



## Permit Evaluation Report

Oregon Department of Environmental Quality  
 Salem Office  
 4026 Fairview Industrial Drive  
 Salem OR 97302

Contact: Robert Dicksa

<b>Permittee:</b>	H2O&S, Inc. PO Box 917 Depoe Bay, OR 97314
<b>Existing Permit Information:</b>	File Number: 41740 Permit Number: 101269 Expiration Date: December 31, 2007 EPA Reference Number: OR002635-2
<b>Source Contact:</b>	David Hinterreiter, (808) 275-5784 Title: Owner
<b>Site Location:</b>	Inn at Otter Crest Otter Rock Loop 1 Mile West of Hwy 101 Lincoln County
<b>LLID:</b>	1239400456524-99
<b>Receiving Stream/Basin:</b>	<i>Pacific Ocean</i> <i>Mid Coast Basin</i> <i>Siletz/Yaquina Subbasin</i>
<b>Proposed Action:</b>	Renew Permit Application Number: 974305 Date Received: July 3, 2007
<b>Source Category:</b>	NPDES Minor – Domestic
<b>Sources Covered:</b>	Treated Domestic Wastewater
<b>Permit Type:</b>	NPDES Domestic Da
<b>Permit Writer:</b>	Robert Dicksa Senior WQ Specialist/Western Region-Salem Office Date Prepared: November 18, 2014

## **Table of Contents**

<b>1.0</b>	<b>Introduction .....</b>	<b>3</b>
<b>2.0</b>	<b>Permit History .....</b>	<b>3</b>
2.1	Issuance, Renewal and Modifications.....	3
2.2	Compliance History .....	3
<b>3.0</b>	<b>Proposed Revisions to Permit.....</b>	<b>3</b>
<b>4.0</b>	<b>Facility description .....</b>	<b>4</b>
4.1	Wastewater Facilities Description .....	4
4.2	Outfalls.....	5
4.3	Sewage Collection System.....	5
4.4	Wastewater Solids.....	6
4.4.1	Septage.....	6
4.5	Stormwater .....	6
4.6	Groundwater .....	6
<b>5.0</b>	<b>Receiving Water .....</b>	<b>6</b>
5.1	Designated Uses.....	7
5.2	Ocean Discharge Findings .....	7
5.3	Mixing Zone Analysis.....	8
<b>6.0</b>	<b>Overview of permit development.....</b>	<b>9</b>
6.1	Types of Permit Limits .....	9
6.2	Existing Permit Limits .....	10
6.3	Anti-degradation .....	10
<b>7.0</b>	<b>Permit Draft Discussion .....</b>	<b>11</b>
7.1	Face Page .....	11
7.2	Schedule A – Waste Discharge Limits .....	11
7.3	Schedule B – Minimum Monitoring and Reporting Requirements .....	14
7.4	Schedule C - Compliance Conditions .....	15
7.4.1	De-chlorination .....	15
7.5	Schedule D - Special Conditions .....	15
7.5.1	Inflow and Infiltration.....	15
7.5.2	Emergency Response and Public Notification Plan.....	15
7.5.3	Biosolids Management Plan and Land Application Plan .....	15
7.5.4	Operator Certification .....	16
7.5.5	Exempt Wastewater Reuse at the Treatment System .....	16
7.5.6	Wastewater Solids Transfers.....	16
7.6	Schedule F - NPDES General Conditions .....	16
<b>8.0</b>	<b>Next Steps.....</b>	<b>17</b>
8.1	Public Comment Period .....	17
8.2	Response to Comments.....	17
8.3	Modifications to Permit Evaluation Report and Fact Sheet.....	17
8.4	8.4 Issuance.....	17
	<b>Attachment 1: Mixing Zone Analysis.....</b>	<b>18</b>
	<b>Attachment 2: Antidegradation Review .....</b>	<b>20</b>
	<b>Attachment 3: Operator Certification Worksheet.....</b>	<b>27</b>
	<b>Attachment 4: Reasonable Potential Analysis -pH.....</b>	<b>30</b>
	<b>Attachment 5: Reasonable Potential Analysis –Thermal Load.....</b>	<b>31</b>
	<b>Attachment 6: Reasonable Potential Analysis - Ammonia .....</b>	<b>32</b>
	<b>Attachment 7: Reasonable Potential Analysis - Chlorine .....</b>	<b>32</b>
	<b>Attachment 8: Chlorine Limits.....</b>	<b>33</b>

## **1.0 Introduction**

The Department of Environmental Quality (DEQ) proposes to renew the National Pollutant Discharge Elimination System (NPDES) wastewater permit for H2O&S, Inc., located at the Inn at Otter Crest in Otter Rock, Oregon. This permit allows and regulates the discharge of treated domestic wastewater to Pacific Ocean year around. The permit also authorizes H2O&S, Inc., to beneficially reuse wastewater solids.

The purpose of this permit evaluation report is to explain and provide justification for the permit.

The Federal Water Pollution Control Act of 1972 (also known as the Clean Water Act) and its subsequent amendments, as well as Oregon Revised Statutes (ORS 468B.050), require a NPDES permit for the discharge of wastewater to surface waters. This proposed permit action by DEQ complies with both federal and state requirements.

## **2.0 Permit History**

### **2.1 Issuance, Renewal and Modifications**

The current NPDES Permit expired on December 31, 2007. Two Permit Action Letters (PALs) were issued in 2003, for typographical errors in the original permit. DEQ received renewal application number 974305 from H2O&S, Inc., on July 3, 2007. Because the permittee submitted a renewal application to DEQ in a timely manner, the current permit will not expire until DEQ takes final action on the renewal application as per OAR 340-045-0040.

### **2.2 Compliance History**

The wastewater treatment plant was last inspected on February 3, 2015. No violations were noted during the inspection. The following violations have been documented since the last permit renewal:

<b>Violation Date</b>	<b>Description</b>	<b>Class of Violation</b>
September 2011	Failure to monitor as per Schedule B, Condition 1a. and 1b. of the NPDES permit.	Class I
October 2011	Failure to submit a timely report as per Schedule B, Condition 2a. of the NPDES permit.	Class II
June 2, 2010	Exceeding a Fecal Coliform Bacteria limit by less than 5 times the limit, as per Schedule A, Condition 1a(2) of the NPDES permit.	Class III
January 20 and 23, 2009	Exceeding a pH limit as per Schedule A of the NPDES permit.	Class III

H2O&S, Inc has resolved these past violations of non-compliance with the DEQ.

## **3.0 Proposed Revisions to Permit**

The proposed permit contains the following substantive changes from the 2003 permit:

- Schedule A – Fecal Coliform Bacteria limits will be in accordance with OAR 340-041-0009(1)(b) that states that a discharge to marine waters may not exceed a monthly median of 14 organisms per 100 mL with no more than ten percent of the samples exceeding 43 organisms per 100 mL. In addition, the federal Beach Act promulgated in 2008, requires monitoring requirements and effluent limits for Enterococci Bacteria. Therefore, the Schedule A limit for Enterococci Bacteria will not exceed a monthly geometric mean of 35 organisms per 100 mL, and no single sample may exceed 104 organisms per 100 mL.
- Schedule B – No Change from the previous permit
- Schedule C – A compliance schedule for de-chlorination will be included in the proposed permit
- Schedule D – Schedule D requirements will be updated in the proposed permit
- Schedule E – No Schedule E requirements will be included in the proposed permit

#### 4.0 **Facility description**

##### 4.1 **Wastewater Facilities Description**

H2O&S, Inc., operates the wastewater treatment facility located at the Inn at Otter Crest in Otter Rock, Oregon. Wastewater is treated and discharged to the Pacific Ocean at approximately mile 173 (See Figure 1).

**Figure 1: Facility Location**



The wastewater treatment facility was originally constructed and placed into operation in 1972. There have been no major plant expansions to date. The major treatment process is activated sludge with extended aeration. The plant consists on one extended aeration channel, one 41,000 gallon aerobic digester, a 12,000 gallon aerobic batch tank, a 55,000 gallon clarifier, a chlorine contact chamber and the ocean outfall. Plant influent flows through a manually raked bar screen prior to flowing over a flat wire-mesh screen; receives secondary treatment in a single unit aeration basin with submerged diffuser air. Diffused air is provided by a single positive displacement blower. Mixed liquor flows to a secondary clarifier, then to the chlorine contact basin for disinfection using chlorine gas. Clarifier

underflow is pumped with an airlift pump to a single unit aerobic digester. Biosolids are removed 2-3 times per year and land applied on DEQ approved agricultural land. The treated effluent is pumped to a remote outfall located in the surf on the Pacific Ocean just south of Cape Fowlweather in a remote area with virtually no public access. The plant serves the Inn at Otter Crest lodge, restaurant, and recreational facilities, and a small residential subdivision (Seacrest). Collection system pump stations serve the lodge and Seacrest subdivision.

