

Our reference : DOC07/5465  
Contact : Michele Weight, 9995 5437

RECEIVED

11 APR 2007

Mr S McCleod  
Chair  
Water Directorate Incorporated  
Level 12, 447 Kent Street  
SYDNEY NSW 2000

Dear Mr McCleod

**Information regarding Pollution Reduction Program 100**

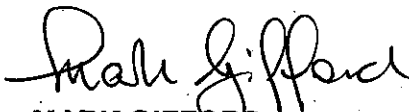
I refer to your questions (as received via electronic mail dated 12 February 2007) regarding Pollution Reduction Program 100 and the requirement for regional sewage treatment plants to prepare Sewer Overflow Investigations Reports. I also refer to your meeting with DEC officers on 28 February 2007 on the same subject.

As discussed on 28 February 2007, please find attached draft responses to each of your questions. I suggest that you review the responses to ensure that they provide sufficient detail for your members. We would be happy to provide additional information. I understand that you intend to publish this information in your newsletter once you are satisfied with the level of detail.

I look forward to DEC receiving the Sewer Overflow Investigation Reports from councils. The risk assessment program that underpins each report is an important step towards ensuring that councils and DEC are committing their resources where we can achieve the greatest benefits. This will ensure that the impacts of sewer overflows are minimised, and human health and the environment are adequately protected.

Please contact Michele Weight on (02) 9995 5437 if you require more information.

Yours sincerely

 5/4/07

**MARK GIFFORD**  
**Acting Executive Director Operations**  
**Environment Protection and Regulation**

## PRP 100 Sewer Overflow Investigations Report

### Background

In 2003 the then Environment Protection Authority (EPA), now the Department of Environment and Conservation, included additional requirements in regional sewage treatment system licences that related to sewer overflows. Previously the licences only related to the performance of sewage treatment plants. Sewer overflows can present risks to public health and the environment.

Prior to this time, the EPA had limited information on the health and environmental risks associated with sewer overflows from regional sewage treatment systems. The EPA required licensees to collect sewer overflow data and to prepare a report on their sewer overflows (PRP100). This approach was taken to enable the EPA to focus any future decisions on sewer overflow abatement requirements based on sound knowledge of the risks associated with these overflows.

The extent of the sewer overflow investigation report should relate to the size and complexity of the sewerage system and the frequency of overflows. For example, a large system in a high rainfall area and relatively old sewers may have frequent overflows, hence a more comprehensive report is warranted. Conversely, a relatively brief, simple report may be appropriate for a small system in a lower rainfall area with sewers in relatively good condition and few sewer overflows.

Councils should refer to the EPA Licensing Guidelines for Sewage Treatment Systems 2003 (the guidelines) in the preparation of the Sewer Overflow Investigations Report required under PRP100. The guidelines are available on the DEC website, and may be accessed using the link:

<http://www.environment.nsw.gov.au/resources/stslicensingguidelines.pdf>

### Questions and Answers

A response to some specific issues raised by councils is outlined in the following pages.

- (a) *Identification of the location of all designed overflow points and other frequent overflow points within the reticulation system and an assessment of the likelihood of overflows from these points;*

#### *Identification of overflows*

Identifying the location of overflow points and assessing the likelihood of overflows is explained in Appendix B (pages 19-21) of the guidelines. The level of detail provided should reflect the size and complexity of the reticulation system, and the frequency of sewer overflows.

For example, Council could collate information on the sewers and sewage pumping stations including estimated equivalent tenements/population, estimated sewer flows, age of sewer pipes, number of pumps and pumping capacity, etc.

Councils could map all overflow points using the most useful method for their own future planning and works. Councils with larger or complex systems may use GIS software to map overflow points where feasible, however specific GPS points will not be required to be submitted to DEC. Note that the identification of overflow points provided to DEC should give a clear indication of the location and surrounding

features of all overflow points in the reticulation system, whether they are designed or incidental.

*Assessment of the likelihood of overflows*

The main purpose of clearly identifying all designed or other frequent overflow locations is to enable an assessment of the health and environmental risks from overflows from these specific locations. As part of the risk assessment, information on the upstream sewer catchment (e.g. equivalent populations (EP) and resulting sewer flows) will be useful.

Where sewer overflows occur on a relatively ad-hoc basis across a reticulation system (e.g. due to tree root intrusion), a detailed assessment of each individual potential overflow location is not required.

In assessing the likelihood of overflows, as a first step councils may use the table on page 20 of the guidelines to summarise wet and dry weather overflow monitoring data. A qualitative assessment of the likelihood of overflows is then performed, usually on an average annual basis. The likelihood of overflows in wet and dry weather is then classified in the range of 'almost certain' to 'rare' for all components of the system, or as an average for the whole system for more simple reticulation systems.

