

Summary of Consultation Comments

Concrete and Concrete Products Industry: Code of Practice Intentions Paper

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Section A: Background to the Consultation Process and Responses Received

Introduction and Background to the Consultation Process

This report provides a summary of consultation comments received as part of the consultation process for a code of practice (minister's regulation) for the concrete and concrete products industry under provisions of the *Environmental Management Act* (EMA) and the Waste Discharge Regulation (WDR). The EMA and WDR were brought into force in July 2004. Under the legislation, introductions of waste from identified prescribed industries, trades, businesses, operations and activities require authorization (e.g., permit or approval) from the ministry. The WDR also contains provisions for establishing codes of practice issued by the minister as a form of authorization for specified industries, trades, businesses, operations and activities. A code of practice is a legally binding and enforceable set of rules that must be followed – the environmental protection measures and other actions that are expected of the industry by the ministry.

An intentions paper and response form were posted for public review and comment on the ministry's website (www.env.gov.bc.ca/epdiv/ema_codes_of_practice/index) through May and June 2006. The intentions paper provided a summary of the ministry's mandate and objectives, background information and potential environmental concerns associated with the concrete and concrete products industry, the proposed contents of the code of practice, and the avenues for providing comment as the code is developed and implemented by the ministry. The response form set out discussion issues and questions in relation to the ministry's intentions.

This document has been prepared for the Ministry of Environment by C. Rankin & Associates, contracted by the ministry to independently receive, compile and review comment on the proposed code of practice. The summary does not reflect the ministry's position on any issue. It provides a synopsis of the responses that are being reviewed by the Ministry in the development of the code of practice – without specific attribution, except to the extent required to provide context for the comments. The summary follows the headings and questions contained in the ministry intentions paper and response form – with synoptic and detailed sections, as well as general, process related and supplementary comments from respondents. Appendix 1 lists acronyms and abbreviations commonly used in submissions and this summary document.

All detailed comments have not been included in this document – but have been compiled as part of the comprehensive documentation of responses being reviewed by the ministry. All comments and references submitted through this process, through independent submissions and through direct consultations with stakeholders, will be reviewed and carefully considered by the ministry in the development of proposed code of practice.

Description of Responses Received

Eleven separate responses were received (by e-mail, fax and attached file) by mid-July 2006 and have been reviewed for this summary of consultation comments. Most respondents who provided background (contact) information were involved in the concrete or concrete products industry. Submissions were also received from representatives of regional and local governments, and First Nations. Responses received from First Nations noted process and information points and did not contain substantive comment on the content of the intentions paper.

Section B: Comments on Discussion Issues

This section contains a detailed summary of responses to questions posed in the response form. This summary reflects the range of comments received, as well as excerpts of individual submissions with specific advice or recommendations. Direct excerpts from submissions are included in quotation marks (“ ”) and square brackets ([]) indicate inferred or contextual terms. The complete set of responses and submissions received through the consultation process has also been compiled and passed to the ministry for detailed review and consideration.

Discussion Issue 1: Scope (of the code of practice)

The Ministry is proposing that the code of practice apply to ready mix concrete facilities engaged in manufacturing and delivering mixed concrete and concrete products facilities engaged in manufacturing concrete pipe, structural and other concrete products.

Question 1.1: Do you believe that the scope of the proposed code of practice is appropriate for managing waste discharges of the concrete and concrete products industry in British Columbia?

All respondents who commented on this topic indicated that the scope of the proposed code of practice is appropriate. The following specific comments were also received:

- “The scope should include both permanent and temporary ready-mixed concrete facilities and ‘dry bag’ operations”;
- “The code does not reflect the [differing] size of concrete facilities which may have a differing rate of impact to the environment”; and
- “The code should state that it does not apply to existing operations that currently have a permit issued by the B.C. Ministry of Environment unless the operation voluntarily registers...or applies for a major amendment to the permit”.

Discussion Issue 2: Air quality management

The proposed code would include provisions that address both point source and fugitive dust air emissions.