#### 4.2 Outfalls

All wastewater discharged from the wastewater treatment plant is discharged through Outfall 001 to the Pacific Ocean. The outfall pipeline conveys treated effluent from the plant down the hillside to a cliff overlooking the beach. The pipeline then extends down the cliff to a cemented distribution structure that holds the outfall in place on the beach at ocean mile 173. Mixing occurs in the turbulent surf and the mixing zone is defined as that portion of the Pacific Ocean within a one hundred (100) foot radius of the distribution structure and the ZID is defined as a 50 foot radius from the end of the distribution structure.

#### 4.3 Sewage Collection System

Sewage collection systems are designed to collect and transport raw sewage from residences and businesses to the wastewater treatment facility. H2S&O, Inc., has a collection system that serves the Inn at Otter Crest and the Seacrest subdivision. The collection system was placed into operation in 1972 at the same time as the treatment facility. As collection systems age, the pipes develop cracks, allowing the infiltration of groundwater. Stormwater may also enter the system. Though no longer allowed under current plumbing codes, in the past it was common to connect stormwater drains directly to sewers. The entry of groundwater and stormwater into the collection system is known as infiltration and inflow, or I/I for short.

When a collections system experiences excessive I/I, most of the flow that makes it to the treatment plant may in fact be stormwater or groundwater that by itself does not require treatment. This can result in the following:

- Overflows from the sanitary sewer system when it rains. These are referred to as SSOs (sanitary sewer overflows).
- The release of untreated or partially treated sewage from all or a portion of the treatment plant. Such a release is termed a bypass. Bypasses may be necessary to avoid damaging the plant.
- Both bypasses and SSOs pose risks to the public and the environment, and therefore EPA requires that all domestic permits issued by DEQ prohibit them (Schedule F, sections B.3 and B.6).
- Increased operation and maintenance costs.

The dry weather flows do not normally include the high levels of infiltration and inflow that are associated with the winter in Oregon. The ratio of wet weather to dry weather flows measured at the treatment plant is an indication of how much I/I is occurring in the collection system. The facility data was evaluated for the last three years. The average daily dry weather flow during the summer period was 0.023 MGD. The average maximum month wet weather flow during the winter period was 0.039 MGD. The ratio of winter average maximum month flow to the summer average dry weather flow equals a peaking factor of 1.7. In western Oregon a peaking factor of 3 is an indication that a facility is experiencing I/I in the system.

DEQ recognizes that it is not practical to attempt to build and operate treatment plants and collection systems so as to eliminate any and all bypasses or overflows, and that at some point, attempts to do so

represent a poor investment of public funds. Therefore, DEQ is interested in encouraging facilities to reduce the rate at which SSOs and bypasses occur. To this end, the permit requires the following:

- The facility has a program to reduce I/I and submit a progress report on an annual basis. The proposed permit will continue to have this requirement (**See Schedule D**).
- The permittee must develop and maintain an emergency response and public notification plan to cover bypass and SSO events (Schedule F, sections B.7 and B.8)

The permittee must report all SSOs and bypasses (Schedule F, sections B.6, B.7 and B.8).

#### **4.4 Wastewater Solids**

The purpose of this section is to describe and document how wastewater solids are handled in the treatment plant. The term wastewater solid includes sewage sludge and biosolids. Sewage sludge refers to solids from primary, secondary, or advanced treatment of domestic wastewater that have not been treated or determined to be suitable for land application as fertilizer or soil amendment. The term biosolids refers to domestic wastewater treatment facility solids that have undergone adequate treatment and are suitable for application to the land as a fertilizer or soil amendment.

The permittee has a DEQ approved Biosolids Management Plan. All waste sludge must be managed in accordance with the DEQ approved Biosolids Management Plan to ensure compliance with the federal biosolids regulations (40 CFR Part 503). After treatment necessary to comply with vector attraction and pathogen reduction requirements, the Class B biosolids are beneficially land applied on approved sites in Lincoln County. Any future land application sites must conform to the site selection criteria in the Biosolids Management Plan and be approved by a DEQ biosolids coordinator. Annually, the permit holder produces approximately 27,500 gallons of sewage sludge from primary and secondary wastewater treatment for beneficial land application and/or disposal.

##### **4.4.1 Septage**

The facility no longer accepts septic tank or portable toilet waste and the permit prohibits such wastes.

#### **4.5 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 1 MGD.

#### **4.6 Groundwater**

Based on DEQs current information, this facility has a low potential for adversely impacting groundwater quality. Therefore, Schedule D of the proposed permit states that no groundwater evaluations will be required during this permit cycle. The permit also includes a condition in Schedule A that prohibits any adverse impact on groundwater quality.

### **5.0 Receiving Water**

The facility discharges through Outfall 001 to the Pacific Ocean at ocean mile 173. This part of the Pacific Ocean is termed the Territorial Seas of the State of Oregon. This region comprises the seabed and waters within 3 geographical miles of the Oregon coast. The near-shore and coast in the vicinity of the H2O&S, Inc. Outfall are rocky shore areas that were formed by the erosive forces of the ocean on the coastal mountains.

## 5.1 Designated Uses

Under the Clean Water Act, DEQ is required to identify the beneficial uses of every waterbody in Oregon. The intent of this requirement is to insure that the water quality standards DEQ develops are consistent with how the waterbody is used. Permits issued by DEQ must in turn reflect the water quality standards that apply to the basin in which permits are issued.

The following beneficial uses have been identified for the Pacific Ocean in the Mid-Coast Basin:

- industrial water supply,
- fish and aquatic life,
- wildlife and hunting,
- fishing,
- boating,
- water contact recreation,
- aesthetic quality, and
- commercial navigation and transportation

The marine waters in the Mid-Coast Basin are not designated for spawning, rearing, or migration. This section of the Pacific Ocean is not water quality limited and not on the 303(d) List for any parameters.

## 5.2 Ocean Discharge Findings

Goals 6 and 19 of Oregon's Statewide Planning Goals and Guidelines and Oregon's Territorial Sea Plan require that the State's marine resources be conserved. Federal rules (CFR125.120-45CFR.124) require that a discharge into territorial seas that is to be permitted under the NPDES permit program be evaluated as to whether it will cause unreasonable degradation of the marine environment.

In January 2011, DEQ required H2O&S, Inc., to provide an assessment and findings for both Goals 6 and 19 to satisfy the federal rules and Oregon's Territorial Sea Plan. H2O&S, Inc., provided this information in March 2011. The findings of the assessment determined that the discharge from the H2O&S, Inc., wastewater treatment facility will not cause unreasonable degradation of the marine environment. Full text of these findings can be viewed at the Salem DEQ office upon request.

The proposed permit includes effluent limits based on both fecal Coliform and Enterococci bacteria. Since the discharge is to marine waters, Oregon Administrative Rule 340-041-0009(1)(b) establishes a numeric criteria of 14 fecal coliform organisms per 100 mL, with not more than ten percent of the samples exceeding 43 organisms per 100 mL.

The USEPA promulgated the Beach Act in Oregon on December 16, 2004, which established an additional standard for Coastal Recreation Waters. The applicable standard to protect this use is a geometric mean of not more than 35 organisms per 100 mL of Enterococci bacteria.

OAR Chapter 340 Division 041 Section 0009 also contains requirements regarding sewer overflows. These requirements are addressed in Schedule F (General Conditions) of the proposed permit. Regarding the general condition 6 found in Section B of Schedule F in this permit which prohibits overflows from wastewater conveyance systems, the Environmental Quality Commission (EQC) recognizes that it is impossible to design and construct a conveyance system that will prevent overflows under all storm conditions. The applicant is not seeking permit coverage for overflows and the permit does not authorize such discharges. The State of Oregon has determined that all wastewater conveyance systems

should be designed to transport storm events up to a specific size to the treatment facility. Therefore, in exercising its enforcement discretion regarding Sanitary Sewer Overflows (SSOs), the DEQ will consider the following:

- (1) Whether the permittee has conveyance and treatment facilities adequate to prevent overflows except during a storm event greater than the one-in-five-year, 24-hour duration storm from November 1 through May 21 and except during a storm event greater than the one-in-ten-year, 24-hour duration storm from May 22 through October 31. In addition, DEQ will also consider using enforcement discretion for overflows that occur during a storm event less than the one-in-five-year, 24-hour duration storm from November 1 through May 21 if the permittee had separate sanitary and storm sewers on January 10, 1996, had experienced sanitary sewer overflows due to inflow and infiltration problems, and has submitted and acceptable plan to the DEQ to address these sanitary sewer overflows by January 1, 2010;
- (2) Whether the permittee has provided the highest and best practicable treatment and/or control of wastes, activities, and flows and has properly operated the conveyance and treatment facilities;
- (3) Whether the permittee has minimized the potential environmental and public health impacts from the overflow; and,
- (4) Whether the permittee has properly maintained the capacity of the conveyance system.

