



**Assessment of Compliance with Selected Sections
of the Municipal Sewage Regulation of the
*Environmental Management Act***



Courtesy GVRD

Lower Mainland Region

June 2005

EXECUTIVE SUMMARY

A compliance assessment of fourteen wastewater treatment plants (WWTPs) was completed in the fall of 2004 by Ministry of Environment (MoE) staff in the Lower Mainland Region. The assessment quantified the degree of compliance WWTPs had with several administrative requirements of the Municipal Sewage Regulation (MSR). The study assessed only those operations that were under construction or operating and that were registered under the MSR.

The overall compliance rate was approximately 85% and there were no obvious differences between privately and publicly operated WWTPs. Several instances of non-compliance were identified and the WWTP operators committed to remedial actions. Feedback from WWTP operators also indicated that they appreciated the opportunity to discuss MSR related issues with ministry staff.

Regulatory requirements for facility designs, operating plans, facility certification, operator certification, outfall inspections and reporting requirements were generally met. Levels of compliance with regulatory requirements for receiving environment monitoring, reporting and security were substantially less.

This report makes several recommendations:

- Several aspects of the MSR are extremely complex, such as receiving environment monitoring and security, and there is a need for the ministry to improve compliance promotion tools. It is recommended that staff develop educational and guidance documents that can be discussed with proponents and their consultants at pre-registration meetings;
- The ministry should consider embarking on a more detailed project that focuses on the receiving environment monitoring and reporting requirements. The project could assess compliance more completely in terms of receiving environment monitoring plan implementation and could also develop compliance promotion tools;
- Ministry staff should track specific milestone dates (security deposits, reporting requirements etc) for the registrations and follow up with proponents at the appropriate time;
- The ministry should consider reviewing the MSR to have qualified professionals certify legislative requirements of the MSR such as operating plan contents requirements;
- The ministry should meet with Environmental Operators Certification Program (EOCP) staff to resolve the discrepancy between the EOCP and MSR in terms of classification for all treatment works, specifically septic tanks with ground disposal;
- The ministry should consider reviewing the monitoring and reporting requirements of the MSR for minor discharges; and
- The ministry should consider reviewing the security requirements of the MSR.

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1. BACKGROUND

In 1992 the then Ministry of Environment, Lands and Parks began the process of updating its 1975 *Pollution Control Objectives for Municipal Type Discharges in British Columbia (Objectives)*. After numerous drafts involving consultation with various stakeholders such as municipalities, regional districts, other government agencies, environmental groups, industry associations and consultants, the *Municipal Sewage Regulation (MSR)* became effective on July 15, 1999 and replaced the *Objectives*. The MSR is available at:

http://www.qp.gov.bc.ca/statreg/reg/W/WasteMgmt/129_99.htm

The MSR establishes updated standards for the quality of sewage discharges for the protection of human health, fish and fish habitat, water supplies and recreational water use. Some key components of the MSR are:

- sewage will be highly treated prior to discharge to fish habitat;
- requirement of eventual elimination of combined sewer and sanitary sewer overflows;
- broader provisions for the use of reclaimed water;
- inflow and infiltration to sewer systems are minimized;
- identified geographical areas (specific water bodies and aquifers) requiring advanced levels of treatment based on specific concerns; and
- ability for the Director to set more stringent requirements, where necessary.

The Ministry's Service Plan (Ministry of Water, Land and Air Protection 2004) directs the ministry to adopt a more results based approach to environmental management, encourage other stakeholders to share environmental stewardship and emphasizes the responsibilities and accountabilities of qualified professionals. There is increased emphasis on the ministry to establish standards and then evaluate how well the standards are being met and how effective the standards are at protecting environmental values.

The MoE's compliance policy directs staff to use a continuum of compliance promotion and verification functions. A variety of tools are available for the ministry to use when non-compliance is identified or suspected. The ministry's 2004/05 compliance plan identified the MSR as one piece of legislation that required a preliminary compliance assessment to determine the extent to which the MSR was being met and to identify ways to improve compliance. Five of the 9 MoE regions committed to completing a preliminary compliance assessment of the MSR. This report represents the findings of the preliminary compliance assessment carried out in the Lower Mainland Region.

