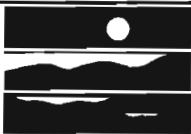


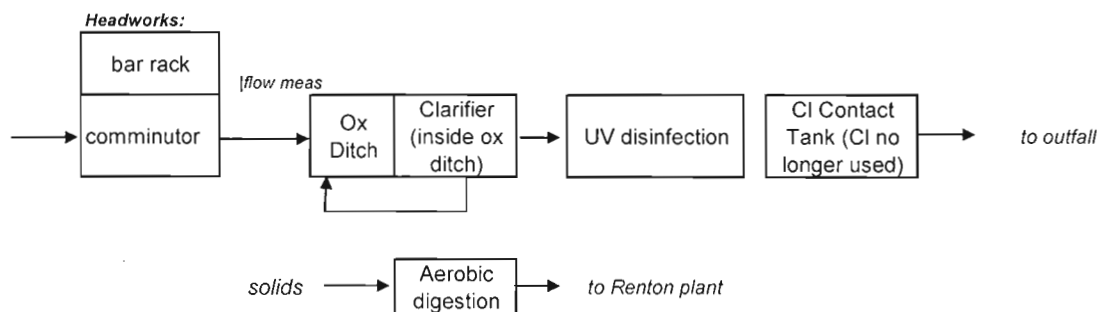
|   |   |   |   |   |   |  |
|---|---|---|---|---|---|--|
|    | State of Washington Department of Ecology<br><b>WASTEWATER TREATMENT PLANT<br/>COMPLIANCE INSPECTION REPORT</b>   |   |   |   | Northwest Regional Office<br>3190160 <sup>th</sup> Ave SE<br>Bellevue, WA 98008<br>(425) 649-7000 ph<br>(425) 649-7098 fax<br>(last update 4-15-05) |  |
|   | Section A: General Information  |   |   |   |   |  |
| Report Version<br><input checked="" type="checkbox"/> New <input type="checkbox"/> Amended  | PERMIT #<br><b>WA002252-7</b>   | mo/day/yr<br><b>08/23/05</b>  | Inspection Type<br><b>B</b>   | Inspector Code<br><b>E</b>                                  | Facility Type<br><input checked="" type="checkbox"/> Public <input type="checkbox"/> Private  |  |
| Remarks   |   |   |   |   |   |  |
| Inspection work days<br><b>5.0</b>  | Facility Self-Monitoring<br><b>4</b>  | Photos Taken<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No   | Samples Taken<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  | Lead Ecology Inspector(s)<br>Alison Evans and Amy Jankowiak |   |  |
| Section B: Facility Data  |   |   |   |   |   |  |
| Name, Location, and Phone of Facility Inspected<br>King County Vashon WWTP<br>9621 SW 171 <sup>st</sup> St<br>Vashon, WA 98070      King County   |   |   | Entry Time<br>9:05 AM   | Permit Effective Date<br>06/01/02                           |   |  |
|   |   |   | Exit Time<br>11:45 AM   | Permit Expiration Date<br>05/31/07                          |   |  |
| Name(s)/Title(s) of On-Site Representative(s)<br>Greg Burnham, Plant Operator (group II) / Lab Technician<br>Rick Ames, Plant Operator (group IV)<br>206-463-7318   |   |   | Ecology Staff On-Site<br>Alison Evans, Facility Manager<br>Amy Jankowiak, Municipal Compliance<br>Chris Dew, Stormwater Inspector   |   |   |  |
| Name, Address, Title, Phone, and Fax Number of Responsible Official<br>Rick Butler, King County-Head of Processing Renton Plant<br>1200 Monster Road<br>Renton, WA<br>rick.butler@metrokc.gov<br>Phone Number 206-684-2460      Fax      Contacted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   |   |   | Other Facility Data   |   |   |  |
|   |   |   |   |   |   |  |
| Section C: Areas Evaluated During Inspection (Check only those areas evaluated)   |   |   |   |   |   |  |
| <input checked="" type="checkbox"/> Permit<br><input checked="" type="checkbox"/> Records/Reports<br><input checked="" type="checkbox"/> Facility Site Review<br><input checked="" type="checkbox"/> Self-Monitoring Program  | <input checked="" type="checkbox"/> Flow Measurement<br><input checked="" type="checkbox"/> Effluent<br><input type="checkbox"/> Receiving Water<br><input type="checkbox"/> Laboratory | <input checked="" type="checkbox"/> Operations & Maintenance<br><input checked="" type="checkbox"/> Sludge Handling/Disposal<br><input type="checkbox"/> Pretreatment<br><input type="checkbox"/> Storm Water | <input type="checkbox"/> CSO/SSO (Sewer Overflow)<br><input type="checkbox"/> Pollution Prevention<br><input type="checkbox"/> Multimedia<br><input type="checkbox"/> Other |   |   |  |
| Section D: Summary of Findings/Comments   |   |   |   |   |   |  |
| <b>I. INTRODUCTION</b><br>A Regional Class II inspection was conducted at the Vashon Wastewater Treatment Plant (WWTP) on August 23, 2005. Amy Jankowiak (Northwest Regional Office Water Quality Compliance Unit), Alison Evans (NWRO WQ Municipal Unit), and Chris Dew (NWRO WQ Stormwater Inspector) conducted the inspection with assistance from Rick Ames, part-time plant operator. Notification of the inspection was given one day before. Greg Burnham, the full time operator for the facility, was away on vacation. A brief inspection of the Beulah Park/Cove drip field was also conducted on this day.<br><br>The Vashon WWTP is located on Vashon Island near the community of Vashon and serves the town of Vashon and Bunker Trail. Influent is from residential and associated commercial development, as well as several industrial users. In November 1999, King County assumed ownership and operation of the plant from the Vashon Sewer District; the Vashon Sewer District still owns and maintains the collection system. The plant was expanded in 1976, from an Imhoff tank, trickling filter and secondary clarifier, to an oxidation ditch, secondary clarifier, and marine outfall. A UV disinfection system was recently installed. The design standards for the Vashon plant are 0.264 MGD monthly average flow (max. month), and 275 pounds per day each for BOD and TSS. Infiltration/Inflow (I/I) is a significant problem at this plant.<br><br>The treatment process currently consists of a grit channel, comminutor, biological treatment in an oxidation ditch, secondary clarification, and disinfection via ultraviolet light. The disinfected secondary effluent discharges to Puget Sound via an 8-inch diameter outfall with three 4-inch diffuser ports on 7-foot centers. The outfall terminates about -200 feet from the mean lower-low water (MLLW) beach line. A new facility is currently being constructed with new headworks, odor control system, oxidation ditch, and two secondary clarifiers. This new facility is scheduled to be complete December 31, 2006<br><br>The purpose of this inspection was to fulfill the regional Class II inspection requirements by conducting a site inspection, 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. |   |   |   |   |   |  |

## II. RESULTS AND DISCUSSION

The Vashon STP serves two main areas of the island: Bunker Trail and the town of Vashon. Influent from the Bunker Trail area collects in a county vault before being pumped to the plant. Influent from the town of Vashon is gravity fed to the plant headworks. Vashon Sewer District continues to operate the collection systems for the town and Bunker Trail; King County is responsible for the wastewater after the Bunker Trail vault. The Sewer District is also responsible for the collection of the wastewater in the Cove/Beulah area; King County treats and disposes of the waste from that area.

The influent sampler at Vashon is flow-paced, and flow is measured with a sonic meter over a Parshall flume that sits immediately downstream of the comminutor. The headworks and influent channel are washed down daily with treated plant water. From the headworks, the wastewater flows to the outer edge of the oxidation ditch. The brushes in the ditch typically operate 24 hours per day. During our visit the ditch solids concentration was approximately 2400 mg/L. The ditch is hosed down weekly.

The secondary clarifier sits inside the oxidation ditch. The clarifier weir is washed down several times each week; however there was significant build up on the weir during the inspection, and grease foam was occasionally escaping the weir. A new electronic blanket gauge was installed in the clarifier the week of the inspection. The RAS is chlorinated almost weekly for filament control.



Clarified effluent flows over the clarifier's weir to the UV disinfection channels. The current UV system is too large for the flows at the Vashon plant. The system consists of four banks positioned in series with six modules in each bank and six bulbs in each module. Only two banks were in operation during the inspection. The banks are positioned in series which requires the wastewater to flow through all banks, even when only two are in operation. This creates unnecessary scaling on the unused tubes, as well as exposes much of the bulbs to air during the summer low flows, which causes additional scaling. In addition, there was a significant amount of grease in the UV chamber, and the cleaning method of simply hosing down the walls only re-suspends the grease floaties and does not adequately remove these solids.

Chlorine (liquid hypochlorite) is available for back-up disinfection.

After the UV system, most of the wastewater is channeled directly to the outfall, but a small amount is diverted into the C3 tank for reuse purposes. This tank is the plant's old secondary clarifier and is located behind the lab building.

**Flow measurement and Sampling:** Influent flow is measured with a sonic meter over a Parshall flume. The refrigerated, flow paced Sirco influent composite sampler is located after the Parshall flume. The effluent, time-paced composite sampler is downstream of the UV disinfection. Fecal coliform samples are also pulled at the end of the UV disinfection channel. The sample tubes should be cleaned and/or replaced on a regular basis.

**Alarm System and Emergency Power:** The plant's electricity was completely revamped when King County took over operations. In the event of a power outage, an auto transfer switch turns on a diesel generator. Rick was not sure if the generator can run the whole plant or not, and gets tested monthly under load. Rick was also not sure about the details of the alarms.