DEQ will review the permittee's determination of the one-in-five-year, 24-hour duration winter storm and the one-in-ten-year, 24-hour duration summer storm as described above in the permit holder's facilities plan. In the event that a permit holder reports an overflow event associated with a storm event and DEQ does not have information from the permit holder sufficient to determine whether or not the storm event exceeds storm events as specified in OAR 341-041-0009(6) & (7), DEQ will perform the determination using the information contained in Figure 26 or the 1973 NOAA Atlas 2 entitled "Precipitation-Frequency Atlas of the Western United States, Volume X- Oregon". This figure is entitled "Isopluvials of 5-year h4-hr precipitation tenths of an inch". The Atlas can be obtained on line at [http://hdsc.nws.noaa.gov/hdsx/pfds/other/or\\_pfds.html](http://hdsc.nws.noaa.gov/hdsx/pfds/other/or_pfds.html), however, the files is very large. A scanned version of Figure 26 is available at: <http://www.wree.dri.edu/pcpnfreq/or5yr24.gif>. DEQ will compare the information in this figure with rainfall data available from the National Weather Service, or other source as necessary.

### **5.3 Mixing Zone Analysis**

Permits issued by DEQ sometimes specify mixing zones. Also known as "allocated impact zones" or "regulatory mixing zones", mixing zones are allowed under both state and federal regulation. They are areas in the vicinity of outfalls in which all or some of Oregon's water quality standards can be suspended. DEQ allows mixing zones when the overall impact, evaluated with respect to Oregon's Mixing Zone Rule (OAR 340-041-0053) appears to be negligible.

Two mixing zones can be developed for each discharge: 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 ZID is a small area where acute criteria can be exceeded as long as it does not cause acute toxicity to organisms drifting through it. The mixing zone is an area where acute criteria must be met but chronic criteria can be exceeded. It must be designed to protect the integrity of the entire water body.

The current permit for H2O&S, Inc., specifies a mixing zone as follows:

The allowable mixing zone for this outfall is defined as that portion of the Pacific Ocean within a one hundred (100) foot radius of the distribution piping and the ZID is defined as a 50 foot radius from the end of the distribution piping.

DEQ conducted a mixing zone analysis for the H2O&S Inc., discharge to the Pacific Ocean. The analysis consisted of using the mixing zone model CORMIX v8.0 to simulate the discharge into the surf zone. The estimated dilution at the edge of the 50 zone of initial dilution is 30:1 and at the edge of the 100 foot mixing zone the dilution is 51:1. For more detailed information regarding the mixing zone analysis please see **Attachment 1** of this evaluation report.

DEQ proposes to retain the existing mixing zone and ZID in the proposed permit renewal for H2O&S, Inc.

## **6.0 Overview of permit development**

### **6.1 Types of Permit Limits**

Effluent limitations serve as the primary mechanism in NPDES permits for controlling discharges of pollutants to receiving waters. Effluent limitations can be based on either the technology available to control the pollutants or limits that are protective of the water quality standards for the receiving water. These two types of permit limits are referred to as technology-based effluent limitations (TBELs) and water quality-based effluent limits (WQBELs) respectively. When a TBEL is not restrictive enough to protect the receiving stream, a WQBEL must be placed in the permit. More explanation of each is provided below.

- **TBELs:**
  - The intent of TBELs is to require a minimum level of treatment of pollutants based on available treatment technologies, while allowing the discharger to use any available control technique to meet the limits
  - TBELs for domestic treatment plants, also known as federal secondary treatment standards have been developed for the following parameters: biochemical oxygen demand measured over 5 days (BOD5), total suspended solids (TSS) and pH. These are found in the Code of Federal of Federal Regulations (CFR) and are known as secondary treatment standards. The CFR also allows special considerations and exceptions to these standards for certain circumstances and types of treatment facilities such as lagoons.
  - Oregon is unique in that it has minimum design criteria for BOD and TSS that are only applicable to sewage treatment plants. These design criteria vary by watershed basin and were developed to protect water quality in their respective basins. These are often times more stringent than the federal secondary treatment standards. When this is the case, the basin standards supersede the federal standards.
- **WQBELs:**
  - The intent of WQBELs is to ensure the water quality standards of a receiving stream are met. The water quality standards are developed to protect the beneficial uses of the receiving stream such as swimming and fishing. In many cases TBELs are not restrictive enough to ensure the receiving stream meets water quality standards. In these cases, WQBELs need to be established to protect the receiving stream.

TBELs are likely to be the most stringent if the receiving stream is large relative to the discharge, and WQBELs are likely to be the most stringent when the receiving stream is small or does not meet water quality standards.

In some cases, both a TBEL and a WQBEL will be developed for a particular parameter. Permit writers must include the more stringent of the two in the permit.

Permit limits for bacteria are WQBELs when they are derived from the water quality standards found in OAR 340-041-0009 for freshwater, marine, and estuarine waters or 40 CFR § 131.41 for coastal recreation waters. Bacteria limits are designed to protect human health when swimming or eating shellfish. Note: When enforcing permit limits, the DEQ categorizes bacteria exceedances in OAR 340-012 as technology-based effluent limitation violations because bacteria violations are typically due to the failure of disinfection equipment.

Each time a permit is renewed, the permit writer evaluates the existing limits to see if they need to be modified as a result of changes to technology based standards or water quality standards that may have occurred during the permit term. Anti-backsliding provisions (described in CFR 122.44(l)) generally do not allow relaxation of effluent limits in renewed/reissued permits. The more stringent of the existing or new limits must be included in the renewal permit.

## 6.2 Existing Permit Limits

The existing permit limits are as follows:

Treated Effluent Outfall 001

Year Round

Parameter	Average Effluent Concentrations		Monthly* Average lb/day	Weekly* Average lb/day	Daily* Maximum lbs
	Monthly	Weekly			
BOD <sub>5</sub>	30 mg/L	45 mg/L	56	84	110
TSS	30 mg/L	45 mg/L	56	84	110

Other parameters	Limitations
Fecal Bacteria	Shall not exceed 126 organisms per 100 mL monthly geometric mean. No single sample shall exceed 406 organisms per 100 mL.
pH	Shall be within the range of 6.0 – 9.0
BOD <sub>5</sub> and TSS Removal Efficiency	Shall not be less than 85% monthly average for BOD <sub>5</sub> and 85% monthly for TSS.

## 6.3 Anti-degradation

As part of renewing a permit, DEQ must demonstrate that the discharge does not lower water quality from the existing condition. DEQ is required to make this demonstration as required under Oregon’s Anti-Degradation Policy for Surface Waters found in OAR 340-041-0004.

DEQ has performed an antidegradation review for this discharge. The proposed permit contains the same discharge loadings as the existing permit. Permit renewals with the same discharge loadings as the previous permit are not considered to lower water quality from the existing condition. DEQ is not aware of any information that existing limits are not protective of the designated beneficial uses listed in Section 5.1. These uses are very broad and include fish and aquatic life, fishing, boating, and water contact recreation. DEQ is also not aware of any existing uses present within the waterbody that are not currently protected by standards developed to protect the designated uses. Therefore, DEQ has determined that the proposed discharge complies with DEQ’s Antidegradation policy (**See Attachment 2 Antidegradation Review Worksheet**).

**7.0 Permit Draft Discussion**

**7.1 Face Page**

The face page provides information about the permittee, description of the wastewater, outfall locations, receiving stream information, permit approval authority, and a description of permitted activities. The permit allows discharge to the Pacific Ocean within limits set by Schedule A and the following schedules. It prohibits all other discharges.

In accordance with state and federal law, NPDES permits will be effective for a fixed term not to exceed 5 years. Upon issuance, this permit will be effective for no more than 5 years.

DEQ evaluated the classifications for the treatment and collection systems (**See Attachment 3**). The treatment system is considered a Class II system and the collection system is considered a Class II system. DEQ is not proposing any changes to the system classifications.

**7.2 Schedule A – Waste Discharge Limits**

The proposed effluent limits for Outfall 001 are as follows:

**1. Outfall 001 - Treated Effluent**

- a. BOD<sub>5</sub>,and TSS, Year Round:

**BOD<sub>5</sub> and TSS Limits**

Parameter	Average Effluent Concentrations, mg/L		Monthly Average lbs/day	Weekly Average lbs/day	Daily Maximum lbs
	Monthly	Weekly			
BOD <sub>5</sub>	30 mg/L	45 mg/L	56	84	110
TSS	30 mg/L	45 mg/L	56	84	110

The following equation is used to develop the monthly average mass load:

$$\text{Monthly Avg. Mass Load} = \text{POTW design flow} \times \text{Conc.-based limit} \times \text{Conversion factor}$$

The weekly average and maximum daily mass loads are developed from the monthly average by multiplying by 1.5 and 2 respectively.