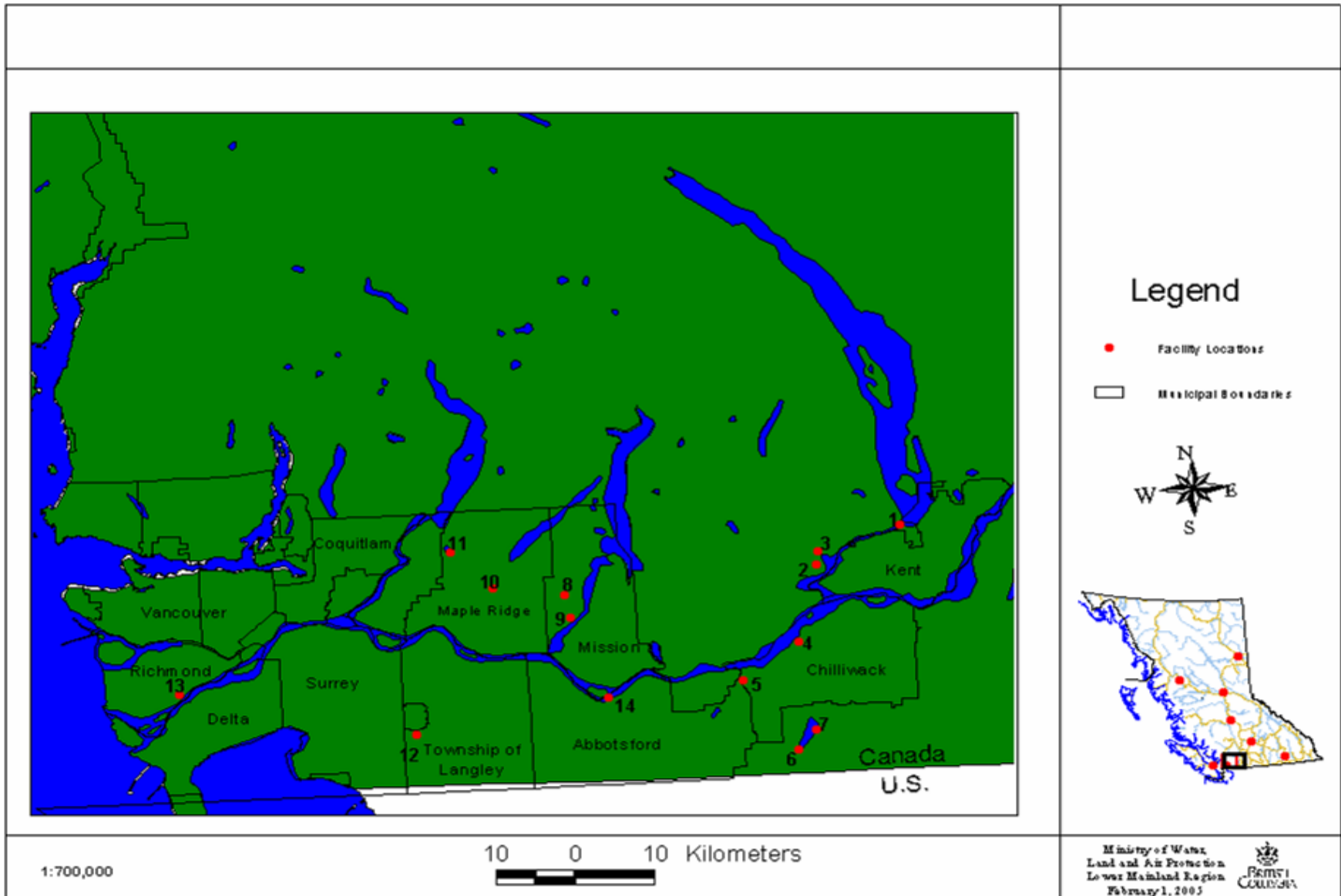


Figure 1: Location of facilities assessed for compliance with the MSR (see Table 1 for facility names).

2. OBJECTIVES

The objectives of this assessment were to evaluate the degree of compliance that MSR registrants are having with selected sections of the MSR, promote increased compliance by engaging the registrants and make recommendations for further compliance assessments. The following specific aspects of the MSR were evaluated:

- facility classification and operator certifications;
- certification of plant drawings by a qualified professional and retention of these drawings at the site for inspection by EP staff;
- verifying that all proposed treatment works have been installed;
- verifying that any sampling and reporting requirements are being met, and;
- where applicable, that all security requirements have been complied with.

3. SCOPE

This assessment only considered wastewater treatment plants (WWTP) that were registered under the MSR and that were either constructed or operating, within the Lower Mainland Region, at the time of the assessment. This included some facilities that were operating under a permit prior to the enactment of the MSR in July 1999 as well as facilities that were constructed since 1999. Of the twenty-seven registered sites on file at the start of the study (summer 2004) only fourteen were either constructed or operating.

Two facilities are located within the Greater Vancouver Regional District - one in Richmond and one in the Township of Langley. The remaining sites are located in the Fraser Valley Regional District (FVRD) - three in Maple Ridge, one in Mission, two in Harrison Mills, four in Chilliwack, one in Harrison Hot Springs and one in Agassiz (Figure 1, Table 1). The facilities that were assessed included a mix of government and privately operated facilities.

This is the first time that an assessment of compliance with the MSR has been conducted within the Lower Mainland Region. For this reason and because this approach is new for the ministry, it was decided to keep the assessment narrow in scope and focus on those specific aspects mentioned above. It is recognized that this assessment is administrative in nature and that it has indirect application as far as environmental protection is concerned. Future compliance assessments will be designed to address environmental protection concerns such as effluent quality and receiving environment monitoring.

Enforcement actions were not within the scope of this project; however, if the assessment team discovered an issue that constituted a significant risk to the environment or human health, applicable sections of the ministry's compliance and enforcement policy would be implemented. Sampling of effluent would not be undertaken except in the case of a potential enforcement action.

Table 1: Operating characteristics of assessed facilities.

Site	Facility	Population Served	Registered Flow (m ³ /day)*	Actual Flow (m ³ /day)*	Discharge to	Operator
1	Harrison Hot Springs WWTP	1600	2400	1200	Surface water	Government
2	Pretty Estates Ltd.	150	37.6	24	Ground	Private
3	FVRD (Morris Valley) WWTP	950	365	0	Ground	Government
4	Chilliwack WWTP	40,000	45,000	16,500	Surface water	Government
5	Royalwood Golf WWTP	200 max	37	3	Ground	Private
6	Maple Bay Prov. Park	106 campsites	96.7	n/a	Ground	Government
7	Entrance Bay Prov. Park	54 campsites	142.7	n/a	Ground	Government
8	Rolley Lake Prov. Park	64 campsites	34.6	n/a	Ground	Government
9	Degobbi Ind. WWTP	66	27	0	Ground	Private
10	Fraser Regional Correction Centre WWTP	540 max	239	180	Ground	Government
11	Loon Lake Camp	200 max	34	17	Ground	Government
12	Belmont School	560	38.1	6	Ground	Government
13	Riverport WWTP	4,000	890	300	Surface water	Private
14	FVRD James STP	170,000	122,500	61,900	Surface water	Government

* Daily average

4. METHODOLOGY

A project charter was finalized on August 11, 2004 that described the rationale, objectives, scope and identified the primary stakeholders. The charter was shared with the identified stakeholders and comments or concerns were requested to be submitted to the ministry. Only one stakeholder, the Environmental Operators Certification Program submitted comments and the project charter was modified to address the comments.

