

Expiration Date: 12/31/2009
Permit Number: 101640
File Number: 40494
Page 1 of 17 Pages

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTE DISCHARGE PERMIT**

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

Issued pursuant to ORS 468B.050 and The Federal Clean Water Act

ISSUED TO:

Hubbard, City of
PO Box 380
Hubbard, OR 97032

SOURCES COVERED BY THIS PERMIT:

Type of Waste	Outfall Number	Outfall Location
Treated Wastewater	001	R.M. 6.2

FACILITY TYPE AND LOCATION:

Activated Sludge
City of Hubbard STP
3607 Sunset Drive
Hubbard

Treatment System Class: Level III
Collection System Class: Level II

RECEIVING STREAM INFORMATION:

Basin: Willamette
Sub-Basin: Molalla / Pudding

Receiving Stream: Mill Creek
LLID: 1227520452422-6.2 D
County: Marion

EPA REFERENCE NO: OR002059-1

Issued in response to Application No. 984646 received April 21, 2003. This permit is issued based on the land use findings in the permit record.

Timothy C. McFetridge, Acting Water Quality Manager
Western Region

December 27, 2005

Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to construct, install, modify, or operate a wastewater collection, treatment, control and disposal system and discharge to public waters adequately treated wastewaters only from the authorized discharge point or points established in Schedule A and only in conformance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

	Page
Schedule A - Waste Discharge Limitations not to be Exceeded	2
Schedule B - Minimum Monitoring and Reporting Requirements	4
Schedule C - Compliance Conditions and Schedules.....	7
Schedule D - Special Conditions.....	9
Schedule F - General Conditions.....	11

Unless specifically authorized by this permit, by another NPDES or WPCF permit, or by Oregon Administrative Rule, any other direct or indirect discharge of waste is prohibited, including discharge to waters of the state or an underground injection control system.

SCHEDULE A

1. **Waste Discharge Limitations not to be exceeded after permit issuance.**

a. Treated Effluent Outfall 001

(1) May 1 - October 31:

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	28	42	56
TSS	10 mg/L	15 mg/L	28	42	56

(2) November 1 - April 30:

Parameter	Average Effluent Concentrations		Monthly* Average lb/day	Weekly* Average lb/day	Daily* Maximum lbs
	Monthly	Weekly			
BOD ₅	30 mg/L	45 mg/L	85	130	170
TSS	30 mg/L	45 mg/L	85	130	170

* Average dry weather design flow to the facility equals 0.34 MGD. Mass load limits are based upon average dry weather design flow to the facility. Schedule C, Condition 1 requires the permittee to select the basis for calculating winter time (November 1 through April 30 each year) mass load limits. Upon review and approval of the engineering study to determine the design average wet weather flow, pursuant to OAR 340-41-0061(10), and upon request of the permittee, the Department intends to modify this permit and include revised mass load limits.

(3)

Other parameters (year-round)	Limitations
<i>E. coli</i> Bacteria	Shall not exceed 126 organisms per 100 mL monthly geometric mean. No single sample shall exceed 406 organisms per 100 mL. (See Note 1)
pH	Year Around: Shall be within the range of 6.4 - 9.0
BOD ₅ and TSS Removal Efficiency	Shall not be less than 85% monthly average for BOD ₅ and 85% monthly for TSS.
Excess Thermal Load (May 1 through October 31)	Shall not exceed a weekly average of 1.0 million Kcals/day (see Note 2)

(4) Except as provided for in OAR 340-045-0080, no wastes shall be discharged and no activities shall be conducted which violate Water Quality Standards as adopted in OAR 340-041-0443 except in the following defined mixing zone:

The allowable mixing zone is that portion of Mill Creek where the effluent mixes with 21 percent of the stream flow but in no case shall it extend farther than five feet from the east bank of the creek and from a point ten feet upstream of the outfall to a point 100 feet downstream from the outfall. The Zone of Immediate Dilution (ZID) shall be defined as the portion of the allowable mixing zone that is within two feet of the point of discharge.

File Number: 40494
Page 3 of 17 Pages

- (5) 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).
- (6) Chlorine and chlorine compounds shall not be used as a disinfecting agent of the treated effluent and no chlorine residual shall be allowed in the discharged effluent due to chlorine used for maintenance purposes.

NOTES:

1. If a single sample exceeds 406 organisms per 100 mL, then five consecutive re-samples may be taken at four-hour intervals beginning within 48 hours after the original sample was taken. If the log mean of the five re-samples is less than or equal to 126 organisms per 100 mL, a violation shall not be triggered.
2. The thermal load limit was calculated using the average dry weather design flow and an estimated maximum weekly effluent temperature. The Permittee shall comply with the excess thermal load limit upon completion of Schedule C, Condition 4 or by the expiration date of this permit, whichever is sooner. The Excess Thermal Load limit is considered interim and may be adjusted up or down or eliminated when more accurate effluent temperature data becomes available. In addition, upon approval of a Total Maximum Daily Load for temperature for this sub-basin, this permit may be re-opened to include new or revised limits or other conditions or requirements regarding temperature and/or thermal loads.

SCHEDULE B

1. **Minimum Monitoring and Reporting Requirements** (unless otherwise approved in writing by the Department).

The permittee shall monitor the parameters as specified below at the locations indicated. The laboratory used by the permittee to analyze samples shall have a quality assurance/quality control (QA/QC) program to verify the accuracy of sample analysis. If QA/QC requirements are not met for any analysis, the results shall be included in the report, but not used in calculations required by this permit. When possible, the permittee shall re-sample in a timely manner for parameters failing the QA/QC requirements, analyze the samples, and report the results.

a. Influent

The facility influent grab samples and measurements and composite samples are taken just after the Parshall flume and flow meter and just before mixing with the RAS and entering the selector basin.

Item or Parameter	Minimum Frequency	Type of Sample
Total Flow (MGD)	Daily	Measurement
Flow Meter Calibration	Annually	Verification
BOD ₅	Weekly	Composite
TSS	Weekly	Composite
pH	2/Week	Grab

b. Treated Effluent Outfall 001

The facility effluent grab samples and measurements are taken just after disinfection and prior to discharge to Mill Creek.

Item or Parameter	Minimum Frequency	Type of Sample
BOD ₅	Weekly	Composite
TSS	Weekly	Composite
pH	2/Week	Grab
Effluent Temperature, Daily Max (See Note 5)	2/Week	Grab between 3 and 4 PM
Effluent Temperature, Average of Daily Maximums (See Note 5)	Weekly (May 1 through October 31)	Calculation
Thermal Load (See Note 5)	Weekly (May 1 through October 31)	Calculation (See Note 6)
<i>E. coli</i>	Weekly	Grab (See Note 1)
UV Radiation Dose (Intensity)	Daily	Reading (See Note 2)
Ammonia(NH ₃ -N)	2/Week <i>1 month</i>	Composite
Nutrients: TKN, NO ₂ +NO ₃ -N, Total Phosphorus	1/Week <i>1 month</i>	24-hour Composite
Dissolved Oxygen	2/Week	Grab
Pounds Discharged (BOD ₅ and TSS)	Weekly	Calculation
Average Percent Removed (BOD ₅ and TSS)	Monthly	Calculation

*See Note 1
1/19/06*

c. **Biosolids Management**

Item or Parameter	Minimum Frequency	Type of Sample
Sludge analysis including: Total Solids (% dry wt.) Volatile solids (% dry wt.) Biosolids nitrogen for: NH ₃ -N; NO ₃ -N; & TKN (% dry wt.) Phosphorus (% dry wt.) Potassium (% dry wt.) pH (standard units) Sludge metals content for: As, Cd, Cu, Hg, Mo, Ni, Pb, Se & Zn, measured as total in mg/kg	Annually	Composite sample to be representative of the product to be land applied from the Dewatered Biosolids pile (See Note 3).
Record of locations where Biosolids are applied on each DEQ approved site. (Site location maps to be maintained at treatment facility for review upon request by DEQ)	Each Occurrence	Date, volume & locations where biosolids were applied recorded on site location map.
Record of % volatile solids reduction accomplished through stabilization. Quantity and type of alkaline product used to stabilize Biosolids (when required to meet federal pathogen and vector attraction reduction requirements in 40 CFR 503.32(b)(3) and 40 CFR 503.33(b)(6))	Monthly Each occurrence	Calculation (See Note 4) Measurement

2. **Reporting Procedures**

- a. Monitoring results shall be reported on approved forms. The reporting period is the calendar month. Reports must be submitted to the Department's Western Region - Salem office by the 15th day of the following month.
- b. State monitoring reports shall identify the name, certificate classification and grade level of each principal operator designated by the permittee as responsible for supervising the wastewater collection and treatment systems during the reporting period. Monitoring reports shall also identify each system classification as found on page one of this permit.
- c. Monitoring reports shall also include a record of the quantity and method of use of all sludge removed from the treatment facility and a record of all applicable equipment breakdowns and bypassing.