Question 2.1: In your view, are the proposed measures appropriate and adequate to address dust and particulate emissions that may arise from concrete industry facilities?

Respondents raised questions or commented on three aspects of this discussion issue: regulation of air emissions within the Greater Vancouver Regional District (GVRD); monitoring and measurement of opacity; and measures for the control of fugitive dust.

Several respondents requested clarification about how the code would apply to ready-mixed and pre-formed concrete product facilities within jurisdictions such as the GVRD (where air emissions from specified facilities are permitted through a regional air quality bylaw). Specifically, one respondent asked if “the code [would] supersede these permitting processes”.

Respondents also commented on use of opacity measurements for monitoring air emissions. Specific comments included:

- “We do not know how to measure 10% opacity...hopefully training...will be available”;

- “Opacity monitoring is impractical and unnecessary for a low environmental risk industry...the Industry Best Management Practice of visual observation during each silo filling is more appropriate”;
- “The concrete industry buys ‘point source’ dust control equipment from 3rd party equipment suppliers – this equipment is not specified or marketed against a ‘maximum % opacity of air emission’ – the standards and measure in the COP for point source dust emissions need to be specified and quantified against industry standard measure”;
- “The opacity reading period needs to be adjusted to deal with short term ‘puffs’... the GVRD applies a 20% limit averaged over a six minute period [which] may be more appropriate”.

With respect to fugitive dust, one respondent commented that “some level of fugitive dust is emitted from all industrial operations...there needs to be some language [in the COP] that some level of fugitive dust is acceptable”.

Question 2.2: In your opinion, should air emission and fugitive dust control provisions in the code of practice for “smaller operations located in rural settings” differ from other concrete industry production facilities?

All respondents who commented on this question felt that “the same standards should apply to all sizes of operations” and “the requirements should be consistent regardless of location”.

Discussion Issue 3: Water use and runoff management

The proposed code of practice would include effluent standards for any process water or stormwater runoff arising from a ready mixed or pre-formed concrete product facility that is discharged to the environment.

Question 3.1: Do you believe that the proposed parameters for water discharges or stormwater runoff arising from concrete production facilities are appropriate? Do you have any suggested changes to these parameters?

Respondents were divided on whether the proposed parameters for water discharges and stormwater runoff arising from concrete production facilities are appropriate. Several commented that the proposed requirement that any discharge “be non-acutely lethal to fish, as defined using a 96 hour LC 50 rainbow trout bioassay” duplicates a requirement already set out in the (federal) *Fisheries Act* and that testing to show due diligence in compliance of this requirement would be overly onerous relative to the risk posed. While respondents noted that the proposed guideline for pH of discharged water (between 6.5 and 9.0) was in keeping with Canadian Drinking Water Quality Guidelines and “acceptable” within the industry, several expressed concern that the proposed parameter of 75 mg/l for suspended solids “is not achievable on a daily basis”. One respondent suggested that “a more reasonable and workable approach would be to establish 75 mg/l as a targeted average to be achieved over an established timeframe”. The respondent also noted that “many existing discharge permits for concrete producers only regulate the discharge of process water and not storm water or other discharges from the site – if the regulatory scope is expanded to include stormwater there will be a substantial cost increase for many producers to meet 75 mg/l TSS”.

Other comments from respondents included: “[set] different requirements for discharge to surface water and direct discharge to ground” and “the industry may use other substances to enhance workability, and air entrainment of the cement that may result in contaminant discharges – these additives should be investigated”.

Question 3.2: In your view, should all concrete production facilities be required to have water containment and recycle measures in place? If Yes, what requirements would be appropriate? If No, what other means would you suggest to the ministry for ensuring that environmental and human health protection objectives related to water discharges and runoff are achieved?

