



State of Washington Department of Ecology
**WASTEWATER TREATMENT PLANT
 COMPLIANCE INSPECTION REPORT**

Northwest Regional Office
 3190160th Ave SE
 Bellevue, WA 98008
 (425) 649-7000 ph
 (425) 649-7098 fax
 (last update 4-15-05)

Section A: General Information

Report Version <input checked="" type="checkbox"/> New <input type="checkbox"/> Amended	PERMIT # WA-002056-7	mo/day/yr 10/18/05	Inspection Type B	Inspector Code E	Facility Type <input checked="" type="checkbox"/> Public <input type="checkbox"/> Private
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Remarks

Inspection of 2 facilities covered under 1 NPDES permit

Inspection work days 4.0	Facility Self-Monitoring Evaluation Rating 4	Photos Taken <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Taken <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Lead Ecology Inspector(s) Amy Jankowiak, Lori LeVander
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Section B: Facility Data

Name and Location of Facility Inspected and Phone City of Oak Harbor Wastewater Treatment Plants RBC Plant: 1501 SE City Beach Dr. Lagoon: 60 E. Pioneer Ave. Oak Harbor, WA 98277	Entry Time 9:50 AM	Permit Effective Date June 1, 2005
	Exit Time 3:15 PM	Permit Expiration Date May 25, 2010

Name(s) of On-Site Representative(s)/Title(s) Bob Jarski, Operations Manager Rob Kelley, Lead Operator Scott Hubbard, Lab Coordinator	Ecology Staff On-Site Amy Jankowiak, Lori LeVander, Shawn McKone, Jaron Smith
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Name, Address of Responsible Official/Title/Phone and Fax Number. Bob Jarski, Operations Manager City of Oak Harbor – Public Works 865 SE Barrington Dr. Oak Harbor, WA 98277 Phone Number 360-279-4754 Fax 360-679-3902 Contacted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other Facility Data Web: www.oakharbor.org Email: bob.jarski@oakharbor.org
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Section C: Areas Evaluated During Inspection (Check only those areas evaluated)

<input checked="" type="checkbox"/> Permit	<input checked="" type="checkbox"/> Flow Measurement	<input checked="" type="checkbox"/> Operations & Maintenance	<input checked="" type="checkbox"/> CSO/SSO (Sewer Overflow)
<input checked="" type="checkbox"/> Records/Reports	<input checked="" type="checkbox"/> Self-Monitoring Program	<input checked="" type="checkbox"/> Sludge Handling/Disposal	<input checked="" type="checkbox"/> Pollution Prevention
<input checked="" type="checkbox"/> Facility Site Review	<input type="checkbox"/> Compliance Schedules	<input type="checkbox"/> Pretreatment	<input type="checkbox"/> Multimedia
<input checked="" type="checkbox"/> Effluent/Receiving water	<input checked="" type="checkbox"/> Laboratory	<input checked="" type="checkbox"/> Storm Water	<input type="checkbox"/> Other

Section D: Summary of Findings/Comments

INTRODUCTION

A Regional Class II Inspection was conducted at the City of Oak Harbor RBC and Lagoon Wastewater Treatment Facilities on October 18, 2005. Amy Jankowiak, Ecology's Northwest Regional Office Water Quality (NWRO WQ) Municipal Compliance Specialist, and Lori LeVander, NWRO WQ, conducted the inspection with assistance from Shawn McKone NWRO-WQ Municipal Permit Manager and Jaron Smith, NWRO WQ Stormwater Inspector. Plant personnel assisting in the inspection were Bob Jarski, Operations Manager, Rob Kelley, Lead Treatment Plant Operator, and Scott Hubbard, Lab Coordinator. This was an announced inspection.

These facilities are regulated by Permit no. WA-002056-7 issued on May 25, 2005, and expiring on May 25, 2010.

The purpose of this inspection was to fulfill the regional Class II inspection requirements by conducting a site inspection, records review, assessing the permittee's self-monitoring, splitting samples with the permittee to determine the comparability of sampling methods and laboratory results, and sampling permit-limited parameters

SYSTEM OVERVIEW

Collection: The collection system consists of approximately 65 miles of gravity pipe and 5 miles of force mains. Of the 65 miles of gravity sewer, there is approximately 26 miles of PVC pipe construction, with the rest being of clay, concrete and reinforced concrete pipe. The city has nine, soon to be ten, remote sewage pumping stations located throughout the city, varying in size from 3-Hp to 30-Hp. Each of the pumping stations has connections for portable generator hookups and nine stations have automated alarm systems for high level detection and power outages. The city has one portable generator and one six inch by-pass pump.

Operation and maintenance of the collection system is performed by city staff, led by Steve Bebee, who utilize a jetting/vactor truck, sewer television monitoring equipment, and manhole grouting equipment. The entire sewer system gets cleaned every three to five years, with some areas getting cleaned every six months. All newly constructed sewers get televised before acceptance and existing older lines get televised when problems are suspected or when new service connections are made to them.

All collected sanitary flow is directed to a single diversion pump station, located at the RBC treatment facility. At this point, flow goes through a bar screen where gates direct a limited amount of flow (approximately 0.7 MGD) to the RBC plant for treatment; and the remaining flow is pumped approximately 3 miles to the lagoon treatment facility. In September of 2005, a break in the force main from the diversion pump station to the lagoon facility highlighted vulnerability in the system. With the main out commission, it was necessary to divert flows well in excess of the RBC plant's rated capacity to that facility for treatment. During this period, approximately 2 days, overall treatment efficiencies were substantially diminished and closures of nearby shellfish beds were necessary. Follow-up investigations by the city identified approximately 3,000 feet of the ductile iron force main that is at risk of failure due to the corrosive nature of soil in the lower sections of town. The city is presently evaluating alternatives to remedy this problem.

RBC facility: The RBC plant (photo #01) was built in 1978 as an upgrade to a pre-existing primary plant. Parts of the primary plant, including the primary clarifiers, were incorporated into the secondary design. In late 1985, BOD loadings to the RBC plant suddenly increased, impacting performance. A plant evaluation revealed that influent greases were unusually high and were causing problems. In 1994 the City passed a grease trap ordinance and began a rigorous inspection and enforcement program (Scott Hubbard responsible for inspection and enforcement). As a result treatment plant performance improved significantly. In 1995 and 1996, the City received approval of an engineering report addendum, which recommended an increase to the approved design loading criteria for BOD for the RBC plant, from 1200 pounds per day (ppd) to 1500 ppd. These ratings were reassessed in 2004 in an addendum engineering report which recommended increasing the approved loading rate to 2000 ppd.

Flow from the nearby park and campground enters the RBC plant after screening and sampling. Recycle flow from plant drains and the sludge thickener decant also enters in at this point. It is recommended that the City look into the approximate percentage of flow, at peak time, that the Park contributes to the RBC plant. If it is a large enough percentage, this waste stream should be included in influent sampling.

Liquid Stream:

The RBC facility consists of bar screens (photo #02; at the diversion pump station), a grit chamber, influent pump station, primary clarification, rotating biological contactors (RBC's), secondary clarification, disinfection with chlorine, dechlorination with Captor (calcium sulfate) and an effluent pump station used for certain tide stages.

Flow enters the plant and is screened at the diversion pump station. Influent sampling is conducted after screening and before recycle flows enter the plant. From screening, the flow goes to a grit chamber (photo #06) where mixing occurs. A cyclone separates the grit, which is collected and dewatered; decant returns to the flow stream. The flow then passes through comminutors prior to entry into the primary clarifiers (photos #09 and #010). There are three independent clarifiers, which are typically all in operation unless cleaning. The primary clarifiers have bottom flights as well as skimmers on top. Grease was visible in the comminutor area (photo #07) and at the effluent ends of the primary clarifiers. Scum is collected from the clarifiers and sent to a scum basin (photo #08).

The flow from the primary clarifiers is combined at the splitter box and then split evenly between the two RBC trains. There are two shafts in each train (photos #011, #012, and #013). Two large blowers feed all 4 RBC's. RBC's are cleaned about 2-3 times per year and sluffings are drained to the grit chamber. The RBC's are cleaned with caustic soda to achieve a complete biological kill about once a year. The flows from the RBC's stay separated as they enter the secondary clarifiers (two). The secondary clarifiers (photo #014) are lateral feed. The weirs are hosed down about once a week which includes dropping the level 2-3 feet. About once every 3 months the clarifiers are emptied and cleaned. The clarifiers are also steam cleaned about twice a year.

Clarified effluent is then sent to a flash mixer where chlorine is added and then onto a contact chamber. The contact chamber has two trains with about a 30 minute contact time (photo #015). Liquid chlorine is generated on-site. Captor (calcium thiosulfate) is used for dechlorination at the end of the contact chamber. The chamber is cleaned in the same manner as the secondary clarifiers. Effluent sampling is conducted at the end of the chlorine contact chamber. Effluent flow is sent through the outfall and is pumped (photo #016) as needed when high tides do not allow for sufficient gravity flow.

Solids Stream:

Screenings (photo #03) and grit are collected and sent to the landfill about once a week. Scum is collected and sent to the digester, decant goes to the grit chamber. In August of 1997 a new sludge thickener was added to the RBC plant, resolving an old problem associated with the handling of sludge removed from the primary and secondary clarifiers. Thickened sludge goes to the primary digester then to the old digester is mixed and tested before being transported to the lagoon facility through the diversion force main for further digestion in the anaerobic treatment cell.

Flow Measurement:

Flow is measured on the effluent only with an ultrasonic magmeter. The meter is calibrated once a year by Read Instruments. They also have a portable flow meter available. There has been concern about a lack of flow measurement on dechlorination. Flow measurement should be in operation for dosing accuracy.

Sampling:

Influent sampling is conducted after screening and prior to recycle flows with a refrigerated composite sampler (photo #019). The composite sampler is flow proportional. Effluent composite sampling is conducted at the end of the chlorine contact chamber after dechlorination with a flow proportional refrigerated composite sampler (photo #018). Effluent grab samples are taken in the same location (photo #017). Both composite sampler temperatures were within the required range of 2°C and 4°

Alarms/Back-up Power:

An on-site generator is capable of running the whole plant. The City is hiring or contracting with a new company to run the generator under load monthly. Critical facility components are alarmed. All pump stations are alarmed to the plant. The pump stations either have on-site generators or have hook-ups with portable generators available.