3. **Report Submittals**

- a. The permittee shall have in place a program to identify and reduce inflow and infiltration into the sewage collection system. An annual report shall be submitted to the Department by February 1 each year which details sewer collection maintenance activities that reduce inflow and infiltration. The report shall state those activities that have been done in the previous year and those activities planned for the following year.
- b. For any year in which Biosolids are land applied, a report shall be submitted to the Department by February 19th of the following year that describes solids handling activities for the previous year and includes, but is not limited to, the required information outlined in OAR 340-050-0035(6)(a)-(e).

NOTES:

- 1. *E. coli* monitoring must be conducted according to any of the following test procedures as specified in **Standard Methods for the Examination of Water and Wastewater, 19th Edition**, or according to any test procedure that has been authorized and approved in writing by the Director or an authorized representative:

Method	Reference	Page	Method Number
mTEC agar, MF	Standard Methods, 18th Edition	9-29	9213 D
NA-MUG, MF	Standard Methods, 19th Edition	9-63	9222 G
Chromogenic Substrate, MPN	Standard Methods, 19th Edition	9-65	9223 B
Colilert QT	Idexx Laboratories, Inc.		

- 2. The UV radiation dose passing through the water column will affect the systems ability to kill organisms. To track the UV dose, the UV disinfection system must include a UV intensity meter with a sensor located in the water column at a specified distance from the UV bulbs. This meter will measure the dose of UV radiation in mWatts-seconds/cm². The daily UV radiation dose shall be determined by reading the meter each day. If more than one meter is used, the daily recording will be an average of all meter readings each day.
- 3. Dewatered Biosolid piles shall be taken from predetermined areas as per the Biosolids Management Plan and/or pursuant to Test Methods for Evaluating Solid Waste, Volume 2; Field Manual, Physical/Chemical Methods, November 1986, Third Edition, Chapter 9.

Inorganic pollutant monitoring must be conducted according to Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Second Edition (1982) with Updates I and II and third Edition (1986) with Revision I.
- 4. Calculation of the % volatile solids reduction is to be based on comparison of a representative grab sample of total and volatile solids entering each digester (a weighted blend of the primary and secondary clarifier solids) and a representative composite sample of solids exiting each digester withdrawal line (as defined in note 3 above).
- 5. After two full years of temperature monitoring, and if approved in writing by the Department, monitoring may be waived for those months when the effluent temperature does not exceed the stream temperature standard.
- 6. Calculated as follows:
(Weekly average of daily maximum effluent temperatures in °F - applicable summer stream temperature standard, °F) X (Weekly average of daily flow in MGD) X 8.34 #/gal X 1,000,000 = Thermal load, in British Thermal Units/day.

SCHEDULE CCompliance Schedules and Conditions

1. By no later than December 27, 2006, the permittee shall submit either an engineering evaluation which demonstrates the design average wet weather flow, or a request to retain the existing mass load limits. The design average wet weather flow is defined as the average flow between November 1 and April 30 when the sewage treatment facility is projected to be at design capacity for that portion of the year. Upon acceptance by the Department of the design average wet weather flow determination, the permittee may request a permit modification to include higher winter mass loads based on the design average wet weather flow.
2. Within 180 days of permit modification to include higher winter mass load limits as specified in Condition 1., of this Schedule, the permittee shall submit to the Department for review and approval a proposed program and time schedule for identifying and reducing inflow. Within 60 days of receiving written Department comments, the permittee shall submit a final approvable program and time schedule. The program shall consist of the following:
 - a. Identification of all overflow points and verification that sewer system overflows are not occurring up to a 24-hour, 5-year storm event or equivalent;
 - b. Monitoring of all pump station overflow points;
 - c. A program for identifying and removing all inflow sources into the permittee's sewer system over which the permittee has legal control; and
 - d. If the permittee does not have the necessary legal authority for all portions of the sewer system or treatment facility, a program and schedule for gaining legal authority to require inflow reduction and a program and schedule for removing inflow sources.
- 3. By no later than March 27, 2006, the permittee shall submit to the Department a report which either identifies known sewage overflow locations and a plan for estimating the frequency, duration and quantity of sewage overflowing, or confirms that there are no overflow points. The report shall also provide a schedule to eliminate the overflow(s), if any.
- 4. By no later than October 31, 2008, the permittee shall submit to the Department for approval, a report that evaluates the feasibility of land application alternatives to the summer discharge to Mill Creek.
5. By no later than December 31, 2009, the permittee shall submit to the Department for approval a data summary report. The data summary report shall contain but not be limited to monitoring and sampling information and results from the effluent on temperature, toxics, and dissolved oxygen.
6. By no later than six months after notification that the Total Maximum Daily Load (TMDL) has been approved, the permittee shall submit to the Department an evaluation of whether or not the treatment facilities can consistently comply with any Waste Load Allocation (WLA) and all other requirements of the TMDL and this permit. If the evaluation indicates the permittee is not able to consistently comply with the TMDL or this permit, the permittee shall complete the following schedule:
 - a. By no later than one year after notification that the TMDL has been approved, the permittee shall submit to the Department for approval an evaluation of alternatives for facility improvements necessary to comply with the TMDL and this permit.
 - b. By no later than two years after notification that the TMDL has been approved, the permittee shall submit to the Department for approval final engineering plans and specifications for any necessary improvements.

- c. By no later than three years after notification that the TMDL has been approved, the permittee shall submit documentation to the Department that contracts for the construction of necessary improvements have been awarded.
 - d. By no later than four years after notification that the TMDL has been approved, the permittee shall complete construction of all necessary improvements and comply with the TMDL and this permit.
7. The permittee is expected to meet the compliance dates which have been established in this schedule. Either prior to or no later than fourteen days following any lapsed compliance date, the permittee shall submit to the Department a notice of compliance or noncompliance with the established schedule. The Director may revise a schedule of compliance if he/she determines good and valid cause resulting from events over which the permittee has little or no control.

SCHEDULE D**Special Conditions**

1. All Biosolids shall be managed in accordance with the current, DEQ approved biosolids management plan, and the site authorization letters issued by the DEQ. Any changes in solids management activities that significantly differ from operations specified under the approved plan require the prior written approval of the DEQ.

All new biosolids application sites shall meet the site selection criteria set forth in OAR 340-050-0070 and must be located within Marion County. All currently approved sites are located in Marion County. No new public notice is required for the continued use of these currently approved sites. Property owners adjacent to any newly approved application sites shall be notified, in writing or by any method approved by DEQ, of the proposed activity prior to the start of application. For proposed new application sites that are deemed by the DEQ to be sensitive with respect to residential housing, runoff potential or threat to groundwater, an opportunity for public comment shall be provided in accordance with OAR 340-050-0030.

2. This permit may be modified to incorporate any applicable standard for biosolids use or disposal promulgated under section 405(d) of the Clean Water Act, if the standard for biosolids use or disposal is more stringent than any requirements for biosolids use or disposal in the permit, or controls a pollutant or practice not limited in this permit.
3. The permittee shall comply with Oregon Administrative Rules (OAR), Chapter 340, Division 49, "Regulations Pertaining To Certification of Wastewater System Operator Personnel" and accordingly:
 - a. The permittee shall have its wastewater system supervised by one or more operators who are certified in a classification and grade level (equal to or greater) that corresponds with the classification (collection and/or treatment) of the system to be supervised as specified on page one of this permit.

Note: A "supervisor" is defined as the person exercising authority for establishing and executing the specific practice and procedures of operating the system in accordance with the policies of the permittee and requirements of the waste discharge permit. "Supervise" means responsible for the technical operation of a system, which may affect its performance or the quality of the effluent produced. Supervisors are not required to be on-site at all times.