**Solids and Sludge:** Solids are extracted daily from the bottom of the clarifier and either recycled to the oxidation ditch or wasted to the Imhoff tank that now acts as an aerobic digester. The solids are allowed to settle and the clear supernatant is decanted to the ditch. The belt press is no longer used for dewatering. Approximately 6000 gallons of solids are hauled monthly to the headworks of the King County Renton Plant for further processing.

**Lift Stations:** There are four lift stations that convey wastewater from the Bunker Trail area to the plant. Two diesel generators provide backup power to these pumps and the generators are tested monthly for 30 minutes under load.

**Staffing:** Greg, a group II operator, is at the plant 10 hours per day Monday through Thursday, and Rick Ames, a group IV operator, staffs the plant 10 hours on Fridays. Someone is on-call 24/7 via a pager system.

**Records and Laboratory Review:** The current permit and O&M Manual were onsite and easily accessible, and a quick records validation check indicated the records are in order. Bench sheets were compared with data DMR's submitted to Ecology and



showed consistency. Vashon WWTP laboratory has completed and is current with the Department of Ecology Lab Accreditation Program, number M200. The King County Renton WWTP laboratory is used for additional sample analysis as needed. Calibration and maintenance records are kept at the King County Renton WWTP.

General Chemistry: Influent and effluent composite samples were split on Tuesday, August 23, 2005. Both influent and effluent samplers were refrigerated. The influent is flow paced, the effluent is time paced. The Ecology samples were placed on ice and transported to the NWRO sample refrigerator for a Wednesday morning pick-up to Manchester Laboratory.

| Parameter                          | Influent    |         | Effluent  |                       |
|------------------------------------|-------------|---------|-----------|-----------------------|
|                                    | Vashon      | Ecology | Vashon    | Ecology               |
| BOD <sub>5</sub> (mg/L)            | 376         | 414     | 7.4 (98%) | 13 (97%)              |
| TSS (mg/L)                         | lost sample | 260     | 9         | 12 (95%)              |
| Fecal Coliform Bacteria (#/100 mL) |             |         | 380       | 4200/4200 (estimated) |

The numbers in parenthesis are percent removal values.  
Duplicate sample results are listed after the hash mark /.

Samples were split to determine the comparability of Ecology and Vashon's laboratory results and sampling methods. The exceptionally high fecal coliform result is surprising and unacceptable. These high levels are likely due to the large amount of floating solids present in the UV chamber; solids can prevent adequate disinfection by UV. Floating solids were also captured in the fecal grab sample and in the composite effluent samples. Rick mentioned that these solids are usually discarded prior to analysis. These solids are part of the effluent and must be included in the analysis process. The day after the inspection, King County reported to Ecology that Rick inadvertently threw away the influent TSS sample.

Due to the lost sample and the high fecal coliform results, samples for influent and effluent composite samples and fecal coliform were split again on Tuesday, October 11, 2005. The Ecology samples were placed on ice and transported to Manchester Laboratory.

| Parameter                          | Influent |         | Effluent |          |
|------------------------------------|----------|---------|----------|----------|
|                                    | Vashon   | Ecology | Vashon   | Ecology  |
| BOD <sub>5</sub> (mg/L)            | 516      | 469     | 14 (97%) | 31 (93%) |
| TSS (mg/L)                         | 348      | 391     | 21 (94%) | 22 (94%) |
| Fecal Coliform Bacteria (#/100 mL) |          |         | 13       | 23/27    |

The numbers in parenthesis are percent removal values.  
Duplicate sample results are listed after the hash mark /.

The effluent in the UV chamber appeared cloudy with floating debris and solids. Samples were split to determine the comparability of Ecology and Vashon's laboratory results and sampling methods. The results are in close agreement for TSS effluent and fecal coliform, however, there is a noteworthy difference between Ecology and Vashon's results for BOD influent and effluent and TSS influent. There is inherent variability due to holding times, transport, and influent concentrations.

### III. CONCLUSIONS AND DISCUSSIONS

Overall the Vashon facility is well maintained and the operators have done a good job keeping the effluent within compliance limits. The facility is at capacity and much of the equipment lacks redundancy, however the new plant construction is scheduled to be complete in December 2006.

The following observations were made:

- **The UV chamber contained a lot of floating debris even though it had just been cleaned the day before the inspection. Without back-up UV banks, removing this debris is difficult. These solids interfere with the disinfection process and need to be removed. It is highly recommended that the UV system be reconfigured such that two of the banks can be taken off line for low flow conditions and to facilitate cleaning.**
- Influent sample lines need to be replaced and/or cleaned and done so regularly.
- The stockpile of empty chlorine and alum drums should be removed from the site. The full tanks should be open only during use and should be adequately covered and better secondary containment should be provided.
- The UV panel displays "module error" at all times and seems to inaccurately report when bulbs are on or off. This needs to be fixed.
- We were happy to see proper erosion control BMPs being implemented at the construction site and across Gorsuch Creek.
- It was observed that cement wash-water was being dumped on open ground in the new construction site area. This wash-water should be diverted into retention ponds and adequately treated before disposal.

**Permit Sampling Requirements:** It would be nice to have the following sampling requirements fulfilled prior to the completion of the new facility and before issuance of the new permit. To meet the December 2006 completion date, the new permit application should be submitted by June 30, 2006, and the following sampling should begin immediately:

- WET Testing: quarterly for last year of permit cycle
- Priority Pollutants and Additional Sampling: 3 samples, at least 3 months apart

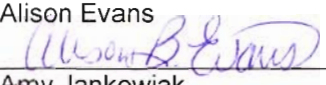
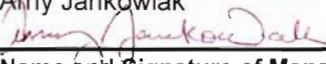
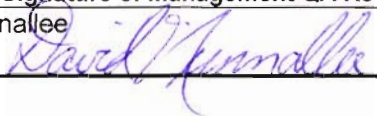
Alison Evans, facility manager, should be contacted at 425-649-7160 with permit related questions. Amy Jankowiak, Municipal Compliance Specialist, should be contacted at 425-649-7195 with any compliance related issues.

**Attachments:**

Inspection Photographs  
Sample Reports

**Copies to:**

Alison Evans, Facility Manager, NWRO  
Amy Jankowiak, Municipal Compliance, NWRO  
Carl Jones, Outreach Operator Trainer, SWRO, e-copy  
Greg Burnham, Operator, Vashon STP  
Betsy Cooper, NPDES Administrator, King County  
Central Files: King County Vashon WWTP; WA002252-7; WQ 6.1

| Name(s) and Signatures of Inspector(s)  | Agency/Office/Telephone                  | Date     |
|---|--|----------|
| Alison Evans<br>     | WA Dept. of Ecology, NWRO, (425)649-7160 | 11/4/05  |
| Amy Jankowiak<br>   | WA Dept. of Ecology, NWRO, (425)649-7195 | 10/31/05 |
| Name and Signature of Management QA Reviewer  | Agency/Office/Telephone                  | Date     |
| Dave Nunnallee<br> | WA Dept. of Ecology, NWRO, (425)649-7050 | 11-17-05 |

**ANNOUNCED** Inspection

## INSTRUCTIONS

## Section A: General Information

**Report Version:** New for 1<sup>st</sup> 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](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](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](mailto:cjon461@ecy.wa.gov)

Ecology's Municipal Compliance Specialist (Northwest Regional Office): Amy Jankowiak (425) 649-7195;

[ajan461@ecy.wa.gov](mailto: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](mailto:poca461@ecy.wa.gov)

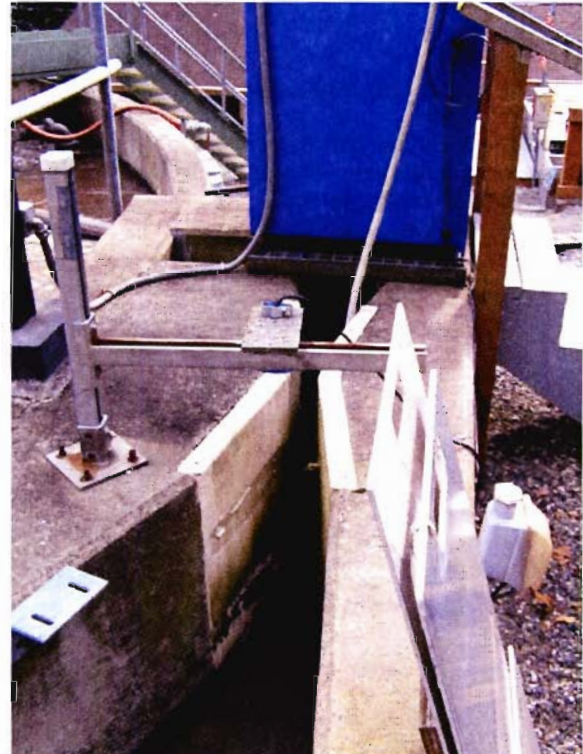
Ecology's Biosolids Coordinator (Northwest Regional Office)" Marietta Sharp (425) 649-7258 [mars461@ecy.wa.gov](mailto:mars461@ecy.wa.gov)

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 NO. 1****Date:** 08/23/05**Taken by:** Chris Dew**Witnesses:** Alison Evans & Amy Jankowiak**Description:** Vashon WWTP Overview: headworks, oxidation ditch, clarifier. UV system off to right hand side.**PHOTO NO. 2****Date:** 08/23/05**Taken by:** Chris Dew**Witnesses:** Alison Evans & Amy Jankowiak**Description:** Headworks: comminutor and bar screen**PHOTO NO. 3****Date:** 08/23/05**Taken by:** Chris Dew**Witnesses:** Alison Evans & Amy Jankowiak**Description:** Parshall Flume & Influent Sample Line





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**PHOTOS NO. 4 & 5**

**Date:** 08/23/05

**Taken by:** Chris Dew

**Witnesses:** Alison Evans & Amy Jankowiak

**Description:** Chlorine and Alum barrel storage. Empty barrels should be removed, barrels should be covered, and secondary containment should be installed. Feed system for RAS chlorine shown in Figure 5 at right should be sealed to atmosphere.