Following the finalization of the project charter, a questionnaire (Appendix 1) was produced to record general facility information as well as specific compliance information related to those sections of interest defined above in section 2. Prior to completing a field assessment at the facility, the file was reviewed and general information, such as registered flow volumes, was recorded. The usefulness of the questionnaire was evaluated during a practice assessment of a registered discharger on October 13, 2004. Following this practice assessment, the questionnaire was refined and finalized.

A letter, which outlined the ministry's intent on conducting a compliance assessment and included the questionnaire, was then sent to each registered discharger. The discharger was

subsequently telephoned to schedule a date for the on-site assessment. The questionnaires were completed in the presence of the dischargers' representative in all cases but one where the assessment was completed over the phone.

The data obtained from the field work was then entered on a Microsoft Excel spreadsheet (Appendix 2), summarized and evaluated. A quality control check on data entry was completed. Seven items were randomly selected from each questionnaire and checked for accuracy (98 checks in total). Data entry accuracy was 100%. All random selections were made with the use of an online random number generator.

Stakeholders received a copy of the draft report and were invited to submit comments. Stakeholders included the facility operators, several private consultants, other MoE staff, BC Water and Waste Association, Environmental Operators Certification Program and Terasen Utility Services Inc. All relevant comments were incorporated into the final report. Many comments dealt with elements of the MSR that government should be reviewing. While these comments were not addressed in the final report, they have been documented in the event that a review of the MSR does occur. A follow-up letter thanking the discharger for their participation and notifying them of any necessary remedial action will be mailed, with a copy of this report, once the report is finalized.



Figure 2: Installation of a ground disposal field.

5. RESULTS AND DISCUSSION

The population served by the fourteen facilities ranged from 54 campsites at Entrance Bay Provincial Park to 170,000 people at the FVRD's James WWTP. Ten of the 14 WWTPs assessed are operated by government agencies and the remaining four are privately operated. All of the facilities were found to be discharging effluent volumes below their registered amounts based on discussions with the dischargers. Ten of the 14 WWTPs were discharging to ground (Figure 2) and four were discharging to surface water.

The compliance assessment focussed on five main administrative aspects of the MSR – (i) the design of the facilities and their operating plans, (ii) outfall inspections and sampling, (iii) facility classification and operator certifications, (iv) monitoring, reporting and data availability and (v) security. Tables 2 through 6 summarize the compliance results for these five aspects and

present the results as number of facilities as well as percent (in parentheses) that are in compliance and out of compliance. Although the sample size is small, the compliance results are presented to compare compliance rates of privately operated and publicly (government) operated facilities.

5.1 Facility design drawings and operating plans

Six different elements of design drawings and operating plans were assessed. Sections 14(1)(c) and 14(1)(d) of the regulation are concerned with the facility design drawings being certified by a qualified professional (QP) and the drawings being retained at the facility for inspection (Figure 3). An operating plan must be developed 90 days prior to construction (S.16(1)(a)), the plan must be completed by a QP (S.16(1)(b)), the plan must contain specific parameters and be retained on-site (S.16(1)(c) and the plan must be certified by a QP as being adequate for the design (S.16(2)).