- b. The permittee's wastewater system may not be without supervision (as required by Special Condition 3.a. above) for more than 30 days. During this period, and at any time that the supervisor is not available to respond on-site (i.e. vacation, sick leave or off-call), the permittee must make available another person who is certified in the proper classification and at grade level I or higher.
- c. The permittee is responsible for ensuring the wastewater system has a properly certified supervisor available at all times to respond on-site at the request of the permittee and to any other operator.
- d. The permittee shall notify the Department of Environmental Quality in writing within 30 days of replacement or re-designation of certified operators responsible for supervising wastewater system operation. The notice shall be filed with the Water Quality Division, Operator Certification Program, 811 SW 6th Ave, Portland, OR 97204. This requirement is in addition to the reporting requirements contained under Schedule B of this permit.
- e. Upon written request, the Department may grant the permittee reasonable time, not to exceed 120 days, to obtain the services of a qualified person to supervise the wastewater system. The written request must include justification for the time needed, a schedule for recruiting and hiring, the date

the system supervisor availability ceased and the name of the alternate system supervisor(s) as required by 3.b. above.

4. The permittee shall not be required to perform a hydrogeologic characterization or groundwater monitoring during the term of this permit provided:
 - a. The facilities are operated in accordance with the permit conditions, and;
 - b. There are no adverse groundwater quality impacts (complaints or other indirect evidence) resulting from the facility's operation.

If warranted, at permit renewal the Department may evaluate the need for a full assessment of the facilities impact on groundwater quality.

5. The permittee shall notify the DEQ Western Region - Salem Office (phone: (503) 378-8240) in accordance with the response times noted in the General Conditions of this permit, of any malfunction so that corrective action can be coordinated between the permittee and the Department.

SCHEDULE F
NPDES GENERAL CONDITION – DOMESTIC FACILITIES

SECTION A. STANDARD CONDITIONS

1. Duty to Comply with Permit

The permittee must comply with all conditions of this permit. Failure to comply with any permit condition is a violation of the Clean Water Act, Oregon Revised Statutes (ORS) 468B.025, and 40 Code of Federal Regulations (CFR) Section 122.41(a), and grounds for an enforcement action. Failure to comply is also grounds for the Department to modify, revoke, or deny renewal of a permit.

2. Penalties for Water Pollution and Permit Condition Violations

ORS 468.140 allows the Department to impose civil penalties up to \$10,000 per day for violation of a term, condition, or requirement of a permit. Additionally 40 CFR 122.41 (A) provides that any person who violates any permit condition, term, or requirement may be subject to a federal civil penalty not to exceed \$25,000 per day for each violation.

Under ORS 468.943 and 40 CFR 122.41(a), unlawful water pollution, if committed by a person with criminal negligence, is punishable by a fine of up to \$25,000 imprisonment for not more than one year, or both. Each day on which a violation occurs or continues is a separately punishable offense.

Under ORS 468.946, a person who knowingly discharges, places, or causes to be placed any waste into the waters of the state or in a location where the waste is likely to escape into the waters of the state is subject to a Class B felony punishable by a fine not to exceed \$200,000 and up to 10 years in prison. Additionally, under 40 CFR 122.41(a) any person who knowingly discharges, places, or causes to be placed any waste into the waters of the state or in a location where the waste is likely to escape into the waters of the state is subject to a federal civil penalty not to exceed \$100,000, and up to 6 years in prison.

3. Duty to Mitigate

The permittee must take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment. In addition, upon request of the Department, the permittee must correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and have the permit renewed. The application must be submitted at least 180 days before the expiration date of this permit.

The Department may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

5. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

- a. Violation of any term, condition, or requirement of this permit, a rule, or a statute
- b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge
- d. The permittee is identified as a Designated Management Agency or allocated a wasteload under a Total Maximum Daily Load (TMDL)
- e. New information or regulations
- f. Modification of compliance schedules
- g. Requirements of permit reopener conditions
- h. Correction of technical mistakes made in determining permit conditions
- i. Determination that the permitted activity endangers human health or the environment
- j. Other causes as specified in 40 CFR 122.62, 122.64, and 124.5

The filing of a request by the permittee for a permit modification, revocation or reissuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

6. Toxic Pollutants

The permittee must comply with any applicable effluent standards or prohibitions established under Oregon Administrative Rules (OAR) 340-041-0033 for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

7. Property Rights and Other Legal Requirements
The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege, or authorize any injury to persons or property or invasion of any other private rights, or any infringement of federal, tribal, state, or local laws or regulations.
8. Permit References
Except for effluent standards or prohibitions established under OAR 340-041-0033 for toxic pollutants and standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.
9. Permit Fees
The permittee must pay the fees required by Oregon Administrative Rules.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance
The permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
2. Need to Halt or Reduce Activity Not a Defense
For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permittee must, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It is not a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
3. Bypass of Treatment Facilities
 - a. Definitions
 - (1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The term "bypass" does not apply if the diversion does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation or the diversion is due to nonuse of nonessential treatment units or processes at the treatment facility.
 - (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities or treatment processes that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
 - b. Prohibition of bypass.
 - (1) Bypass is prohibited unless:
 - (a) Bypass was necessary to prevent loss of life, personal injury, or severe property damage;
 - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventative maintenance; and
 - (c) The permittee submitted notices and requests as required under General Condition B.3.c.
 - (2) The Department may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, when the Department determines that it will meet the three conditions listed above in General Condition B.3.b.(1).
 - c. Notice and request for bypass.
 - (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, a written notice must be submitted to the Department at least ten days before the date of the bypass.
 - (2) Unanticipated bypass. The permittee must submit notice of an unanticipated bypass as required in General Condition D.5.

4. Upset

- a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.
- b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of General Condition B.4.c are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
- (1) An upset occurred and that the permittee can identify the causes(s) of the upset;
 - (2) The permitted facility was at the time being properly operated;
 - (3) The permittee submitted notice of the upset as required in General Condition D.5, hereof (24-hour notice); and
 - (4) The permittee complied with any remedial measures required under General Condition A.3 hereof.
- d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

5. Treatment of Single Operational Upset

For purposes of this permit, A Single Operational Upset that leads to simultaneous violations of more than one pollutant parameter will be treated as a single violation. A single operational upset is an exceptional incident that causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one Clean Water Act effluent discharge pollutant parameter. A single operational upset does not include Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational upset is a violation.

6. Overflows from Wastewater Conveyance Systems and Associated Pump Stations

- a. Definitions
- (1) "Overflow" means the diversion and discharge of waste streams from any portion of the wastewater conveyance system including pump stations, through a designed overflow device or structure, other than discharges to the wastewater treatment facility.
 - (2) "Severe property damage" means substantial physical damage to property, damage to the conveyance system or pump station which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of an overflow.
 - (3) "Uncontrolled overflow" means the diversion of waste streams other than through a designed overflow device or structure, for example to overflowing manholes or overflowing into residences, commercial establishments, or industries that may be connected to a conveyance system.
- b. Prohibition of storm related overflows. Storm related overflows of raw sewage are prohibited to waters of the State. However, 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 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, such storm related overflows will not be considered a violation of this permit if:
- (1) 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. However, overflows during a storm event less than the one-in-five-year, 24-hour duration storm from November 1 through May 21 are also not permit violations 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 an acceptable plan to the Department to address these sanitary sewer overflows by January 1, 2010;

- (2) 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 in compliance with General Condition B.1.;
 - (3) The permittee has minimized the potential environmental and public health impacts from the overflow; and
 - (4) The permittee has properly maintained the capacity of the conveyance system.
- c. Prohibition of other overflows. All overflows other than stormwater-related overflows (discussed in Schedule F, Section B, Condition 6.b.) are prohibited unless:
- (1) Overflows were unavoidable to prevent an uncontrolled overflow, loss of life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to the overflows, such as the use of auxiliary pumping or conveyance systems, or maximization of conveyance system storage; and
 - (3) The overflows are the result of an upset as defined in General Condition B.4. and meeting all requirements of this condition.
- d. Uncontrolled overflows are prohibited where wastewater is likely to escape or be carried into the waters of the State by any means.
- e. Reporting required. Unless otherwise specified in writing by the Department, all overflows and uncontrolled overflows must be reported orally to the Department within 24 hours from the time the permittee becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D.5. Reports concerning storm related overflows must include information about the amount and intensity of the rainfall event causing the overflow.
7. Public Notification of Effluent Violation or Overflow
If effluent limitations specified in this permit are exceeded or an overflow occurs, upon request by the Department, the permittee must take such steps as are necessary to alert the public about the extent and nature of the discharge. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.
8. Removed Substances
Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must be disposed of in such a manner as to prevent any pollutant from such materials from entering waters of the state, causing nuisance conditions, or creating a public health hazard.