Lagoon facility: The sewage lagoon system was previously operated by Naval Air Station Whidbey (NAS), to serve the seaplane base housing areas. Under a 50-year lease agreement, the City of Oak Harbor now operates and maintains the lagoon plant to serve both the NAS facilities and part of the City. By means of a flow diversion pump station, force mains and siphon constructed in 1991, wastewater flows in excess of the 0.7 MGD (maximum monthly average) design flow of the RBC plant are now transferred to the sewage lagoon system. As part of the lease agreement, the City deepened and lined the lagoons in 1990-91, constructed new disinfection facilities and extended the outfall. The lagoon facility currently has an approved maximum monthly average design flow of 2.5 MGD.

In 2003, several tears were discovered in the lining of the NW lagoon cell, prompting the need for emergency repair and re-evaluation of the lagoon system's treatment capabilities. Plans and specifications for modifying the NW lagoon cell to include an anaerobic pretreatment cell were submitted to the Department in April 2004. Construction of an anaerobic cell occurred later that year and the modified system was brought online in December 2004. The modified system retained the existing hydraulic capacity of the original system and increased the system's ability to remove suspended solids, BOD and nutrients. The intent of the anaerobic cell is to improve ammonia removal in the system and, in turn, decrease the growth of algae in the lagoon cells during the summer months. The algal biomass contributes to increased potential BOD and TSS discharges from the facility. To compensate for the increased BOD and TSS, the city has been using a polymer-based coagulation tertiary treatment to remove algae prior to discharge. The anticipated improvements with the anaerobic cell would minimize the need to operate the tertiary treatment system. At present, the anaerobic cell is not removing ammonia as expected and algal blooms still occur within the lagoons.

The lagoon treatment facility (photos #021 and #022) consists of coarse bar screens at the diversion pump station, influent flow measurement with a Parshall flume, macerators, an anaerobic pretreatment lagoon, three aerated lagoons, disinfection with chlorine, and an effluent pump station for discharge at high tides. This facility also includes a diversion structure to allow effluent polishing in a physical-chemical treatment system. The physical chemical system includes two flash mix basins, two flocculation basins and two rectangular clarifiers. The system is capable of feeding both ferric sulfate and polymer. The tertiary plant is capable of handling 0.885 mgd average flow, while the lagoons have a maximum month average design flow of 2.5 mgd. Space is available to construct a fourth lagoon cell as needed for expansion.

Flow enters the lagoon site via a siphon at the headworks. There is no grit removal with the exception of a minimal amount from the siphon. Two macerators are located at the headworks (photo #024). Flow then goes to the new anaerobic pretreatment cell which consists of "pits" with a floating cover. Flow from the anaerobic lagoon goes to the NW lagoon, then into either the NE lagoon which flows to the SE lagoon, or directly to the SE lagoon. Flow from the lagoons is either sent directly to the chlorine contact chamber or goes first to the tertiary treatment prior to chlorination. Flow going to the tertiary physical-chemical treatment system is flash mixed and then flocculated in basins prior to going to rectangular clarifiers (photo #028). The clarifiers have floats that skim (photo #029). Skimmings and solids at the bottom are sent back to the influent of the lagoon. The tertiary system was in use at the time of the inspection, and is typically used during warm weather to remove algae prior to discharge. Nitrate lock can be an issue requiring a buffer to get a residual.

Flow Measurement:

Flow is measured at the influent via a Parshall flume/ultrasonic meter (photo #023). Effluent flow is measured with a propeller type meter at the tertiary treatment area (photo #031).

Sampling:

Influent sampling is conducted with a refrigerated composite sampler. The composite sampler is flow proportional. Effluent grab samples are taken at the end of the tertiary clarifiers if the tertiary system is being used and at the end of the chlorine contact chamber if the tertiary system is not in use. Effluent composite sampling is conducted at the end of the chlorine contact chamber with a flow proportional refrigerated composite sampler. Both composite sampler temperatures were within the required range of 2°C and 4°C.

RESULTS AND DISCUSSIONStaffing:

The facilities are staffed from 7 am to 3:30 pm Monday through Friday and staff does rounds on Saturday and Sunday. Staff is on-call during off hours 24/7. Bob Jarski is the chief operator (Operator in Responsible Charge) at a group IV level. Rob Kelley is a group II; Scott Hubbard is a group III; Phil Matthews is a group II; Dale Thayer is a group III; and Steve Bebee is a group I.

Records Review:

Records were reviewed and showed consistency with records submitted to Ecology. A copy of the current permit was on site. Other records were also well kept. A few recommendations on bench sheets were made including discontinuing the use of white out. Errors should be crossed out (1 line), initialed and the correct value written next to the crossed-out value.

Operations and Maintenance Records Review: The city uses computer-based maintenance tracking programs for scheduling and tracking of routine maintenance activities. Most records for routine maintenance performed by plant staff are stored within the program's database. Records of maintenance activities performed by outside contractors are not generally kept on site. These records are generally forwarded to the Public Works office.

The O&M manual for the RBC facility is not up to date and most substantial O&M manual changes/additions have not been forwarded to the Department for review. As the last substantial change to the RBC facility was made in 1997 (addition of the sludge thickener), submission of unapproved manuals is not practical at this point and will not be required. However, staff was reminded that condition S.5.G of their current permit requires an annual evaluation of their manual for accuracy and adequacy. They were also reminded that any further substantial facility changes will require the submission of an updated O&M manual for approval.

Split Sampling:

Composite and grab samples were taken and split (photos #017, #020, and #030) on October 18, 2005 after Ecology arrived.

RBC Facility:

Parameter	Influent		Effluent	
	Oak Harbor	Ecology	Oak Harbor	Ecology
CBOD ₅ (mg/L)	184	222	14 (92%)	17 *(92%)
TSS (mg/L)	182	288	8 (96%)	6 (98%)
Fecal Coliform Bacteria (#/100 mL)			9	34/20

The numbers in parenthesis are percent removal values.

For Fecal Coliform, the number after the parenthesis is the duplicate result

* Result is an estimate due to chlorine in the sample, which may have caused interference.

Lagoon Facility:

Parameter	Influent		Effluent	
	Oak Harbor	Ecology	Oak Harbor	Ecology
BOD ₅ (mg/L)	NA	256	NA	NA
CBOD ₅ (mg/L)	174	216	12 (93%)	100 *(54%)
TSS (mg/L)	222	192	26 (88%)	27 (86%)
Fecal Coliform Bacteria (#/100 mL)			4	120

The numbers in parenthesis are percent removal values.

* Result is an estimate due to chlorine in the sample, which may have caused interference.

Samples were split to determine the comparability of Ecology's and Oak Harbor's laboratory results and sampling methods. While some of the results were in very close agreement (RBC CBOD effluent, RBC TSS effluent, and Lagoon TSS effluent), others were not in close agreement. The cause of the variability could be inherent variability in influent samples, different holding times (due to Ecology transport time), chlorine interference in Ecology's CBOD effluent samples, or some other unknown reason. It is recommended that re-sampling be conducted for both the RBC plant and the Lagoon plant for all parameters in the near future. Similar holding times should be used and a check for chlorine residual in the CBOD effluent samples should be conducted.

Chemical Storage:

The storage of chemicals and empty chemical containers at both the RBC facility and the Lagoon facility should be evaluated. Chemicals should be stored in secondary containment and covered if possible. The coagulant stored outside does not have proper secondary containment (photo #04). There were empty or near empty drums near the headworks of the lagoon and next to wetlands (photos #025 and #026). Empty drums should be properly sealed and removed (to a proper disposal/recycling site) in a timely manner. There was also used coagulant/chemical storage barrels stored outside near the lagoon tertiary treatment area on bare ground (photo #032). These chemicals, if not used, should be removed (to a proper disposal/recycling site) in a timely manner, or if used, should be stored in secondary containment.

CONCLUSION

Overall, the both facilities appeared to be clean and operating well. The preventative maintenance and ample cleaning schedule is of high quality.

It is recommended that the City look into the approximate percentage of flow, at peak time, that the Park contributes to the RBC plant. If it is a large enough percentage, this waste stream should be counted in influent sampling.

RBC - There has been concern about a lack of flow measurement on dechlorination. Flow measurement should be in operation for dosing accuracy.

An annual evaluation of the O&M manual should be done for accuracy and adequacy. Any further substantial facility changes will require the submission of an updated O&M manual for approval.

Split sampling - It is recommended that re-sampling be conducted for both the RBC plant and the Lagoon plant for all parameters in the near future.

Attachments:

Photographs

Lab Reports

"Informational Manual for Treatment Plant Operators"

Copies to:

Bob Jarski, Oak Harbor

Rob Kelley, Oak Harbor

Shawn McKone, Ecology

Amy Jankowiak, Ecology

Lori LeVander, Ecology

Dave Nunnallee, Ecology

Central Files: Oak Harbor Wastewater Treatment Plant; WA-002056-7; WQ 6.1

Name(s) and Signatures of Inspector(s)	Agency/Office/Telephone	Date
Amy Jankowiak <i>Amy Jankowiak</i>	WA Dept. of Ecology, NWRO, (425) 649-7195	11/17/05
Lori LeVander <i>Lori LeVander</i>	WA Dept. of Ecology, NWRO, (425) 649-7039	11/17/05
Shawn McKone <i>[Signature]</i>	WA Dept. of Ecology, NWRO, (425) 649-7037	11-17-05
Name and Signature of Management QA Reviewer	Agency/Office/Telephone	Date
David Nunnallee <i>David Nunnallee</i>	WA Dept. of Ecology, NWRO, (425) 649-7050	11-17-05

ANNOUNCED Inspection

INSTRUCTIONS
Section A: General Information

Report Version: New for 1st version, Amended for amended versions

NPDES Permit No.: Enter the facility's NPDES or State permit number.

Inspection Date: Insert the date entry was made into the facility. Use the month/day/year format (e.g., 06/30/04 = June 30, 2004).

