B.C. SEWERAGE SYSTEM STANDARD PRACTICE MANUAL: VERSION 3

FAQS AND ERRATA, NOVEMBER 2015

A. INTRODUCTION

This document provides a summary of errata (typos and link errors) found in the first edition of the Standard Practice Manual (SPM), Version 3. In addition, FAQs are provided to add guidance for common questions that arose during the 2014-2015 SPM rollout workshops. The errata are on a separate page at the end of this document, and can be inserted in a printed SPM.

B. FAQS

Below are answers to FAQs (frequently asked questions) about each topic.

B- 1 Minimum standard

The SPM Volume II provides minimum standards for sizing and specification of systems. Questions frequently demonstrate that these minimums are viewed as a target.

Rather than planning for the minimum, it is in many cases preferable to plan above the minimum. This can result in improved system quality and performance, and increased system lifespan. It can reduce lifecycle system cost.

For example, a larger than minimum septic tank will not only perform better but will need less frequent pump out, reducing costs.

Aiming above the minimum also reduces the risk of not meeting the minimum standards.

For example, if an AP planning a pressure distribution system aims to achieve a 60 cm squirt height, minor issues with orifice drilling may result in a lower squirt height at commissioning—let alone after a few years of operation. By aiming for a larger distal pressure, say 75 cm, the AP would reduce risk of needing to change the pump at commissioning, and would reduce potential issues with inadequate squirt height as the pump wears with time. At the same time the system would see improved distribution performance.

B- 2 Daily design flow for a house with more than 6 bedrooms

The SPM Table II-8 provides an allowance of 300 L/day per additional bedroom for residential use. When calculating maximum floor area, add 100 square metres per added bedroom to the allowable maximum floor area for 6 bedroom houses in Table II-8.

B- 3 Daily design flow for larger suites

The SPM Section III-5.1.2.4 provides guidance on selection of design flows for suites. For suites with more than one bedroom, use the DDF estimated following Table II-8 or II-9 and add that flow to the DDF estimated for the main house.

B- 4 Very or extremely gravelly sands texture group

Several questions related to the soil texture group "Very or Extremely Gravelly Sands" shown in Table II-22 and elsewhere.

B- 4.1 Texture modifier and sand or coarse sand

In the top row of Table II-5, Table II-7 and other tables, "Very or Extremely Gravelly Sand or Coarse Sand" means "Very or Extremely Gravelly Sand or Very or Extremely Gravelly Coarse Sand", and is not intended to contradict the second row of the table.

B- 4.2 HLR adjustment

Follow the standards of Table II-7 and guidance in Section III-4.1.2.2(e) of the SPM to adjust HLR for soils with >35% coarse fragment content. This adjustment should be made for all soils, including HLR for Very or Extremely Gravelly Sands.

B- 4.3 Other types of coarse fragments

The "Very or Extremely Gravelly Sands" row of Table II-22 and other tables includes Very or Extremely Cobbly Sands and other coarse fragment types.

For certain coarse fragment types (e.g. Boulders) high coarse fragment percentages may constrain construction of a dispersal system as well as severely limiting soil based treatment, and the Authorized Person should consider specifying a sand media system in these cases. It is recommended that a sand media system (sand mound, sand lined trench or bed) be used where the soil contains more than 60% coarse fragments other than gravels.

B- 5 Sand selection for sand mounds, sand lined trench and bed systems

B- 5.1 Mound sand specification

Questions have arisen about "mound sand" (Table II-24) versus older "modified C-33 sand" specification.

Mound sand specification in Version 3 of the SPM is similar to that in Version 2, and to "modified C33" in Version 1. In Version 3 a standard for D_{10} (sieve size for 10% passing) was added.

B- 5.2 Manufactured sand versus natural sand

The SPM standards for sands (Table II-24) apply to natural or manufactured sands.

B- 6 Soil depth for site capability and HLR tables for sand mounds

Section II-4.1.2.1 includes an instruction "When using the tables below, determine the soil horizon within 30cm below the infiltrative surface that will result in the most conservative system design." Section II-5.5.1 includes an instruction "When using the tables below, select the HLR based on the soil horizon located within 30cm below the infiltrative surface that has the most limiting soil characteristics."