Respondents generally supported the inclusion of water containment and recycle measures as requirements in the code of practice, with the following specific comments:

- “Exception could be made for discharge under wet weather conditions – discharge quality should meet proposed limits for specified parameters”;
- “By specifying requirements for pH, suspended solids, oil and grease and requiring non toxicity to fish in the proposed code, the ministry has created a non-prescriptive, results based regulation – industry’s Best Management Practices can be employed to assist ready-mix producers in meeting the requirements of the proposed code”;
- “Water containment only – recycling may be impractical – water containment should be adequate”;
- “Yes, water control measures should be the same for all operations – there are sensitive waterways throughout the province”; and
- “Stormwater pollution prevention plans for each facility may be an approach or development of generic requirements is another”.

Question 3.3: Assessing the amount of suspended solids in effluent or storm water runoff – What suggestions do you have regarding an appropriate field measure for assessing the amount of suspended solids in water prior to discharge to a receiving body of water?

The intentions paper and response form outlined the challenges involved in determining an appropriate field measure for assessing the amount of suspended solids in-water prior to discharge to a receiving body of water and sought comment from respondents. The following suggestions were made by respondents:

- “Have site specific/TSS correlation which is to be used as a marker or surrogate for TSS”;
- “Require use of TSS on intermittent base as self audit process”;
- “Monitored results [kept] in a log to determine discharge levels, or testing measures to determine TSS prior to release”;
- “Operations having lower environmental risks require a simple and easy to apply measurement methodology to assess TSS”;
- “Most (and perhaps all) existing water treatment systems at ready-mixed concrete operations have semi-continuous discharge – these systems, with properly designed ponds, only require regular monitoring to confirm acceptable TSS levels”;
- “I am not aware of any test that is appropriate as a surrogate for TSS testing”; and
- “Depends upon the technology required to measure turbidity. Turbidity meters are expensive fussy pieces of equipment – available turbidity wedges only measure down to approximately 60 NTU (Nephelometric Turbidity Units) which may or may not coincide with 75 ppm suspended solids”.

Question 3.4: What suggestions do you have regarding appropriate means for monitoring and assessing the potential impacts on ground water from concrete plant operations such as truck washing or unlined settling ponds?

Respondents who commented on this question commonly suggested that impacts on ground water would differ on a site by site basis. One respondent commented that “I would prefer the ministry to include [the] requirement of lining the ponds [rather than] installation of monitoring wells with well developed baseline data, if required”. Another felt that “monitoring and assessing potential impacts on groundwater from concrete plant operations would impose inappropriate expense and burden on a low environmental risk industry” commenting that “an MOE ground water expert stated [to representatives of the B.C. Ready-Mixed Concrete Association Environment Committee] that there are few aquifers in B.C. that would be impacted by high pH water discharges – more information and scientific evidence from the ministry should be provided to industry regarding conditions where and when an aquifer might be adversely affected by such operations”. Another respondent suggested that a generic standard be developed for monitoring and assessment [by the ministry], with a site specific monitoring program developed and approved by a qualified professional [for each facility]. One respondent suggested that a monitoring well (or wells) located on the plant periphery from which a water sample can routinely be taken should be a “standard item”.

Discussion Issue 4: Waste solids management

Waste solids associated with concrete production facilities include sludges from the clean out of settling basins and returned concrete. The intentions paper proposed that best management practices (BMPs) be developed with industry to provide operators with guidance in this area.

Question 4.1: Do you believe that the proposed provisions for the management of waste solids associated with concrete production facilities are adequate and appropriate for protection of the environment and health? Do you have any comments or suggested changes for the ministry to consider?

Almost all respondents who commented on this issue supported the proposed approach. Additional comments from respondents included: “slurry or sludge do not need to be fully dried prior to recycling or disposal”; “waste solids provisions should allow the recycling of waste solid products as clean fill” and “drying on site may lead to fugitive dust issues – the acceptable practices need to be defined in the code of practice not in best management practices”.

Discussion Issue 5: Registration, monitoring and record keeping

The intentions paper outlined provisions in the proposed code of practice for registration of facilities with the ministry, and monitoring and record keeping.

Question 5.1: The proposed code of practice will require operators of ready mix concrete and pre-formed concrete product facilities to register with the ministry and pay an “annual fee”. The ministry has not proposed a specific amount for the annual fee. What amount do you feel is appropriate? What are the reasons for your suggestion?