Inspection Type: Use one of the codes listed below to describe the type of inspection:

- | | |
|--|--|
| A Compliance Evaluation (non-sampling) | G Compliance Evaluation (Sampling) Re-Sample |
| B Compliance Evaluation (sampling) | H Reconnaissance |
| C Enforcement Case Support | I Reconnaissance |
| D Multimedia | J Site Visit |
| E Pretreatment Compliance Inspection | K Other |
| F Compliance Evaluation (non sampling) Follow-up | |

Inspector Code: Use one of the codes listed below to describe the *lead agency* in the inspection:

- | | |
|---|--|
| E - Ecology Inspector | L - Joint Ecology/Laboratory Accreditation Inspectors – Ecology Lead |
| H - Joint Ecology/Health – Ecology Lead | T - Joint EPA/Ecology Inspectors - EPA Lead |
| J - Joint Ecology/EPA Inspectors - Ecology Lead | C - Contractor or Other Inspectors (<i>Specify in Remarks Columns</i>) |

Facility Type: Use one of the choices below to describe the facility.

- Public - Municipal Publicly Owned Treatment Works (POTWs)
Private - Municipal Privately Owned Treatment Works

Remarks: These columns are reserved for remarks.

Inspection Work Days.: Estimate the total work effort (to the nearest 0.1 work day), up to 99.9 days, that were used to complete the inspection. This estimate includes the accumulative effort of all participating inspectors; any effort for laboratory analyses, testing, travel time and preparation time. This estimate does not require detailed documentation.

Facility Evaluation Rating: Use information gathered during the inspection (regardless of inspection type) to evaluate the quality of the facility self-monitoring program. Grade the program using a scale of 1 to 5 with a score of 5 being used for very reliable self-monitoring programs, 3 being satisfactory, and 1 being used for very unreliable programs.

Photos Taken: Yes or No

Samples Taken: Yes or No

Lead Ecology Inspector: Enter lead inspector's name

Section B: Facility Data

This section is self-explanatory except for: "Other Facility Data," which may include new information not in the permit or PCS (e.g., new outfalls, names of receiving waters, new ownership, and other updates to the record), e-mail addresses...; and "Ecology Staff On-Site", which may include staff names, titles, phone numbers, or e-mail addresses.

Section C: Areas Evaluated During Inspection

Check only those areas evaluated by marking the appropriate box. Use Section D and additional sheets as necessary.

Section D: Summary of Findings/Comments

Support the findings, as necessary, in a narrative report. Use the headings given on the report form (staffing, back-up power) as appropriate. Reference a list of attachments, such as completed checklists, photos, lab reports, etc. Use extra sheets as necessary.

LINKS AND INFORMATION:

"Informational Manual for Treatment Plant Operators"; February 2004; by the Department of Ecology
Publication Number 04-10-020:

<http://www.ecy.wa.gov/pubs/0410020.pdf>

The manual was prepared to help wastewater treatment plant operators complete and submit their Discharge Monitoring Reports (DMRs) and other annual reports to the Department of Ecology. The manual is available in hard copy. To request a copy, contact the Department of Ecology, Publications Distribution Center at P.O. Box 47600, Olympia, WA 98504-7600 or by Telephone: (360) 407-7472. Updates to the manual are included on the website version.

Ecology's Wastewater and Reuse website:

<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>

Ecology's Operator Certification website:

http://www.ecy.wa.gov/programs/wq/wastewater/op_cert/index.html

Ecology's Laboratory Accreditation website:

http://www.ecy.wa.gov/programs/eap/labs/labs_main.html

Ecology's Biosolids website:

<http://www.ecy.wa.gov/programs/swfa/biosolids/>

Ecology's Operator Outreach: Carl Jones (360) 407-6431; cjon461@ecy.wa.gov

Ecology's Municipal Compliance Specialist (Northwest Regional Office): Amy Jankowiak (425) 649-7195;
ajan461@ecy.wa.gov

Ecology's Wastewater Operator Certification Coordinator: Poppy Carre (360) 407-6449; 1-800-633-6193 (within the state)
poca461@ecy.wa.gov

Ecology's Biosolids Coordinator (Northwest Regional Office)" Marietta Sharp (425) 649-7258 mars461@ecy.wa.gov

Reporting Spills/Overflows/Upsets/Bypasses/Loss of Disinfection IMMEDIATELY:

Ecology's 24-hour number: (425) 649-7000 to report a spill

Department of Health – Shellfish Program 24-hour number: (360) 236-3330

PHOTO ADDENDUM – OAK HARBOR WASTEWATER TREATMENT PLANT, WA-002056-7



PHOTO #01 DATE: 10/18/05, 12:05 PM
FILE: SMITH/PANORAMA31.JPG

TAKEN BY: JARON SMITH
DESCRIPTION: OVERVIEW OF RBC PLANT



PHOTO #02 DATE: 10/18/05, 10:33 AM
FILE: MCKONE/PA180007.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: INFLUENT BAR SCREENS AT INFLUENT DIVERSION PUMP STATION

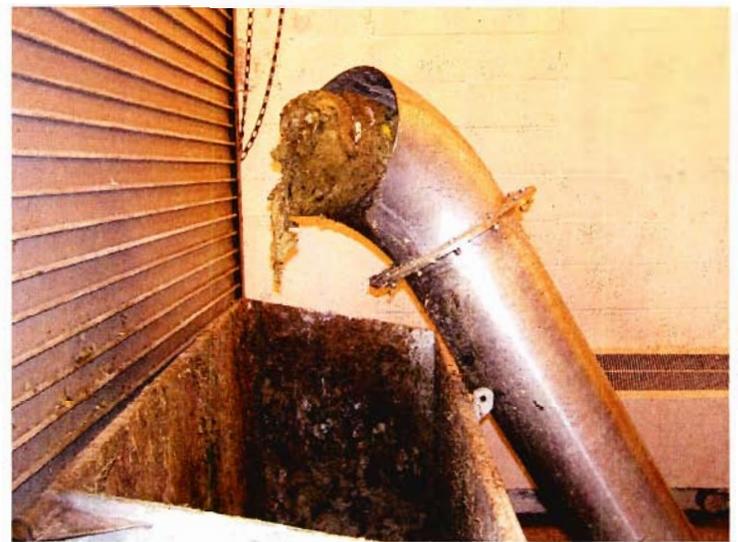


PHOTO #03 DATE: 10/18/05, 10:36 AM
FILE: SMITH/PA180020.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: INFLUENT SCREENINGS DISPOSAL.



PHOTO #04 DATE: 10/18/05, 10:24 AM
FILE: SMITH/PA180018.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: CHEMICAL (COAGULANT) STORAGE NEAR SECONDARY CLARIFIERS.

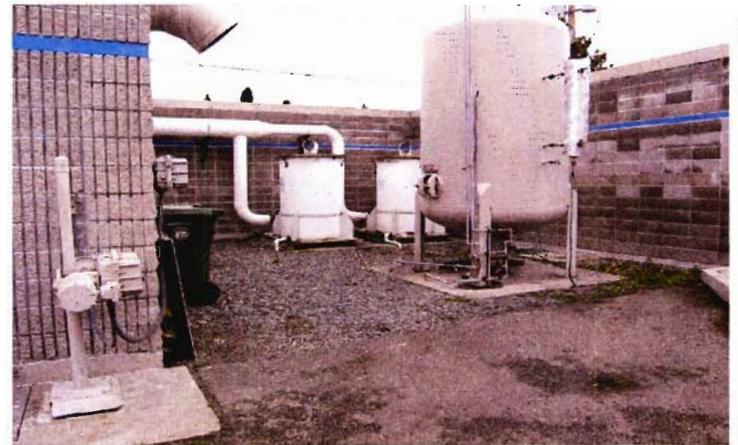


PHOTO #05 DATE: 10/18/05, 10:45 AM
FILE: MCKONE/PA180011.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: SURGE TANK AND CARBON ODOR SCRUBBERS OUTSIDE OF DIVERSION PUMP STATION

PHOTO ADDENDUM – OAK HARBOR WASTEWATER TREATMENT PLANT, WA-002056-7



PHOTO #06 DATE: 10/18/05, 10:56 AM
FILE: MCKONE/PA180013.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: RBC PLANT GRIT CHAMBER.

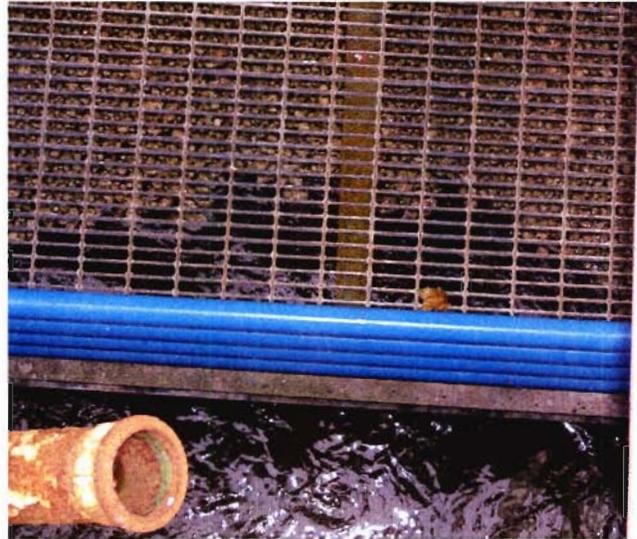


PHOTO #07 DATE: 10/18/05, 10:59 AM
FILE: MCKONE/PA180017.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: GREASE FLOATING IN COMMUNUTOR AREA.



PHOTO #08 DATE: 10/18/05, 11:00 AM
FILE: MCKONE/PA180018.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: COLLECTED SCUM IN SCUM BASIN. COLLECTED SCUM IS PUMPED TO DIGESTERS ON A WEEKLY BASIS



PHOTO #09 DATE: 10/18/05, 11:11 AM
FILE: SMITH/PA180035.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: PRIMARY SEDIMENTATION BASIN, EFFLUENT END.

PHOTO ADDENDUM – OAK HARBOR WASTEWATER TREATMENT PLANT, WA-002056-7



PHOTO #:010 DATE: 10/18/05, 11:06 AM
FILE: MCKONE/PA180021.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: PRIMARY SEDIMENTATION BASINS.



PHOTO #:011 DATE: 10/18/05, 11:15 AM
FILE: MCKONE/PA180023.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: INFLUENT END RBC DISCS.