SECTION C. MONITORING AND RECORDS

1. Representative Sampling
Sampling and measurements taken as required herein must be representative of the volume and nature of the monitored discharge. All samples must be taken at the monitoring points specified in this permit, and shall be taken, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points may not be changed without notification to and the approval of the Department.
2. Flow Measurements
Appropriate flow measurement devices and methods consistent with accepted scientific practices must be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices must be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected must be capable of measuring flows with a maximum deviation of less than ± 10 percent from true discharge rates throughout the range of expected discharge volumes.
3. Monitoring Procedures
Monitoring must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in this permit.
4. Penalties of Tampering
The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit may, upon conviction, be punished by a fine of not more than \$10,000 per violation, imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment is a fine not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or both.
5. Reporting of Monitoring Results
Monitoring results must be summarized each month on a Discharge Monitoring Report form approved by the Department. The reports must be submitted monthly and are to be mailed, delivered or otherwise transmitted by the 15th day of the following month unless specifically approved otherwise in Schedule B of this permit.

6. Additional Monitoring by the Permittee
If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR part 136 or as specified in this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency must also be indicated. For a pollutant parameter that may be sampled more than once per day (e.g., Total Chlorine Residual), only the average daily value must be recorded unless otherwise specified in this permit.
7. Averaging of Measurements
Calculations for all limitations that require averaging of measurements must utilize an arithmetic mean, except for bacteria which shall be averaged as specified in this permit.
8. Retention of Records
Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503). The permittee must retain records of all monitoring information, including: all calibration, maintenance records, all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the Department at any time.
9. Records Contents
Records of monitoring information must include:
 - a. The date, exact place, time, and methods of sampling or measurements;
 - b. The individual(s) who performed the sampling or measurements;
 - c. The date(s) analyses were performed;
 - d. The individual(s) who performed the analyses;
 - e. The analytical techniques or methods used; and
 - f. The results of such analyses.
10. Inspection and Entry
The permittee must allow the Department representative upon the presentation of credentials to:
 - a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and
 - d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

SECTION D. REPORTING REQUIREMENTS

1. Planned Changes
The permittee must comply with OAR chapter 340, division 52, "Review of Plans and Specifications" and 40 CFR Section 122.41(l) (1). Except where exempted under OAR chapter 340, division 52, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers may be commenced until the plans and specifications are submitted to and approved by the Department. The permittee must give notice to the Department as soon as possible of any planned physical alternations or additions to the permitted facility.
2. Anticipated Noncompliance
The permittee must give advance notice to the Department of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.
3. Transfers
This permit may be transferred to a new permittee provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and the rules of the Commission. No permit may be transferred to a third party without prior written approval from the Department. The Department may require modification, revocation, and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Clean Water Act (see 40 CFR Section 122.61; in some cases, modification or revocation and reissuance is mandatory). The permittee must notify the Department when a transfer of property interest takes place.
4. Compliance Schedule
Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date. Any reports of noncompliance must include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

5. Twenty-Four Hour Reporting

The permittee must report any noncompliance that may endanger health or the environment. Any information must be provided orally (by telephone) within 24 hours, unless otherwise specified in this permit, from the time the permittee becomes aware of the circumstances. During normal business hours, the Department's Regional office must be called. Outside of normal business hours, the Department must be contacted at 1-800-452-0311 (Oregon Emergency Response System).

A written submission must also be provided within 5 days of the time the permittee becomes aware of the circumstances. Pursuant to ORS 468.959 (3) (a), if the permittee is establishing an affirmative defense of upset or bypass to any offense under ORS 468.922 to 468.946, delivered written notice must be made to the Department or other agency with regulatory jurisdiction within 4 (four) calendar days of the time the permittee becomes aware of the circumstances. The written submission must contain:

- a. A description of the noncompliance and its cause;
- b. The period of noncompliance, including exact dates and times;
- c. The estimated time noncompliance is expected to continue if it has not been corrected;
- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and
- e. Public notification steps taken, pursuant to General Condition B.7

The following must be included as information that must be reported within 24 hours under this paragraph:

- f. Any unanticipated bypass that exceeds any effluent limitation in this permit;
- g. Any upset that exceeds any effluent limitation in this permit;
- h. Violation of maximum daily discharge limitation for any of the pollutants listed by the Department in this permit; and
- i. Any noncompliance that may endanger human health or the environment.

The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

6. Other Noncompliance

The permittee must report all instances of noncompliance not reported under General Condition D.4 or D.5, at the time monitoring reports are submitted. The reports must contain:

- a. A description of the noncompliance and its cause;
- b. The period of noncompliance, including exact dates and times;
- c. The estimated time noncompliance is expected to continue if it has not been corrected; and
- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

7. Duty to Provide Information

The permittee must furnish to the Department within a reasonable time any information that the Department may request to determine compliance with this permit. The permittee must also furnish to the Department, upon request, copies of records required to be kept by this permit.

Other Information: When the permittee becomes aware that it has failed to submit any relevant facts or has submitted incorrect information in a permit application or any report to the Department, it must promptly submit such facts or information.

8. Signatory Requirements

All applications, reports or information submitted to the Department must be signed and certified in accordance with 40 CFR Section 122.22.

9. Falsification of Information

Under ORS 468.953, any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, is subject to a Class C felony punishable by a fine not to exceed \$100,000 per violation and up to 5 years in prison. Additionally, according to 40 CFR 122.41(k)(2), any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a federal civil penalty not to exceed \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

10. Changes to Indirect Dischargers

The permittee must provide adequate notice to the Department of the following:

- a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of the Clean Water Act if it were directly discharging those pollutants and;
- b. Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
- c. For the purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

SECTION E. DEFINITIONS

1. *BOD* means five-day biochemical oxygen demand.
2. *CBOD* means five day carbonaceous biochemical oxygen demand
3. *TSS* means total suspended solids.
4. "*Bacteria*" includes but is not limited to fecal coliform bacteria, total coliform bacteria, and *E. coli* bacteria.
5. *FC* means fecal coliform bacteria.
6. *Total residual chlorine* means combined chlorine forms plus free residual chlorine
7. *Technology based permit effluent limitations* means technology-based treatment requirements as defined in 40 CFR Section 125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR Chapter 340, Division 41.
8. *mg/l* means milligrams per liter.
9. *kg* means kilograms.
10. *m³/d* means cubic meters per day.
11. *MGD* means million gallons per day.
12. *24-hour Composite sample* means a sample formed by collecting and mixing discrete samples taken periodically and based on time or flow. The sample must be collected and stored in accordance with 40 CFR part 136.
13. *Grab sample* means an individual discrete sample collected over a period of time not to exceed 15 minutes.
14. *Quarter* means January through March, April through June, July through September, or October through December.
15. *Month* means calendar month.
16. *Week* means a calendar week of Sunday through Saturday.
17. *POTW* means a publicly owned treatment works.

FACT SHEET
And
NPDES WASTEWATER DISCHARGE PERMIT EVALUATION

December 27, 2005
Department of Environmental Quality
Western Region – Salem Office
750 Front Street NE, Suite 120, Salem, OR 97301-1039
Telephone: (503) 378-8240

PERMITTEE: City of Hubbard
PO Box 380
Hubbard, OR 97032
File Number: 40494

SOURCE LOCATION: Hubbard STP, 3607 Sunset Drive

SOURCE CONTACT: Jaime Estrada
Telephone Number: 503-982-9429

PERMIT WRITER: Robert A. Dicksa
Telephone Number: 503-378-8240, Ext. 246

PROPOSED ACTION: Renewal of NPDES wastewater discharge permit

SOURCE CATEGORY: Minor Domestic

TREATMENT SYSTEM CLASS: Level III

COLLECTION SYSTEM CLASS: Level II

PERMIT APPLICATION DATE: April 21, 2003

PERMIT APPLICATION NUMBER: 984646

BACKGROUND

Introduction

City of Hubbard operates a wastewater treatment facility located in Hubbard, Oregon (See Figure 1). Wastewater is treated and discharged to Mill Creek in accordance with National Pollutant Discharge Elimination System (NPDES) Permit number 101640 (See Antidegradation Review Sheet Attachment 1). The Permit for the facility was issued on January 27, 1999 and expired on November 30, 2003.