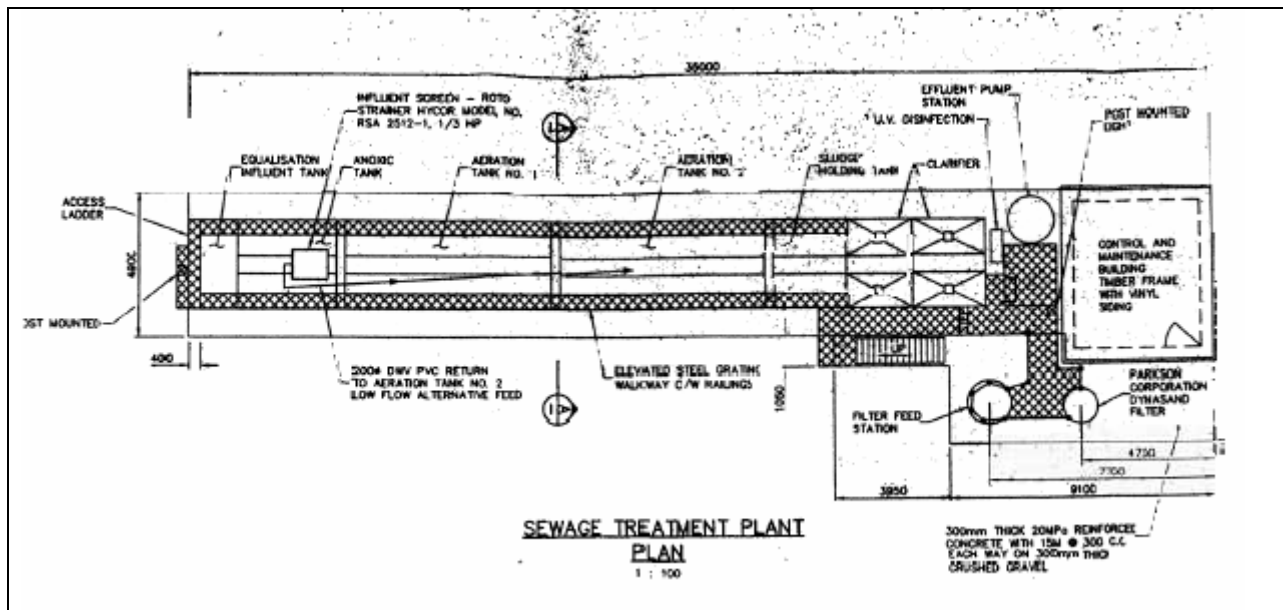


Figure 3: Typical design drawing of a sewage treatment plant.

Overall, the compliance rate was very high for the requirements for the facility design drawings and operating plans with a 96% compliance rate – 98% for the WWTPs operated by government versus 90% for privately operated WWTPs (Table 2). Both public and privately operated WWTPs were entirely compliant with facility design drawing requirements. The same was true for the requirement for submitting operational plans in advance of construction and having those plans completed by a QP.

While the government operated WWTPs had the operating plans retained by the discharger, one of four privately operated facilities did not (Table 2). In addition, one government and one privately operated facility did not have a signed statement from a QP stating that the operating plan was adequate for the design (Table 2). Even though these requirements were not met, ministry staff believe that there are no environmental impacts occurring at this time as a result of the non-compliance.

It would be in the best interest of a discharger to retain an operating plan at the site since it details important MSR requirements such as proper operation and maintenance of the facility, emergency procedures and facility monitoring, which the discharger is required to comply with.

With the ministry encouraging shared stewardship and emphasizing the accountability of professionals, S.16(2) becomes extremely important. Ministry staff will not be reviewing plans in detail as in previous years and will be relying on statements made by QPs that regulatory requirements are being met (Figure 4). Government may want to examine whether or not the QP's statement in S.16(2) should also include certification that the operating plan content requirements (S.16(1)(c)) have also been met. A requirement such as this would be consistent with recent legislation, such as the Hazardous Waste Regulation, where plans are approved by the ministry based entirely on QP statements certifying that plan content requirements have been met.

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Figure 4: Contents of a typical operating plan.

Table 2: Assessment of facility design and operating plan requirements.

MSR Section	Private		Government		Total	
	Compl.	Non-Compl.	Compl.	Non-Compl.	Compl.	Non-Compl.
Sec 14 (1)(c)	2 (100%)	0 (0%)	7 (100%)	0 (0%)	9 (100%)	0 (0%)
Sec 14 (1)(d)	2 (100%)	0 (0%)	9 (100%)	0 (0%)	11 (100%)	0 (0%)
Sec 16 (1)(a)	4 (100%)	0 (0%)	10 (100%)	0 (0%)	14 (100%)	0 (0%)
Sec 16 (1)(b)	4 (100%)	0 (0%)	10 (100%)	0 (0%)	14 (100%)	0 (0%)
Sec 16 (1)(c)	3 (75%)	1 (25%)	10 (100%)	0 (0%)	13 (93%)	1 (7%)
Sec 16 (2)	3 (75%)	1 (25%)	9 (90%)	1 (10%)	12 (86%)	2 (14%)
Total	18(90%)	2(10%)	55(98%)	1(2%)	73(96%)	3(4%)



Figure 5: Installation of a septic tank.

5.2. Outfall inspections and discharge monitoring

Sections 18(2) and 18(3) of the regulation are concerned with the outfall inspection and the inspection report. Where there is an outfall, an inspection by a qualified person is required every five years and the inspection report must be retained by the discharger for inspection. Sections 26(1)(a) and 26(1)(b) of the regulation require that a suitable effluent sampling facility and flow measuring device be installed.



Figure 6: Outfall inspection of diffuser/manifold flange.



Figure 7: Outfall inspection of diffuser port.

Overall, the compliance rate was very high for the requirements for outfall inspection (Figures 6 and 7) and discharge monitoring with a 96% compliance rate – 100% for the WWTPs operated by government versus 86% for privately operated WWTPs (Table 3).

There was a 100% compliance rate for the outfall inspection and the inspection report, although there were only 2 dischargers that were required to comply with these requirements – both were government operated facilities.

There was a 100% compliance rate for having a sampling facility installed, although there were only eight dischargers that were required to comply with this requirement. Three were privately operated WWTPs and five were operated by government.

Table 3: Assessment of outfall inspection, reporting and effluent sampling facility requirements.

MSR Section	Private		Government		Total	
	Compl.	Non-Compl.	Compl.	Non-Compl.	Compl.	Non-Compl.
Sec 18 (2)	n/a	n/a	2 (100%)	0 (0%)	2 (100%)	0 (0%)
Sec 18 (3)	n/a	n/a	2 (100%)	0 (0%)	2 (100%)	0 (0%)
Sec 26 (1)(a)	3 (100%)	0 (0%)	5 (100%)	0 (0%)	8 (100%)	0 (0%)
Sec 26 (1)(b)	3 (75%)	1 (25%)	9 (100%)	0 (0%)	12 (92%)	1 (8%)
Total	6 (86%)	1(14%)	18(100%)	0(0%)	24(96%)	1(4%)

The compliance rate was high (92%) for having a suitable flow measuring device installed. All nine of the government owned WWTPs met this requirement while three out of four (75%) privately owned WWTPs met this requirement. The non-compliant facility was under construction and the owner indicated that a flow-measuring device would be installed.