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**PHOTOS NO. 6 & 7**

**Date:** 08/23/05

**Taken by:** Chris Dew

**Witnesses:** Alison Evans & Amy Jankowiak

**Description:** Influent sampler refrigerator. Sample line needs to be replaced.

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PHOTO NO. 8

**Date:** 08/23/05  
**Taken by:** Chris Dew  
**Witnesses:** Alison Evans & Amy Jankowiak  
**Description:** Flow enters Clarifier from Ox. Ditch

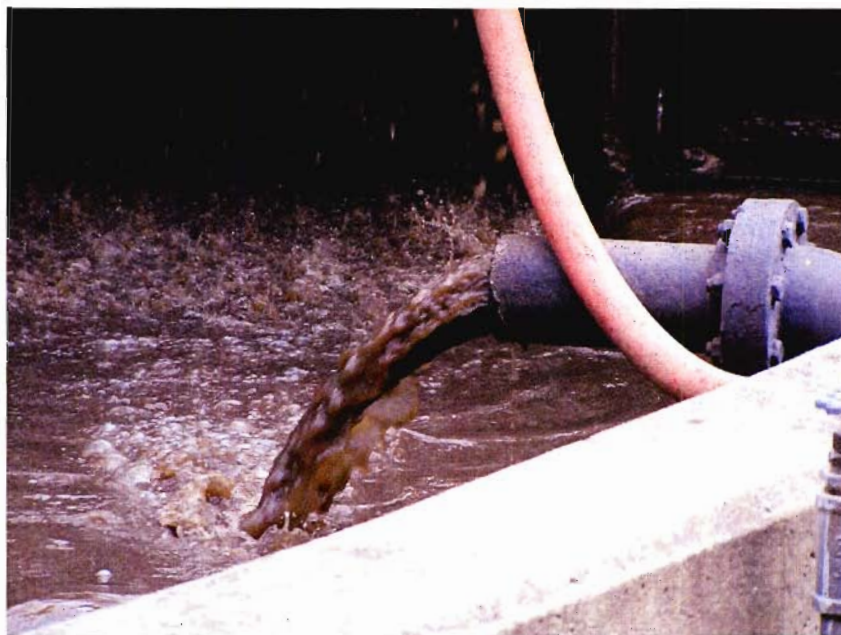


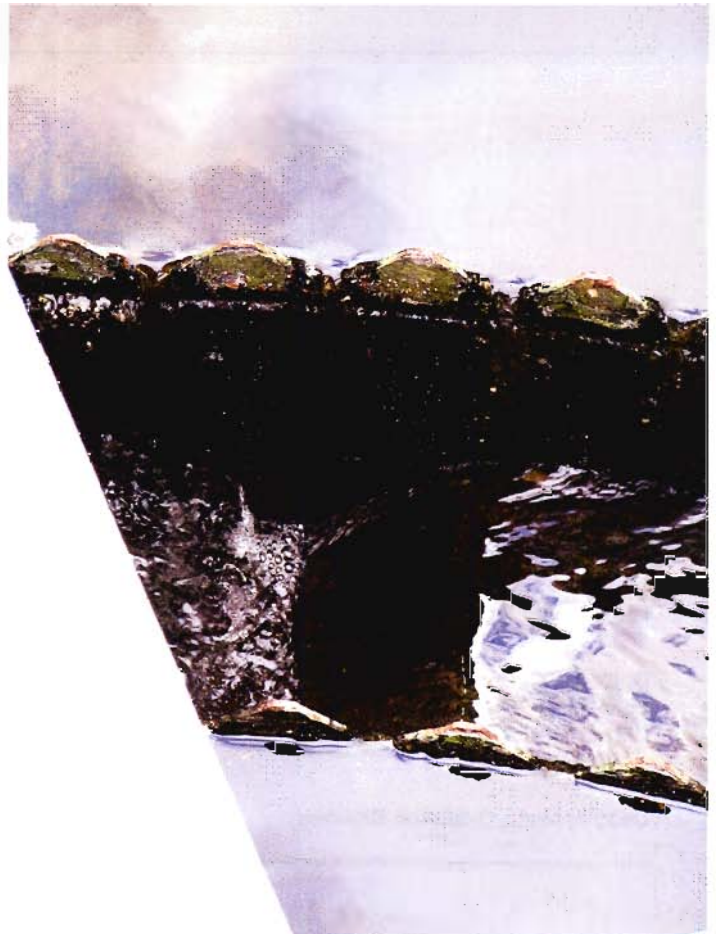
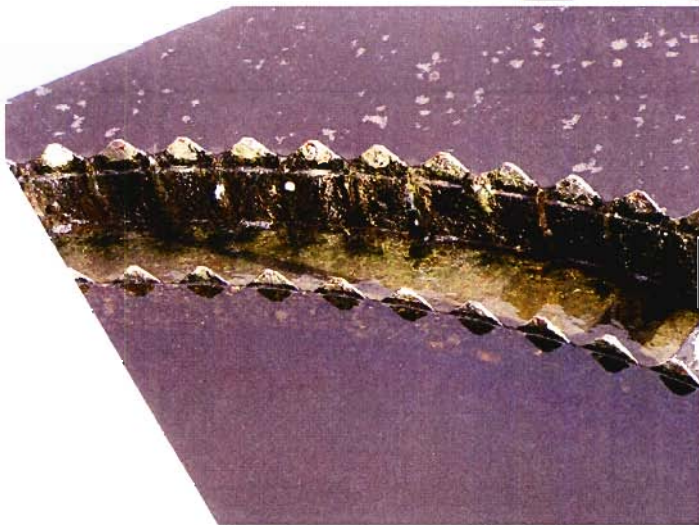
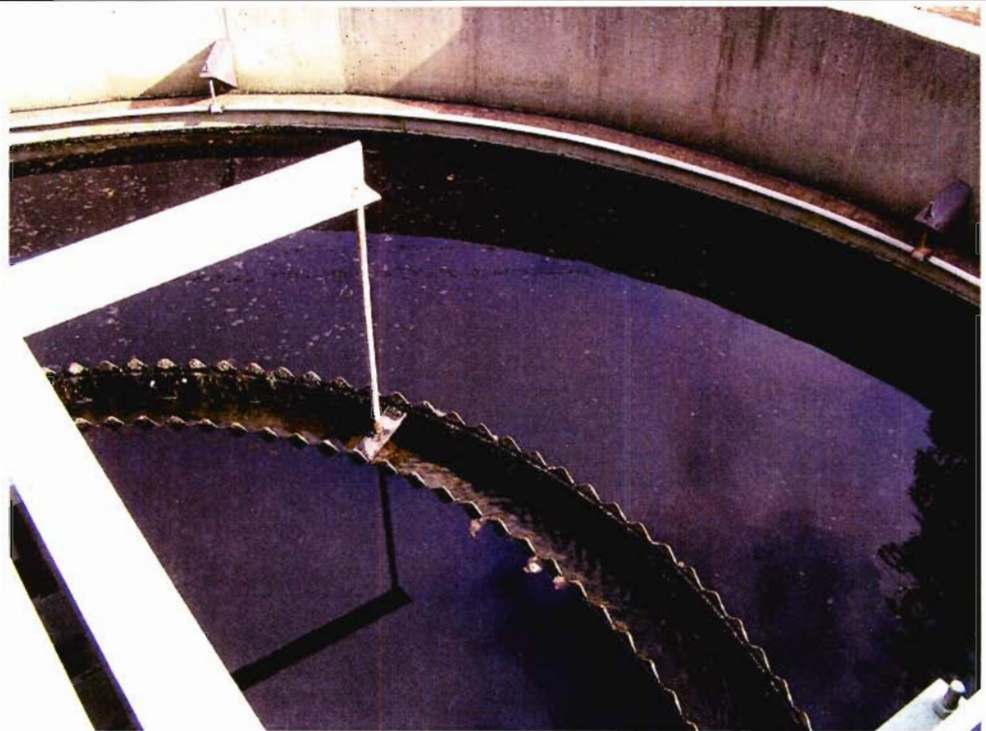
PHOTO NO. 9

**Date:** 08/23/05  
**Taken by:** Chris Dew  
**Witnesses:** Alison Evans & Amy Jankowiak  
**Description:** RAS line.

PHOTO NO. 10

**Date:** 08/23/05  
**Taken by:** Chris Dew  
**Witnesses:** Alison Evans & Amy Jankowiak  
**Description:** Oxidation Brushes



**PHOTO NO. 11****Date:** 08/23/05**Taken by:** Chris Dew**Witnesses:** Alison Evans & Amy Jankowiak**Description:** Clarifier weir.**PHOTOS NO. 12 & 13****Date:** 08/23/05**Taken by:** Chris Dew**Witnesses:** Alison Evans & Amy Jankowiak**Description:** Clarifier weir could use cleaning. Water flowing over weir looks clear in photo 13.





