximum Lbs
	Monthly	Weekly			

BOD ₅	10 mg/L	15 mg/L	0.17	0.25	0.34
TSS	10 mg/L	15 mg/L	0.17	0.25	0.34

Calculations:

(1) BOD₅

- (a) $0.002 \text{ MGD} \times 8.34 \text{ \#/gal} \times 10 \text{ mg/L monthly avg.} = 0.17 \text{ lbs/day}$
- (b) $0.17 \text{ lbs/day monthly avg.} \times 1.5 = 0.25 \text{ lbs/day weekly avg.}$
- (c) $0.17 \text{ lbs/day monthly avg.} \times 2.0 = 0.34 \text{ lbs/day daily max.}$

(2) TSS

- (a) $0.002 \text{ MGD} \times 8.34 \text{ \#/gal} \times 10 \text{ mg/L monthly avg.} = 0.17 \text{ lbs/day}$
- (b) $0.17 \text{ lbs/day monthly avg.} \times 1.5 = 0.25 \text{ lbs/day weekly avg.}$
- (c) $0.17 \text{ lbs/day monthly avg.} \times 2.0 = 0.34 \text{ lbs/day daily max.}$

The permittee has not discharged recently, but a review of the monitoring data from the most recent discharge period indicates the facility should generally be able to comply with the permit limits if they were to discharge. No changes from the previous permit are proposed.

BOD and TSS Percent Removal Efficiency

A minimum level of percent removal for BOD₅ and TSS for domestic dischargers is required by the Code of Federal Regulations (CFR) secondary treatment standards (40 CFR, Part 133). A removal efficiency requirement of 85 percent for BOD₅ and TSS has been included based on an assumed influent concentration of 200 mg/L from the septic tank.

pH

The Willamette Basin Water Quality Standard for pH is found in OAR 340-041-0445(2)(d). The allowed range is 6.5 to 8.5. The proposed permit limits pH to the range 6.0 to 9.0. This limit is based on Federal wastewater treatment guidelines for sewage treatment facilities, and is applied to the majority of NPDES permittees in the state. Within the permittee's mixing zone, the water quality standard for pH does not have to be met. It is the Department's belief that mixing with ambient water within the mixing zone will ensure that the pH at the edge of the mixing zone meets the standard, and the Department considers the proposed permit limits to be protective of the water quality standard.

Bacteria

The proposed permit limits are based on an *E. coli* standard approved in January 1996. The proposed limits are a monthly geometric mean of 126 *E. coli* per 100 mL, with no single sample exceeding 406 *E. coli* per 100 mL. The new bacteria standard allows that if a single sample exceeds 406 *E. coli* per 100 mL, then the permittee may take five consecutive re-samples. If the

log mean of the five re-samples is less than or equal to 126, a violation is not triggered. The new rule states that the re-samples should be taken at four hour intervals beginning as soon as practicable (preferably within 28 hours) after the original sample was taken. The rule also allows for changing the re-sampling timeframe if it would pose an undue hardship on the treatment facility. After discussions with the permittee, the Department is proposing that the five re-samples be taken beginning no later than 72 hours after the original sample was taken.

The proposed effluent limits are achievable through proper operation and maintenance.

Total Chlorine Residual

The permittee uses chlorine as a disinfecting agent for killing pathogenic organisms in the wastewater effluent. High residual chlorine concentrations in the effluent can be toxic to aquatic organisms living in the receiving stream. The proposed permit does not contain a chlorine permit limit. However, the permittee will be required to monitor for chlorine and the amount of chlorine use in Schedule B of this permit. When the permittee is allowed to discharge through Outfall 001, a Mixing Zone/Dilution Study will be performed in Courtney Creek. The Department will perform a reasonable potential analysis for chlorine toxicity based on the collected monitoring data after the initiation of discharge through Outfall 001. If the results of the reasonable potential analysis for chlorine indicate that the discharge is impacting the receiving stream, then the Department will establish chlorine limits and the permit will be re-opened and modified to include the necessary limits.

Temperature

As discussed earlier in this report, the facility does not discharge to Courtney Creek. When the permittee is allowed to discharge through Outfall 001, the permittee will be required to monitor the effluent temperature. The Department will perform a reasonable potential analysis for temperature based on the collected monitoring data. If the results of the reasonable potential analysis indicate that the discharge is impacting the receiving stream, then the Department will establish temperature limits and the permit will be re-opened and modified to include the necessary limits.

Mixing Zone and Zone of Immediate Dilution

The allowable mixing zone is that portion of Courtney Creek where the effluent mixes with 25 percent of the stream flow but in no case will extend farther than one fourth the width of the stream from the point of discharge and from a point ten feet upstream of the outfall to a point 50 feet downstream of the outfall. The Zone of Initial Dilution (ZID) is defined as that portion of the allowable mixing zone that is within two feet of the point of discharge.