H2O& S, Inc., mass load limits for BOD<sub>5</sub> and TSS are based on the flow of 0.225 MGD and a concentration of 30 mg/L. The calculations are:

$$\text{Monthly Average: } 0.225 \text{ MGD} \times 30 \text{ mg/L} \times 8.34 = 56.3 \text{ lbs/day rounded off to } 56 \text{ lbs/day}$$

Weekly Average: 56 lbs/day monthly average x 1.5 = 84 lbs/day

Daily Maximum: 56 lbs/day monthly x 2 = 112 lbs/day rounded off to 110 lbs/day

All mass load limitations are again rounded to two significant figures, consistent with the number of significant figures associated with flow measurements with this facility, and with the accuracy of BOD measurements of 10 or greater.

- b. Additional Parameters. Permittee must comply with the limits in the following table (year round except as noted):

**Limits for Additional Parameters**

<b>Year-round (except as noted)</b>	<b>Limits</b>
BOD <sub>5</sub> and TSS Removal Efficiency	May not be less than 85% monthly average for BOD <sub>5</sub> and TSS
Fecal Coliform Bacteria	May not exceed a median of 14 organisms per 100 mL with no more than ten percent of the samples exceeding 43 organisms per 100 mL
Enterococci Bacteria	May not exceed a monthly geometric mean of 35 organisms per 100 mL and no single sample may exceed 104 organisms per 100 mL
pH	May not be outside the range of 6.0 to 9.0 S.U.
Total Residual Chlorine	Monthly average concentration may not exceed 0.15 mg/L. Daily maximum concentration may not exceed 0.39 mg/L

**7.2.1.1 General Discussion of Reasonable Potential Analysis**

EPA has developed a methodology called Reasonable Potential Analysis (RPA) for determining if there is a reasonable potential for a discharge to cause or contribute to violations of water quality standards for a particular parameter. It takes into account effluent variability, available dilution (if applicable), receiving stream water quality and water quality standards for the protection of aquatic life and human health. If the RPA results indicate that there is a potential for the discharge to cause or contribute to exceedances of water quality standards, the methodology is then used to establish permit limits that will not cause or contribute to violations of water quality standards.

DEQ has adopted EPA’s methodology for RPA, and has developed spreadsheets that incorporate this analysis.

The parameters for which a RPA must be performed will vary with the size and type of discharge. They are listed in the NPDES Permit Testing Requirements for Publicly Owned Treatment Works contained in Appendix J of 40 CFR Part 122. The relevant sections are reproduced below.

**7.2.1.2 Reasonable Potential Analysis for pH**

The pH of water is a measure of how acidic or basic a solution is. At a pH of 7.0, the solution is considered neutral. Most aquatic organisms can tolerate a fairly narrow range around 7.0. The federal secondary treatment standards for sewage treatment facilities include pH permit limits of 6.0 to 9.0 s.u. The Mid-Coast Basin water quality standard for pH is found in OAR 340-041-0225(1)(a). For marine

waters the lower and upper criteria are 7.0 s.u. to 8.5 s.u. The water quality standard for pH does not have to be met within a permittee's mixing zone.

DEQ evaluated the potential pH of the mixed water at the edge of the mixing zone based on a discharge with pH values equivalent to the TBELs of 6.0 and 9.0 s.u. **(See Attachment 4).**

As indicated above, the applicable basin standard for H2O&S Inc., discharge to the Pacific Ocean is 7.0 s.u. to 8.5 s.u. The federal secondary treatment standards allow H2O&S Inc., to discharge effluent with pH between 6.0 and 9.0. Dilution within the mixing zone will ensure that the standard is met at the edge of the mixing zone. The proposed limits are 6.0 to 9.0.

#### ***7.2.1.3 Reasonable Potential Analysis for Temperature***

Water temperatures affect the life cycles of aquatic species and are a critical factor in maintaining and restoring healthy salmonid populations. The purpose of the temperature criteria in OAR 340-041-0028 is to protect designated, temperature-sensitive beneficial uses (including salmonid life cycle stages) from adverse warming caused by human activities.

Oregon Administrative Rule (OAR) 340-041-0028(7) limit the warming of ocean waters to 0.3 °C or less. DEQ did a RPA for the potential effects of the H2O&S Inc., effluent on the temperature of the receiving waters using the Mixing Zone dilution derived from the mixing zone analysis, ambient and effluent temperatures, the average dry weather design flow for the facility, and the allowable increase of 0.3 °C. The results of the RPA indicate that there is no potential for exceedance of the temperature at the edge of the mixing zone. Based on this result, the permit does not contain a permit limit for temperature **(See Attachment 5).**

#### ***7.2.1.4 Reasonable Potential Analysis for Ammonia***

Water quality criteria for ammonia vary with pH and temperature. DEQ performed a Reasonable Potential Analysis (RPA) for the effects of the effluent on ammonia concentrations in the receiving waters using the Mixing Zone and ZID dilution ratios. DEQ used the 90<sup>th</sup> percentile of the reported effluent pH value and the maximum effluent temperature value to perform the RPA which produced the strictest ammonia criteria. The results of the RPA for ammonia indicate that there is no reasonable potential for the discharge to cause or contribute to exceedances of the water quality criteria for ammonia. Based on these results, the permit will not contain a permit limit for ammonia **(See Attachment 6).**

#### ***7.2.1.5 Reasonable Potential Analysis for Chlorine***

The salt water criteria for chlorine were used to calculate permit limitations. According to OAR 340-041, Table 33A, chlorine concentrations of 7.5 µg/L can result in chronic toxicity in salt water while 13 µg/L can result in acute chlorine toxicity in salt water. Compliance with acute toxicity criteria is required at the edge of the Zone of Initial Dilution (ZID) and compliance with chronic toxicity criteria is required at the edge of the mixing zone (MZ).

DEQ performed a RPA for the effects of chlorine concentrations in the receiving waters using the Mixing Zone and ZID dilution ratios. The results of the RPA for chlorine indicate that there is reasonable potential for the discharge to cause or contribute to exceedances of the water quality criteria for chlorine **(See Attachment 7).** Based on these results, the permit will contain a permit limit for chlorine of 0.15 mg/L monthly average and 0.39mg/L daily maximum **(See Attachment 8).**

The permittee will not be able to comply with the chlorine permit limits without using de-chlorination facilities or another type of disinfection. Schedule C of the proposed permit will require the permittee to meet a schedule to install approved de-chlorination facilities or other type of approved facilities to comply with the chlorine limit in the permit.

## **Bacteria**

The proposed limits are based on the fecal coliform standard contained in OAR 340-041-0009(1)(b). The proposed limits are a monthly median concentration of 14 organisms per 100 milliliters, with not more than ten percent of the samples exceeding 43 organisms per 100 ml.

On December 16, 2004, the US EPA promulgated the Beach Act in Oregon, which established an additional standard for coastal recreation waters (40 CFR 131.41). The applicable standard to protect this use is a monthly geometric mean of not more than 35 organisms per 100 ml for Enterococcus bacteria.

### **7.3 Schedule B – Minimum Monitoring and Reporting Requirements**

Section 1 of Schedule B describes monitoring and reporting protocols for the permit and includes the following:

- a. Quality Assurance and Quality Control (QA/QC)
- b. Re-analysis and Re-sampling if QA/QC Requirements Not Met
- c. Reporting Procedures

Schedule B also 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 468.065(5). Self-monitoring requirements are the primary means of ensuring that permit limits are being met. Other parameters may also need to be monitored when insufficient data exist to establish a limit, but where there is a potential for a water quality concern.

DEQ has developed monitoring and reporting matrices that establish monitoring and reporting frequencies based on the size and complexity of the facility. These matrices maybe found at:

<http://www.deq.state.or.us/wq/wqpermit/docs/TemplateGuidance/MonMatrix.pdf>

<http://www.deq.state.or.us/wq/wqpermit/docs/ReportingMatrix.pdf>

These matrices were used to establish the monitoring and reporting requirements for H2O&S Inc.

In addition to monitoring and reporting requirements, Schedule B includes the following:

- Requirements to develop and implement a Quality Assurance/Quality Control (QA/QC) program
- What to do if QA/QC requirements are not met.
- Requirements pertaining to reporting procedures. These include:
  - The correct use of significant figures
  - Calculating and reporting mass loads.

## **Monitoring requirements:**

### **Influent and Effluent Monitoring**

This is a list of the parameters to be monitored on a regular basis in the influent and effluent, along with associated monitoring frequencies, sample types and related reporting requirements.