Several respondents to this question noted that they did not feel that any fee is “appropriate”. One commented that “we are already taxed to death, however, facing the inevitable [any fee] should be based on volume of concrete processed”. Other respondents suggested that “the annual fee should be based on plant /facility size, related emissions and the number of audits which would be undertaken by the ministry staff on an annual basis”; and that “the permit fee should equal the administrative costs associated with the proposed code, and thus be revenue neutral for the government”.

Question 5.2: The proposed code of practice will require operators of ready mix concrete and pre-formed concrete products facilities to maintain current records on site for review and inspection by ministry staff. Required records will include dust collection system inspection records, pH and turbidity measurements of water discharges and opacity readings of all silo fillings. What comments or suggestions do you have for the ministry regarding the nature of required records and the manner in which they are to be kept?

Several respondents commented that recording opacity readings at each silo filling is “impractical” and/or “unnecessary for a low environmental risk industry”. One respondent noted that “if appropriate equipment is installed and maintained, point source dust control is assured and does not need to be monitored on each delivery”. Another respondent suggested that records available for inspection include maintenance activities, that “opacity readings must recognize [the] short term nature of silo filling and not be averaged [over] non-discharge periods” and that “certification of employees for opacity readings may also be an issue”.

Respondents also provided a number of detailed comments regarding proposed requirements for assuring water quality in relation to discharges from concrete production facilities. One respondent questioned why “volume of discharged water” was not included as a parameter for monitoring and recording, as “the environmental impact correlates with volume”. Another respondent recommended that: the “quality of process water discharges to surface water should be measured on a monthly basis to confirm the water treatment system is working adequately” and that “if water quality requirements are met on water prior to discharge, it is unnecessary to estimate volumes, as there is no requirement proposed for the volume discharged to the receiving environment”. This belief was echoed by another respondent, commenting that: “monitoring of Ph and turbidity or TSS **prior** to release of water to the environment is impractical, [as well as] monitoring of discharge water quantities prior to release...[and] if appropriate systems are installed and maintained, then monthly monitoring of water quality as it is released to the environment should be adequate to ensure that the systems in place are functioning... – if the water quality is within the ranges specified, then the quantity of water released should be of minor concern and not be of a magnitude to inspire the containment structures that would be required to conform to this criteria”.

Other suggestions made by respondents included: “publication of the annual results which would/could be made available publicly”; “records should also identify non-compliance and corrective actions”; “quarterly submission [of] standard forms with check boxes where appropriate”; “log books”; and “site runoff should be subject to regular inspections, maintenance and record keeping [with] all records retained on site for a specified period and readily available for inspection”.

Discussion Issue 6: Best Management Practices

The intentions paper noted that the proposed code of practice may be supported by development of best management practices (BMPs) that would provide recommendations or options related to meeting the requirements of the code.

Question 6.1: What comments or suggestions do you have for the ministry regarding the development of BMPs (e.g., existing information sources, organizations and/or agencies that could or should be involved)?

Several respondents recommended that the Greater Vancouver Regional District (GVRD) and the B.C. Ready-Mixed Concrete Association (BCRMCA) would be important organizations to involve as “[the GVRD] regulates air emissions from the sector via the GVRD Emissions Regulation for Ready Mix Concrete and Concrete Products Industries” and “BMPs have already been developed by industry, via the BCRMCA...[and] the association’s Board of Directors has committed to maintaining the document, in consultation with government”. Respondents also suggested involving the Fraser Valley and Capital

Discussion Issue 7: Assuring compliance and implementing the code of practice

Question 7.1: What comments or suggestions do you have for the ministry regarding appropriate and effective means for assuring compliance?