The Department received a renewal application on April 21, 2003. 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.

City of Hubbard Evaluation Report
Page 2

Facility Description

The current wastewater treatment facility was originally placed into operation in 1985. The last major upgrade to the facility was completed in November 2001. The permittee completed and brought on line an ultraviolet (UV) disinfection system, replacing the old gaseous chlorine facilities in order to comply with a new NPDES permit limits for total residual chlorine.

The major treatment process used is the Activated Sludge. There are two pump stations in the wastewater collection system. Wastewater enters the plant from a force main into a screen. After screening, the wastewater passes through a Parshall flume for flow measurement and then into a 0.443 million gallon (MG) aeration basin (there is no primary clarifier). The wastewater is aerated by fine air diffusion for approximately three days prior to discharge into a 40 foot, 0.150 MG secondary clarifier. Return activated sludge is lifted by a screw pump and mixed with the raw wastewater discharge to the aeration basin. Waste activated sludge is pumped from the secondary clarifier to the aerobic digester. After clarification and UV disinfection, effluent is discharged to Mill Creek year around at River Mile (RM) 6.2.

In recent years, the permittee has been experiencing problems with control of filamentous bacteria in the aeration basin resulting in discharge of effluent with high Total Suspended Solids (TSS) concentrations. As a result, the City is modifying its treatment plant to address this issue as well as other issues identified in the 2003 Facilities Plan. The plan was approved by the Department in March 2003. Final engineering plans and specifications for the sewage treatment plant modifications were approved by the Department on April 7, 2005. The following is a brief description of the plant modifications to address operational problems and to satisfy reliability and redundancy issues:

The plant headworks will be upgraded to include a 0.25" mechanical screen with a passive bypass channel with a manually cleaned bar screen. The existing aeration basin will be modified to provide two equally sized aeration basins, a selector, and an aerobic digester. The existing aeration basin employs a centered circular clarifier, which will continue to be utilized. During the upgrade the scraping mechanism will be inspected and repaired as necessary. An existing polishing clarifier will continue to be utilized as well, and will also serve as a redundant secondary clarifier. Two existing digesters will remain in operation providing a total plant digester volume of 231,000 gallons. A sludge dewatering facility will be added employing a centrifuge in a metal framed building rated at 495 lb/day, producing dried cake at 21 % solids. Liquid centrate will be pumped back to the selector basin. A concrete slab, metal framed, Biosolids storage building will be constructed adjacent to the dewatering facility. The building will provide 180 days of storage at the design year loading rate. The existing plant's back-up generator will be replaced with a 250k generator.

In order to complete these upgrades and modifications to the facility in a timely manner, the permittee and the Department have entered into a Mutual Agreement and Order (MAO). The MAO contains a compliance schedule for completing the upgrades/modifications/interim permit limits, and a stipulated penalty section for missed compliance deadlines. The Department and

City of Hubbard Evaluation Report
Page 3

the permittee have agreed that the schedule included in the MAO is reasonable and achievable in order to bring the permittee's facility into compliance with the NPDES permit limits in a timely manner.

Biosolids Management and Utilization

The permittee's Biosolids Management Plan has been updated and will be approved by the Department prior to issuance of the proposed permit. All waste sludge must be managed in accordance with the Department 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 the City's 345 acre DEQ approved solids spreading site. Any future land application sites must conform to the site selection criteria in the Biosolids Management Plan and must be located within Western Oregon.

Pretreatment

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

Pollutants Discharged

The current permit allows City of Hubbard to discharge treated effluent from the wastewater treatment plant year around. On a year around basis, the current permit 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. The proposed permit will regulate the same pollutants and will include proposed new limits on pH, temperature, and dissolved oxygen.

Outfalls/Receiving Streams/Impact

The current NPDES permit allows the treatment facility to discharge treated effluent through Outfall 001 to Mill Creek at RM 5.3 year around. However, the Department's new GIS tool identifies the discharge location as River Mile 6.2. The renewal permit will include a river mile of 6.2. The discharge is within the Willamette Basin and Molalla-Pudding sub-basin. The water quality standards for the Willamette Basin (Oregon Administrative Rules 340-041) were developed to protect the beneficial uses for the basin.

Mill Creek is not included on the Department's 2002 List of Water Quality Limited Water Bodies (also called the 303d List). The proposed permit will require effluent monitoring of the discharge including temperature, ammonia, nutrients, total phosphorus, and dissolved oxygen. During the summer of 2005, the Department's water quality monitoring staff will be performing a mixing zone study in Mill Creek at the location of the discharge. The mixing zone study will help the Department determine if there is adequate mixing of the effluent with the ambient water in the receiving stream. Finally, the permit will also contain a Schedule C compliance condition

City of Hubbard Evaluation Report
Page 4

that requires the permittee to evaluate the possibility of using the effluent for reclaimed water or other non-discharging alternatives during the summer period.

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 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 340B, respectively. According to the newly approved use designation maps, Mill Creek is designated as salmon and trout rearing and migration habitat. Salmon and steelhead spawning is not a designated use. Therefore, the applicable numeric temperature criteria are 18 °C during the entire year.

Summer Period

The Department's List of Water Quality Limited Water Bodies (also called the 303(d) List) for 2002, does not list Mill Creek as water quality limited for temperature during the summer. However, each point source may only cause the temperature of the water body to increase up to 0.3 degrees Celsius above the applicable criteria after mixing with either 25% of the stream flow, or at the edge of the mixing zone, whichever is more restrictive. Based on the existing discharge, the Department calculated potential in-stream temperature increases.

The numbers that are normally entered into the thermal calculator spreadsheet are the weekly ten year recurring stream flow of the stream (7Q10), the existing facility average dry weather design flow and the maximum effluent temperature. In order to determine if this discharge has a reasonable potential to violate the temperature standard, the Department had to make a conservative estimate regarding the 7Q10 stream flow of Mill Creek. Therefore, the Department used USGS gauging station number 14202000 for the Pudding River at Aurora, Oregon because Mill Creek is located within the drainage basin of the Pudding River for which this particular gauging station measures the stream flows. The period of record for the measured flows was from October 1, 1928 through September 30, 2003. The Department also estimated that Mill Creek was approximately ten percent of the total Pudding River drainage basin measured by the gauging station at Aurora, Oregon. The calculated 7Q10 flow for the Pudding River at Aurora, Oregon during the summer season from May 1 through October 31 was 23.9 cfs. This number was multiplied by ten percent for estimated 7Q10 flow of 2.39 cfs for Mill Creek.

The Department also estimated that the Hubbard treatment facilities average discharge temperature during the summer season would be approximately 24 degrees Celsius. The Department used the existing design flow of 0.34 MGD and multiplied it by 1.5 to get a weekly design flow of 0.51 MGD. These numbers were then entered into a point source thermal

City of Hubbard Evaluation Report
Page 5

calculator Excel spreadsheet to determine the reasonable potential to violate the temperature standard. In Hubbard's case, allowing for mixing with 25% of the stream under 7Q10 conditions, this discharge has a reasonable potential to violate the temperature standard (See **Attachment 2a**). Therefore, an Excess Thermal Load (ETL) limit must be included in this permit. The proposed limit is 1.0 million kcals per day as a weekly average.

Winter Period

The Department's List of Water Quality Limited Water Bodies (also called the 303(d) List) for 2002, does not list Mill Creek as water quality limited for temperature during the winter. For the winter period from November 1 through April 30, the Department made the same type of estimates for 7Q10 flow in Mill Creek and effluent temperature for the discharge as it did above for the summer period. The calculated 7Q10 flow for the Pudding River at Aurora, Oregon for the winter period was 41.5 cfs. This number was multiplied by 10 percent for estimated 7Q10 flow of 4.15 cfs for Mill Creek.

The Department also estimated that the Hubbard treatment facilities average discharge temperature during the winter season would be approximately 17 degrees Celsius. The average dry weather design flow for the facility is 0.34 MGD. This was multiplied by 1.5 to get a weekly design flow of 0.51 MGD. These numbers were then entered into the point source thermal calculator Excel spreadsheet to determine the reasonable potential to violate the temperature standard. During the winter, allowing for mixing with 25% of the stream under 7Q10 conditions, this discharge **does not** have a reasonable potential to violate the temperature standard (See **Attachment 2b**). Therefore, an Excess Thermal Load limit has not been included in the proposed permit for the winter discharge season.