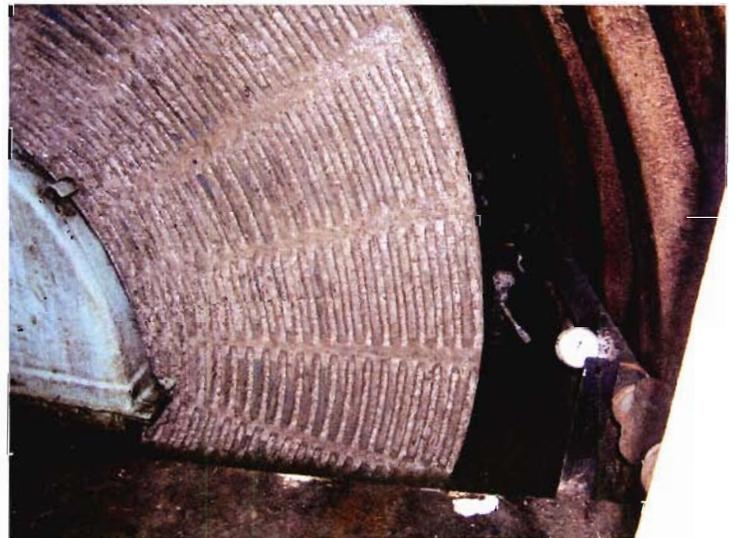


PHOTO #:012 DATE: 10/18/05, 11:15 AM
FILE: MCKONE/PA180024.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: INFLUENT END RBC DISCS, END VIEW. AIR HEADER FOR AERATION ON RIGHT SIDE.

PHOTO ADDENDUM – OAK HARBOR WASTEWATER TREATMENT PLANT, WA-002056-7

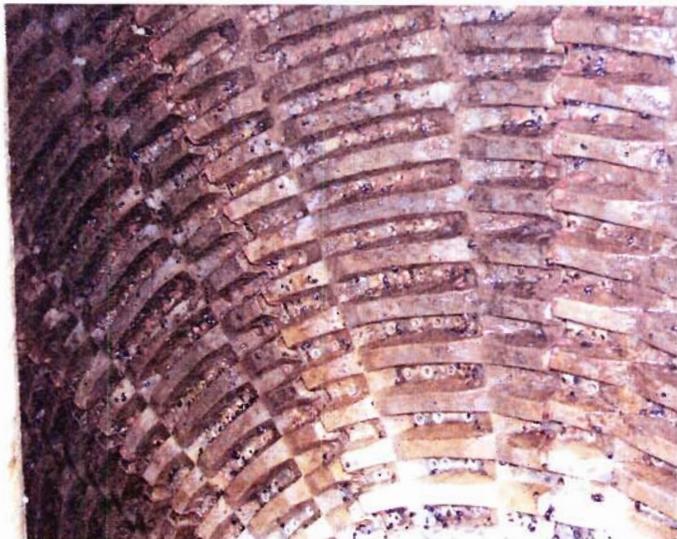


PHOTO #:013 DATE: 10/18/05, 11:18 AM
FILE: MCKONE/PA180027.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: EFFLUENT END RBC DISCS, END VIEW.

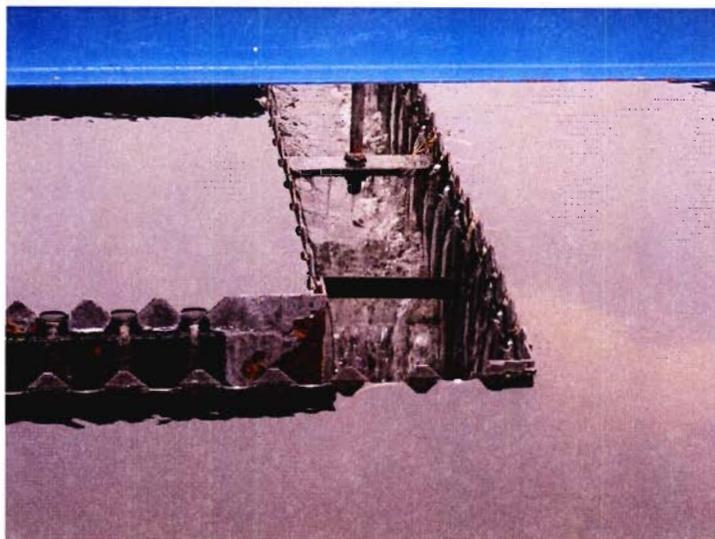


PHOTO #:014 DATE: 10/18/05, 11:21 AM
FILE: MCKONE/PA180030.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: SECONDARY CLARIFIER OVERFLOW WEIR.



PHOTO #:015 DATE: 10/18/05, 10:22 AM
FILE: SMITH/PA180016.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: CHLORINE CONTACT CHAMBERS.



PHOTO #:016 DATE: 10/18/05, 11:32 AM
FILE: SMITH/PA180053.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: FINAL EFFLUENT DISCHARGE PUMPS. USED ONLY AT HIGH TIDES WHEN EFFLUENT IS NOT ABLE TO PROPERLY FLOW UNDER GRAVITY.

PHOTO ADDENDUM – OAK HARBOR WASTEWATER TREATMENT PLANT, WA-002056-7



PHOTO #:017 DATE: 10/18/05, 10:18 AM
FILE: MCKONE/PA180004.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: GRAB SAMPLING OF FINAL EFFLUENT AT DISCHARGE END OF CHLORINE CONTACT CHAMBER, RBC PLANT.

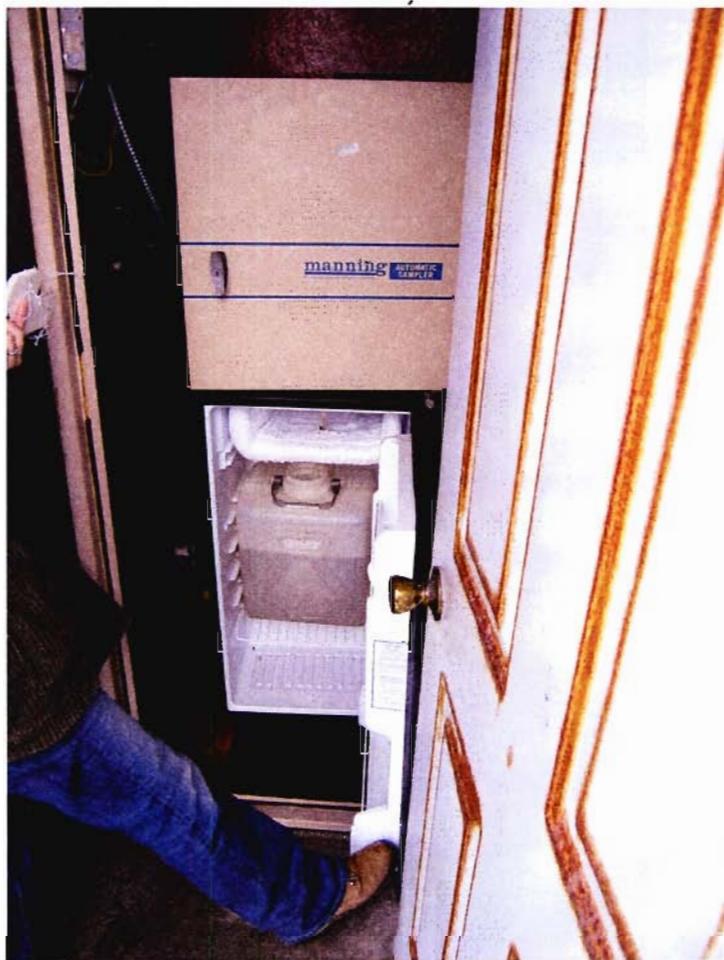


PHOTO #:018 DATE: 10/18/05, 10:09 AM
FILE: MCKONE/PA180001.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: RBC PLANT FINAL EFFLUENT COMPOSITE SAMPLER, PRIOR TO REMOVAL OF SAMPLE FOR SPLITTING.

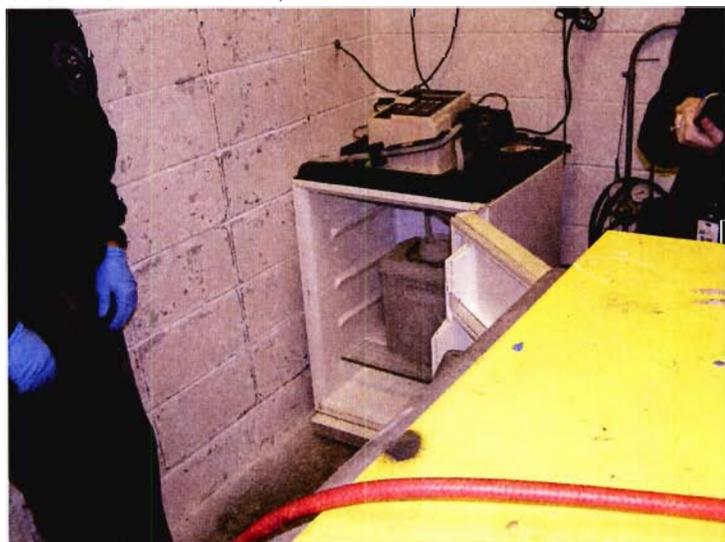


PHOTO #:019 DATE: 10/18/05, 10:11 AM
FILE: SMITH/PA180009.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: RBC INFLUENT COMPOSITE SAMPLER.



PHOTO #:020 DATE: 10/18/05, 10:02 AM
FILE: SMITH/PA180006.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: SAMPLE SPLITTING, LAGOON COMPOSITE SAMPLES.

PHOTO ADDENDUM – OAK HARBOR WASTEWATER TREATMENT PLANT, WA-002056-7



PHOTO #:021 DATE: 10/18/05, 2:08 PM
FILE: SMITH/PANORAMA41.JPG

TAKEN BY: JARON SMITH
DESCRIPTION: OVERVIEW OF LAGOON FACILITY ANAEROBIC CELL.



PHOTO #:022 DATE: 10/18/05, 3:04 PM
FILE: SMITH/PANORAMA61.JPG

TAKEN BY: JARON SMITH
DESCRIPTION: OVERVIEW OF AERATED MAIN NW LAGOON CELL.