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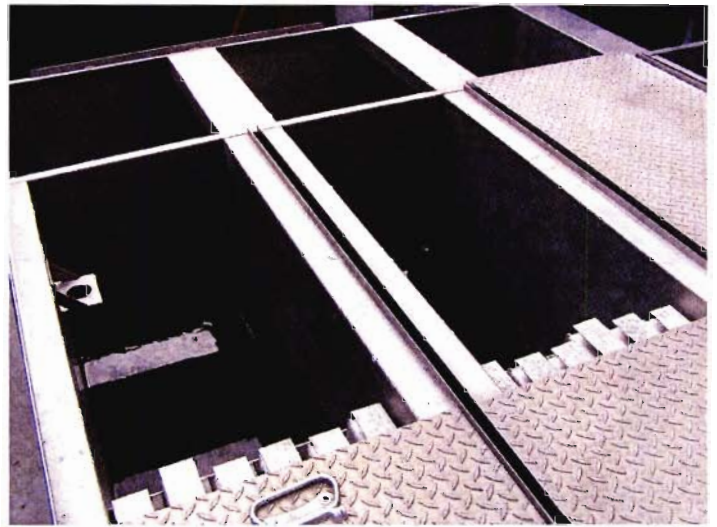
**PHOTO NO. 14**

**Date:** 08/23/05

**Taken by:** Chris Dew

**Witnesses:** Alison Evans & Amy Jankowiak

**Description:** UV Lamps.



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**PHOTO NO. 15**

**Date:** 08/23/05

**Taken by:** Chris Dew

**Witnesses:** Alison Evans & Amy Jankowiak

**Description:** Significant amounts of floating grease and solids can be seen in UV chambers.

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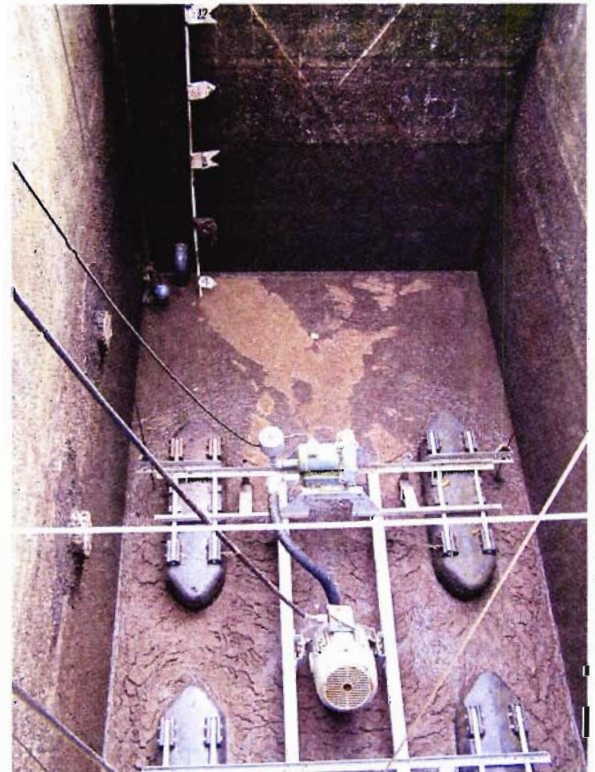
**PHOTO NO. 16**

**Date:** 08/23/05

**Taken by:** Chris Dew

**Witnesses:** Alison Evans & Amy Jankowiak

**Description:** Old Imhoff Tank, now used for solids thickening.





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**PHOTO NO. 17****Date:** 08/23/05**Taken by:** Chris Dew**Witnesses:** Alison Evans & Amy Jankowiak**Description:** Old Clarifier, now used as re-use tank for plant use.

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**PHOTO NO. 18****Date:** 08/23/05**Taken by:** Chris Dew**Witnesses:** Alison Evans & Amy Jankowiak**Description:** Re-use tank.

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**PHOTO NO. 19****Date:** 08/23/05**Taken by:** Chris Dew**Witnesses:** Alison Evans & Amy Jankowiak**Description:** Facility wet well that feeds back to oxidation ditch.



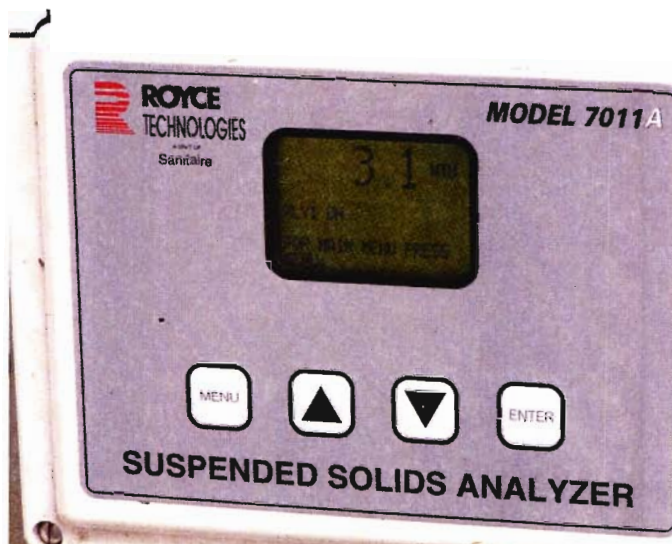
## PHOTO NO. 20

Date: 08/23/05

Taken by: Chris Dew

Witnesses: Alison Evans &amp; Amy Jankowiak

Description: Solids analyzer located after UV system.



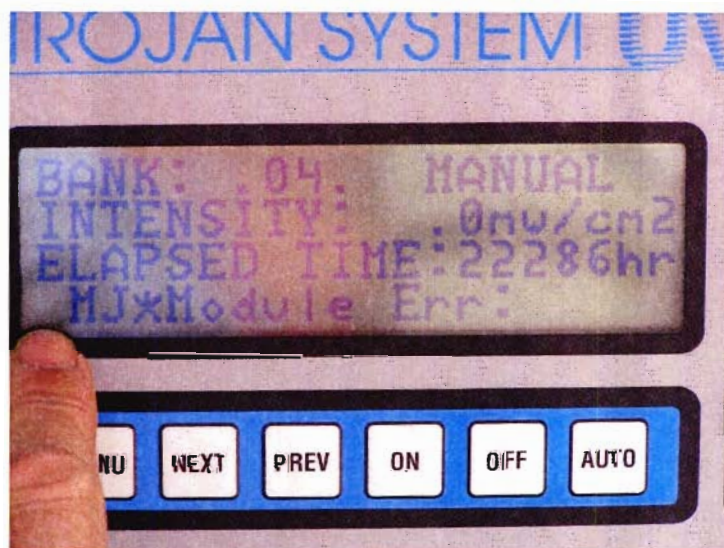
## PHOTO NO. 21

Date: 08/23/05

Taken by: Chris Dew

Witnesses: Alison Evans &amp; Amy Jankowiak

Description: UV system interface screen, shows module error and reports wrong banks as on/off.



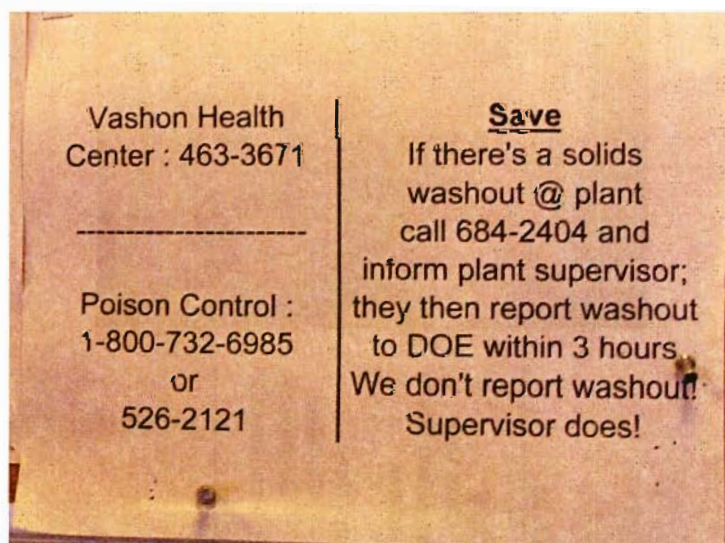
## PHOTO NO. 22

Date: 08/23/05

Taken by: Chris Dew

Witnesses: Alison Evans &amp; Amy Jankowiak

Description: Sign posted in lab room.