Complying with the outfall inspections and discharge monitoring (sampling equipment) is the sole responsibility of the discharger. Outfall inspections are important in determining the integrity of the outfall pipe and suitable sampling equipment is required to properly obtain effluent samples and record flow for compliance determination (Figure 8).



Figure 8: Leak from an effluent outfall conduit at a large wastewater treatment plant (courtesy GVRD).

5.3. Facility classification and operator certification

Sections 22(1)(a) of the regulation is concerned with the facility being classified under the Environmental Operator Certification Program (EOCP). Section 22(1)(b)(i) requires WWTP facilities to be operated by persons certified in accordance with the EOCP. Alternatively, under section 22(1)(b)(ii), non-EOCP certified people can operate the WWTP provided, if in the opinion of the Director, those people are suitably qualified in the safe and proper operation of the facility for the protection of the environment and human health. Sections 22(4) and 22(5) lay out the process required for the Director to consider the qualifications of non-EOCP certified people.

Overall, the compliance rate was 100% for the facility classification and operator certification under the EOCP (Table 4). Since all operators were certified by EOCP, there was no assessment results for S.22(1)(b)(ii) and S. 22(4) and S.22(5) do not apply.

Table 4: Assessment of facility classification and operator certification requirements.

MSR Section	Private		Government		Total	
	Compl.	Non-Compl.	Compl.	Non-Compl.	Compl.	Non-Compl.
Sec 22 (1)(a)	2 (100%)	0 (0%)	5 (100%)	0 (0%)	7 (100%)	0 (0%)
Sec 22 (1)(b)(i)	2 (100%)	0 (0%)	5 (100%)	0 (0%)	7 (100%)	0 (0%)
Sec 22 (1)(b)(ii)	n/a	n/a	n/a	n/a	n/a	n/a
Total	4 (100%)	0 (0%)	10 (100%)	0 (0%)	14 (100%)	0 (0)

It should be noted that for those operations (5 sites) with treatment works consisting of septic tanks and ground disposal systems, the EOCP does not require facility classification or certification of operators. However, the MSR requires all facilities to be classified and all

operators to be certified to the appropriate levels regardless of the degree of complexity of the treatment works. In most cases, septic tanks are the least complex systems and this is recognized by the EOCP as not requiring classification or certification. Since the MSR does not differentiate between system complexity, there is a need for the ministry to meet with EOCP staff to resolve the discrepancy. Due to this discrepancy these 5 sites were not included in the assessment of facility classification and operator certification. Two other sites (1 private and 1 government) were also not included since they were under construction and both obligations are not required until there is a discharge.

Facility classification and operator certification are important for ensuring that the facility is maintained and operated by qualified personnel thus minimizing risks to human health and the environment.

5.4. Monitoring, reporting and data availability

Sections 27(1)(a) and 27(1)(b) of the regulation require monitoring of the receiving environment and for the monitoring program to be designed by a QP, respectively. The receiving environment monitoring is necessary to assess the potential environmental impact of the discharge and to ensure that the discharge does not or will not cause water quality parameters, outside the initial dilution zone, to exceed any known water quality guidelines (Figures 9 and 10). Section 28(1) requires that the discharger must retain the effluent, flow and receiving environment monitoring data for inspection. In addition, in accordance with section 28(2), the discharger must submit the data to the manager in an acceptable format. In accordance with section 28(4), for discharges for which the contributory population is equal to or greater than 10,000 persons, the discharger must prepare and submit an annual report that includes a compendium of the data. In addition, in accordance with section 28(6)(a), the data included in the annual report must be analysed and the report must be written by a QP. The report must also contain an interpretation of the data (S.28(6)(b)).



Figure 9: Preparing to sample the marine environment (courtesy GVRD).



Figure 10: Receiving environment monitoring - sediment sample (courtesy GVRD).

Overall, the compliance rate was moderate for the requirements for monitoring, reporting and data availability with a 70% compliance rate – 68% for the WWTPs operated by government versus 89% for privately operated WWTPs (Table 5). Both public and privately operated WWTPs were entirely compliant with having the monitoring program designed by a QP, having the receiving environment monitoring data available for viewing and data being reported to the manager in an acceptable format.

The compliance rate was poor for the requirements for conducting receiving environment monitoring with a 15% compliance rate – 10% for the WWTPs operated by government versus 33% for privately operated WWTPs (Table 5).

Table 5: Assessment of receiving environment monitoring and reporting requirements.

MSR Section	Private		Government		Total	
	Compl.	Non-Compl.	Compl.	Non-Compl.	Compl.	Non-Compl.
Sec 27 (1)(a)	1 (33%)	2 (67%)	1 (10%)	9 (90%)	2 (15%)	11 (85%)
Sec 27 (1)(b)	1 (100%)	0 (0%)	2 (100%)	0 (0%)	3 (100%)	0 (0%)
Sec 28 (1)	3 (100%)	0 (0%)	8 (89%)	1 (11%)	11 (92%)	1 (8%)
Sec 28 (1)	2 (100%)	0 (0%)	4 (80%)	1 (20%)	6 (86%)	1 (14%)
Sec 28 (1)	1 (100%)	0 (0%)	1 (100%)	0 (0%)	2 (100%)	1 (0%)
Sec 28 (2)	3 (100%)	0 (0%)	5 (100%)	0 (0%)	8 (100%)	0 (0%)
Sec 28 (4)	n/a	n/a	0 (0%)	2 (100%)	0 (0%)	2 (100%)
Sec 28 (6)(a)	n/a	n/a	n/a	n/a	n/a	n/a
Sec 28 (6)(b)	n/a	n/a	n/a	n/a	n/a	n/a
Total	11(89%)	2(11%)	21(68%)	17(32%)	32(70%)	19(30%)

The compliance rate was high for the requirements for having the flow data available for viewing with a 92% compliance rate – 89% for the WWTPs operated by government versus 100% for privately operated WWTPs (Table 5).