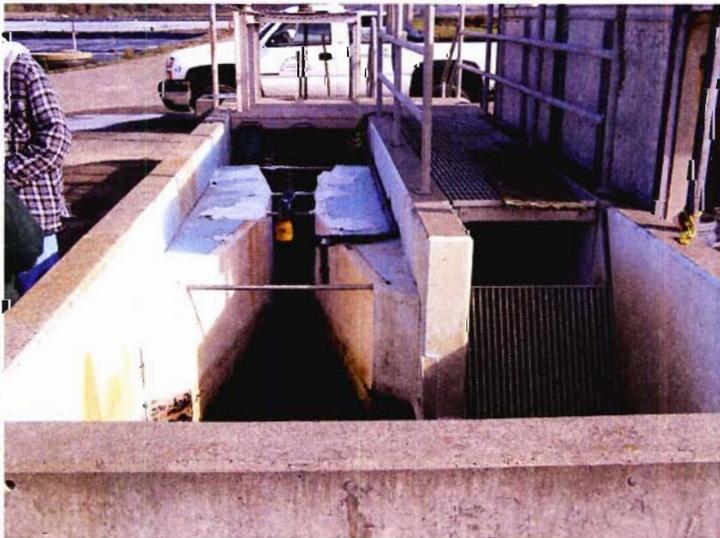


PHOTO #:023 DATE: 10/18/05, 2:00 PM
FILE: SMITH/PA180061.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: LAGOON FACILITY HEADWORKS, PARSHALL FLUME FOR MAIN INFLOW MEASUREMENT (LEFT) AND SCREENED DIVERSION CHANNEL (RIGHT).



PHOTO #:024 DATE: 10/18/05, 2:04 PM
FILE: SMITH/PA180063.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: MACERATORS AT LAGOON HEADWORKS.

PHOTO ADDENDUM – OAK HARBOR WASTEWATER TREATMENT PLANT, WA-002056-7



PHOTO #025 DATE: 10/18/05, 1:58 PM
FILE: SMITH/PA180060.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: EMPTY CHEMICAL BARRELS STORED NEAR LAGOON HEADWORKS. NAVY MITIGATION WETLAND IN BACKGROUND.



PHOTO #026 DATE: 10/18/05, 1:57 PM
FILE: SMITH/PA180059.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: LABEL ON CHEMICAL BARREL STORED NEAR LAGOON HEADWORKS.

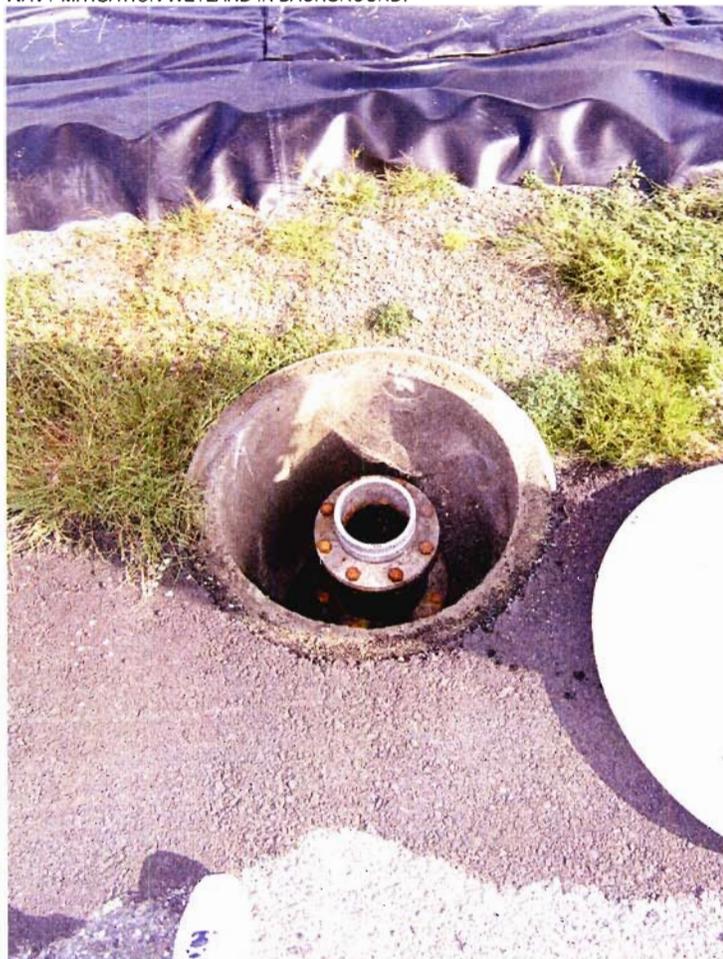


PHOTO #027 DATE: 10/18/05, 2:17 PM
FILE: MCKONE/PA180039.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: EXTRACTION PORT FOR ANAEROBIC LAGOON SOLIDS REMOVAL..



PHOTO #028 DATE: 10/18/05, 2:36 PM
FILE: MCKONE/PA180046.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: LAGOON TERTIARY TREATMENT BASIN FOR ALGAE REMOVAL.

PHOTO ADDENDUM – OAK HARBOR WASTEWATER TREATMENT PLANT, WA-002056-7

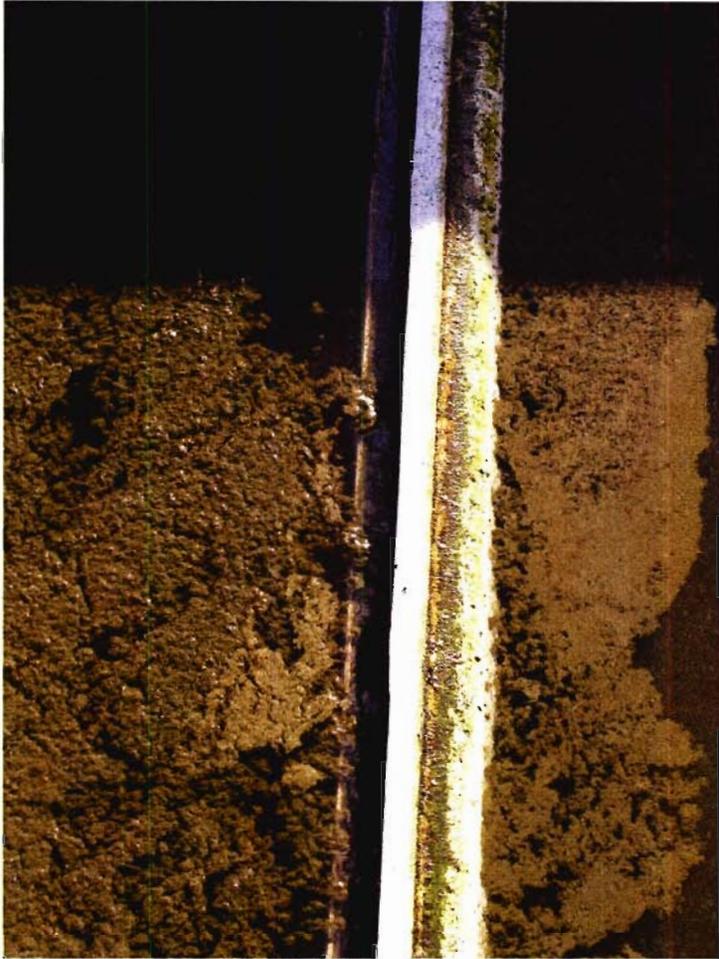


PHOTO #:029 DATE: 10/18/05, 2:37 PM
FILE: MCKONE/PA180047.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: COAGULATED ALGAE BEING SKIMMED FROM THE SURFACE OF THE LAGOON TERTIARY TREATMENT BASIN.

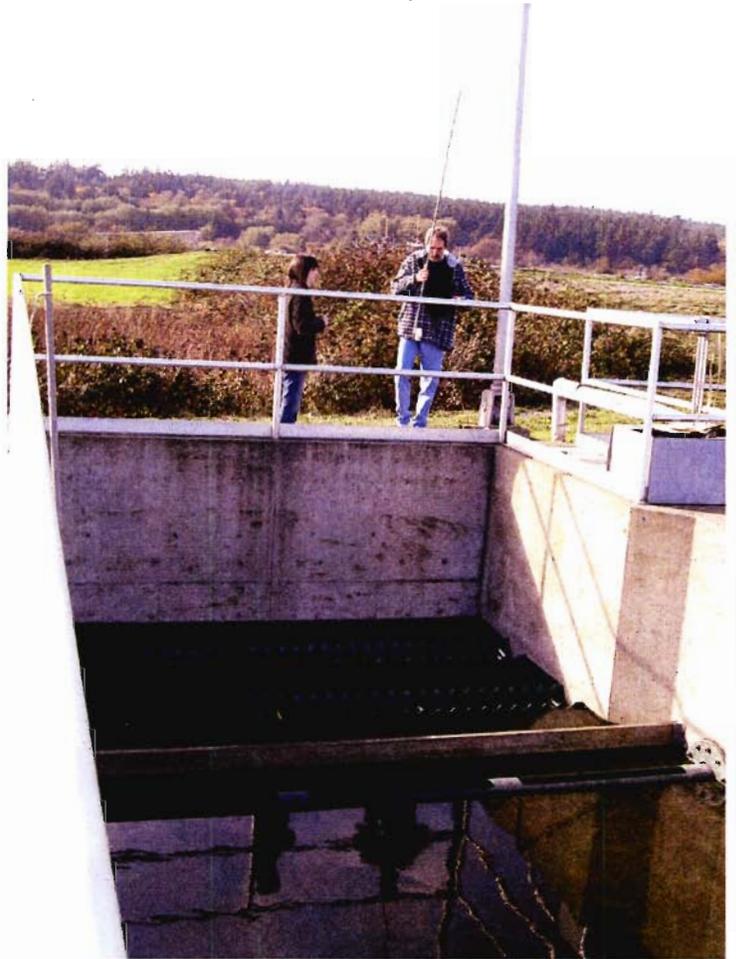


PHOTO #:030 DATE: 10/18/05, 2:56 PM
FILE: MCKONE/PA180050.JPG
TAKEN BY: SHAWN MCKONE
DESCRIPTION: GRAB SAMPLING FOR CHLORINE RESIDUAL AT THE DISCHARGE END OF THE LAGOON TERTIARY TREATMENT BASIN.



PHOTO #:031 DATE: 10/18/05, 2:36 PM
FILE: SMITH/PA180074.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: EFFLUENT FLOW METER, PROPELLER TYPE, AT LAGOON TERTIARY TREATMENT AREA.