### **Biosolids Monitoring Requirements and Monitoring Frequency**

This is a list of the monitoring requirements that pertain to biosolids, consistent with OAR 340-050-0035. Specific details on how and where biosolids monitoring will be conducted provided in the Biosolids Management Plan.

In addition to biosolids monitoring at the treatment facility, the facility is required to maintain records on the land application of biosolids. Records must be sufficient to demonstrate that biosolids were applied within agronomic loading rates and following required site management practices. The permit requires the permittee to record the date, quantity, and location of biosolids applied to the land on a site map or electronic GIS system.

### **Reporting Requirements and Due Dates**

This is a summary, for the convenience of the permit holder, the information contained in the previously-listed tables.

### **Effluent Monitoring Required for NPDES Permit Application**

This is a list of parameters for which monitoring data is required for the renewal of this permit.

#### **7.4 Schedule C - Compliance Conditions**

##### ***7.4.1 De-chlorination***

By no later than September 1, 2015, the permittee shall submit to DEQ approvable plans for installation of a de-chlorination system at the wastewater treatment facility to comply with the chlorine limits in the permit. By no later than October 1, 2015, the permittee shall complete construction of the de-chlorination system at the wastewater treatment facility. By no later than December 1, 2015, the de-chlorination system shall be operating and the permittee complying with the chlorine limits in the permit.

#### **7.5 Schedule D - Special Conditions**

##### ***7.5.1 Inflow and Infiltration***

As described in Section 4.3 on the sewage collection system, it is important for the permit holder to assess and take steps to reduce the rate of infiltration and inflow of stormwater and groundwater into the sewer system. Consistent with this, Schedule D of the permit requires the permit holder to undertake activities to track and reduce I/I in the sewer system.

##### ***7.5.2 Emergency Response and Public Notification Plan***

Domestic wastewater treatment facilities are required, under General Condition B.8. in Schedule F, to have an Emergency Response and Public Notification Plan.

##### ***7.5.3 Biosolids Management Plan and Land Application Plan***

Conditions requiring the permit holder to develop and maintain a biosolids management plan and land application plan are provided in Schedule D. The biosolids management plan and the land application plan must meet the requirements in OAR 340-050-0031 and describe where and how the land application of biosolids is managed to protect public health and the environment.

The land application plan includes all sites authorized by DEQ for land application of Class B biosolids and described in individual, DEQ-issued site authorization letters. During permit renewal, all previously authorized biosolids land application sites are available for public comment with the biosolids management plan and land application plan. During the term of the permit, DEQ-initiated public notice of previously authorized sites identified in the land application plan is not required.

When the permit holder needs a new land application site, the permit holder is responsible for getting authorization from DEQ as well as notifying neighbors and providing them with an opportunity to comment. Any proposed new site must meet the site selection and site management criteria described in the land application plan. DEQ-initiated public notice will be provided for any new site that does not meet these criteria and/or that DEQ considers sensitive with respect to residential housing, runoff potential, and/or threat to groundwater.

#### *7.5.4 Operator Certification*

The permit holder is required to have a certified operator consistent with the size and type of treatment plant covered by the permit. The language in this section of the permit describes the requirements relating to operator certification. An updated copy of the wastewater classification worksheet for H2O&S Inc., is included as **Attachment 3**.

#### *7.5.5 Exempt Wastewater Reuse at the Treatment System*

Schedule D exempts the permit holder from the recycled water requirements in OAR 340-055, when recycled water is used for landscape irrigation at the treatment facility or for in-plant processes, such as in plant maintenance activities. Landscape irrigation includes water applied to small-scale irrigation such as supplying supplemental irrigation to turf grass, shrubs, and ornamental trees. Landscape irrigation may include the irrigation of native vegetation along dikes, banks, and earthen impounds around wastewater lagoons—especially as needed to reduce erosion and maintain structural integrity. Landscape irrigation does not include large-scale of pasture, hayfields, or native vegetation adjacent to wastewater treatment facility (i.e., these activities are subject to OAR 340-055 and require development of a recycled water use plan). All of the conditions listed in (6)(i) through (6)(iv), Schedule D of the permit must be satisfied for an exempt use to be valid.

#### *7.5.6 Wastewater Solids Transfers*

The permit allows the facility to transfer treated or untreated wastewater solids to other in-state or out-of-state facilities that are permitted to accept the wastewater solids. The permittee is required to monitor, report, and dispose of solids as required by the permit of the receiving facility. Wastewater solids that are transferred out-of-state must meet all requirements for the use of disposal or wastewater solids as required by both Oregon and the receiving state.

### *7.6 Schedule F - NPDES General Conditions*

These conditions are standard to all domestic NPDES permits and include language regarding operation and maintenance of facilities, monitoring and record keeping, and reporting requirements. The General Conditions for all individual permits issued by DEQ were substantially revised in August 2009. Minor modifications have been made since then. A summary of the changes is as follows:

- There are additional citations to the federal Clean Water Act and CFR, including references to standards for sewage sludge use or disposal.
- There is additional language regarding federal penalties.

- Bypass language has been made consistent with the Code of Federal Regulations and with other EPA Region 10 states.
- Requirements regarding emergency response and public notification plans have been made more explicit.
- Language pertaining to duty to provide information has been made more explicit.
- Confidentiality of information is addressed.

## **8.0 Next Steps**

### **8.1 Public Comment Period**

The proposed NPDES permit will be made available for public comment for 35 days. Public notice and links to the proposed permit will be posted on DEQ's website, and sent to subscribers to DEQ's pertinent public notice e-mail lists. A Public Hearing will be scheduled if requested by 10 or more people, or by an authorized person representing an organization of at least 10 people. If a public hearing is to be held, then an additional public notice would be published to advertise the public hearing.

### **8.2 Response to Comments**

DEQ will respond to comments received during the comment period. All those providing comment will receive a copy of DEQ's response. Interested parties may also request a copy of DEQ's response. Once comments are received and evaluated, DEQ will decide whether to issue the permit as proposed, to make changes to the permit, or to deny the permit. DEQ will notify the permittee of DEQ's decision.

### **8.3 Modifications to Permit Evaluation Report and Fact Sheet**

Depending on the nature of the comments and any changes made to the permit as result of comments, DEQ may modify this permit evaluation report and fact sheet. DEQ may also choose to update the permit evaluation report and fact sheet through memorandum or addendum. If substantive changes are made to the permit, then an additional round of public comment may occur.

### **8.4 8.4 Issuance**

The DEQ mails the finalized, signed permit to the permittee. The permit is effective 20 days from the mailing date.

## Attachment 1: Mixing Zone Analysis

---

### Memorandum

**To:** Inn at Otter Crest file

**Date:** January 9, 2015

**From:** Steve Schnurbusch

**Subject:** Mixing Zone Analysis

#### Executive Summary

I conducted a mixing zone analysis for the Inn at Otter Crest discharge to the Pacific Ocean. The analysis consisted of using the mixing zone model CORMIX v8.0 to simulate the discharge into the surf zone. The estimate dilution at the edge of the 50 foot zone of initial dilution is 30 and at the edge of the 100 foot mixing zone the dilution is 51.

#### Background

The Inn at Otter Crest discharges domestic wastewater to the Pacific Ocean. The discharge rate is very low with a maximum monthly average of about 40,000 gallons per day. The discharge pipe ends at the bottom of a steep cliff below the Otter Crest property where it discharges into the turbulent surf. Access is very limited and is not a safe location for doing any mixing zone field data collection. Assumptions needed to be made about the ambient conditions due to the inability to collect any field data. These assumptions are explained below.

#### Effluent, Ambient and Outfall Data

Effluent data needed for the analysis include effluent flow and temperature. The maximum monthly effluent flow was about 40,000 gallons per day. The effluent temperature was assumed to be 15°C.

For the ambient data, the model needs discharge depth, velocity and water density. The discharge depth will change due to tidal variation. For modeling purposes, I assumed a worst-case ambient depth of one foot. This would likely only occur under very low tidal conditions and most of the time the depth would be much deeper. The velocity is very difficult to estimate considering the ever-changing wave and tidal dynamics at the location of the outfall. An educated estimate of 1 foot per second was used. The water density was assumed to be that of ocean water.

The outfall is a single pipe anchored by a concrete block sitting on the ocean floor. CORMIX has limitations on the location of the pipe within the vertical profile. It assumes a deep outfall at least two thirds the depth of the water and won't run simulations if this criteria is not met. Since the assumed depth was only 1 foot, I assumed at pipe diameter of 4 inches in order to meet this requirement.

### **Analysis and Results**

I used CORMIX v8.0 to simulate the discharge. This model or any other mixing zone model is not designed to simulate a discharge into the turbulent surf zone. Mixing zone models are designed to simulate steady state conditions not like those experiences in the surf zone. However, CORMIX can be used to provide a reasonable, conservative estimate of the dilution that will be achieved.