The compliance rate was high for the requirements for having the effluent data available for viewing with a 86% compliance rate – 80% for the WWTPs operated by government versus 100% for privately operated WWTPs (Table 5).

The compliance rate was poor for the requirements for those dischargers that are required to submit an annual compendium report of monitoring data with a 0% compliance rate – (Table 5). There were only 2 dischargers (WWTPs operated by government) that were required to submit an annual compendium report (S.28(4)).

5.5. Security

Where the discharger is an individual, company or strata corporation and the WWTP serves a residential development, the discharger must (i) according to section 5(8) of Schedule 1 forward proof of security and establishment of the capital replacement fund (CRF), to the manager at least 30 days before construction of the sewage treatment facility or (ii) according to section 5(10) of Schedule 1 submit written proof to the manager that the discharge is registered with an assurance plan which has been approved in accordance with specified sections of Schedule 1. Contributions from both security and the CRF or a combination of both may at the discretion of the manager, be assessed and used for the repair, operation and maintenance, replacement or improvement of the sewage treatment facility.

Table 6: Assessment of security requirements.

MSR Schedule 1 Section	Private		Government		Total	
	Compl.	Non- Compl.	Compl.	Non- Compl.	Compl.	Non- Compl.
Sec 5 (8)	0 (0%)	1 (100%)	n/a	n/a	0 (0%)	1 (100%)
Sec 5 (10)	n/a	n/a	n/a	n/a	n/a	n/a
Total	0 (0%)	1 (100%)	n/a	n/a	0 (0%)	1 (100%)

As mentioned above, the type of dischargers that require security is privately operated WWTPs and not government operated WWTPs. Only 1 discharger required security and CRF at the time the assessment was done. The facility at this site was under construction and therefore both security and CRF obligations were required to be met. The subject discharger did submit proof of security in the form of a Letter of Credit, however, MoE was not listed as the beneficiary. In addition, the CRF had not yet been established. The discharger committed to ensuring that the security obligations would be complied with shortly. Written proof of an assurance plan was not applicable for this discharger since the intention was to secure security and establish a CRF.

6. FINDINGS AND RECOMMENDATIONS

This assessment determined a relatively high rate (85%) of overall compliance for all WWTPs for selected administrative sections of the MSR. Although the sample sizes were small, the assessment results suggest that there was a negligible difference between the rates of compliance of privately operated WWTPs and those operated by government. Nevertheless, because of different interests, it is believed that future assessments should continue to compare the rates of compliance between public and private WWTPs. This will become particularly true as facilities get older.

Notwithstanding the high rate of compliance found in this study, the assessment did find some instances of non-compliance and dischargers committed to promptly remedying these situations. One of the most important aspects of this study was that it encouraged communication between the ministry and the dischargers. Dischargers indicated that they welcomed the ministry's involvement and appreciated receiving feedback on their operations.

Recently, the ministry has placed more emphasis on shared stewardship and accountability and is supportive of professionals playing a more significant role in delivering the ministry's mandate. Recent amendments to some of the ministry's legislation reflects these changes but the MSR has not been reviewed to date. One example of where a change could be made is section 16(2). While the QP is required to make a statement that the operating plan is adequate for the facility design, there is no requirement for the QP to confirm that the operating plan contains the legislated operating plan content requirements of S.16(1)(c). With fewer staff resources to review plans, it may be appropriate to have these types of certifications made by QPs. It is recommended that the role of QPs be noted as an issue for when a review of the MSR is undertaken.

The compliance rates for the facility design and operating plan, outfall inspections and discharge monitoring, facility classification, operator certification and most aspects of the receiving environment monitoring requirements were high. It is encouraging to note these sections were generally complied with and that the dischargers have engaged the services of various qualified persons.

Despite the overall high rate of compliance, the study found several requirements of the MSR were not well complied with. One area which needs improvement in achieving a higher compliance rate is the requirement for receiving environment monitoring and reporting. Although the appropriate monitoring plans had been developed, the majority of WWTPs were not implementing the plans. Staff at the WWTPs attributed the lack of implementation to a lack of awareness that monitoring was required. Ministry staff noted that WWTP monitoring focuses on effluent quality monitoring – presumably because it is simple to do and easy to measure. Receiving environment monitoring is complex, costly and the data is difficult to interpret – not surprisingly, the requirement for this type of monitoring is not well complied with. It is recommended that ministry compliance staff work with ministry environmental quality staff to design a future project that will assess the degree to which the receiving environment monitoring is producing meaningful results. An important component of this project would also be to promote understanding of the importance of receiving environment monitoring and what critical factors are required in a monitoring plan.

The MSR requires receiving environment sampling for all types of discharges and does not allow exemptions due to low flows or discharge to the ground. In some cases, ministry staff believe that exemptions may be appropriate. It is recommended that the MSR be reviewed with the aim of allowing exemptions for some less significant discharges. Perhaps the exemptions for toxicity sampling in the MSR can be used as a guide for developing the exemptions for receiving environment monitoring or perhaps more emphasis can be placed on the opinions and experience of QPs.