Suggestions from respondents included:

- “Ministry or third party annual audits – publication of audit findings”;
- “Self reporting, periodic inspection”;
- “Timely dissemination of information is key to the successful implementation of any regulation – as an industry association working with government, BCRMCA can assist in development and dissemination of targeted programs to convey essential information to raise awareness regarding the nature and provisions of the code, and provide education, via hands on training workshops, appropriate for our ready-mixed concrete producer members as well as government staff”;
- “Make sure that the requirements are practical and achievable”; and
- “A minimum number of annual inspections and run-off monitoring events for the sector should be set and appropriate staff resources supplied – there should be sufficient staff resources to respond to public complaints regarding the sector”.

Question 7.2: What advice or suggestions do you have regarding effective implementation of the code?

Respondents suggested a workshop as part of the UBCM annual convention (for municipal officials), involvement of the BCRMCA, development of printed materials, regional workshops and presentations, and dissemination of web-based information.

One respondent commented that statements in the intentions paper “seem to infer that compliance with the proposed code of practice will be voluntary [while other statements] infer prosecutions for non-compliance...if compliance is to be mandatory, the industry needs to be given several years to meet the demands to allow for the capital spending that will be required”.

One respondent recommended a detailed “phased-in program... [that] may take a number of years for some operations to fully implement” involving the following steps:

1. Industry adapts existing Environmental Best Management Practices to reflect the new code of practice, in consultation with government.
2. Government, working jointly with industry, launches awareness and education programs about the nature and provisions of the code for ready-mix producers and government staff.
3. Individual ready-mixed concrete producers evaluate their operations for compliance with the code of practice.
4. Individual ready-mixed concrete producers plan upgrades needed to meet the code of practice and plan for the capital investment.
5. Upgrades are carried out by concrete producers to ensure properly functioning facilities.
6. Ready-mixed concrete producers confirm compliance with code.

Discussion Issue 8: Protection of human health and the environment

Question 8.1: Are there any aspects of ready mix concrete or pre-formed concrete product industrial facilities that could significantly affect human health or the environment that are not, in your view, sufficiently addressed in the proposed code? What, if any, are they? What suggestions do you have for the ministry to improve the manner in which these concerns are addressed?

Two additional suggestions were made by respondents: “storage and handling of concrete admixtures and muriatic acid”; and “surface run-off, potential ground water impacts and fugitive dust emissions are not thoroughly addressed at this time”.

Question 8.2: Do you have any other comments or suggestions for the ministry?

The following comments were provided in individual submissions and were not tied specifically to the discussion issues and response form questions:

- “[We] believe that any air emissions related to the operation of boilers and heaters that might apply to use used lube oil as fuel should be discouraged. This is particularly important because of the heavy metals present in used lube oil. These units do not usually have any ability to use scrubbers or bag houses to capture particulate matter. Emissions from small boilers or heaters that use used lube oil in large urban areas contribute to more “non-compliance” days for air quality. Used lube oil fired heaters or boilers should not be allowed near fruit and vegetable growing areas because of the heavy metals emitted”;
- “As a Civil Engineer who has designed numerous water management systems for various ready mix producers, I have quite a bit of practical experience regarding the treatment and discharge of process water and storm water from ready mix concrete plants. In practice, the control of pH is a no-brainer while the control of suspended solids, without the use of chemicals is very difficult. My view is that the proposed Code of Practice does not fully account for two significant realities in regard to water treatment and disposal of suspended solids: 1) the effect of rainfall; and 2) the difference between discharging to a body of surface water and discharging to ground...

1. Effect of rainfall: In British Columbia, the vast majority of concrete batch plants are not contained in buildings but are open to the elements most significantly rainfall. Stormwater drainage systems on batch plants are generally divided into two distinct drainage systems: the “process area” drainage system which directs water possibly contaminated with cement products to a treatment and disposal system and the general “stormwater system” which typically discharges directly to a local municipal storm sewer, ditch or open body of water. During heavy rainfall events, both of these drainage systems become overloaded with suspended solids especially during the first flush effect. (What is not appreciated by most people is that the source of these suspended solids is not the production of concrete but the aggregate stockpiles and aggregate that is spilled on the site during the normal aggregate handling process). A significant portion of these suspended solids are less than 100 microns diameter and will not settle by gravity within the time available in the settling basins during a heavy rainfall event. The reality is that discharge of both stormwater and process water from most concrete batch plants approaches 300 ppm during heavy winter rainfall events. The situation is exacerbated by the fact that less recycled water is needed for concrete production during rain events. The Code of Practice assumes that staying within the limit of 75 ppm maximum suspended solids is achievable in all types of weather without the use of chemicals. This is simply not possible for most batch plants (and aggregate handling facilities). The reality is that monthly sampling of TSS does not generally coincide with heavy rainfall and reported results do not account for the elevated