The Summer Excess Thermal Load limit is considered interim. The permit may be reopened and the summer period Excess Thermal Load limit modified (up or down), when more accurate effluent temperature data becomes available. The proposed permit will include temperature monitoring requirements in Schedule B for the effluent and for Mill Creek at the point of discharge. If the Total Maximum Daily Load (TMDL) for temperature for this sub-basin assigns a summer or winter thermal Waste Load Allocation (WLA) to this source, this permit may be reopened to establish new thermal load limits and/or new temperature conditions or requirements. Compliance with the Excess Thermal Load limit is required upon completion of the timetable in Schedule C or by the expiration date of the permit, whichever is sooner.

Groundwater

Based on the Department's 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.

City of Hubbard Evaluation Report
Page 6

Stormwater

General NPDES permits for storm water are required for facilities with a design flow of greater than 1 MGD if storm water is collected and discharge from the plant site. This facility's design flow is less than 1 MGD therefore no storm water permit is necessary.

Compliance History

This facility was last inspected on February 20, 2003, and was found to be operating in compliance. The Department issued a Class II Notice of Noncompliance (NON) on October 3, 2003 for poor operation and maintenance and excess suspended solids flowing over the weir of the clarifier and discharging into Mill Creek. In recent years, the permittee has been experiencing problems with control of filamentous bacteria in the aeration basin resulting in discharge of effluent high Total Suspended Solids (TSS) concentrations. As a result, the City is upgrading its treatment plant to address this issue as well as other issues identified in the 2003 Facilities Plan. In order to complete these upgrades and modifications to the facility in a timely manner, the permittee and the Department have entered into a Mutual Agreement and Order (MAO). The Department and the permittee have agreed that the schedule included in the MAO is reasonable and achievable in order to bring the permittee's facility into compliance with the NPDES permit limits in a timely manner.

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 the Mill Creek within limits set by Schedule A and the following schedules. All other discharges are prohibited.

The treatment and collection systems are classified as Level III and Level II respectively. Collection system classifications are based on design population or population equivalent to be served by a wastewater treatment system. The projected design population for the City of Hubbard puts the system in a Class II category. Because of the upgrades and modifications to the treatment facility, the treatment system classification has increased from a Level II in the current permit to a Level III in the proposed permit. Wastewater treatment system classifications are derived from total points assigned based on criteria in accordance with OAR 340-049-0025. (See Attachment 5).

Schedule A - Waste Discharge limitations

BOD and TSS concentration and mass limits

Based on the Willamette Basin minimum design criteria, wastewater treatment resulting in a monthly average effluent concentration of 10 mg/L for BOD₅ and TSS must be provided from May 1 - October 31. From November 1 - April 30, a minimum of secondary treatment or equivalent

City of Hubbard Evaluation Report
Page 7

control is required. Secondary treatment for this facility is defined as monthly average concentration limit of 30 mg/L for BOD₅ (or 25 mg/L for CBOD₅) 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 summer BOD₅ concentration limit is 10 mg/L with a weekly average limit of 15 mg/L. The proposed monthly average summer TSS concentration limit is 10 mg/L with a weekly average limit of 15 mg/L.

The proposed monthly average winter BOD₅ concentration limit is 30 mg/L with a weekly average limit of 45 mg/L. The proposed monthly average winter TSS concentration limit is 30 mg/L with a weekly average limit of 45 mg/L.

The summer mass limits for biochemical oxygen demand (BOD₅) and suspended solids (TSS) are based on the design average dry weather flow (ADWF) of 0.34 MGD and the monthly average BOD₅ and TSS concentration limits of 10 mg/L and 10 mg/L, respectively.

The winter mass limits can be based on design average wet weather flow (AWWF) but the Department does not have the necessary information to make the change. The proposed permit bases winter mass discharge limits on the monthly average dry weather design flow and are considered interim in accordance with Oregon Administrative Rule (OAR) 340-041-0061(10)(d).

The proposed permit contains a compliance condition requiring the permittee to submit an engineering study that accurately determines design wet weather flow. The alternative is for the permittee to accept winter mass load limits for BOD₅ and TSS that are based on twice the monthly average dry weather flow. All mass load limitations are rounded to two significant figures.

BOD₅ and TSS

The limits are:

- (1) May 1 - October 31:

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	28	42	56
TSS	10 mg/L	15 mg/L	28	42	56

- (2) November 1 - April 30:

Parameter	Average Effluent Concentrations		Monthly Average lb/day	Weekly Average lb/day	Daily Maximum Lbs
	Monthly	Weekly			
BOD ₅	30 mg/L	45 mg/L	85	130	170
TSS	30 mg/L	45 mg/L	85	130	170

City of Hubbard Evaluation Report
Page 8

Calculations:

(1) Summer BOD₅

- (a) $0.34 \text{ MGD} \times 8.34 \text{ \#/gal} \times 10 \text{ mg/L monthly avg.} = 28 \text{ lbs/day}$
- (b) $28 \text{ lbs/day monthly avg.} \times 1.5 = 42 \text{ lbs/day weekly avg.}$
- (c) $28 \text{ lbs/day monthly avg.} \times 2.0 = 56 \text{ lbs/day daily max.}$

(2) Summer TSS

- (a) $0.34 \text{ MGD} \times 8.34 \text{ \#/gal} \times 10 \text{ mg/L monthly avg.} = 28 \text{ lbs/day}$
- (b) $28 \text{ lbs/day monthly avg.} \times 1.5 = 42 \text{ lbs/day weekly avg.}$
- (c) $28 \text{ lbs/day monthly avg.} \times 2.0 = 56 \text{ lbs/day daily max.}$

(3) Winter BOD₅

- (a) $0.34 \text{ MGD} \times 8.34 \text{ \#/gal} \times 30 \text{ mg/L monthly avg.} = 85 \text{ lbs/day}$
- (b) $85 \text{ lbs/day monthly avg.} \times 1.5 = 130 \text{ lbs/day weekly avg.}$
- (c) $85 \text{ lbs/day monthly avg.} \times 2.0 = 170 \text{ lbs/day daily max.}$

(4) Winter TSS

- (a) $0.34 \text{ MGD} \times 8.34 \text{ \#/gal} \times 30 \text{ mg/L monthly avg.} = 85 \text{ lbs/day}$
- (b) $85 \text{ lbs/day monthly avg.} \times 1.5 = 130 \text{ lbs/day weekly avg.}$
- (c) $85 \text{ lbs/day monthly avg.} \times 2.0 = 170 \text{ lbs/day daily max.}$

BOD and TSS Percent Removal Efficiency

A minimum level of percent removal for BOD₅ and TSS for municipal dischargers is required by the Code of Federal Regulations (CFR) secondary treatment standards (40 CFR, Part 133). An 85 percent removal efficiency limit is included in the proposed permit to comply with federal requirements.

pH

The Willamette Basin Water Quality Standard for pH is found in OAR 340-041. The allowed range is 6.5 to 8.5. Generally pH permit limits for treatment plants range from 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. Previously, the Department believed that mixing with ambient water within the mixing zone would ensure that the pH at the edge of the mixing zone met the standard.

City of Hubbard Evaluation Report
Page 9

However, the Department used a new spreadsheet to evaluate the pH of the effluent mixed with ambient water within the mixing zone. During the summer discharge season, the Department used the 90th percentile high and low stream pH and the dilution achieved within the mixing zone. The spreadsheet predicted that a lower pH limit of 6.0 would not be protective of the water quality standard (See Attachment 3a). Therefore, the Department is proposing a new lower pH limit in this permit action (See Attachment 3b). During the winter season, the Department also used the 90th percentile high and low stream pH and the dilution achieved within the mixing zone. The spreadsheet predicted that the current pH limits of 6.0 to 9.0 would also not be protective of the water quality standard (See Attachment 4a). Therefore, the Department is proposing a new lower pH limit in this permit action (See Attachment 4b). The proposed limits year around are 6.4 to 9.0.

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 48 hours after the original sample was taken. The proposed effluent limits are achievable through proper operation and maintenance.

Chlorine Residual

The treatment facility uses ultra-violet light to disinfect the treated wastewater. No chlorine or chlorine compounds may be used for disinfection purposes and no chlorine residual will be allowed in the effluent due to chlorine used for maintenance purposes.