PHOTO #:032 DATE: 10/18/05, 2:51 PM
FILE: SMITH/PA180079.JPG
TAKEN BY: JARON SMITH
DESCRIPTION: USED COAGULANT STORAGE CHEMICAL BARRELS STORED AT LAGOON TERTIARY TREATMENT AREA.

WASTEWATER TREATMENT PLANT MONITORING REPORT

Permit No. WA-002056-7	Discharge No. 2	Month October	Year 2005
Facility Name OAK HARBOR WWTP-SEAPLANE LAGOON	Latitude: 48 17' 18" N	Location 60 E PIONEER AVE	
Receiving Water CRESCENT HARBOR	Longitude: 122 36' 17" W		
Plant Type FACULTATIVE LAGOON WITH ANAEROBIC PRETREATMENT	NO DISCHARGE <input type="checkbox"/>		

Frequency Type	INFLUENT											EFFLUENT																		
	CONT.	2/MO		2/WK		2/WK		2/WK		2/WK		2/WK		2/WK		DAILY		DAILY												
	MEAS.	24 HC		CALC		24 HC		24 HC		CALC		24 HC		CALC		CALC		GRAB												
Day of the Month	FLOW	MGD	BOD5	MG/L	BOD5	LB/DAY	CBOD5	MG/L	TSS	MG/L	TSS	LB/DAY	CBOD5	MG/L	CBOD5	LB/DAY	CBOD5	% REMOVAL	TSS	MG/L	TSS	LB/DAY	TSS	% REMOVAL	FEC. COL.	#100 ML	PH	STD. UNITS	CHLORINE	MG/L
1	1.18																										7.0	0.20		
2	1.23																										7.0	0.25		
3	1.27																									2	7.2	0.37		
4	1.15					186	232	2225		19	209	88%	49	539	76%											7.1	0.25			
5	1.10	272	2495		168	256	2349		17	183	88%	46	495	79%											2	7.2	0.33			
6	1.17																										7.1	0.33		
7	1.10																										7.2	0.35		
8	1.23																										7.2	0.17		
9	0.99																										7.4	0.09		
10	1.41																								133	7.3	0.04			
11	1.09				178	274	2491		16	180	89%	48	540	78%												7.2	0.33			
12	1.15	243	2331		185	254	2436		19	216	88%	50	567	77%											2	7.3	0.34			
13	1.14																										7.2	0.28		
14	1.17																										7.1	0.22		
15	1.19																										7.2	0.23		
16	1.35																										7.2	0.19		
17	1.31																								10	7.1	0.21			
18	1.21				174	222	2240		12	146	92%	26	317	86%											4	7.1	0.27			
19	1.53	208	2654		137	158	2016		8	98	94%	17	208	90%												7.1	0.33			
20	1.15																										7.0	0.32		
21	1.17																										7.2	0.27		
22	1.14																										7.3	0.25		
23	1.22																										7.4	0.33		
24	1.27																								17	7.3	0.21			
25	1.07				273	388	3462		8	97	96%	13	158	95%												7.4	0.14			
26	1.14	303	2881		214	408	3879		7	88	96%	12	150	96%											3	7.3	0.38			
27	1.24																										7.2	0.32		
28	1.09																										7.5	0.26		
29	1.10																										7.4	0.46		
30	1.31																										7.4	0.31		
31	1.18																								8	7.4	0.29			
Total																														
	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	GEM	MIN	AVG												
	1.20	257	2590	189	274	2637	13	152	93%	33	372	88%	6	7.0	0.27															
Permit Limit	2.50	****	4580	****	****	5130	25	521	85%	75	1564	65%	200	6.0	0.50	****														
	MAX	MAX	MAX	MAX	MAX	MAX	AVW	AVW		AVW	AVW		GM7	MAX	MAX															
	1.53	303	2881	273	408	3879	18	198		49	536		16	7.5	0.46															
Permit Limit	****	****	****	****	****	****	40	834	****	110	2294	****	400	9.0	0.75	****														

AVG=Average AVW=Highest Weekly Average GEM=Geometric Mean MAX=Maximum MIN=Minimum MXD=Max Daily GM7=highest 7-day Geometric Mean

COMMENT AND EXPLANATION OF ANY VIOLATIONS MUST BE ATTACHED ON A SEPARATE SHEET.
 Mail to: Department of Ecology, Northwest Regional Office, Water Quality, 3190 160th Ave SE Bellevue, WA 98008

I certify under penalty of law that I have personally examined the information submitted herein; and based on my inquiry of those individuals immediately responsible, I believe the information to be accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and/or imprisonment. (Penalties under statutes 18 & 33 U.S.C. may include fines up to \$10,000 and/or maximum imprisonment of five years.)

Name and Title (Typed or Printed)	Signature
	Phone Number

WASTEWATER TREATMENT PLANT MONITORING REPORT

Permit No. WA-002056-7	Discharge No. 001	Month October	Year 2005
Facility Name OAK HARBOR WWTP - RBC PLANT	Latitude: 48° 16' 59" N	Location 1501 SE BEACH STREET	
Receiving Water OAK HARBOR	Longitude: 122° 38' 51" W		
Plant Type SECONDARY TREATMENT WITH ROTATING BIOLOGICAL CONTACTOR	NO DISCHARGE <input type="checkbox"/>		

Frequency Type	INFLUENT										EFFLUENT																				
	CONT.		2/MO	2/MO	2/WK	2/WK	2/WK	2/WK	2/WK	2/WK	2/WK	2/WK	2/WK	2/WK	2/WK	DAILY	DAILY	2/SEASON													
	MEAS.	24 HC	CALC	24 HC	24 HC	CALC	24 HC	CALC	CALC	24 HC	CALC	CALC	24 HC	CALC	CALC	GRAB	GRAB	24 HC													
Day of the Month	FLOW	MGD	BOD5	MG/L	BOD5	LB/DAY	CBOD5	MG/L	TSS	MG/L	TSS	LB/DAY	CBOD5	MG/L	TSS	MG/L	TSS	LB/DAY	TSS	% REMOVAL	FEC. COL.	#/100 ML	PH	STD. UNITS	CHLORINE	MG/L	AMMONIA*	MG/L			
1	0.563																							7.2	0.05						
2	0.563																							7.1	0.04						
3	0.439																						11	7.2	0.03						
4	0.520				181	220	954	13	56	93%	10	43	95%										7.1	0.03							
5	0.523	266	1160	175	218	951	13	57	93%	9	39	96%	56	7.1	0.01								7.1	0.00		25.9					
6	0.533																						7.1	0.00							
7	0.531																						7.1	0.00							
8	0.556																						7.1	0.00							
9	0.512																						7.2	0.05							
10	0.515																						16	7.2	0.02						
11	0.517			235	232	1000	13	56	94%	7	30	97%		7.2	0.02								7.2	0.02							
12	0.518	296	1279	205	228	985	15	65	93%	9	39	96%	7	7.1	0.00								7.1	0.00							
13	0.512																						7.1	0.00			27.9				
14	0.533																						7.1	0.00							
15	0.529																						7.2	0.01							
16	0.535																						7.2	0.01							
17	0.509																						7.2	0.00							
18	0.533			184	182	809	14	62	92%	8	36	96%	9	7.1	0.00								7.1	0.00							
19	0.526	285	1250	193	206	904	16	70	92%	9	39	96%		7.1	0.00								7.1	0.00							
20	0.512																						7.1	0.01		20.8					
21	0.527																						7.0	0.02							
22	0.523																						7.1	0.02							
23	0.530																						7.0	0.02							
24	0.466																						15	7.1	0.02						
25	0.497			194	230	953	12	50	94%	7	29	97%		7.1	0.02								7.1	0.02							
26	0.502	271	1135	205	202	846	11	46	95%	9	38	96%	11	7.1	0.03								7.1	0.03							
27	0.497																						7.1	0.02		27.2					
28	0.497																						7.1	0.03							
29	0.514																						7.1	0.03							
30	0.543																						7.0	0.03							
31	0.475																						19	7.1	0.00						
Total																															
	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	AVG	GEM	MIN	AVG	AVG														
	0.518	280	1206	197	215	925	13	58	93%	9	37	96%	13	7.0	0.02	25.5															
Permit Limit	0.7	****	2000	****	****	****	25	146	85%	30	175	85%	200	6.0	0.114	****															
	MAX	MAX	MAX	MAX	MAX	MAX	AVW	AVW		AVW	AVW		GM7	MAX	MAX																
	0.563	296	1279	235	232	1000	15	66		10	41		25	7.2	0.05	27.9															
Permit Limit	****	****	****	****	****	****	40	233	****	45	263	****	400	9.0	0.26	****															

AVG=Average AVW =Highest Weekly Average GEM=Geometric Mean MAX=Maximum MIN=Minimum MXD=Max Daily GM7=highest 7-day Geometric Mean

*Ammonia sampling is required only during the months of October through February. Two samples are to be taken during this season on a frequency of once every 75 days. Check if Ammonia Sampling not required during this monitoring period

COMMENT AND EXPLANATION OF ANY VIOLATIONS MUST BE ATTACHED ON A SEPARATE SHEET.
 Mail to: Department of Ecology, Northwest Regional Office, Water Quality, 3190 160th Ave SE Bellevue, WA 98008

I certify under penalty of law that I have personally examined the information submitted herein; and based on my inquiry of those individuals immediately responsible, I believe the information to be accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and/or imprisonment. (Penalties under statutes 18 & 33 U.S.C. may include fines up to \$10,000 and/or maximum imprisonment of five years.)

Name and Title (Typed or Printed) _____

Signature _____

Phone Number _____

Manchester Environmental Laboratory

7411 Beach Dr E, Port Orchard, Washington 98366

Case Narrative

October 31, 2005

Subject: General Chemistry Oak Harbor WWTP - Lagoon

Project No: 176105

Officer: Lori LeVander

By: Dean Momohara

Summary

The samples were analyzed by the following methods: Standard Methods (SM) 5210B for biochemical oxygen demand (BOD) and inhibited BOD (CBOD) and 2540D for total suspended solids (TSS).

All analyses requested were evaluated by established regulatory quality assurance guidelines.

Sample Information

Samples were received by Manchester Environmental Laboratory on 10/19/05. All coolers were received within the proper temperature range of 0°C - 6°C. All samples were received in good condition. Two (2) samples were received and assigned laboratory identification numbers 424040 and 424041.

Holding Times

All analyses were performed within established EPA holding times.