This has led to questions related to the standard minimum soil depth for sand mound systems (25 cm).

For a sand mound system on a site with 25 to 30 cm native soil depth, evaluate the site capability, and select the loading rate, based on the most restrictive horizon within 25 cm of the base of the sand mound (not 30 cm). This will be a rare situation, since it only applies when planning a sand mound on a site with more than 25 cm of soil and less than 30 cm of soil.

B- 7 Basal loading rate for sand mound systems

Section III-6.15 explains how to check that the basal area of a sand mound is large enough.

Sand mounds use two hydraulic loading rates, one for the bed area (the sand media HLR) and the other for the basal area native soil.

The maximum basal area HLR is selected following Section II-5.5, Tables II-22 and II-23, following the selection standards of Section II-5.5.3. The basal HLR is not affected by the type of uniform distribution used for the sand media bed; for example, basal HLR will be the same whether pressure distribution or subsurface drip dispersal is used to apply effluent to the sand media bed.

The required basal AIS is then calculated, following Section II-6.15.2 (page II-62). An example is provided in Section III- 6.15.2.1 (page III-137).

To check whether the effective basal area is large enough, follow the standards of Section II- 6.15.2.1. The effective basal area depends on whether the sand mound is on a sloping site, or on a low slope site (slope less than or equal to 2%). On low slope sites effluent is considered to spread out in all directions from the sand media bed, whereas for a sloping site the effective area is only the area below the sand media dispersal bed and downslope.

B- 8 How a sand mound system is filed

File the system depending on the effluent to be applied to the sand media bed (e.g. Type 1).

B- 9 How to address minimum contour length constraints

The SPM provides a range of potential options for sites where adequate contour length is not available, with guidance in Section II-5.6.7.

B- 10 Lateral separation in bed systems with pressure distribution

Table II-38 does not provide a standard for maximum spacing between pressure distribution laterals in a Seepage Bed system. Likewise, Table II-54 does not provide a standard for maximum spacing between pressure distribution laterals in a Sand Mound or Sand Lined Bed system.

As a guideline, it is recommended that pressure distribution laterals be spaced no more than 100 cm on center.

B- 11 Distribution and dosing questions

B- 11.1 Balancing the needs of distribution uniformity and dose frequency

In the planning of a pressure distribution system provide uniform distribution, at minimum meeting the standards of Section II-5.2. At the same time, it is necessary to meet minimum dose frequency standards in Section II-5.2.2.

Section III-6.10 of the SPM provides guidance on the balancing of these requirements, together with strategies to address sites where freezing conditions result in a need to drain laterals between doses.

B- 11.2 Micro dosing frequency and daily design flow

A question has also arisen about dose frequencies in Table II-12 (Micro Dosing). These frequencies are for use with DDF, as illustrated by the example in Section III- 5.2.2.2.(a).

B- 11.3 Dosing in Tables II-15 and II-16

In order to fit Tables II-15 and II-16 on one page, wording in the table is abbreviated. So, where the table says "Demand Dosing" or "Timed Dosing" this refers to "Normal Demand Dosing" and "Normal Timed Dosing" frequencies in Tables II-10 and II-11.

B- 11.4 Dosing chambers for floating outlet devices or siphons with an overflow

Table II-47 standards establish that an alarm reserve of 25% is to be used above the dosing chamber high level alarm float in these systems (a high level alarm is needed except where no power is available at the site and the owner is informed of the risks).

Section III- 6.12.2.1.(a) clarifies that this alarm reserve can include surcharge above the dosing chamber inlet and in the septic or treatment tanks, provided certain requirements are met.

B- 12 Setting maintenance frequency

Questions have arisen about the procedures to follow when reviewing maintenance frequency (following the standards of Section II-7.1).

Section II-7.1 is written primarily for the Authorized Person who is writing a maintenance plan. In the original maintenance plan the AP will establish the period for review. For example the AP may recommend that the maintenance plan and maintenance frequencies be reviewed after the first year of operation. At that review maintenance frequencies could be confirmed, or changed.