CORMIX predicts the plume will mix vertically very quickly. This is due to the large density difference between the effluent and the ocean water. Then the effluent travels as a vertically, fully mixed plume. The predicted dilution at the edge of the ZID is 30 and at the edge of the mixing zone is 39. These are centerline dilution predictions. Our policy is to apply the centerline dilution at the edge of the ZID, but use the bulk average dilution at the edge of the mixing zone. CORMIX recommends applying a factor of 1.3 to centerline dilutions to estimate the bulk average dilution. The mixing zone dilution becomes 51 after applying the factor.

## Attachment 2: Antidegradation Review

### Anti-degradation Review Worksheet for a Proposed Individual NPDES Discharge

Applicant: H2O&S, Inc.

1. What is the name of the surface water that receives the discharge? Pacific Ocean  
Briefly describe the proposed activity: Treated Wastewater Discharge.

This review is for a:  Renewal  New

[Go to Step 2.](#)

2. Are there any existing uses associated with the water body that are not included in the list of designated uses? Example: DEQ's Fish Use Designation Maps identify the waterbody as supporting salmonid migration; however ODFW has determined that it also supports salmonid spawning.

Yes. Identify additional use(s), the basis for conclusion, and the applicable criteria. Go to [Step 3](#).

No. Go to [Step 3](#).

3. Was the analysis of the impact of the proposed activity performed relative to criteria applicable to the most sensitive beneficial use?

Yes. Go to [Step 4](#).

No. Re-do analysis to develop permit limits using correct criteria, and modify permit as necessary. Go to [Step 4](#).

4. Is this surface water an **Outstanding Resource Water** or **upstream** from an **Outstanding Resource Water**? Note: No waters in Oregon have been designated as Outstanding Resource Waters. OAR 340-041-0004(8)(a) contains criteria for designating such waters. Example: they are found in State or National parks.

Yes. [Go to Step 7](#).  No. [Go to Step 5](#).

5. Is this surface water a **High Quality Water**? A High Quality Water is one is not on the 303(d) list. To determine, go to the 303(d) list at <http://www.deq.state.or.us/wq/assessment.htm>.

Yes. [Go to Step 10](#).  No. [Go to Step 6](#).

6. Is this surface water a **Water Quality Limited Water**? If yes, it will appear on the 303(d) list. To determine, go to the 303d list at <http://www.deq.state.or.us/wq/assessment.htm>

Yes. [Go to Step 16](#).  No. [Go to Step 4](#) (you must answer "yes" to either question 4, 5, or 6)

Note: The surface water must fall into one of 3 categories: Outstanding Resource Water ([Step 4](#)), High Quality Water ([Step 5](#)), or Water Quality Limited Water ([Step 6](#)).

7. Will the proposed activity result in a permanent new or expanded source of pollutants directly to or affecting the **Outstanding Resource 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 anti-degradation review; otherwise see “Is an Activity Likely to Lower Water Quality?” in *Anti-degradation Policy Implementation Internal Management Directive for NPDES Permits and Section 401 Water Quality Certifications*.]
- Yes, Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23](#).
- No. Please provide basis for conclusion: Tab here to enter text. [Go to Step 8](#).
8. Will the proposed activity result in a lowering of water quality in the **Outstanding Resource 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. Provide basis for conclusion: Tab here to enter text. [Go to Step 9](#).
- No. Provide basis for conclusion: Tab here to enter text. [Go to Step 20](#).
9. If the proposed activity results in a non-permanent new or expanded source of pollutants directly to or affecting an **Outstanding Resource Water**, will the lowering of water quality in the **Outstanding Resource Water** be on a short-term basis in response to an emergency or to protect human health and welfare?
- Yes. Proceed with Application Process to Interagency Coordination and Public Comment. [Go to Step 23](#).
- No. Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 20](#).
10. 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 11](#).
- No. Proceed with Permit Application. Applicant should provide basis for conclusion: Tab here to enter text. [Go to Step 23](#).
11. OAR 340-041-0004(6)(c) of the *High Quality Waters Policy* requires that the Department evaluate the application to determine that all water quality standards will be met and beneficial uses protected after allowing discharge to **High Quality Waters**. Will all water quality standards be met and beneficial uses protected?

Yes. Provide basis for conclusion: Tab here to enter text. Proceed with Application Process to Interagency Coordination and Public Comment. [Go to Step 12.](#)

No. Provide basis for conclusion. Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)

12. OAR 340-041-0004(6)(a) of the High Quality Waters Policy requires that the Department evaluate the application to determine if no other reasonable alternatives exist except to discharge to High Quality Waters. At a minimum, the following list must be considered:

- Improved operation and maintenance of existing treatment system
- Recycling or reuse with no discharge
- Discharge to on-site system
- Seasonal or controlled discharges to avoid critical water quality periods
- Discharge to sanitary sewer
- Land application

Were any of the alternatives feasible?

Yes. Provide basis for conclusion (see below for information requirements): Tab here to enter text. Recommend Preliminary Decision that applicant use alternative. [Go to Step 10.](#)

No. Provide basis for conclusion (see below for information requirements): Tab here to enter text. [Go to Step 13.](#)

In a separate statement to this application, please explain the *technical feasibility* of the alternative, explain the *economic feasibility* of the alternative, and provide an *estimated cost* of NPDES permit alternative for a five-year period from start-up.

13. OAR 340-041-0004(6)(b) of the *High Quality Waters Policy* requires that the Department evaluate the application to determine if there are social and economic benefits that outweigh the environmental costs of allowing discharge to High Quality Waters. Do the social and economic benefits outweigh the environmental costs of lowering the water quality?

Yes. Provide basis for conclusion (see below for information requirements): Tab here to enter text. [Go to Step 14.](#)

No. Provide basis for conclusion (see below for information requirements): Tab here to enter text. [Go to Step 23.](#)

The basis for conclusion should include a discussion of whether the lowering of water quality is necessary and important. “Necessary” means that the same social and economic benefits cannot be achieved with some other approach. “Important” means that the value of the social and economic benefits due to lowering water quality is greater than the environmental costs of lowering water quality.

Benefits can be created from measures such as:

- Creating or expanding employment (provide current/expected number of employees, type & relative amount of each type)
- Increasing median family income
- Increasing community tax base (provide current/expected annual sales, tax info)
- Providing necessary social services
- Enhancing environmental attributes

Environmental Costs can include:

- Losing assimilative capacity otherwise used for other industries/development
- Impacting fishing, recreation, and tourism industries negatively
- Impacting health protection negatively
- Impacting societal value for environmental quality negatively

14. OAR 340-041-0004(6)(d) of the *High Quality Waters Policy* requires that DEQ prevent federal threatened and endangered aquatic species from being adversely affected. Will lowering the water quality likely result in adverse effects on federal threatened and endangered aquatic species?

Yes, please provide basis for conclusion (see below for information requirements): Tab here to enter text. [Go to Step 23](#).

No, please provide basis for conclusion (see below for information requirements): Tab here to enter text. [Go to Step 15](#).

15. Will lowering water quality in the **High Quality Water** be on a short-term basis in response to an emergency or to protect human health and welfare?

Yes, [go to Step 20](#).

No, recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23](#)

16. Will the proposed activity result in a lowering water quality in the **Water Quality Limited 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 anti-degradation review; otherwise see “Is an Activity Likely to Lower Water Quality?” in *Anti-degradation Policy Implementation Internal Management Directive for NPDES Permits and Section 401 Water Quality Certifications*.]

Yes, [go to Step 17](#).

No, proceed with Permit Application. Permit writer should provide basis for determination in permit evaluation report: See Section 6.3 of Permit Evaluation Report [Go to Step 23](#).

17. OAR 340-041-0004(9)(a)(A) of the *Water Quality Limited Waters Policy* requires that the Department evaluate the application to determine that all water quality standards will be met. Will all water quality standards be met?
- Yes, please provide basis for conclusion: Tab here to enter text. [Go to Step 18.](#)
- No, please provide basis for conclusion. Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)
18. OAR 340-041-0004(9)(a)(C) of the *Water Quality Limited Waters Policy* requires that the Department evaluate the application to determine that all recognized beneficial uses will be met and that threatened or endangered species will not be adversely affected. Will all beneficial uses be met and will threatened or endangered species be protected from adverse effects?
- Yes, please provide basis for conclusion: Tab here to enter text. [Go to Step 19.](#)
- No, please provide basis for conclusion: Tab here to enter text. Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)
19. OAR 340-041-0004(9)(a)(D)(i-iv) of the *Water Quality Limited Waters Policy* requires that the Department evaluate the application for **one of the following**:
- 19A. Will the discharge be associated (directly or indirectly) with the pollution parameter(s) causing the waterbody to be designated a Water Quality Limited Water?
 