Calibration

Instrument calibrations and calibration checks were performed in accordance with the appropriate method. All initial and continuing calibration checks were within control limits. Oven and incubator temperatures were recorded before and after each analysis batch and were within acceptable limits.

Method Blanks

The blank for CBOD was 0.41, above the limit of 0.20 mg/L. No other analytically significant levels of analyte were detected in the method blanks associated with these samples.

Matrix Spikes

NA

Replicates

All associated duplicate relative percent differences of samples with concentrations greater than 5 times the reporting limit were within the acceptance range of 0% - 20%.

Laboratory Control Samples

The laboratory control sample (LCS) recoveries were within the acceptance limits of 80% - 120% for TSS analysis and 81% - 118% for BOD analysis. The LCS recovery for CBOD was 138%. Since limits have not been determined, no action was taken. However, the recovery could indicate a high bias.

Other Quality Assurance Measures and Issues

- U - The analyte was not detected at or above the reported result.
- bold** - The analyte was present in the sample. (Visual Aid to locate detected compounds on report sheet.)

Please call Dean Momohara at (360) 871-8808 to further discuss this project.

cc: Project File

Washington State Department of Ecology
Manchester Environmental Laboratory
Analysis Report for
Biochemical Oxygen Demand five day test

Project Name: Oak Hbr WWTP - Lagoon - 42

LIMS Project ID: 1761-05

Project Officer: Lori LeVander

Method: SM5210B

Date Reported: 10/27/05

Analyte: Biochemical Oxygen Demand

Sample	QC	Field ID	Matrix	Result	Qualifier	Units	Collected	Analyzed
05424040		OHBR LAG INF	Water	256		mg/L	10/18/05	10/19/05
GB05292B1		Lab BLNK	Water	0.19		mg/L		10/19/05
GL05292B1		Lab LCS-	Water	111		%		10/19/05

Authorized By: *Michele Agnew*

Release Date: 10/27/05

Washington State Department of Ecology
Manchester Environmental Laboratory
Analysis Report for
Inhibited Biochemical Oxygen Demand

Project Name: Oak Hbr WWTP - Lagoon - 42

LIMS Project ID: 1761-05

Project Officer: Lori LeVander

Method: SM5210B

Date Reported: 10/27/05

Analyte: Inhibited Biochemical Oxygen Demand

Sample	QC	Field ID	Matrix	Result	Qualifier	Units	Collected	Analyzed
05424040		OHBR LAG INF	Water	216		mg/L	10/18/05	10/19/05
05424041		OHBR LAG EFF	Water	100	U	mg/L	10/18/05	10/19/05
GB05292B2		Lab BLNK	Water	0.45		mg/L		10/19/05
GL05292B2		Lab LCS-	Water	138		%		10/19/05

Authorized By: Michelle DeFurand

Release Date: 10/27/05

Page: 1

Washington State Department of Ecology
Manchester Environmental Laboratory
Analysis Report for
Total Suspended Solids

Project Name: Oak Hbr WWTP - Lagoon - 42

LIMS Project ID: 1761-05

Project Officer: Lori LeVander

Method: SM2540D

Date Reported: 10/27/05

Analyte: Total Suspended Solids

Sample	QC	Field ID	Matrix	Result	Qualifier	Units	Collected	Analyzed
05424040		OHBR LAG INF	Water	192		mg/L	10/18/05	10/24/05
05424041		OHBR LAG EFF	Water	27		mg/L	10/18/05	10/24/05
05424041		LDP1 (duplicate)		24		mg/L	10/18/05	10/24/05
GB05297S3		Lab BLNK	Water	1	U	mg/L		10/24/05
GL05297S3		Lab LCS-	Water	93		%		10/24/05

Authorized By: _____

Aileen C. Richmond

Release Date: _____

10-27-05

Page: 1

Manchester Environmental Laboratory

7411 Beach Dr E, Port Orchard, Washington 98366

Case Narrative

October 31, 2005

Subject: General Chemistry Oak Harbor WWTP - RBC

Project No: 176205

Officer: Lori LeVander

By: Dean Momohara
9

Summary

The samples were analyzed by the following methods: Standard Methods (SM) 5210B for inhibited biochemical oxygen demand (CBOD) and 2540D for total suspended solids (TSS).

All analyses requested were evaluated by established regulatory quality assurance guidelines.

Sample Information

Samples were received by Manchester Environmental Laboratory on 10/19/05. All coolers were received within the proper temperature range of 0°C - 6°C. All samples were received in good condition. Two (2) samples were received and assigned laboratory identification numbers 424043 and 424044.

Holding Times

All analyses were performed within established EPA holding times.

Calibration

Instrument calibrations and calibration checks were performed in accordance with the appropriate method. All initial and continuing calibration checks were within control limits. Oven and incubator temperatures were recorded before and after each analysis batch and were within acceptable limits.

Method Blanks

The blank for CBOD was 0.41, above the limit of 0.20 mg/L. No other analytically significant levels of analyte were detected in the method blanks associated with these samples.

Matrix Spikes

NA

Replicates

All associated duplicate relative percent differences of samples with concentrations greater than 5 times the reporting limit were within the acceptance range of 0% - 20%.

Laboratory Control Samples

The laboratory control sample (LCS) recoveries were within the acceptance limits of 80% - 120% for TSS analysis and 81% - 118% for BOD analysis. The LCS recovery for CBOD was 138%. Since limits have not been determined, no action was taken. However, the recovery could indicate a high bias.

Other Quality Assurance Measures and Issues

Sample 424044 for CBOD analysis was qualified as an estimate. The sample contained chlorine which may have interfered with the analysis.

- U - The analyte was not detected at or above the reported result.
- J - The analyte was positively identified. The associated numerical result is an estimate.
- bold** - The analyte was present in the sample. (Visual Aid to locate detected compounds on report sheet.)

Please call Dean Momohara at (360) 871-8808 to further discuss this project.

cc: Project File

Washington State Department of Ecology
Manchester Environmental Laboratory
Analysis Report for
Inhibited Biochemical Oxygen Demand

Project Name: Oak Hbr WWTP - RBC - 42

LIMS Project ID: 1762-05

Project Officer: Lori LeVander

Method: SM5210B

Date Reported: 10/27/05

Analyte: Inhibited Biochemical Oxygen Demand

Sample	QC	Field ID	Matrix	Result	Qualifier	Units	Collected	Analyzed
05424043		OAK H. INF	Water	222		mg/L	10/18/05	10/19/05
05424044		OAK H. EFF	Water	17	J	mg/L	10/18/05	10/19/05
05424044	LDP1 (duplicate)			17	J	mg/L	10/18/05	10/19/05
GB05292B2		Lab BLNK	Water	0.45		mg/L		10/19/05
GL05292B2		Lab LCS-	Water	138		%		10/19/05

Authorized By:

Michelle Aylward

Release Date:

10/27/05

Page: 1

Washington State Department of Ecology
Manchester Environmental Laboratory
Analysis Report for
Total Suspended Solids

Project Name: Oak Hbr WWTP - RBC - 42

LIMS Project ID: 1762-05

Project Officer: Lori LeVander

Method: SM2540D

Date Reported: 10/27/05

Analyte: Total Suspended Solids

Sample	QC	Field ID	Matrix	Result	Qualifier	Units	Collected	Analyzed
05424043		OAK H. INF	Water	288		mg/L	10/18/05	10/24/05
05424044		OAK H. EFF	Water	6		mg/L	10/18/05	10/24/05
GB05297S3		Lab BLNK	Water	1	U	mg/L		10/24/05
GL05297S3		Lab LCS-	Water	93		%		10/24/05

Authorized By:

Aileen C. Richmond

Release Date:

10-27-05

Page: 1

Manchester Environmental Laboratory
7411 Beach Drive E, Port Orchard, WA 98366

Case Narrative

October 21, 2005

Subject: Microbiology Quality Assurance memo for Oak Harbor WWTP - Lagoon
– 42.

Officer(s): Lori LeVander

By: Nancy Jensen, Microbiologist 

Summary

The data generated by the analysis of these samples can be used without qualification.

Sample Information

The Oak Harbor samples were received on 10/19/05 at the Manchester Laboratory in good condition.

Holding Times

Analysis of all microbiology parameters was performed as soon as possible after receipt of the samples. The Clean Water Act holding time of 8 hours was not met for these samples. However all samples were held below 10°C until analysis and were analyzed within 24 hours from collection; the maximum holding time for microbiological examinations specified in Standard Methods for the Examination of Waster and Wastewater, Section 9060 B.

Blanks

All procedural blanks were within acceptable limits.

Replicates

Results from duplicate analyses were used to evaluate precision. The duplicate analyses were outside the RPD (Relative Percent Difference) limit of $\pm 40\%$. This does not apply since the results were below the lower statistical limit of 20 colonies per plate.

Laboratory Control Samples

All laboratory controls were within acceptance windows.

Call Nancy Jensen at (360) 871-8810 if you have any questions.

cc: Project File.

Washington State Department of Ecology
Manchester Environmental Laboratory
Analysis Report for
Fecal Coliforms: Membrane Filter method

Project Name: Oak Hbr WWTP - Lagoon - 42

LIMS Project ID: 1761-05

Project Officer: Lori LeVander

Method: SM9222D

Date Reported: 10/20/05

Analyte: Fecal Coliform

Sample	QC	Field ID	Matrix	Result	Qualifier	Units	Collected	Analyzed
05424042		OH EFF GRB	Water	120		#/100mL	10/18/05	10/19/05

Authorized By: 

Release Date: 10/20/05

Page: 1

Manchester Environmental Laboratory
7411 Beach Drive E, Port Orchard, WA 98366

Case Narrative

October 21, 2005

Subject: Microbiology Quality Assurance memo for Oak Harbor WWTP - RBC – 42.

Officer(s): Lori LeVander

By: Nancy Jensen, Microbiologist *NJ*

Summary

The data generated by the analysis of these samples can be used without qualification.

Sample Information

The Oak Harbor samples were received on 10/19/05 at the Manchester Laboratory in good condition.

Holding Times

Analysis of all microbiology parameters was performed as soon as possible after receipt of the samples. The Clean Water Act holding time of 8 hours was not met for these samples. However all samples were held below 10°C until analysis and were analyzed within 24 hours from collection; the maximum holding time for microbiological examinations specified in Standard Methods for the Examination of Waster and Wastewater, Section 9060 B.