As mentioned in section 5 of this report the compliance rate was poor (0%) for the requirement to submit the annual compendium report. Completion and submission of these reports is extremely important for the ministry to evaluate whether or not environmental objectives are being attained. Since these reports are required for large discharges which also pose the highest risk to the environment the ministry needs to reinforce this regulatory requirement.

This report identified a discrepancy between the EOCP and the MSR in the way that septic tanks with ground disposal systems and their operators are classified and certified, respectively. It is recommended that ministry and EOCP staff meet to resolve the discrepancy.

The compliance rate for the one facility that required security was 0%. Although this requirement only applied to one facility in this study, ministry staff note that there has been a history of difficulties pertaining to security requirements. Dischargers, mainly developers, have always been somewhat reluctant to post security because it involves allocating funds for purposes other than investments and may involve borrowing money with interest. Although the number of registrants that require security is small, security or an assurance plan are the only effective mechanisms to ensure that the resources to maintain the proper operation, correct improper operation or make necessary repairs of a sewage facility for a residential development are available in the absence of the initial developer.

Security requirements are comprised of two funds, security (based on flow) and the CRF, which makes it more difficult for the discharger to comply with the entire security requirement especially when there is no assurance plan available. Regarding the CRF, the MSR states that the entire amount is required prior to discharge. Developers have argued that having the full amount is too onerous. Also, the MSR states 'establishment of the CRF' which is confusing since it could be interpreted as initiating the CRF rather than requiring the full amount. It is recommended the CRF requirement in the MSR be reviewed.

It is also recommended that ministry staff take the opportunity at the pre-registration meetings to review the areas of the MSR that are not being complied with – namely security, annual compendium reports and receiving environment monitoring. One possibility is for ministry staff to emphasize these concerns at the pre-registration meetings and to develop educational materials that can be provided to the proponents.

7. LIST OF REFERENCES

Ministry of Water, Land and Air Protection. 2004. Service Plan 2004/05 – 2006/07. Victoria, BC. 61pp.

APPENDIX 1
COMPLIANCE ASSESSMENT QUESTIONNAIRE

MSR Questionnaire

GENERAL INFORMATION

Date: _____

Auditor: _____

Facility: _____ **RE Number:** _____

Type of operator: Industrial Municipal Residential

Representative: _____ **Phone:** _____ **Email:** _____

Address of Plant: _____

Date of Registration: _____

Comments:

DISCHARGE INFORMATION

Registered Flow (m³/day): _____ **Actual Flow(m³/day):** _____

Effluent Class: _____

Population Served: _____

Discharge to: Ground Surface water

STWs in Registration _____

STWs on site consistent with registration? _____

Is security required? _____

Is a CRF required? _____

Was an assurance plan submitted? _____

Are there known WQ guidelines in area? _____

Comments

ASSESSMENT OF COMPLIANCE

Section	Intent	Answer		
14(1)(c)	Are design drawings signed and sealed by a QP?	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
	Name of QP?			
14(1)(d)	Are copies of drawings available?	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
S. 14 Comments				

16(1)(a)	Is there an operating plan?	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
16(1)(b)	Was the plan prepared by a qualified professional?	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
	Name of QP:			
16(1)(c)	Is the plan retained by discharger?	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
16(2)	Did the QP include a SIGNED statement that operating plan was adequate for the design?	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
	Name of QP:			
S. 16 Comments:				
18(2)	Has outfall been inspected every five years?	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
18(3)	Is the outfall inspection report available for inspection?	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
S. 18 Comments:				
22(1)(a)	Is facility classified under EOCP? Class:	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
22(1)(b)(i)	Are operators certified under EOCP?	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
22(1)(b)(ii)	If not, has a QP been hired to prepare a report as per 22(4) & 22(5)?	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
S. 22 Comments:				
26(1)(a)	Has a sampling facility been installed?	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
26(1)(b)	Has a suitable flow measuring device been installed? Type:	N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>

S. 26(1)(c) Monitoring of Effluent Quality and Quantity as per Schedule 6:

Table 1 – Discharges to Surface Waters

Flow Category	Maximum Daily Flow Range (m ³ /d)	Frequency of Data Submission to Manager	Flow (4)		BOD ₅ ,(3), TSS		NH ₄ -N, PO ₄ -P, total phosphorus Discharge to Freshwater Receiving Environment		NH ₄ -N Discharge to Marine Receiving Environment		Fecal Coliforms (5)	
			Freq.	Type	Freq.	Type	Freq.	Type	Freq.	Type	Freq.	Type
0	<10	2X/Y	2X/M	Q(6)	G	N	—	N	—	N	—	
1	≥10 - <500	2X/Y	W	Q	G	N	—	N	—	Q	G	
2	≥500 - <5000	2X/Y	2X/W	M	G	6 X/Y	G	Q	G	6 X/Y	G	
3	≥5000 - <50,000	2X/Y	D	W	G	M	G	6 X/Y	G	M	G	
4	≥50,000 - <200,000	Q	D	2 X/W	C ₃	2 X/M	C ₃	M	C ₃	2 X/M	G	
5	≥200,000	Q	D	5 X/W	C ₃	W	C ₃	2 X/M	C ₃	W	G	