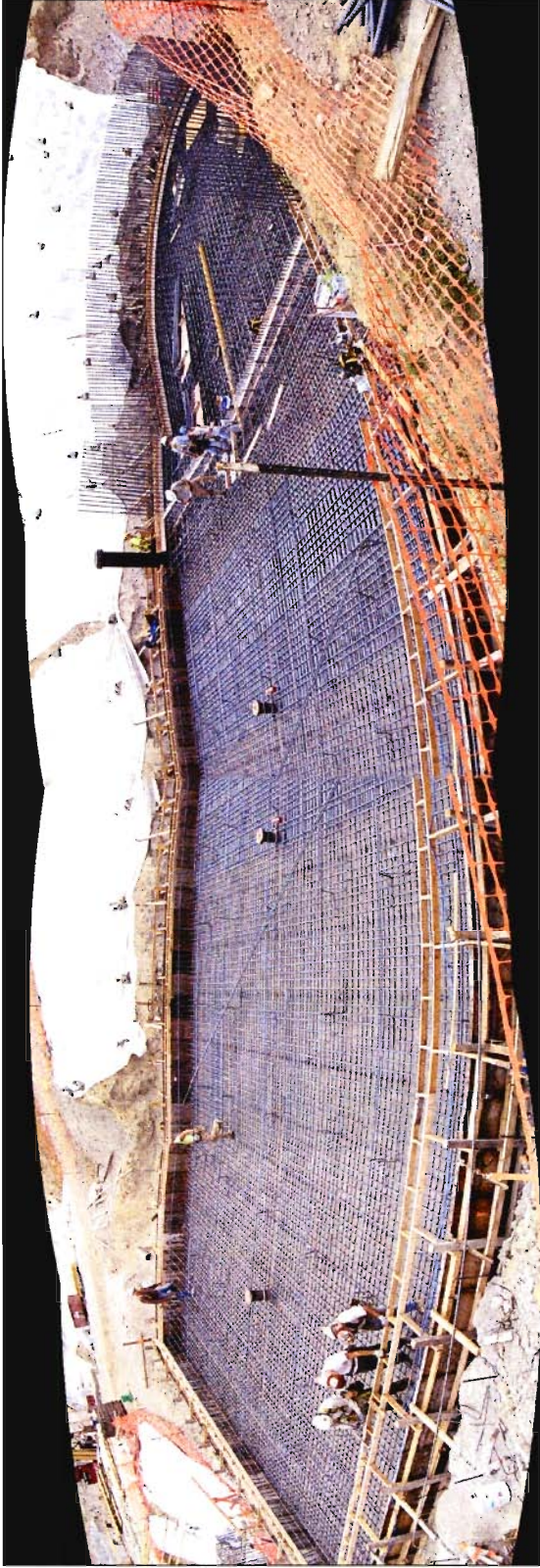


PHOTO NO. 23

Date: 08/23/05  
Taken by: Chris Dew  
Witnesses: Alison Evans  
& Amy Jankowiak

Description: New  
Oxidation  
Ditch under  
construction.



PHOTO NO. 24

Date: 08/23/05  
Taken by: Chris Dew  
Witnesses: Alison Evans & Amy Jankowiak

Description: New Clarifiers under  
construction.



**PHOTO NO. 25**

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**Date:** 08/23/05**Taken by:** Chris Dew**Witnesses:** Alison Evans & Amy Jankowiak**Description:** Bridge over Gorsuch River for sewer line to new facility site. Proper stormwater erosion control procedures are being followed.**PHOTO NO. 26**

---

**Date:** 08/23/05**Taken by:** Chris Dew**Witnesses:** Alison Evans & Amy Jankowiak**Description:** Cement wash-water was dumped on open ground in the new construction site area. This wash-water should be diverted into retention ponds and adequately treated before disposal.



PHOTO NO. 27

---

**Date:** 08/23/05

**Taken by:** Chris Dew

**Witnesses:** Alison Evans & Amy Jankowiak

**Description:** Beulah Park / Cove Drip Field appears to be in good shape. Very minor ponding. Grass is green throughout system except a small patch on southwest corner. This indicates that wastewater is being properly distributed throughout drip field. Wastewater treatment facility at Beulah was not inspected.

---





State of Washington Department of Ecology

# WASTEWATER TREATMENT PLANT COMPLIANCE INSPECTION REPORT CHECKLIST

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

## Section E: Facility Information

Name of Facility Inspected: Vashon STP  
Date of Inspection: 8-23-05 (mo/day/yr)

Permit Number: 11A-002252-7

1130

## Section F: Permit Verification

Inspection Observations Verify the Permit.

☐ YES ☐ NO ☐ N/A

Details:

|   |   |   |                             |                              |
|---|---|---|-----------------------------|------------------------------|
| 1 | Correct name and addresses of Permittee.                            | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 2 | Facility is as described in permit.                                 | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 3 | Treatment Processes are as described in permit.                     | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 4 | Number and location of discharge points are as described in permit. | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 5 | Correct name and location of receiving water(s).                    | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 6 | All discharges are permitted.                                       | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |

## Section G: Records and Reports

Records and reports maintained as required by permit.

☐ YES ☐ NO ☐ N/A

Details:

|    |  |   |                             |   |                              |
|----|--|---|-----------------------------|---|------------------------------|
| 7  | Copy of current permit on site.  | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A            |                              |
| 8  | Calibration records maintained for a minimum of 3 years.   | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A | <u>Renton</u>                |
| 9  | Monitoring records maintained for a minimum of 3 years.  | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A            |                              |
| 10 | Maintenance records maintained for a minimum of 3 years.   | <input type="checkbox"/> YES            | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A | <u>Renton</u>                |
| 11 | Maintenance records for all major electrical and mechanical components specifying frequency and type maintained. | <input type="checkbox"/> YES            | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A | <u>Renton</u>                |
| 12 | Maintenance records for the sewage system and pumping stations specifying frequency and type maintained.         | <input type="checkbox"/> YES            | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A | <u>Robbie Sewer District</u> |
| 13 | Approved Operations and Maintenance Manual onsite.   | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A            |                              |
| 14 | DMR/bench sheet/lab report comparisons consistent.   | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A            |                              |
| 15 | Calculations on DMR are done properly.   | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A            |                              |
| 16 | Results include necessary information (dates, time, method, initials...).  | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A            |                              |

# Section H: Operations and Maintenance

Treatment facility properly operated and maintained.

☐ YES ☐ NO ☐ N/A

Details:

|    |  |   |                             |                              |
|----|--|---|-----------------------------|------------------------------|
| 17 | All treatment units necessary in service.  | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 18 | Certified Operator in responsible charge is certified at the minimum group level required.         | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 19 | Operator in charge of regularly scheduled shifts is certified at the minimum group level required. | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |

Staffing levels: # certified operators IV III II I OIT Other

Hours covered: 10hrs

After hours/weekend coverage:

Brian Bushaw Rick Ames - covering

5 days

- on call weekend

|    |                         |                              |                             |                              |
|----|-------------------------|------------------------------|-----------------------------|------------------------------|
| 20 | O&M Manual maintained.  | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 21 | O&M Manual implemented. | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |

O&M Manual: Date of last review and or update:

|    |  |   |  |                              |
|----|--|---|--|------------------------------|
| 22 | Instruction files kept for O&M of each major piece of equipment. | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO            | <input type="checkbox"/> N/A |
| 23 | Established procedures available for training new operators.     | <input type="checkbox"/> YES            | <input type="checkbox"/> NO            | <input type="checkbox"/> N/A |
| 24 | Spare parts kept or available as needed.                         | <input type="checkbox"/> YES            | <input type="checkbox"/> NO            | <input type="checkbox"/> N/A |
| 25 | Consulting engineer retained or available.                       | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO            | <input type="checkbox"/> N/A |
| 26 | Adequate safeguards during power failure in place.               | <input type="checkbox"/> YES            | <input type="checkbox"/> NO            | <input type="checkbox"/> N/A |
| 27 | Critical facility components alarmed.                            | <input type="checkbox"/> YES            | <input type="checkbox"/> NO            | <input type="checkbox"/> N/A |
| 28 | Solids and sludges properly handled.                             | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO            | <input type="checkbox"/> N/A |
| 29 | Non-compliance notification procedures known and/or available.   | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO            | <input type="checkbox"/> N/A |
| 30 | Any overflows at plant in the last 3 years.                      | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO            | <input type="checkbox"/> N/A |
| 31 | Any bypasses of primary or secondary in the last 3 years.        | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO | <input type="checkbox"/> N/A |

no new operators lately

some

May-Reported

grit - daily check - hose out

no recycle flow

C3

call seps.

24/7 there

they call me

generator - whole plant - not sure

alarms?

Collection system properly operated and maintained.

☐ YES ☐ NO ☐ N/A

Approx popn:

Industry: ☐ YES ☒ NO

CSO's: ☐ YES ☒ NO

# of pump stations:     

|    |   |                              |                             |                              |
|----|---|------------------------------|-----------------------------|------------------------------|
| 32 | Industrial User Survey updated.                           | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 33 | Grease ordinance in place. <u>- some grease</u>           | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 34 | Grease ordinance enforced.                                | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 35 | Adequate safeguards during power failure in place.        | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 36 | Pump stations alarmed. <u>- being yes</u>                 | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 37 | Any overflows of collection system since last inspection. | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |

few dock - lift station - no ferry waste

private pumps

Sever District - collection system

vacuum system - alarms

bar screen - only if bypass



### Section I: Flow Measurement

Flow measurement meets the requirements of the permit.

☐ YES ☐ NO ☐ N/A

Details:

Flow Meter Type: ☐ WEIR ☒ PARSHALL FLUME ☐ MAGMETER ☐ VENTURI METER ☒ ULTRASONIC ☐ OTHER:

38 Primary flow meter device working properly. ☒ YES ☐ NO ☐ N/A

39 Flow measurement equipment adequate to handle expected ranges. ☒ YES ☐ NO ☐ N/A

40 Calibrations being conducted per manufacturer recommendations and at least once per year. ☐ YES ☐ NO ☐ N/A

41 Are manual flow measurements taken during brief lengths of time for calibration, power failure, or unanticipated repair or maintenance? ☒ YES ☐ NO ☐ N/A

Calibration tech's

Manual - have to use gage - not markings  
yard stick

### Section J: Sampling

Sampling meets the requirements and intent of the permit.