The dilution available within the mixing zone is unknown. Without the dilution data, the Department cannot determine with certainty that this discharge complies with all water quality standards. Therefore, Schedule C includes a condition requiring the permittee to submit the results of a mixing zone study.

Outfall 002

The maximum flow to the treatment facility shall not exceed 0.002 Million Gallons per Day (MGD).

The influent to the treatment unit shall not exceed the following maximum concentrations:

Parameter	Limitation
BOD5	400 mg/L
TSS	200 mg/L
TKN	150 mg/L

All treated wastewater shall be disposed of through Outfall 002 to a drainfield in accordance with the following conditions so as to prevent:

- 1) Surfacing of wastewater on the ground surface, surface runoff or subsurface drainage through drainage tile.
- 2) The creation of odors, fly and mosquito breeding and other nuisance conditions.
- 3) The overloading of land with nutrients or organics.

The effluent from the treatment unit to the drainfield shall not exceed the following maximum concentrations:

Parameter	Limitation
BOD5	30 mg/L
TSS	30 mg/L

A condition has also been included that states that no activities shall be conducted that could cause an adverse impact on existing or potential beneficial uses of groundwater. All wastewater and process related residuals shall be managed and disposed in a manner that will prevent a violation of the Groundwater Quality Protection Rules (OAR 340-040).

Schedule B - Minimum Monitoring and Reporting Requirements

Schedule B describes the minimum monitoring and reporting necessary to demonstrate compliance with the conditions of this permit. The authority to require periodic reporting by permittees is included in ORS 468B.065(5). Self-monitoring requirements are the primary means of ensuring that permit limitations are being met. However, other parameters need to be monitored to collect information when insufficient information exists to establish a limit, but where there is potential for a water quality concern.

In 1988, the Department developed a monitoring matrix for commonly monitored parameters. The matrix was updated in 2004. Proposed monitoring frequencies for all parameters are based on this matrix and, in some cases, may have changed from the current permit. The proposed monitoring frequencies for all parameters correspond to those of facilities of similar size and complexity in the state.

The permittee is required to have a laboratory Quality Assurance/Quality Control program. The Department recognizes that some tests do not accurately reflect the performance of a treatment facility due to quality assurance/quality control problems. These tests should not be considered when evaluating the compliance of the facility with the permit limitations. Thus, the Department is also proposing to include in the opening paragraph of Schedule B a statement recognizing that some test results may be inaccurate, invalid, do not adequately represent the facility's performance and should not be used in calculations required by the permit.

Below is a discussion of the minimum monitoring requirements contained in the proposed permit:

Influent

Influent Grease and Oil was a requirement of the previous permit. This monitoring requirement was required when the gas station and convenience store included a Taco Bell and Subway restaurants. These restaurants have been closed. Therefore, the proposed permit will not contain the requirement to monitor for Grease and Oil. If any restaurant facilities become part of the overall system in the future, this permit may be reopened and the appropriate monitoring requirements for Oil and Grease will be added to the permit. Monitoring of the influent for pH will remain the same as the current permit and is required two times per week. Influent flow measurement is required daily.

Monitoring of the influent for BOD5 and TSS is retained at monthly when discharging.

Outfall 001

Daily monitoring of influent and effluent flow is required when discharging and flow calibration/verification is required annually.

Monitoring of the effluent for BOD5 and TSS is retained at monthly when discharging. Pounds of effluent BOD5 and TSS must be calculated at the same frequency.

Federal secondary treatment standards require municipal/domestic sources to achieve a specific BOD5 and TSS removal efficiency as a monthly average. Reporting of the removal efficiencies is required in the current permit and no changes are proposed.

The proposed permit requires bacteria monitoring of the effluent for E. coli bacteria once per month. Monitoring for E. coli must be performed in accordance with one of the methods approved by the Department.

Monitoring of the influent and effluent for pH will remain the same as the current permit and is required two times per week in accordance with the monitoring matrix.

Effluent temperature monitoring will be required at same frequency as pH at two per week in accordance with the monitoring matrix.

Effluent monitoring of residual chlorine and amount of chlorine used shall remain the same as the current permit as is required on a daily basis when discharging in accordance with the monitoring matrix.

Effluent ammonia nitrogen (NH₃-N) and nitrate + nitrite as nitrogen (NO₃+NO₂-N) shall remain at quarterly in accordance with the monitoring matrix.

Stream flow measurements must be obtained daily when discharging through Outfall 001. Measurement must be obtained from the approved gauge installed in accordance with Schedule C. The stream flow shall be reported daily as a running seven day average when discharging.

Outfall 002

Daily monitoring of effluent flow is required when discharging to the drainfield and flow calibration/verification is required annually.

Monitoring of the effluent for BOD₅, TSS, and NH₃-N, NO₃+NO₂-N is retained at quarterly.