Yes, please provide basis for conclusion: Tab here to enter text.. Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)

No, please provide basis for conclusion: Tab here to enter text. [Go to Step 20.](#)
  - 19B. Have TMDLs, WLAs, LAs, and reserve capacity been established, compliance plans been established, and is there sufficient reserve capacity to assimilate the increased load under the established TMDL?
 

Yes, please provide basis for conclusion: Tab here to enter text. [Go to Step 20.](#)

No, please provide basis for conclusion: Tab here to enter text. Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)
  - 19C. Will the proposed activity meet the requirements, as specified under OAR 340-041-0004(9)(a)(D)(iii) of the *Water Quality Limited Waters Policy*, for dissolved oxygen?
 

Yes, please provide basis for conclusion: Tab here to enter text. [Go to Step 20.](#)

No, please provide basis for conclusion: Tab here to enter text. Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23.](#)
  - 19D. Will the activity solve an existing, immediate, and critical environmental problem?
 

Yes, please provide basis for conclusion: Tab here to enter text. [Go to Step 20.](#)

No, please provide basis for conclusion: [Tab here to enter text](#). Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23](#).

20. Is the proposed activity consistent with local land use plans?

Yes, [go to Step 21](#).

No, please provide basis for conclusion: [Tab here to enter text](#). Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23](#).

21. OAR 340-041-0004(9)(c)(A) requires the Department to consider alternatives to lowering water quality. At a minimum, the following list must be considered:

- Improved operation and maintenance of existing treatment system
- Recycling or reuse with no discharge
- Discharge to on-site system
- Seasonal or controlled discharges to avoid critical water quality periods
- Discharge to sanitary sewer
- Land application

Were any of the alternatives feasible?

Yes, please provide basis for conclusion (see below for information requirements): [Tab here to enter text](#). Recommend Preliminary Decision that applicant use alternative. [Go to Step 16](#).

No, please provide basis for conclusion (see below for information requirements): [Tab here to enter text](#). [Go to Step 22](#).

In a separate statement to this application, please explain the *technical feasibility* of the alternative, explain the *economic feasibility* of the alternative, and provide an *estimated cost* of NPDES permit alternative for a five-year period from start-up.

22. OAR 340-041-0004(9)(c)(B) of the *Water Quality Limited Waters Policy* requires the Department to consider the economic effects of the proposed activity, which in this context consists of determining if the social and economic benefits of the activity outweigh the environmental costs of allowing a lowering of water quality. Do the social and economic benefits outweigh the environmental costs of lowering the water quality?

Yes. Provide basis for conclusion: [Tab here to enter text](#). Proceed with Application Process to Interagency Coordination and Public Comment. [Go to Step 23](#).

No. Provide basis for conclusion: [Tab here to enter text](#). Recommend Preliminary Decision to deny proposed activity (subject to Interagency Coordination and Public Comment). [Go to Step 23](#).

The basis for conclusion should include a discussion of whether the lowering of water quality is necessary and important. “Necessary” means that the same social and economic benefits cannot be achieved with some other approach. “Important” means that the value of the social and economic

benefits due to lowering water quality is greater than the environmental costs of lowering water quality.

Benefits can be created from measures such as:

- Creating or expanding employment (provide current/expected number of employees, type & relative amount of each type)
- Increasing median family income
- Increasing community tax base (provide current/expected annual sales, tax info)
- Providing necessary social services
- Enhancing environmental attributes

Environmental Costs can include:

- Losing assimilative capacity otherwise used for other industries/development
- Impacting fishing, recreation, and tourism industries negatively
- Impacting health protection negatively
- Impacting societal value for environmental quality negatively

23. On the basis of the Anti-degradation 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

Review prepared by  DEQ, [go to DEQ info](#)  Other, [go to Other info](#)  
DEQ info

Name: Robert Dicksa, Senior Water Quality Permitting Specialist

Phone: 503-378-5039

Date Prepared: December 10, 2014

Other info December 10, 2014

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

### Attachment 3: Operator Certification Worksheet

 Oregon Department of Environmental Quality <b>Wastewater System Classification Worksheet</b> <b>for Operator Certification</b>					
<b>STEP 1: Criteria for Classifying Wastewater Treatment Systems (OAR 340-049-0025)</b>					
Wastewater System Common Name: Inn at Otter Crest					
Location:	Otter Rock Loop 1 mile W. of Hwy 101 <table border="0" style="float: right;"> <tr> <td>Region:</td> <td>Western</td> </tr> <tr> <td>Date:</td> <td>12/10/2014</td> </tr> </table>	Region:	Western	Date:	12/10/2014
Region:	Western				
Date:	12/10/2014				
County:	Lincoln				
Facility ID:	41740				
Design ADWF (Influent MDG):	0.225 MGD				
Design Population*:					
Design BOD (Influent lbs/day):					
Is this a change from a prior classification?	no				
<b>1. Design Population</b> <input type="text"/> or Population Equivalent <input type="text"/>					
Based on:	Flow (gallons/person/day) <input type="text"/> BOD (pounds/person/day) <input type="text"/>				
Less than 750	0.5				
751 to 2,000	1.0				
2,001 to 5,000	1.5				
5,001 to 10,000	2.0				
Greater than 10,000	3.0				
(3 + 1 for each additional 10 K)					
<b>2. Average Dry Weather Flow (Design Capacity)</b>					
Less than 0.075 MGD	0.5				
Greater than 0.075 MGD to 0.1 MGD	1.0				
Greater than 0.1 to 0.5 MGD	1.5				
Greater than 0.5 to 1.0 MGD	2.0				
Greater than 1.0 MGD	3.0				
(3 + 1 for each additional 1.0 MGD)					

3. Unit Processes					
<i>Preliminary Treatment and Plant Hydraulics</i>					
Screen(s) (in-situ or mechanical, coarse solids only)				1.0	1.0
Pump/Lift Station(s) (pumping of main flow)				2.0	2.0
Flow Equalization (any type)				1.0	
<i>Primary Treatment</i>					
Community Septic Tank(s) (STEP, STEG, etc.)				2.0	
Clarifier(s)				5.0	5.0
Chemical Addition System				2.0	
Imhoff Tanks (large septic tank or similar sedimentation & digestion)				3.0	
<i>Secondary, Advanced, and Tertiary Treatment</i>					
Low Rate Trickling Filter(s) (no recirculation)				7.0	
High Rate Trickling Filter(s) (recirculating)				10.0	
Trickling Filter - Solids Contact System				12.0	
Activated Sludge (includes SBR & basic MBR process)				15.0	15.0
Activated Bio Filter Tower (less than 0.1 MGD)				6.0	
Chemical Addition System	Description:			2.0	
<i>Solids Handling (excludes long-term storage in treatment lagoons above)</i>					
Anaerobic Primary Sludge Digester(s) w/o Mixing and Heating				5.0	
Anaerobic Primary Sludge Digester(s) with Mixing and Heating				7.0	
Anaerobic Primary and Secondary Sludge Digesters				10.0	
Sludge Digester Gas Reuse				3.0	
Aerobic Sludge Digester(s)				8.0	8.0
Sludge Air or Gravity Thickening				3.0	
Sludge Composting (in Vessel)				12.0	
Non-Beneficial Sludge Disposal (landfill or burial)				1.0	
Beneficial Sludge Utilization (see also Step 2)				3.0	3.0
Solids Reduction Processing				4.0	
<i>Disinfection</i>					
Liquid Chlorine Disinfection				2.0	
Gas Chlorine Disinfection				5.0	5.0
Dechlorination System				4.0	
Other Disinfection System including Ultraviolet and Ozonation				5.0	
On-Site Chlorine Generation of Disinfectants				5.0	



### Attachment 4: Reasonable Potential Analysis -pH

INPUT	RPA for pH	
	Lower pH	Upper pH
	Criteria	Criteria
1. DILUTION FACTOR AT MZ BOUNDARY - (Qe+Qr)/Qe	51	51
2. UPSTREAM/BACKGROUND CHARACTERISTICS		
Temperature (deg C):	15.0	15.0
pH:	8.3	8.3
Alkalinity (mg CaCO3/L):	140.0	140.0
3. EFFLUENT CHARACTERISTICS		
Temperature (deg C):	18.0	18.0
pH:	6.0	9.0
Alkalinity (mg CaCO3/L):	75.0	75.0
4. APPLICABLE PH CRITERIA	7.0	8.5
OUTPUT		
1. IONIZATION CONSTANTS		
Upstream/Background pKa:	6.42	6.42
Effluent pKa:	6.40	6.40
2. IONIZATION FRACTIONS		
Upstream/Background Ionization Fraction:	0.99	0.99
Effluent Ionization Fraction:	0.29	1.00
3. TOTAL INORGANIC CARBON		
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	141.85	141.85
Effluent Total Inorganic Carbon (mg CaCO3/L):	261.87	75.19
4. CONDITIONS AT MIXING ZONE BOUNDARY		
Temperature (deg C):	15.06	15.06
Alkalinity (mg CaCO3/L):	138.73	138.73
Total Inorganic Carbon (mg CaCO3/L):	144.20	140.54
pKa:	6.42	6.42
<b>pH at Mixing Zone Boundary:</b>	<b>7.8</b>	<b>8.3</b>
<b>Is there Reasonable Potential?</b>	<b>No</b>	<b>No</b>

# Attachment 5: Reasonable Potential Analysis –Thermal Load

Facility Name: H2O&S, Inc.