☐ YES ☐ NO ☐ N/A

Details:

42 Sampling locations adequate for representative sampling. ☒ YES ☐ NO ☐ N/A

43 Samples representative of the volume and nature. ☒ YES ☐ NO ☐ N/A

44 Samples representative of any unusual discharge or discharge condition. ☒ YES ☐ NO ☐ N/A

45 All monitoring being done by accredited laboratory. ☒ YES ☐ NO ☐ N/A

46 Permittee using method of sample collection required by permit for each parameter. ☒ YES ☐ NO ☐ N/A

Type of sampling being conducted on Influent: ☐ Grab ☐ Manual Composite ☐ Automatic Composite

Frequency: ☐ Time proportional ☒ Flow proportional

3<sup>rd</sup> °C  
Sampler temp

Type of sampling being conducted on Effluent: ☐ Grab ☐ Manual Composite ☐ Automatic Composite

Frequency: ☐ Time proportional ☒ Flow proportional ? a time

2<sup>nd</sup> °C  
Sampler temp

47 Samples refrigerated during compositing. ☒ YES ☐ NO ☐ N/A

48 Proper preservation techniques used at plant. ☒ YES ☐ NO ☐ N/A

49 Proper preservation techniques used during transport of samples. ☒ YES ☐ NO ☐ N/A

50 Sample holding times conformed to. ☐ YES ☐ NO ☐ N/A

51 Sampling and monitoring equipment properly maintained. ☐ YES ☐ NO ☐ N/A

52 Monitoring and analyses being performed more frequently than required by permit and results being reported properly. ☒ YES ☐ NO ☐ N/A

53 Outside labs used? ☒ YES ☐ NO If so, describe:

tube - needs cleaned - bleach / replace  
inf 20C

M1047

104<sup>th</sup> Samples  
Split

Incubator Temp Varying ~2°C is this  
~16-19°C

BOD  
Some tubes up  
BOD drop sometime 2.2 12/15/03  
3.6

### Section K: Effluent/Receiving Water Observations

| Outfall No. | OIL SHEEN | GREASE | TURBIDITY | VISIBLE FOAM | VISIBLE FLOAT SOLIDS | COLOR         | OTHER |
|-------------|-----------|--------|-----------|--------------|----------------------|---------------|-------|
|             |           | some   | some      |              | some                 | slight yellow |       |
|             |           |        |           |              |                      |               |       |
|             |           |        |           |              |                      |               |       |

inf Channel

↓

or ditch - settling - checked daily  
~ 4 days detention (designed - 1)

~ 2400 mixed liquor

rotors - on all the time

foaming - usually not

UV

Spare bulbs

not sure when  
change out

↓ Clarifier

couple times a week - hose

~ 10 feet

outside feed

winter - flow rate high - clarifier stirs up  
or ditch walls weekly

inside weir walls - dirty - 1 day build up  
couple days / week

Solids out

the bottom → ditch

RAS Pump

UV - 2 banks for summer

winter - 4 banks - he thinks

not sure if banks rotate

- very dirty channel - not a good way to  
clean it

Cleaning UV - just here

UV - comp system - not working right

RAS/WAS

→

Sludge thickening

decant → pump → ditch

no more - dewater → Renton  
belt press

1/week Solids hauled  
→ Renton  
sludge, organic, etc

RAS  
circulation  
~ 1/week

eff flow  
mag meter

3 tank  
old channel  
contact  
- most flow bypasses



# **Manchester Environmental Laboratory**

7411 Beach Dr E, Port Orchard, Washington 98366

## **Case Narrative**

**September 1, 2005**

Subject: General Chemistry Vashon STP

Project No: 160305

Officer: Amy Jankowiak

By: Dean Momohara

### **Summary**

The samples were analyzed by the following methods: Standard Methods (SM) 5210B for biochemical oxygen demand (BOD) and SM2540D 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 8/24/05. All coolers were received within the proper temperature range of 0°C - 6°C. All samples were received in good condition. Four (4) samples were received and assigned laboratory identification numbers 344005, 344006, 344007 and 344008.

### **Holding Times**

All analyses were performed within established EPA holding times.

### **Calibration**

Dissolved oxygen 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**

No 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 were within the acceptance range of 0% - 20%.

### **Laboratory Control Samples**

All laboratory control sample recoveries were within the acceptance limits of 81% - 118% for BOD analysis and 80% - 120% for TSS analysis.

### **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**  
**Total Suspended Solids**

**Project Name:** Vashon STP - 34

**LIMS Project ID:** 1603-05

**Project Officer:** Amy Jankowiak

**Method:** SM2540D

**Date Reported:** 08/24/05

**Analyte:** Total Suspended Solids

| Sample    | QC | Field ID | Matrix | Result | Qualifier | Units | Collected | Analyzed |
|-----------|----|----------|--------|--------|-----------|-------|-----------|----------|
| 05344006  |    | INF02    | Water  | 260    |           | mg/L  | 08/23/05  | 08/24/05 |
| 05344008  |    | EFF02    | Water  | 12     |           | mg/L  | 08/23/05  | 08/24/05 |
| GB05236S1 |    | Lab BLNK | Water  | 1      | U         | mg/L  |           | 08/24/05 |
| GL05236S1 |    | Lab LCS- | Water  | 89.6   |           | %     |           | 08/24/05 |

Authorized By:

*Daniel J. Baker*

Release Date:

*8/24/05*

Page: 1

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

**Project Name:** Vashon STP - 34

**LIMS Project ID:** 1603-05

**Project Officer:** Amy Jankowiak

**Method:** SM5210B

**Date Reported:** 08/29/05

**Analyte:** Biochemical Oxygen Demand

| Sample    | QC | Field ID         | Matrix | Result | Qualifier | Units | Collected | Analyzed |
|-----------|----|------------------|--------|--------|-----------|-------|-----------|----------|
| 05344005  |    | INF01            | Water  | 414    |           | mg/L  | 08/23/05  | 08/24/05 |
| 05344005  |    | LDP1 (duplicate) |        | 385    |           | mg/L  | 08/23/05  | 08/24/05 |
| 05344007  |    | EFF01            | Water  | 13     |           | mg/L  | 08/23/05  | 08/24/05 |
| GB05236B1 |    | Lab BLNK         | Water  | -0.06  |           | mg/L  |           | 08/24/05 |
| GL05236B1 |    | Lab LCS-         | Water  | 83     |           | %     |           | 08/24/05 |

Authorized By:

*Michelle Ouyk*

Release Date:

8/29/05

Page: 1




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

**Case Narrative**

**August 25, 2005**

Subject: Microbiology Quality Assurance memo for Vashon STP - 34

Officer(s): Amy Jankowiak

By: Nancy Jensen, Microbiologist 

**Summary**

The data generated by the analysis of these samples can be used with the qualifications noted.

**Sample Information**

The Vashon samples were received on 08/24/05 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 Water 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 within the RPD (Relative Percent Difference) limit of  $\pm 40\%$ .

**Laboratory Control Samples**

All laboratory controls were within acceptance windows.

### **Other Quality Control Measures and Issues**

The sample was qualified with a "J" (estimated count). There were over 150 colonies on the plates. Two or more bacteria could land in the same place during filtration; therefore the "true" value may be greater than or equal to the reported result.

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:** Vashon STP - 34

**LIMS Project ID:** 1603-05

**Project Officer:** Amy Jankowiak

**Method:** SM9222D

**Date Reported:** 08/25/05

**Analyte:** Fecal Coliform

| Sample   | QC | Field ID         | Matrix | Result | Qualifier | Units   | Collected | Analyzed |
|----------|----|------------------|--------|--------|-----------|---------|-----------|----------|
| 05344009 |    | EFF03            | Water  | 4200   | J         | #/100mL | 08/23/05  | 08/24/05 |
| 05344009 |    | LDP1 (duplicate) |        | 4200   | J         | #/100mL | 08/23/05  | 08/24/05 |

Authorized By: mgensen

Release Date: 8/25/05

Page: 1

# **Manchester Environmental Laboratory**

7411 Beach Dr E, Port Orchard, Washington 98366

## **Case Narrative**

**October 25, 2005**

Subject: General Chemistry Vashon STP

Project No: 173305

Officer: Amy Jankowiak

By: Dean Momohara  
D

### **Summary**

The samples were analyzed by the following methods: Standard Methods (SM) 5210B for biochemical oxygen demand (BOD) and SM2540D 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 10/11/05. 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 414010 and 414011.

### **Holding Times**

All analyses were performed within established EPA holding times.

### **Calibration**

Dissolved oxygen 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**

No 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 were within the acceptance range of 0% - 20%.

### **Laboratory Control Samples**

All laboratory control sample recoveries were within the acceptance limits of 81% - 118% for BOD analysis and 80% - 120% for TSS analysis.