Other Parameters

Inspection of Grease Traps shall remain the same and be done quarterly.

Tank inspection (Dosing, Septic and Recirculation) shall remain the same and be done annually.

Inspection the pump screens and testing the alarm systems shall remain the same and be done on a monthly basis.

Reporting Requirements

The reporting period is the calendar month. Discharge monitoring reports must be submitted to the Department monthly by the 15th day of the following month. The monitoring reports need to identify the principal operators designated by the Permittee to supervise the treatment and collection systems. The reports must also include records concerning transportation of biosolids and all applicable equipment breakdowns and bypassing.

Schedule B of the permit includes the requirement for the submittal of an annual report. The condition is a requirement stating that the maintenance practices, solids handling, and inspections shall be summarized and reported once per calendar year by January 15 of the following year.

Schedule C - Compliance Conditions

The proposed permit includes four compliance conditions with compliance deadlines. The requirements include:

Nine months prior to requesting Department authorization to discharge treated effluent to Courtney Creek, the permittee shall submit to the Department an approvable mixing zone study plan. The

plan shall include an approvable schedule for conducting a mixing zone study and submitting the results to the Department.

Six months prior to requesting Department authorization to discharge treated effluent to Courtney Creek, the permittee shall install an approved flow recording device that will accurately measure the real time flow of Courtney Creek in the vicinity of Outfall 001. Within thirty days of installation, the flow recording device shall be on line and accurately measuring the real time flow of Courtney Creek on a daily frequency.

By no later than six months after installation of the flow recording device, the permittee shall develop an approvable hydrographic discharge curve based on the real time flow in Courtney Creek and the treated effluent shall be discharged according to the hydrographic curve.

The final condition requires the permittee to meet the compliance dates established in this schedule or notify the Department within fourteen days following any lapsed compliance date.

Schedule D - Special Conditions

The proposed permit includes ten special conditions. The requirements include:

The permittee must have the facilities supervised by personnel certified by the Department in the operation of treatment and/or collection systems.

The proposed permit includes a condition in Schedule D that prohibits any adverse impact on groundwater quality.

An adequate contingency plan for prevention and handling of spills and unplanned discharges shall be in force at all times.

The permittee will not be required to perform a hydrogeologic characterization or groundwater monitoring during the term of this permit.

All sludge (biosolids or septage) shall be managed in accordance with the current management plan approved by the Department.

Access to the sand filter area shall be restricted and shall be kept vacant and free of vegetation, equipment, and any material or activity that would interfere with the operation of the system.

The disposal and replacement disposal areas shall not be subject to any activity that would adversely affect the soil or the functioning of the system.

A deep-rooted, permanent grass cover shall be maintained on the land disposal area at all times.

The permittee shall, during all times of disposal, provide personnel to assure the continuous performance of the disposal system within the limitations of this permit.

The permittee shall notify the Department in accordance with the response times noted in the General Conditions of this permit, on any malfunctions.

Schedule F, NPDES General Conditions

All NPDES permits issued in the State of Oregon contain certain conditions that remain the same regardless of the type of discharge and the activity causing the discharge. These conditions are called General Conditions. These conditions can be changed or modified only on a statewide basis. The July 2005 edition is included as Schedule F of the draft permit.

Section A contains standard conditions which include compliance with the permit, assessment of penalties, mitigation of noncompliance, permit renewal application, enforcement actions, toxic discharges, property rights and referenced rules and statutes. Section B contains requirements for operation and maintenance of the pollution control facilities. This section includes conditions for proper operation and maintenance, duty to halt or reduce activity in order to maintain compliance, bypass of treatment facilities, upset conditions, treatment of single operational events, overflows from wastewater conveyance systems and associated pump stations, public notification of effluent violation or overflow, and disposal of removed substances. Section C contains requirements for monitoring and reporting. This section includes conditions for representative sampling, flow measurement, monitoring procedures, penalties of tampering, reporting of monitoring results, additional monitoring by the permittee, averaging of measurements, retention of records, contents of records, and inspection and entry. Section D contains reporting requirements and includes conditions for reporting planned changes, anticipated noncompliance, permit transfers, progress on compliance schedules, noncompliance which may endanger public health or the environment, other non-compliances, and other information. Section D also contains signatory requirements and the consequences of falsifying reports. Section E contains the definitions used throughout the permit.

PERMIT PROCESSING/PUBLIC COMMENT/APEAL PROCESS

The beginning and end date of the public comment period to receive written comments regarding this permit, and the contact name and telephone number are included in the public notice. The permittee is the only party having standing to file a permit appeal. If the Permittee is dissatisfied with the conditions of the permit when issued, they may request a hearing before the EQC or its designated hearing officer, within 20 days of the final permit being mailed. The request for hearing must be sent to the Director of the Department. Any hearing held shall be conducted pursuant to regulations of the Department.