Table 2 - Discharges to Land

Effluent Class	Flow Category	Maximum Daily Flow Range (m ³ /d)	Frequency of Data Submission to Manager	Flow (4)	BOD ₅ ,(3), TSS		Nitrogen Total, NO ₃ as N		Turbidity		Fecal Coliforms	
				Freq.	Freq.	Type	Freq.	Type	Freq.	Type	Freq.	Type
D	1	<50	2X/Y	W	N	—	N	—	N	—	N	—
D	2	≥50 - <500	2X/Y	2 X/W	N	—	N	—	N	—	N	—
D	3	≥500	Q	D	N	—	N	—	N	—	N	—
C	1	<50	2X/Y	W	Q	G	N	—	N	—	N	—
C	2	≥50 - <500	2X/Y	2 X/W	M	G	N	—	N	—	N	—
C	3	≥500	Q	D	2 X/M	C ₃	N	—	N	—	N	—
B	1	<50	2X/Y	W	M	G	N	—	N	—	N	—
B	2	≥50 - <500	2X/Y	2X/W	2 X/M	G	N	—	N	—	N	—
B	3	≥500	Q	D	W	C ₃	N	—	N	—	N	—
A	1	<50	2X/Y	W	M	G	M	G	M	G	M	G
A	2	≥50 - <500	2X/Y	2 X/W	2 X/M	G	2 X/M	G	W	G	W	G
A	3	≥500	Q	D	W	C ₃	W	C ₃	D	C ₃	D (Z)	C ₃

Table 3 - Toxicity Monitoring Requirements for Discharges to Surface Waters

Flow Category	Maximum Daily Flow Range (m ³ /d)	Frequency of Data Submission to Manager	Toxicity (8)			
			Column 4 - Regular (9)		Column 5 - After Confirmed Failure (10)	
			Freq.	Type	Freq.	Type
0	<10	N	N	—	N	—
1	≥10 - <500	1/3Y	1/3Y	G	Q	G
2	≥500 - <5000	1/2Y	1/2Y	G	Q	G
3	≥5000 - <25000	A	A	G	6X/Y	G
3a	≥25000 - <50,000	2X/Y	Q	C ₃	2X/M	C ₃
4	≥50,000 - <200,000	Q	6X/Y	C ₃	W	C ₃
5	≥200,000	M	M	C ₃	W	C ₃

< means less than ≥ means greater than or equal to

Appendix 1 to Schedule 6
Explanatory Notes

1. All of these requirements are minimum for the first two years of discharge after which, based on the monitoring data, written recommendations of a qualified professional, or any other information related to the discharge or the receiving environment, the manager may in writing alter these requirements.

2. Sampling Frequency (Freq.) and Type

N	=	No monitoring requirement
1/3Y	=	Once every three years
1/2Y	=	Once every two years
A	=	Annually
Q	=	Quarterly
2 X/Y	=	Two times per year
6 X/Y	=	Six times per year
M	=	Monthly
2 X/M	=	Two times per month
W	=	Weekly
2 X/W	=	Two times per week
5 X/W	=	Five times per week
D	=	Daily
C ₃	=	Sample composited in proportion to flow over 24 hours.
G	=	Grab sample

3. COD may be used in place of BOD₅ if BOD₅ is examined with COD every fifth sampling.
4. For seasonal or intermittent discharges, the discharger must meet the requirements for frequency and sampling methods of flow measurements and parameters to be analyzed as established by the manager.
5. Monitoring for fecal coliforms is only required if disinfection of the effluent is a requirement.
6. For marine discharges in this flow category, monitoring of BOD₅ and TSS is not required.
7. Based on an initial 60 days of compliance with the quality limit, the discharger must conduct weekly presence or absence testing for coliform monitoring. If the presence of any coliform is detected, daily fecal coliform testing must be reinstated until the quality limit is in compliance. Fourteen tests must be conducted to demonstrate that the discharge is back in compliance and then weekly presence/absence testing must be resumed.
8. When conducting a confirmation toxicity test in accordance with note 9 or when monitoring in accordance with column 5, the discharger must also monitor ammonia levels at the same time. The temperature and pH of the sample at the time of sampling must be recorded.
9. If a toxicity test is failed, the discharger must notify the manager immediately and conduct a confirmation toxicity test within 7 days of the date the previous toxicity sample was taken.
10. If two consecutive toxicity tests are failed, monitoring is to be conducted at a frequency specified by column 5, until three consecutive toxicity tests are passed, after which testing reverts to the frequency specified in column 4.

27(1)(a)	Is the receiving environment being monitored?		N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
27(1)(b)	Was the monitoring program designed by a QP?		N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
27 Comments					
28(1)	Is effluent flow data available for viewing?		N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
28(1)	Is effluent quality data available for viewing?		N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
28(1)	Is receiving environment monitoring data available?		N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
28(2)	Is data being reported to manager in an acceptable format?		N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
28(4)	Has an annual compendium report of monitoring data been submitted?		N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
28(6)(a)	Was annual report written by a suitably qualified professional?		N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
		Name:			
28(6)(b)	Does annual report contain interpretation of data?		N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
S. 28 Comments					
Schedule 1 S. 5(8)	Was proof of security and CRF received by WLAP?		N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Schedule 1 S. 5(10)	Has the Manager received written proof of an assurance plan?		N/A <input type="checkbox"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Schedule 1 Comments:					

APPENDIX 2

COMPLIANCE ASSESSMENT RESPONSES

Due to the size of this spreadsheet, it has been placed on the following File Transfer Protocol site:

ftp://ftpsry.env.gov.bc.ca/pub/outgoing/EP/Compliance_Assessments/MSR_Assessment

The ftp address above should be typed into the address bar of your internet browser

Ensure that you are logging in as anonymous