### **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:** Vashon STP - 41

**LIMS Project ID:** 1733-05

**Project Officer:** Amy Jankowiak

**Method:** SM5210B

**Date Reported:** 10/17/05

**Analyte:** Biochemical Oxygen Demand

| Sample    | QC | Field ID         | Matrix | Result | Qualifier | Units | Collected | Analyzed |
|-----------|----|------------------|--------|--------|-----------|-------|-----------|----------|
| 05414010  |    | INF              | Water  | 469    |           | mg/L  | 10/11/05  | 10/12/05 |
| 05414011  |    | EFF              | Water  | 31     |           | mg/L  | 10/11/05  | 10/12/05 |
| 05414011  |    | LDP1 (duplicate) |        | 30     |           | mg/L  | 10/11/05  | 10/12/05 |
| GB05285B1 |    | Lab BLNK         | Water  | 0.10   |           | mg/L  |           | 10/12/05 |
| GL05285B1 |    | Lab LCS-         | Water  | 98     |           | %     |           | 10/12/05 |

Authorized By: Michelle O'Neil

Release Date: 10/17/05

Page: 1



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

**Project Name:** Vashon STP - 41

**LIMS Project ID:** 1733-05

**Project Officer:** Amy Jankowiak

**Method:** SM2540D

**Date Reported:** 10/19/05

**Analyte:** Total Suspended Solids

| Sample    | QC | Field ID         | Matrix | Result | Qualifier | Units | Collected | Analyzed |
|-----------|----|------------------|--------|--------|-----------|-------|-----------|----------|
| 05414010  |    | INF              | Water  | 391    |           | mg/L  | 10/11/05  | 10/17/05 |
| 05414011  |    | EFF              | Water  | 22     |           | mg/L  | 10/11/05  | 10/17/05 |
| 05414011  |    | LDP1 (duplicate) |        | 21     |           | mg/L  | 10/11/05  | 10/17/05 |
| GB05290S1 |    | Lab BLNK         | Water  | 1      | U         | mg/L  |           | 10/17/05 |
| GL05290S1 |    | Lab LCS-         | Water  | 93     |           | %     |           | 10/17/05 |

Authorized By:

*Melanie Denny*

Release Date:

*10/19/05*

Page: 1

## **Manchester Environmental Laboratory**


7411 Beach Drive E, Port Orchard, WA 98366

### **Case Narrative**

**October 12, 2005**

Subject: Microbiology Quality Assurance memo for Vashon STP – 41.

Officer(s): Amy Jankowiak

By: Nancy Jensen, Microbiologist 

### **Summary**

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

### **Sample Information**

The Vashon samples were received on 10/11/05 at the Manchester Laboratory in good condition.

### **Holding Times**

Analysis of all microbiology parameters was performed with the EPA holding time limits.

### **Blanks**

All procedural blanks were within acceptable limits.

### **Replicates**

Results from duplicate analyses were used to evaluate precision. The duplicate analyses were within the RPD (Relative Percent Difference) limit of  $\pm 40\%$ .

### **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:** Vashon STP - 41

**LIMS Project ID:** 1733-05

**Project Officer:** Amy Jankowiak

**Method:** SM9222D

**Date Reported:** 10/12/05

**Analyte:** Fecal Coliform

| Sample   | QC | Field ID         | Matrix | Result | Qualifier | Units   | Collected | Analyzed |
|----------|----|------------------|--------|--------|-----------|---------|-----------|----------|
| 05414012 |    | EFF GRAB         | Water  | 23     |           | #/100mL | 10/11/05  | 10/11/05 |
| 05414012 |    | LDP1 (duplicate) |        | 27     |           | #/100mL | 10/11/05  | 10/11/05 |

