

Treatment Plants

Policies

P3. Treatment Plant Operations and Maintenance

The District will operate and maintain the regional treatment plants to minimize risks to public health and the environment.

P4. Base Levels of Treatment at District Plants

The District will size plant process components on the basis of established historical flows and loads and projected future changes in accordance with good engineering practice and treatment plant design standards that are periodically approved by the District Board. Plant performance will be measured against authorised levels for flow, concentrations, and loads established in the operating certificates. Maximum daily (flow proportioned 24-hour composite sample) concentration levels are:

	BOD (mg/l)	TSS (mg/l)
Iona Island	130	100
Lions Gate	130	130
Annacis Island	45	45
Lulu Island	45	45
Northwest Langley	45	45

If these maximum daily concentration levels are exceeded on an operational basis then:

- the District will investigate the cause and an incident report to determine the significance and probable cause will be prepared.
- the District will evaluate the significance against its treatment plant design guideline to determine if plant expansion, upgrading, or additional source control initiatives are justified. The determination of environmental significance will be undertaken in consultation with the Environmental Monitoring Committee.

Treatment Plants

Annual effluent loads will not exceed the following maximum annual loading levels:

	BOD (t/year)	TSS (t/year)
Iona Island	72, 600	55, 850
Lions Gate	5, 770	5, 770
Annacis Island	no limit	no limit
Lulu Island	no limit	no limit
Northwest Langley	no limit	no limit

At the Annacis Island, Lulu Island, and Northwest Langley Wastewater Treatment Plants the District will provide secondary treatment for flows up to two times measured dry weather sanitary flow. Wet weather management plans to manage infiltration and inflow and stormwater will be developed for flows in excess of secondary treatment capacity.

At the Lions Gate Treatment Plant the District will provide primary treatment for flows up to two times measured dry weather sanitary flow. Wet weather management plans to manage infiltration and inflow and stormwater will be developed for flows in excess of primary treatment capacity.

For the Iona Island Treatment Plant the District will provide primary treatment for flows up to a maximum of 17 cubic metres per second. This plant capacity will be reviewed every 5 years based on flow determinations arising out of progress in the combined sewer separation programs.

P5. Upgrading from Base Levels of Treatment

The District will upgrade the level of treatment, or initiate source control measures, if the base level of treatment is not adequate to protect the aquatic environment as defined by Policy P2 and determined by the receiving water environmental objectives and performance measures.

Commitments

C8. Upgrading of Iona Island and Lions Gate Treatment Plants

The District will upgrade the Iona Island and Lions Gate treatment plants by adding facilities for chemical addition (enhanced primary treatment) if necessary to maintain the established base level of treatment as defined by Policy P4.

The District will construct facilities for biological treatment in the following circumstances:

- if necessary to address environmental concerns in accordance with Policy P2.
- to maintain effluent concentration and loading levels which are beyond the capability of enhanced primary treatment.

C9. Treatment Plant Upgrading Projections

The District will monitor plant influent and effluent to determine plant performance and trends and maintain a minimum 10-year future projection to determine the adequacy of plant process components and to establish process component design capacities for operating certificates.

C10. Secondary Effluent Disinfection

The District will undertake engineering investigations examining the potential for effluent disinfection using ultraviolet light as an alternative to the use of chlorine at its Northwest Langley, Annacis Island, and Lulu Island wastewater treatment plants.

C11. Treatment Plant Effluent Toxicity Assessment

For treatment plant effluent the District will undertake toxicity assessments to determine the probable cause of effluent toxicity and its significance relative to the receiving environment as described by Policy P2.

The District will conduct monthly 96-hour acute bioassays on full strength effluent at each of the five wastewater treatment plants and review the results with the Environmental Monitoring Committee.

The District will examine the results of the bioassay tests at Lions Gate and Iona Island treatment plants to determine the cause of effluent toxicity. Within the limitations of the existing liquid waste management treatment process and infrastructure, the District will evaluate options for improving the results of the bioassay tests. The selection of any option by the District will be made in consultation with the Environmental Monitoring Committee.

Implementation Schedule – Treatment Plants

Commitments / Initiatives	Budget	Year Completed
<p>C8 – Upgrading of Iona and Lions Gate Treatment Plants</p>		
<p>Iona enhanced primary treatment assessment</p>	<p>\$300,000</p>	<p>2001</p>
<p>C9 – Treatment Plant Upgrading Projections</p>		
<p>Updated flow and loading projections (10 year forecast) for all five treatment plants</p>	<p>\$20,000</p>	<p>2001</p>
<p>C10 – Secondary Effluent Disinfection</p>		
<p>Engineering Study</p>	<p>\$100,000</p>	<p>2001</p>
<p>C11 - Treatment Plant Effluent Toxicity Assessment</p>		
<p>Monthly toxicity testing at all five treatment plants</p>	<p>\$25,000 / year</p>	<p>Ongoing</p>
<p>Toxicity Investigation and Evaluation Study and options for improvement for Lions Gate and Iona effluents.</p>	<p>\$125,000</p>	<p>2001</p>