At that time, the maintenance provider may establish a revised maintenance frequency and file an amendment to the maintenance plan (with or without the input of the planner) if he or she has the suitable level of competency to do so.

When deciding on changes to maintenance frequency, the AP should consider whether the system has been demonstrated to be stable. For example, if effluent samples for a Type 2 treatment system have been taken and analyzed every 6 months for a period of 3 years and have all been well within design specifications, then reducing the sampling frequency to every 12 months might be justified. On the other hand, more frequent sampling could be specified if one or more samples exceed the specified levels.

In addition, the AP should consider the potential impact of an issue going uncorrected for the period of time between maintenance visits. For example, if an effluent filter is equipped with an alarm, increasing the time between checks on the effluent filter carries less risk—since an alarm will occur if the filter plugs.

C. ERRATA

This document provides a summary of errata the Standard Practice Manual, Version 3, issued in September 2014. *None of these corrections affects the application of standards, or alters the standards of the manual. However, users may wish to correct paper copies for convenience.*

C- 1 Volume II Errata

Page II-13, Table II-4, replace "Weak grade Platy structure and Sandy Loam or Loam" with "Weak grade Platy structure (and Sandy Loam or Loam)".

Page II-15, Table II-5, replace reference to Section II-6.19.1 with reference to Section II-6.16.1.

Page II-19, Section II-4.2.1, replace reference to "Section II-6.3.2" with "Section II-6.4"

Page II-35, Table II-21, replace "Weak grade Platy structure and Sandy Loam or Loam" with "Weak grade Platy structure (and Sandy Loam or Loam)". Also remove asterisks (*) in this table.

Page II-41, Section II-5.6.5, replace in first sentence "The following standard applies for or all at-grade or above grade systems" with "The following standard applies for all at-grade or above grade systems"

Page II-41, Section II-5.6.5, replace in last sentence "The total outside length of the dispersal system will be longer then this contour length," with "The total outside length of the dispersal system will be longer than this contour length,"

Page II-56, Section II-6.12.3, replace "Specify tanks and access provisions according to Section II- 6.3.2 standards." with "Specify tanks and access provisions according to Section II- 6.4 standards."

Page II-64, Table II-54, replace third row second column text "Install orifices or emitters at least 30 cm (12 in.) from the outside end of the infiltration bed." with "Install orifices or emitters at least 30 cm (12 in.) from the outside and end of the infiltration bed."

Page II-66, Section II-6.16, replace reference to "Section II-6.3.2" with "Section II-6.4"

C- 2 Volume III Errata

Page III-13, Table III-2, replace "*Weak grade Platy structure and Sandy Loam or Loam*" with "Weak grade Platy structure (and Sandy Loam or Loam)".

Page III-29, third row of soil depth and VS options in table. Replace "*30 cm min. sand depth Total VS 60 cm, need to add 15 cm sand to meet 75 cm min.*" in third column with "30 cm min. sand depth Total VS 60 cm, OK" and replace "*No VS advantage for micro-dosing due to need for extra sand***" in fourth column with "Advantage for micro-dosing (less sand needed)**"

Page III-30, replace text in final row, third column, of table. Replace "*VS 45 cm in sand, 75 cm as constructed Dose 12 x per day at DDF minimum.*" with "VS 30 cm in sand, 60 cm as constructed Dose 28 x per day at DDF minimum (Table II-12).

Page III-30, replace note text "**No "advantage" (in terms of sand depth) for micro-dosing to a sand mound, because the as constructed VS specified by the standards is 75 cm minimum, leading to a need for 45 cm of sand depth in any case." with "** "Advantage" (in terms of sand depth) for micro-dosing to a sand mound, because less sand depth is needed to meet minimum total vertical separation."

Page III-33, last line on page, replace "*The soil hydraulic loading rate is decreased; the infiltration area is increases.*" with "The soil hydraulic loading rate is decreased; the infiltration area is increased."

Page III-88, Section III-6.4 first sentence, replace reference to "*Section II-6.3.2*" with "Section II-6.4"

Page III-88, last line, replace reference to "*Section III-8.6*" with "Section III-8.7".