Excess Thermal Load

As discussed above, this facility has a reasonable potential to violate the temperature standard during the summer period. The calculated in-stream temperature increase has a reasonable potential to exceed the "Human Use Allowance" using dilution achieved in the mixing zone. Therefore, an Excess Thermal Load Limit (ETL) must be included in this permit. The formula for calculating the ETL is as follows:

$$ETL = 3.78541Q_e S \Delta T C_p \rho$$

Where: 3.78541 = flow conversion from MGD to m³/day
Q_e = effluent flow in MGD

City of Hubbard Evaluation Report
Page 10

S = dilution in mixing zone
 ΔT = allowable temperature increase in °C
 C_p = specific heat of water (1 cal/g °C)
 ρ = density of water (1 g/cm³)

Therefore, the limit is:

$$ETL = (3.78541)(0.51 \text{ MGD})(1.76)(0.3^\circ\text{C})(1.0 \text{ cal/g}^\circ\text{C})(1.0 \text{ g/cm}^3) = 1.0 \text{ Million Kcals/day}$$

This limit is applied as a weekly average from May 1 through October 31 each year. The ETL is considered interim and the permit may be reopened and the thermal load limit adjusted up or down or eliminated when more accurate temperature or dilution data becomes available. If the Total Maximum Daily Load (TMDL) for temperature for this sub-basin assigns a Waste Load Allocation (WLA) to this source, this permit may be re-opened to establish new thermal load limits and/or new temperature conditions or requirements.

Mixing Zone and Zone of Immediate Dilution

The allowable mixing zone is that portion of Mill Creek where the effluent mixes with 25 percent of the stream flow but in no case shall it extend farther than five feet from the east bank of the creek and from a point ten feet upstream of the outfall to a point 100 feet downstream from the outfall. The Zone of Immediate Dilution (ZID) shall be defined as that portion of the allowable mixing zone that is within two feet of the point of discharge.

The Department believes that the beneficial uses of the receiving stream will not be affected by the discharge and this mixing zone and that the defined mixing zone meets the criteria in the rule.

Groundwater

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

Schedule B - Minimum Monitoring and Reporting Requirements

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

City of Hubbard Evaluation Report
Page 11

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.

Monitoring for *E. coli* must be performed in accordance with one of the methods approved by the Department.

The UV disinfection process must be monitored on a daily basis for UV dose intensity.

Daily monitoring of influent flow is required in this permit. In addition, calibration of the flow meter is required on an annual basis.

Temperature monitoring of the effluent is required. In addition, the permittee will be required to calculate the weekly average temperature of the effluent and the weekly thermal load discharged.

Volatile solids reduction in the Biosolids is the process used to demonstrate compliance with vector attraction reduction requirements. Monitoring of volatile solids reduction is proposed in the renewal permit

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 application of biosolids and all applicable equipment breakdowns and bypassing.

Schedule B of the permit includes the requirement for the submittal of annual reports. The conditions are standard language requirements concerning:

- Annual report on inflow and infiltration removal
- Annual report on land application of Biosolids

Schedule C - Compliance Conditions

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

- Schedule C of the Permit includes a compliance condition requiring that the permittee submit either an engineering evaluation which demonstrates the design average wet weather flow, or a request to retain the existing mass load limits.
- Schedule C of the Permit includes a compliance condition requiring the permittee to submit a proposed program and time schedule for identifying and reducing inflow if the permittee requests a permit modification to include higher winter mass load limits based on wet weather flow.

City of Hubbard Evaluation Report
Page 12

- Schedule C of the Permit includes a compliance condition requiring submittal a report identifying known raw sewage overflow points and providing a schedule to eliminate the overflows.
- Submittal of a report by no later than October 31, 2008, that evaluates the feasibility of land application alternatives to the summer discharge to Mill Creek.
- Submittal of an evaluation of whether or not the treatment facilities can consistently comply with the Waste Load Allocation (WLA) and all other requirements of the TMDL for temperature. If the evaluation indicates that the facilities cannot consistently comply with the TMDL, then the permittee shall complete an additional schedule necessary for compliance with the TMDL.
- Submittal of data summary report by no later than December 31, 2010. The data summary report shall contain but not be limited to monitoring and sampling information from the effluent on temperature, toxics, and dissolved oxygen.
- 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 five special conditions. The requirements include:

- Schedule D of this permit includes conditions requiring the permittee to manage the land application of biosolids in accordance with the approved biosolids management plan.
- A condition that the permit may be modified to incorporate any applicable standard for biosolids use or disposal promulgated under section 405(d) of the Clean Water Act.
- 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.
- The permittee shall notify the Departments Western Region – Salem Office of any malfunctions so that corrective action can be coordinated between the permittee and the Department in accordance with the General Conditions of this permit.

ATTACHMENT 1

Appendix B: Antidegradation Review Sheet

ANTIDEGRADATION REVIEW SHEET FOR A PROPOSED INDIVIDUAL NPDES DISCHARGE

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

Briefly describe the proposed activity:

Is this review for a renewal OR new (circle one) permit application?
Go to Step 2.

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.

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

- Yes. Go to Step 8.
- No. Go to Step 4.

4. Is this surface water a **Water Quality Limited Water**?

- Yes. Go to Step 14.
 - No. Go to Step 2. Note: The surface water must fall into one of three (3) categories: Outstanding Resource Water (Step 2), High Quality Water (Step 3), or Water Quality Limited Water (Step 4).
-

14. Will the proposed activity result in a Lowering of 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 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 15.
- No. Proceed with Permit Application. Applicant should provide basis for conclusion. Go to Step 21.

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: Western Region-Salem

Review Prepared By: Robert A. Dicksa
Phone: 503-378-8240, ext. 246
Date Prepared: June 24, 2005

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: City of Hubbard
Address: PO Box 380
Hubbard, OR 97032
Phone: 503-982-9429

Attachment 2a-summer

Facility Name: City of Hubbard Date: 6/17/2005

Enter data into white cells below:

7Q10 =	2.39 cfs
Ambient Temperature or Criterion	18 °C
Effluent Flow =	0.51 mgd
Effluent Temperature	24 °C
Allowable increase =	0.3 °C

25% of 7Q10 = 0.60 cfs

25% dilution = 1.76 dilution = (Qe+Qr)/Qe

ΔT at edge of MZ =	3.42 °C	Reasonable Potential
----------------------------	---------	----------------------

Thermal Load Limit =	1.0	Million Kcals
----------------------	-----	---------------

Attachment 2a-summer

Facility Name: _____ Date: 6/17/2005

Enter data into white cells below:

Dilution = 1.76

Ambient Temperature or Criterion 18 °C

Effluent Temperature 24 °C

Allowable increase = 0.3 °C

Effluent Flow Rate = 0.51 mgd

ΔT at edge of MZ = 3.41 °C Reasonable Potential

Thermal Load Limit = 1.0 Million Kcals

Attachment 2b-winter

Facility Name: City of Hubbard Date: 6/17/2005

Enter data into white cells below:

7Q10 =	4.15 cfs
Ambient Temperature or Criterion	18 °C
Effluent Flow =	0.51 mgd
Effluent Temperature	17 °C
Allowable increase =	0.3 °C

25% of 7Q10 = 1.0 cfs

25% dilution = 2.31 dilution = (Qe+Qr)/Qe

ΔT at edge of MZ = -0.43 °C No Reasonable Potential

Thermal Load Limit = N/A Million Kcals

Attachment2b-winter

Date: 6/17/2005

Facility Name: City of Hubbard

Enter data into white cells below:

Dilution = 2.31

Ambient Temperature or Criterion 18 °C

Effluent Temperature 17 °C

Allowable increase = 0.3 °C

Effluent Flow Rate = 51 mgd

ΔT at edge of MZ = -0.43 °C No Reasonable Potential

Thermal Load Limit = N/A Million Kcals

ATTACHMENT 3A

Calculation of pH of a mixture of two flows.
Based on the procedure in EPA's DESCUN program (EPA, 1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington D.C.)