Date: 1/07/2015

Enter data into white cells below:

Mixing Zone Dilution = 51

Ambient Temperature = 15 °C

Effluent Temperature = 20 °C

Allowable Increase = 0.3 °C

Effluent Flow = 0.225 mgd

$\Delta T$  at MZ edge= 0.10 °C No Reasonable Potential

Thermal Load Limit = N/A Million Kcals

## Attachment 6: Reasonable Potential Analysis - Ammonia

<b>Facility Name:</b> Inn at Otter Crest			<b>Attachment 6</b>			<b>Date:</b> 1/7/2015							
<b>Dilution Values? (Y/N)</b>			<b>Summer data</b>			<b>Effluent</b>		<b>Stream</b>		<b>Mixed</b>			
Low Flow Dilution @ ZID (1Q10)	30	*								<b>ZID</b>	<b>MZ</b>		
Low Flow Dilution @ MZ (7Q10)	51	*											
Low Flow Dilution @ MZ (30Q5)	51	*											
High Flow Dilution @ ZID (1Q10)	30	*											
High Flow Dilution @ MZ (7Q10)	51	*											
High Flow Dilution @ MZ (30Q5)	51	*											
<b>Enter data below if no dilution data is available</b>			<b>Winter data</b>										
<b>Data to estimate dilution</b>			<b>Summer</b>	<b>Winter</b>									
Effluent Flow (mgd) =	*	*											
1Q10 (CFS) =	*	*											
7Q10 (CFS) =	*	*											
30Q5 (CFS) =	*	*											
% dilution at MZ =	*	*											
% dilution at ZID =	*	*											
Confidence Level =	99%												
Probability Basis =	95%												

  

PARAMETER	# of Samples	Highest Conc. mg/l	Coef. of Variance	Calculated Maximum Conc. mg/l	Background Conc. mg/l	Maximum Conc. at ZID mg/l	Maximum Conc. at MZ mg/l	WQ CRITERIA		REASONABLE POTENTIAL ?		ZID	MZ
								Acute (CMC) mg/l	Chronic (CCC) mg/l	ACUTE	CHRONIC		
<b>Low Flow Season</b>													
AMMONIA - Saltwater	30	4.600	0.60	0.00	0.02	0.02	0.02	6.4	0.88	NO	NO		
<b>High Flow Season</b>													
AMMONIA - Saltwater	30	4.600	0.60	0.00	0.02	0.02	0.02	6.6	0.90	NO	NO		

## Attachment 7: Reasonable Potential Analysis - Chlorine

<b>Facility Name:</b> Inn at Otter Crest			<b>Attachment 7</b>			<b>Date:</b> 1/7/2015							
<b>Dilution Values? (Y/N)</b>			<b>Summer data</b>			<b>Effluent</b>		<b>Stream</b>		<b>Mixed</b>			
Low Flow Dilution @ ZID (1Q10)	30	*								<b>ZID</b>	<b>MZ</b>		
Low Flow Dilution @ MZ (7Q10)	51	*											
Low Flow Dilution @ MZ (30Q5)	51	*											
High Flow Dilution @ ZID (1Q10)	30	*											
High Flow Dilution @ MZ (7Q10)	51	*											
High Flow Dilution @ MZ (30Q5)	51	*											
<b>Enter data below if no dilution data is available</b>			<b>Winter data</b>										
<b>Data to estimate dilution</b>			<b>Summer</b>	<b>Winter</b>									
Effluent Flow (mgd) =	*	*											
1Q10 (CFS) =	*	*											
7Q10 (CFS) =	*	*											
30Q5 (CFS) =	*	*											
% dilution at MZ =	*	*											
% dilution at ZID =	*	*											
Confidence Level =	99%												
Probability Basis =	95%												

  

PARAMETER	# of Samples	Highest Conc. mg/l	Coef. of Variance	Calculated Maximum Conc. mg/l	Background Conc. mg/l	Maximum Conc. at ZID mg/l	Maximum Conc. at MZ mg/l	WQ CRITERIA		REASONABLE POTENTIAL ?		ZID	MZ
								Acute (CMC) mg/l	Chronic (CCC) mg/l	ACUTE	CHRONIC		
<b>Low Flow Season</b>													
CHLORINE	30	3.500	0.60	4.900	0.00	0.163	0.096	0.013	0.008	YES	YES	ZID	MZ
<b>High Flow Season</b>													
CHLORINE	30	3.500	0.60	4.900	0.00	0.163	0.096	0.013	0.008	YES	YES	ZID	MZ

## Attachment 8: Chlorine Limits

Facility Name: Inn at Otter Crest			Attachment 8							Date: 1/7/2015				
<b>Dilution Values? (Y/N)</b>	y	calculated	<b>Summer data</b>		<b>Effluent</b>	<b>Stream</b>	<b>Mixed</b>							
Low Flow Dilution @ ZID (1Q10)	30	*					<b>ZID</b>	<b>MZ</b>	<b>MZ</b>					
Low Flow Dilution @ MZ (7Q10)	51	*					<b>1Q10</b>	<b>7Q10</b>	<b>30Q5</b>					
Low Flow Dilution @ MZ (30Q5)	51	*												
High Flow Dilution @ ZID (1Q10)	30	*	pH * =	7	8.3		8.2	8.2	8.2		(6.5-9)			
High Flow Dilution @ MZ (7Q10)	51	*	Temp * =	21	13		13.3	13.2	13.2		°C			
High Flow Dilution @ MZ (30Q5)	51	*	Alkalinity =	75	140									
<b>If no dilution values</b>			Salmonids Present? (Y/N)	n/a	y									
<b>Enter flow rates here</b>			Salmonid Spawning? (Y/N)	n/a	n									
	<b>Summer</b>	<b>Winter</b>	Fresh Water ? (Y/N)	n/a	n									
Effluent Flow (MGD)	*	*	Salinity	0	30		29.0	29.4						
1Q10 (CFS)	*	*	<b>Winter data</b>											
7Q10 (CFS)	*	*	pH * =	7	8.3		8.2	8.2	8.2		(6.5-9)			
30Q5 (CFS)	*	*	Temp * =	15	13		13.1	13.0	13.0		°C			
% dilution at MZ	*	*	Alkalinity =	75	140									
% dilution at ZID	*	*	Salmonids Present? (Y/N)	n/a	y									
probability basis	99%		Salmonid Spawning (Y/N)	n/a	n									
(WLA multipliers)			Fresh Water ? (Y/N)	n/a	n									
			Salinity	0	30		29.0	29.4						
<b>WATER QUALITY CRITERIA</b>											<b>Concentration Limits</b>			
	<b>1 Hour</b>	<b>4 Day</b>	<b>30 Day</b>	<b>Back-ground</b>	<b>Allocations</b>			<b>#</b>	<b>Acute</b>	<b>4 day</b>	<b>30 day</b>	<b>Min</b>	<b>95%</b>	<b>99%</b>
<b>PARAMETER</b>	<b>(CMC)</b>	<b>(CCC)</b>	<b>(CCC)</b>	<b>mg/l</b>	<b>Acute</b>	<b>4 Day</b>	<b>30 Day</b>	<b>Samples</b>	<b>LTA</b>	<b>LTA</b>	<b>LTA</b>	<b>LTA</b>	<b>Monthly</b>	<b>Daily</b>
	<b>mg/l</b>	<b>mg/l</b>	<b>mg/l</b>	<b>mg/l</b>	<b>mg/l</b>	<b>mg/l</b>	<b>mg/L</b>	<b>CV</b>	<b>mg/l</b>	<b>mg/l</b>	<b>mg/L</b>	<b>mg/l</b>	<b>mg/l</b>	<b>mg/l</b>
<b>Low Flow Season</b>														
CHLORINE	0.013	0.008	n/a	0.00	0.39	0.38	n/a	0.6	30	0.13	0.20	n/a	0.13	0.15 0.39
<b>High Flow Season</b>														
CHLORINE	0.013	0.008	n/a	0.00	0.39	0.38	n/a	0.6	30	0.13	0.20	n/a	0.13	0.15 0.39