Blanks

All procedural blanks were within acceptable limits.

Replicates

Results from duplicate analyses were used to evaluate precision. The duplicate analyses were outside the RPD (Relative Percent Difference) limit of $\pm 40\%$. This does not apply since the results were below the lower statistical limit of 20 colonies per plate.

Laboratory Control Samples

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Analyte: Fecal Coliform

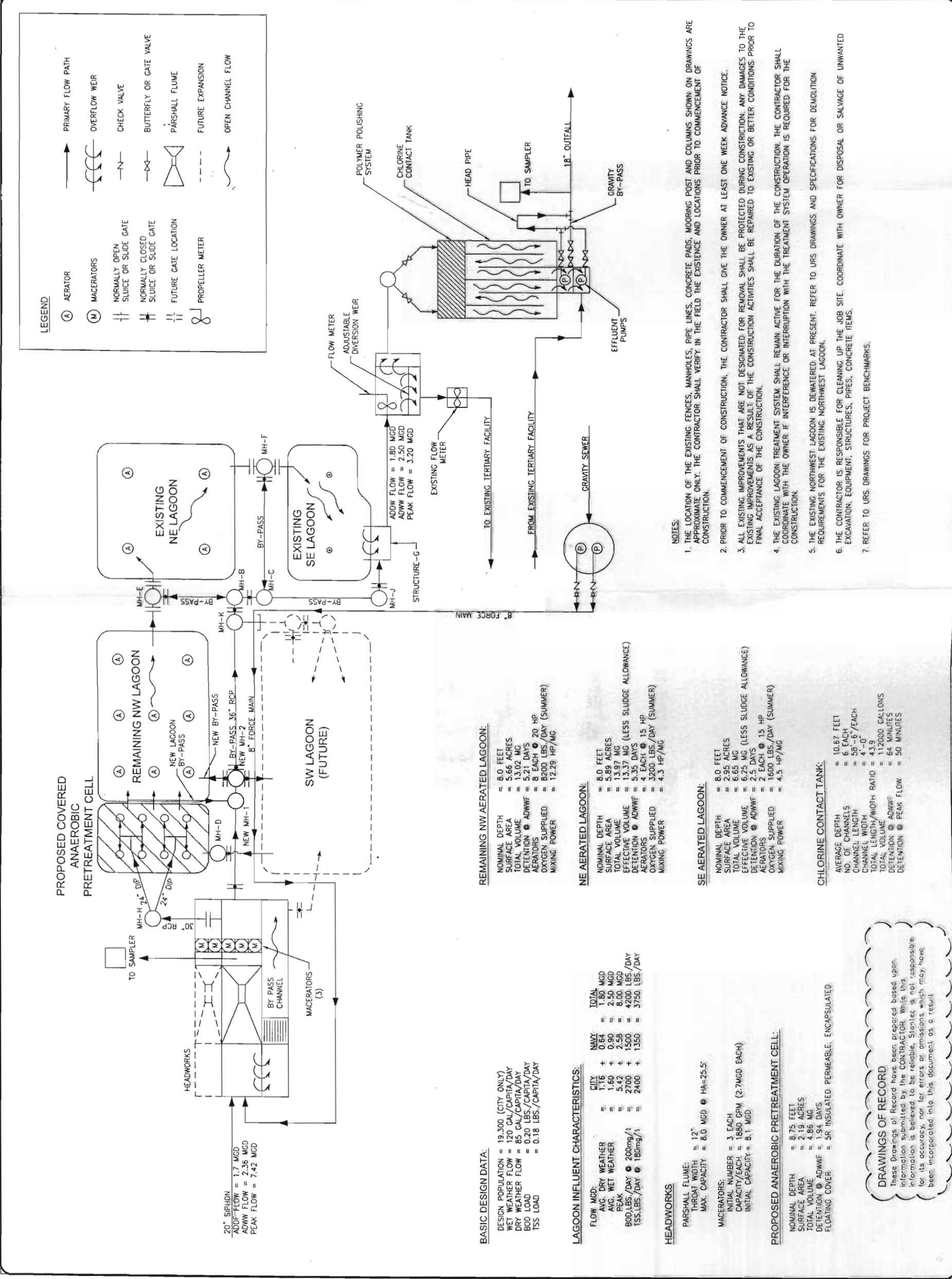
Sample	QC	Field ID	Matrix	Result	Qualifier	Units	Collected	Analyzed
05424045		EFF GRAB	Water	34		#/100mL	10/18/05	10/19/05
05424045		LDP1 (duplicate)		20		#/100mL	10/18/05	10/19/05

Authorized By: _____

W Jensen

Release Date: 10/21/05

Page: 1



- NOTES:**
- THE LOCATION OF THE EXISTING FENCES, MANHOLES, PIPE LINES, CONCRETE PADS, MOORING POST AND COLUMNS SHOWN ON DRAWINGS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY IN THE FIELD THE EXISTENCE AND LOCATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 - PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL GIVE THE OWNER AT LEAST ONE WEEK ADVANCE NOTICE.
 - ALL EXISTING IMPROVEMENTS THAT ARE NOT DESIGNATED FOR REMOVAL SHALL BE PROTECTED DURING CONSTRUCTION. ANY DAMAGES TO THE EXISTING IMPROVEMENTS AS A RESULT OF THE CONSTRUCTION ACTIVITIES SHALL BE REPAIRED TO EXISTING OR BETTER CONDITIONS PRIOR TO FINAL ACCEPTANCE OF THE CONSTRUCTION.
 - THE EXISTING LAGOON TREATMENT SYSTEM SHALL REMAIN ACTIVE FOR THE DURATION OF THE CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER IF INTERFERENCE OR INTERRUPTION WITH THE TREATMENT SYSTEM OPERATION IS REQUIRED FOR THE CONSTRUCTION.
 - THE EXISTING NORTHWEST LAGOON IS DEDICATED AT PRESENT. REFER TO URS DRAWINGS AND SPECIFICATIONS FOR DEMOLITION REQUIREMENTS FOR THE EXISTING NORTHWEST LAGOON.
 - THE CONTRACTOR IS RESPONSIBLE FOR CLEANING UP THE JOB SITE. COORDINATE WITH OWNER FOR DISPOSAL OR SALVAGE OF UNWANTED EXCAVATION, EQUIPMENT, STRUCTURES, PIPES, CONCRETE ITEMS.
 - REFER TO URS DRAWINGS FOR PROJECT BENCHMARKS.

REMAINING NW AERATED LAGOON:

NOMINAL DEPTH	= 8.0 FEET
SURFACE AREA	= 5.86 ACRES
TOTAL VOLUME	= 13.02 MG
DETENTION @ ADWWF	= 5.21 DAYS
AERATORS	= 8 EACH @ 20 HP
OXYGEN SUPPLIED	= 8200 LBS./DAY (SUMMER)
MIXING POWER	= 12.29 HP/MG

NE AERATED LAGOON:

NOMINAL DEPTH	= 8.0 FEET
SURFACE AREA	= 5.89 ACRES
TOTAL VOLUME	= 13.97 MG
EFFECTIVE VOLUME	= 13.37 MG (LESS SLUDGE ALLOWANCE)
DETENTION @ ADWWF	= 5.35 DAYS
AERATORS	= 4 EACH @ 15 HP
OXYGEN SUPPLIED	= 3200 LBS./DAY (SUMMER)
MIXING POWER	= 4.3 HP/MG

SE AERATED LAGOON:

NOMINAL DEPTH	= 8.0 FEET
SURFACE AREA	= 2.95 ACRES
TOTAL VOLUME	= 6.65 MG
EFFECTIVE VOLUME	= 6.25 MG (LESS SLUDGE ALLOWANCE)
DETENTION @ ADWWF	= 2.5 DAYS
AERATORS	= 2 EACH @ 15 HP
OXYGEN SUPPLIED	= 1600 LBS./DAY (SUMMER)
MIXING POWER	= 4.5 HP/MG

CHLORINE CONTACT TANK:

AVERAGE DEPTH	= 10.67 FEET
NO. OF CHANNELS	= 6 EACH
CHANNEL LENGTH	= 58'-6"/EACH
CHANNEL WIDTH	= 4'-0"
TOTAL LENGTH/WIDTH RATIO	= 43.9
TOTAL VOLUME	= 112000 GALLONS
DETENTION @ ADWWF	= 64 MINUTES
DETENTION @ PEAK FLOW	= 50 MINUTES

BASIC DESIGN DATA:

DESIGN POPULATION = 19,300 (CITY ONLY)
 WET WEATHER FLOW = 120 GAL/CAPITA/DAY
 DRY WEATHER FLOW = 85 GAL/CAPITA/DAY
 BOD LOAD = 0.20 LBS./CAPITA/DAY
 TSS LOAD = 0.18 LBS./CAPITA/DAY

LAGOON INFLUENT CHARACTERISTICS:

FLOW MGD:	CITY	NAVY	TOTAL
AVG. DRY WEATHER	= 1.16	= 0.64	= 1.80
AVG. WET WEATHER	= 1.60	= 0.90	= 2.50
PEAK	= 5.42	= 2.58	= 8.00
BOD, LBS./DAY @ 200mg/l	= 2700	= 1500	= 4200
TSS, LBS./DAY @ 180mg/l	= 2400	= 1350	= 3750

HEADWORKS:

PARSHALL FLUME: THROAT WIDTH = 12"
 MAX. CAPACITY = 8.0 MGD @ HA=25.5'

MACERATORS:

INITIAL NUMBER = 3 EACH
 CAPACITY/EACH = 1880 GPM (2.7MGD EACH)
 INITIAL CAPACITY = 8.1 MGD

PROPOSED ANAEROBIC PRETREATMENT CELL:

NOMINAL DEPTH	= 8.75 FEET
SURFACE AREA	= 2.19 ACRES
TOTAL VOLUME	= 4.86 MG
DETENTION @ ADWWF	= 1.94 DAYS
FLOATING COVER	= 5R INSULATED PERMEABLE, ENCAPSULATED

DRAWINGS OF RECORD

These Drawings of Record have been prepared based upon information submitted by the CONTRACTOR. While this information is believed to be reliable, Stantec is not responsible for its accuracy, nor for errors or omissions which may have been incorporated into this document as a result