INPUT	Lower pH	Upper pH
1. DILUTION FACTOR AT MIXING ZONE BOUNDARY	1.76	1.76
1. UPSTREAM/BACKGROUND CHARACTERISTICS		
Temperature (deg C):	18.0	18.0
pH:	7.0	7.6
Alkalinity (mg CaCO ₃ /L):	25.0	25.0
2. EFFLUENT CHARACTERISTICS		
Temperature (deg C):	24.0	24.0
pH:	6.0	9.0
Alkalinity (mg CaCO ₃ /L):	75.0	75.0
OUTPUT		
1. IONIZATION CONSTANTS		
Upstream/Background pKa:	6.40	6.40
Effluent pKa:	6.36	6.36
2. IONIZATION FRACTIONS		
Upstream/Background Ionization Fraction:	0.80	0.94
Effluent Ionization Fraction:	0.31	1.00
3. TOTAL INORGANIC CARBON		
Upstream/Background Total Inorganic Carbon (mg CaCO ₃ /L):	31.23	26.56
Effluent Total Inorganic Carbon (mg CaCO ₃ /L):	245.21	75.17
4. CONDITIONS AT MIXING ZONE BOUNDARY		
Temperature (deg C):	21.41	21.41
Alkalinity (mg CaCO ₃ /L):	53.41	53.41
Total Inorganic Carbon (mg CaCO ₃ /L):	152.81	54.18
pKa:	6.37	6.37
pH at Mixing Zone/ZID Boundary:	6.1	8.2

ATTACHMENT 3B

Calculation of pH of a mixture of two flows.
 Based on the procedure in EPA's DESCUN program (EPA, 1988. Technical
 Guidance on Supplementary Stream Design Conditions for Steady State
 Modeling. USEPA Office of Water, Washington D.C.)

INPUT	Lower pH
1. DILUTION FACTOR AT MIXING ZONE BOUNDARY	1.76
1. UPSTREAM/BACKGROUND CHARACTERISTICS	
Temperature (deg C):	18.0
pH:	7.0
Alkalinity (mg CaCO ₃ /L):	25.0
2. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	24.0
pH:	6.4
Alkalinity (mg CaCO ₃ /L):	75.0
OUTPUT	
1. IONIZATION CONSTANTS	
Upstream/Background pKa:	6.40
Effluent pKa:	6.36
2. IONIZATION FRACTIONS	
Upstream/Background Ionization Fraction:	0.80
Effluent Ionization Fraction:	0.53
3. TOTAL INORGANIC CARBON	
Upstream/Background Total Inorganic Carbon (mg CaCO ₃):	31.23
Effluent Total Inorganic Carbon (mg CaCO ₃ /L):	142.76
4. CONDITIONS AT MIXING ZONE BOUNDARY	
Temperature (deg C):	21.41
Alkalinity (mg CaCO ₃ /L):	53.41
Total Inorganic Carbon (mg CaCO ₃ /L):	94.60
pKa:	6.37
pH at Mixing Zone/ZID Boundary:	6.5

ATTACHMENT 4A

Calculation of pH of a mixture of two flows.
 Based on the procedure in EPA's DESCUN program (EPA, 1988. Technical
 Guidance on Supplementary Stream Design Conditions for Steady State
 Modeling. USEPA Office of Water, Washington D.C.)

INPUT	Lower pH	Upper pH
1. DILUTION FACTOR AT MIXING ZONE BOUNDARY	2.31	2.31
1. UPSTREAM/BACKGROUND CHARACTERISTICS		
Temperature (deg C):	12.0	12.0
pH:	7.0	7.3
Alkalinity (mg CaCO ₃ /L):	25.0	25.0
2. EFFLUENT CHARACTERISTICS		
Temperature (deg C):	17.0	17.0
pH:	6.0	9.0
Alkalinity (mg CaCO ₃ /L):	75.0	75.0
OUTPUT		
1. IONIZATION CONSTANTS		
Upstream/Background pKa:	6.45	6.45
Effluent pKa:	6.40	6.40
2. IONIZATION FRACTIONS		
Upstream/Background Ionization Fraction:	0.78	0.88
Effluent Ionization Fraction:	0.28	1.00
3. TOTAL INORGANIC CARBON		
Upstream/Background Total Inorganic Carbon (mg CaCO ₃ /L):	31.98	28.50
Effluent Total Inorganic Carbon (mg CaCO ₃ /L):	265.17	75.19
4. CONDITIONS AT MIXING ZONE BOUNDARY		
Temperature (deg C):	14.16	14.16
Alkalinity (mg CaCO ₃ /L):	46.65	46.65
Total Inorganic Carbon (mg CaCO ₃ /L):	132.93	48.71
pKa:	6.43	6.43
pH at Mixing Zone/ZID Boundary:	6.2	7.8

ATTACHMENT 4B

Calculation of pH of a mixture of two flows.
 Based on the procedure in EPA's DESLON program (EPA, 1988. Technical
 Guidance on Supplementary Stream Design Conditions for Steady State
 Modeling. USEPA Office of water, Washington D.C.)

INPUT	Lower pH
1. DILUTION FACTOR AT MIXING ZONE BOUNDARY	2.31
1. UPSTREAM/BACKGROUND CHARACTERISTICS	
Temperature (deg C):	12.0
pH:	7.0
Alkalinity (mg CaCO ₃ /L):	25.0
2. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	17.0
pH:	6.4
Alkalinity (mg CaCO ₃ /L):	75.0
OUTPUT	
1. IONIZATION CONSTANTS	
Upstream/Background pKa:	6.45
Effluent pKa:	6.40
2. IONIZATION FRACTIONS	
Upstream/Background Ionization Fraction:	0.78
Effluent Ionization Fraction:	0.50
3. TOTAL INORGANIC CARBON	
Upstream/Background Total Inorganic Carbon (mg CaCO ₃ /L):	31.98
Effluent Total Inorganic Carbon (mg CaCO ₃ /L):	150.71
4. CONDITIONS AT MIXING ZONE BOUNDARY	
Temperature (deg C):	14.16
Alkalinity (mg CaCO ₃ /L):	46.65
Total Inorganic Carbon (mg CaCO ₃ /L):	83.38
pKa:	6.43
pH at Mixing Zone/ZID Boundary:	6.5

Wastewater System Classification Worksheet for Operator Certification

OAR 340-049-0020

Attachment 5

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.

Wastewater System Classification Worksheet for Operator Certification OAR 340-049-0020 Attachment 5

WW System Common Name: City of Hubbard

Facility ID: 40494 Location: 3607 Sunset Drive, Hubbard, OR 970332

Total Points (from page 3): 67 WWT Class (check): I II III IV

Design Population¹: 3826 WWC Class (check): I II III IV

Design ADWF load (Influent MGD) 0.128 Design BOD load (Influent lbs./day) 707

Classified by: Robert A. Dicksa Date: June 24, 2005

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)
- Less than 750 0.5 points
 - 751 to 2000 1 point
 - 2001 to 5000 1.5 points
 - 5001 to 10,000 2 points
 - Greater than 10,000 3 points plus 1 per 10,000
- Point subtotal 1.5

- (2) **Average Dry Weather Flow (Design Capacity) Points** (10 points Maximum)
- Less than 0.075 MGD 0.5 point
 - Greater than 0.075 to 0.1 MGD 1 point
 - Greater than 0.1 to 0.5 MGD 1.5 points
 - Greater than 0.5 to 1.0 MGD 2 points
 - Greater than 1.0 MGD 3 points plus 1 per 1 MGD
- Point subtotal 1.5

- (3) **Unit Process Points** (Check all that apply)
- Preliminary Treatment and Plant Hydraulics:**
- Comminution (includes shredders, grinders, etc.) 1 point
 - Grit Removal, gravity 1 point
 - Grit Removal, mechanical 2 points
 - Screen(s), in-situ or mechanical 1 point
 - Pump/Lift Station(s) (pumping of main flow) 2 points
 - Flow Equalization (any type) 1 point
- Point subtotal 4
- Primary Treatment:**
- Community Septic Tank(s) 2 points
 - Clarifier(s) 5 points
 - Flotation Clarifier(s) 7 points
 - Chemical Addition System 2 points
 - Imhoff Tank (or similar) 3 points
- Point subtotal 5
Total Points Page 1 12

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

Page 1 of 2

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 checked="" 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 15

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 checked="" 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 checked="" 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 checked="" 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 type="checkbox"/> Non-Beneficial Sludge Disposal | 1 point |
| <input type="checkbox"/> Beneficial Sludge Utilization | 3 points |

Point subtotal 14

Disinfection:

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

Point subtotal 5