Authorized By: M Jensen

Release Date: 10/12/05

Page: 1



Vashon Monthly Report  
Table 2

| Influent         |                  |           |                         |                            |           |              |     |          |                         |                |                            |           |                | Effluent     |        |        |          |                          |                   |                 |            |           |           | Aeration Basin |                          |                    |            |                     | Dewatering     |                         |                     |                      | Field Process Data |  |  |
|------------------|------------------|-----------|-------------------------|----------------------------|-----------|--------------|-----|----------|-------------------------|----------------|----------------------------|-----------|----------------|--------------|--------|--------|----------|--------------------------|-------------------|-----------------|------------|-----------|-----------|----------------|--------------------------|--------------------|------------|---------------------|----------------|-------------------------|---------------------|----------------------|--------------------|--|--|
| Date             | Rain, inches/day | Flow, MGD | BOD <sub>5</sub> , mg/l | BOD <sub>5</sub> , lbs/day | TSS, mg/L | TSS, lbs/day | pH  | DO, mg/l | BOD <sub>5</sub> , mg/l | BOD removal, % | BOD <sub>5</sub> , lbs/day | TSS, mg/L | TSS removal, % | TSS, lbs/day | pH min | pH max | DO, mg/l | Fecal Colif., no./100 ml | Disinfection type | No. of UV banks | MLSS, mg/L | F:M Ratio | SRT, days | SVI, mL/g      | Oxidation Ditch DO, mg/L | Waste RAS, gal/day | Waste spin | RAS wasted, dry lbs | Decant Gallons | Soda Ash, lbs/day added | RAS, Spin % by Vol. | MLSS, Spin % by Vol. |                    |  |  |
| 7/31/05 Sun      |                  | 0.056     |                         |                            |           |              |     |          |                         |                |                            |           |                |              | 6.5    | 7.2    |          |                          | UV                | 2               |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| 8/1/05 Mon       |                  | 0.066     |                         |                            |           |              | 7.0 | 4.5      |                         |                |                            |           |                |              | 6.5    | 7.2    | 5.0      | 45                       | UV                | 2               |            | 2200      |           |                | 254                      | 0.45               | 5,250      |                     | 289            | 6000                    |                     |                      | 5                  |  |  |
| 8/2/05 Tue       |                  | 0.068     |                         |                            | 271       | 154          | 7.0 | 4.9      |                         |                |                            |           |                |              | 6.7    | 6.9    | 5.1      | 19                       | UV                | 2               |            | 2500      |           |                | 108                      | 0.4                | 6,000      | 15.0                | 417            | 3000                    |                     |                      | 4.5                |  |  |
| 8/3/05 Wed       |                  | 0.066     | 519                     | 286                        | 303       | 167          | 7.8 | 5.2      | 3.8                     | 99             | 2                          | 8         | 97             | 5            | 6.3    | 7.3    | 5.3      |                          | UV                | 2               |            | 2300      | 0.103     | 10             | 117                      | 0.7                | 6,000      | 15.0                | 401            | 3750                    |                     |                      | 4.3                |  |  |
| 8/4/05 Thu       |                  | 0.069     | 650                     | 374                        | 500       | 288          | 7.4 | 5.0      | 7.0                     | 99             | 4                          | 7         | 99             | 4            | 6.3    | 7.5    | 5.2      |                          | UV                | 2               |            | 2300      | 0.135     | 7              | 117                      | 0.6                | 6,000      | 15.0                | 384            | 3750                    | 100                 | 7.0                  | 4.5                |  |  |
| 8/5/05 Fri       |                  | 0.064     |                         |                            |           |              | 7.5 | 4.6      |                         |                |                            |           |                |              | 6.7    | 7.2    | 5.1      |                          | UV                | 2               |            | 2200      |           |                | 127                      | 1.6                | 3,000      | 15.0                | 188            | 3000                    |                     | 6.8                  | 4.4                |  |  |
| 8/6/05 Sat       |                  | 0.063     |                         |                            |           |              |     |          |                         |                |                            |           |                |              | 6.7    | 7.2    |          |                          | UV                | 2               |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| 8/7/05 Sun       |                  | 0.059     |                         |                            |           |              |     |          |                         |                |                            |           |                |              | 6.7    | 7.2    |          |                          | UV                | 2               |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| 8/8/05 Mon       |                  | 0.063     |                         |                            |           |              | 7.2 | 4.8      |                         |                |                            |           |                |              | 6.5    | 7.0    | 5.0      | 17                       | UV                | 2               |            | 2200      |           |                | 173                      | 0.6                | 5,250      | 6.0                 | 128            | 4500                    |                     |                      | 4.5                |  |  |
| 8/9/05 Tue       |                  | 0.074     |                         |                            | 378       | 233          | 6.3 | 2.6      |                         |                |                            |           |                |              | 6.2    | 7.4    | 4.6      | 37                       | UV                | 2               |            | 2200      |           |                | 200                      |                    | 4,500      | 13.0                | 228            | 3750                    |                     |                      | 4.7                |  |  |
| 8/10/05 Wed      |                  | 0.073     | 267                     | 163                        | 226       | 138          | 6.5 | 4.0      | 5.4                     | 98             | 3                          | 15        | 93             | 9            | 6.5    | 7.0    | 4.6      |                          | UV                | 2               |            | 2300      | 0.059     | 17             | 200                      | 0.4                | 5,250      | 14.0                | 282            | 2250                    |                     |                      | 5                  |  |  |
| 8/11/05 Thu      |                  | 0.073     | 540                     | 329                        | 307       | 187          | 6.6 | 5.2      | 3.0                     | 99             | 2                          | 8         | 97             | 5            | 6.5    | 6.8    | 5.6      |                          | UV                | 2               |            | 2200      | 0.124     | 8              | 250                      | 0.5                | 5,250      | 13.0                | 266            | 3750                    |                     |                      | 4.7                |  |  |
| 8/12/05 Fri      |                  | 0.075     |                         |                            |           |              | 6.8 | 4.0      |                         |                |                            |           |                |              | 6.2    | 7.0    | 2.2      |                          | UV                | 2               |            | 2300      |           |                | 280                      | 1.2                | 6,750      | 7.0                 | 227            | 3000                    |                     | 7.0                  | 4                  |  |  |
| 8/13/05 Sat      |                  | 0.061     |                         |                            |           |              |     |          |                         |                |                            |           |                |              | 6.2    | 7.0    |          |                          | UV                | 2               |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| 8/14/05 Sun      |                  | 0.059     |                         |                            |           |              |     |          |                         |                |                            |           |                |              | 6.2    | 7.0    |          |                          | UV                | 2               |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| 8/15/05 Mon      |                  | 0.071     |                         |                            |           |              | 6.7 | 5.6      |                         |                |                            |           |                |              | 6.4    | 7.2    | 4.6      |                          | UV                | 2               |            | 2400      |           |                | 241                      | 0.5                |            |                     |                | 7500                    |                     |                      |                    |  |  |
| 8/16/05 Tue      |                  | 0.072     |                         |                            |           |              | 6.8 | 4.9      |                         |                |                            |           |                |              | 6.4    | 7.0    | 5.3      | 4                        | UV                | 2               |            | 2400      |           |                | 316                      | 0.1                |            | 6.0                 |                | 3000                    |                     |                      | 5                  |  |  |
| 8/17/05 Wed      | 0.05             | 0.073     | 488                     | 297                        | 290       | 177          | 6.4 | 4.8      | 6.1                     | 99             | 4                          | 10        | 96             | 6            | 6.2    | 6.8    | 5.2      |                          | UV                | 2               |            | 2500      | 0.099     | 10             | 140                      | 0.5                | 6,000      | 12.0                | 300            |                         |                     |                      | 5                  |  |  |
| 8/18/05 Thu      |                  | 0.072     | 526                     | 316                        | 400       | 240          | 6.6 | 5.0      | 2.8                     | 99             | 2                          | 11        | 97             | 7            | 6.4    | 6.8    | 4.9      | 12                       | UV                | 2               |            | 2300      | 0.114     | 9              | 130                      | 0.5                | 2,000      | 11.0                | 88             | 1500                    |                     |                      | 4.8                |  |  |
| 8/19/05 Fri      |                  | 0.072     |                         |                            |           |              | 6.7 | 4.5      |                         |                |                            |           |                |              | 6.4    | 6.8    | 4.2      |                          | UV                | 2               |            | 2400      |           |                | 166                      | 0.3                |            |                     |                |                         |                     |                      |                    |  |  |
| 8/20/05 Sat      |                  | 0.066     |                         |                            |           |              |     |          |                         |                |                            |           |                |              | 6.4    | 6.8    |          |                          | UV                | 2               |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| 8/21/05 Sun      |                  | 0.062     |                         |                            |           |              |     |          |                         |                |                            |           |                |              | 6.4    | 6.8    |          |                          | UV                | 2               |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| 8/22/05 Mon      |                  | 0.071     | 376                     | 223                        | Lost      |              | 7.0 | 4.8      | 7.4                     | 98             | 4                          | 9         |                | 5            | 6.4    | 6.8    | 4.9      | 7                        | UV                | 2               |            | 2400      | 0.077     | 13             | 208                      | 0.2                | 6,000      | 9.5                 | 228            | 3000                    |                     |                      | 5                  |  |  |
| 8/23/05 Tue      |                  | 0.069     |                         |                            |           |              | 7.1 | 5.1      |                         |                |                            |           |                |              | 6.1    | 6.9    | 4.8      | 380                      | UV                | 2               |            | 2600      |           |                | 173                      | 1.6                | 3,000      |                     | 127            |                         |                     |                      | 5                  |  |  |
| 8/24/05 Wed      |                  | 0.075     |                         |                            |           |              | 6.8 | 4.6      |                         |                |                            |           |                |              | 6.2    | 6.8    | 5.1      |                          | UV                | 2               |            | 2500      |           |                | 160                      | 0.2                | 3,500      |                     | 142            | 3000                    |                     |                      | 5                  |  |  |
| 8/25/05 Thu      |                  | 0.075     | 529                     | 331                        | 330       | 206          | 7.3 | 4.2      | 6.0                     | 99             | 4                          | 12        | 96             | 8            | 6.2    | 6.7    | 2.3      |                          | UV                | 4               |            | 2400      | 0.115     | 9              | 240                      | 0.4                | 6,000      | 10.0                | 240            | 3500                    |                     |                      | 5                  |  |  |
| 8/26/05 Fri      |                  | 0.073     |                         |                            |           |              | 6.9 | 4.0      |                         |                |                            |           |                |              | 6.2    | 7.0    | 4.0      |                          | UV                | 4               |            |           |           |                | 1.2                      |                    | 6,000      |                     | 244            | 2200                    |                     |                      |                    |  |  |
| 8/27/05 Sat      |                  | 0.070     |                         |                            |           |              |     |          |                         |                |                            |           |                |              | 6.2    | 7.0    |          |                          | UV                | 4               |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| 8/28/05 Sun      | 0.05             | 0.061     |                         |                            |           |              |     |          |                         |                |                            |           |                |              | 6.2    | 7.0    |          |                          | UV                | 4               |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| 8/29/05 Mon      | 0.05             | 0.073     |                         |                            |           |              | 6.8 | 4.8      |                         |                |                            |           |                |              | 6.4    | 7.0    | 5.6      | 120                      | UV                | 4               |            | 2660      |           |                | 233                      | 0.5                | 6,000      | 15.0                | 399            | 6000                    |                     |                      | 5                  |  |  |
| 8/30/05 Tue      |                  | 0.070     |                         |                            | 520       | 304          | 6.9 | 5.1      | 5.0                     |                | 3                          | 13        | 98             | 8            | 6.2    | 7.2    | 4.2      |                          | UV                | 2               |            | 2440      |           |                | 266                      | 0.8                | 4,500      |                     | 266            | 4500                    |                     |                      | 5                  |  |  |
| 8/31/05 Wed      |                  | 0.070     | >867                    |                            |           |              | 7.0 | 5.0      | 5.2                     |                | 3                          |           |                |              | 6.5    | 7.4    | 4.0      | 12                       | UV                | 2               |            | 2770      |           |                | 245                      | 1.5                | 9,000      | 14.0                | 582            | 3000                    | 100                 |                      |                    |  |  |
| 9/1/05 Thu       |                  | 0.071     | Lost                    |                            | 320       | 189          |     | 4.2      | Lost                    |                |                            | 11        | 97             | 7            | 6.5    | 7.7    | 3.6      |                          | UV                | 4               |            | 2500      |           |                | 264                      | 0.5                | 9,000      |                     | 525            | 6000                    |                     |                      |                    |  |  |
| 9/2/05 Fri       |                  | 0.072     |                         |                            |           |              |     |          |                         |                |                            |           |                |              | 6.5    | 7.7    |          |                          | UV                | 4               |            | 2500      |           |                |                          |                    | 9,000      |                     | 525            | 9000                    |                     |                      |                    |  |  |
| 9/3/05 Sat       |                  | 0.062     |                         |                            |           |              |     |          |                         |                |                            |           |                |              | 6.5    | 7.7    |          |                          | UV                | 2               |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| Monthly Total    | 0.15             | 2.13      |                         |                            |           |              |     |          |                         |                |                            |           |                |              |        |        |          |                          |                   |                 |            |           |           |                |                          |                    | 105,250    |                     | 4,721          | 73,950                  | 200                 |                      |                    |  |  |
| No. monthly data | 3                | 31        | 8                       | 8                          | 10        | 10           | 23  | 23       | 10                      | 8              | 10                         | 11        | 10             | 11           |        |        | 23       | 10                       |                   | 31              |            | 22        | 8         | 8              | 22                       | 22                 | 20         |                     | 20             |                         | 3.0                 | 19.0                 |                    |  |  |
| Min              | 0.05             | 0.059     | 267                     | 163                        | 226       | 138          | 6   | 3        | 3                       | 98             | 2                          | 7         | 93             | 4            | 6.1    |        | 2        | 4                        |                   | 2               |            | 2200      | 0.059     | 7              | 108                      | 0                  |            |                     |                |                         | 6.8                 | 4.0                  |                    |  |  |
| Max              | 0.05             | 0.075     | 650                     | 374                        | 520       | 304          | 7.8 | 6        | 7                       | 99             | 4                          | 24        | 99             | 15           |        | 7.5    | 6        | 380                      | 4                 |                 |            | 2770      | 0.135     | 17             | 316                      | 1.6                |            |                     |                |                         | 7.0                 | 5.0                  |                    |  |  |
| Monthly avg      |                  | 0.069     | 487                     | 290                        | 353       | 209          |     | 4.7      | 5                       | 99%            | 3                          | 12        | 97%            | 7            |        |        | 5        | 25                       |                   | 2               |            | 2385      | 0.103     | 10             | 197                      | 0.7                |            |                     |                |                         | 6.93                | 4.76                 |                    |  |  |
| Mon. % Rem.      |                  |           |                         |                            |           |              |     |          |                         |                |                            |           |                |              |        |        |          |                          |                   |                 |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| week 1 avg       |                  | 0.065     | 585                     | 330                        | 358       | 203          |     |          | 5                       |                | 3                          | 9         |                | 5            |        |        |          | 29                       |                   |                 |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| week 2 avg       |                  | 0.068     | 404                     | 246                        | 304       | 186          |     |          | 4                       |                | 3                          | 16        |                | 10           |        |        |          | 25                       |                   |                 |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| week 3 avg       |                  | 0.069     | 507                     | 306                        | 345       | 208          |     |          | 4                       |                | 3                          | 11        |                | 6            |        |        |          | 7                        |                   |                 |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| week 4 avg       |                  | 0.071     | 453                     | 277                        | 330       | 206          |     |          | 7                       |                | 4                          | 10        |                | 6            |        |        |          | 52                       |                   |                 |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| week 5 ave       |                  | 0.068     |                         |                            | 420       | 247          |     |          | 5                       |                | 3                          | 12        |                | 7            |        |        |          | 38                       |                   |                 |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |
| Week Max         |                  | 0.071     | 585                     | 330                        | 420       | 247          |     |          | 7                       |                | 4                          | 16        |                | 10           |        |        |          | 52                       |                   |                 |            |           |           |                |                          |                    |            |                     |                |                         |                     |                      |                    |  |  |

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