suspended solids discharge during heavy rainfall events. If MOE intends to require continuous monitoring of suspended solids and discharge volumes, while discouraging the use of chemicals, the proposed 75 ppm maximum will need to be restated as a 75 ppm average with a maximum instantaneous rate of perhaps 300 ppm. Anything less than this will require batch plants and aggregate stockpiles to be contained in buildings, protected from rainfall, which is not economically practical in most cases.

2. Discharge to ground: ...the proposed Code of Practice refers to discharging water to the environment and does not draw a distinction between discharge to surface water and direct discharge to the ground. Both types of discharge are limited to 75 ppm suspended solids. In practice, there are completely different effects between discharge to a surface water environment (including discharge to a storm sewer which in turn discharges to surface water) and direct discharge to ground. Suspended solids discharged to surface water have implications for fish habitat while direct discharge to ground generally does not. In fact, in some direct discharge installations, the suspended solids are filtered out by the underlying soil strata resulting in the discharge basin blinding off. This is remedied by routinely excavating and recycling the blinded off material, clearly without environmental implications. A blanket requirement for 75 ppm suspended solids for a direct to ground discharge is unnecessarily onerous. A site-specific criteria should be established based upon the permeability of the underlying soil strata and proximity to fish bearing waters”; and

- “The B.C. Ready-Mixed Concrete Association (BCRMCA) represents some 60 ready-mixed concrete producers with over 100 concrete plants; as well as cement producers, concrete pumpers, placers/finishers and industry suppliers...our responses to the intentions paper is based on the fact that the Concrete and Concrete Products Industry has lower environmental risks, as [an] identified Schedule 2 Activity in the Waste Discharge Regulation... The language and requirements of the final regulation should be consistent and reflect the industry’s low environmental risk. BCRMCA supports the concept of a simple regulation for concrete operations not currently permitted by the B.C. Ministry of Environment, that is performance-based, addressing certain targets for air, water and solids and references BCRMCA’s Environmental Best Management Practices (BMPs) as a menu of different methodology that can be used to achieve the targets in the proposed code of practice. However, before we can support the specifics in this Policy Intentions Paper, some adjustment is required to the existing language. We have noted, in detail, areas that require clarification by the ministry, as well as measures that are disproportionate for an industry with lower environmental risks, and would impose undue financial hardship on our industry sector”.

Appendix 1: Common Acronyms and Abbreviations Used in Submissions and this Summary

Acronym/Abbreviation	Term
B.C.	British Columbia
BCRMCA	British Columbia Ready-Mixed Concrete Association
BMPs	Best Management Practices
COP	code of practice
CRD	Capital Regional District
EMA	<i>Environmental Management Act</i>
FVRD	Fraser Valley Regional District
GVRD	Greater Vancouver Regional District
l	litre
LC 50	Toxicology – lethal concentration that kills 50 percent of the test organisms within the exposure period of the bioassay
m	metre
mg	milligram
m ³	cubic metre
MOE	Ministry of Environment
NAISC	North American Industry Classification System
NTU	Nephelometric Turbidity Units
pH	Chemistry – hydrogen ion concentration as activity, defined as the negative logarithm (base 10) of the hydrogen ion activity; an indicator of the acidity or alkalinity of water that follows a unitless scale (called s.u., or standard units) of 0 to 14
ppm	parts per million
TEH	total extractable hydrocarbons
TSS	total suspended solids (turbidity)
UBCM	Union of British Columbia Municipalities
WDR	Waste Discharge Regulation