Data to assist in this assessment of overflow likelihood can be sourced from overflow data collected by the licence holder to meet the requirements of condition M9. Information on the relative performance of the system can be obtained from "NSW Water Supply and Sewerage Performance Monitoring Report" prepared by the Department of Energy, Utilities and Sustainability (DEUS).

*(b) Assessment of the significance of impacts on the environment and public health resulting from these overflows;*

The significance of environmental and public health impacts is discussed on page 21 of the guidelines. Impacts will commonly be assessed at two levels; firstly across the whole area served by the reticulation system and secondly in the vicinity of flow relief structures. Environmental and public health impacts are classified in the range of 'insignificant' to 'catastrophic'.

Sensitive environments which the overflow may drain to include:

- A drinking water catchment or domestic groundwater source, or
- Shellfish-growing area, or
- Protected water bodies, ecological communities or conservation areas defined by legal and non-legal instruments, such as local environment plans (LEPs), state environment planning policies (SEPPs), national parks, world heritage parks, or
- Waterways used for primary contact recreation, or
- A recreational area or other area with high public exposure or associated health risk.

For each overflow point identified in step (a), councils should assess the path of the overflow, which could flow to a waterway. If the overflow is unlikely to reach a waterway (e.g. the overflow will pond in bush or a paddock), the impacts are likely to be low. Where the overflow reaches a waterway, the impact is normally related to the volume of the overflow relative to the volume and flow of the waterway.

For most overflows, a subjective assessment of impact is appropriate. For example, the environmental impact of an overflow from a sewer serving 200 EP discharging into a large river or well-flushed estuary is likely to be minor (assuming that the waterway is not sensitive, as noted above). However, the overflow from a pumping station serving 5,000 EP that discharges to a relative small and sensitive wetland or near oyster leases will be more significant. In this case, a more detailed assessment is warranted.

For ad-hoc overflows across a system, the assessment can be made based on the impact of a single overflow on the nearest receiving waterway.

A broadly similar approach can be carried out for the health risk assessment. This will be based on the likelihood of the overflow reaching either:

- a waterway used for primary contact recreation; or
- land where there is a high risk of public exposure (e.g. playground).

If an assessment of the overflow volume is needed, this can be based on the likely duration of the overflow (including the likely notification period and maximum response time) and the average dry or wet weather flow.

*(c) Evaluation and ranking of the resultant risk to the environment and public health from these overflows*

Councils can evaluate and rank risk using a risk matrix, as outlined on page 24 of the guidelines. This matrix defines a level of risk based on the likelihood of overflows identified in step (a) and the impacts assessed in step (b). The risk analysis is performed for both dry weather and wet weather scenarios. The resulting level of risk is ranked as low, moderate, high or significant. The most useful means of presenting this information will be in a table, similar to that noted on page 24 of the guidelines.

*(d) Identification of management priorities and actions to reduce the risk of harm to the environment and public health.*

The results of steps (a) to (c) identified the public health and environmental risks associated with sewer overflows from the sewage treatment system. If the risk assessment has found that the risks of all overflows are low, then the licensee only needs to meet the licence requirements and carry out appropriate operations and maintenance activities.

Where the risk assessment has identified either isolated or widespread high risk overflows, the report should identify potential actions to reduce these risks. The management priorities and actions required will be specific to the particular reticulation system. At this point, councils are not expected to provide detailed solutions to each particular problem in the reticulation system. However, it is expected that an indication of the type of works necessary would be provided, according to the level of risk identified in step (c).

Where practicable, a 'source control' approach should be adopted, targeting problems in the reticulation system rather than amplifying or rehabilitating sewers. Actions to address sewer overflows may be non-structural management practices or structural works. Potential actions may be assessed and ranked to allocate management priorities, as outlined on page 26 of the guidelines.

### Compliance

All licensees are required to meet the requirements of PRP100. A commonsense approach is expected, as noted earlier, the sewer overflow investigation report should be tailored to the size and overflow frequency of a system. A small report would be expected from a licensee with a small system with few recorded overflows. The licensee responsible for a large council that has significant overflows and has a hydraulic model of their sewerage system may produce a more comprehensive report.

If a licensee finds that some of their overflows appear to be high-risk, based on their currently available information, a possible action identified in step (d) may involve a more detailed investigation to confirm the risks associated with the overflows.

Non compliance with licence conditions is considered a serious matter. Non compliance will be investigated and further action determined in accordance with the EPA's prosecution guidelines available at:

<http://www.environment.nsw.gov.au/resources/prosguide.pdf>

### Where to from here?

DEC will review the sewer overflow investigation reports to identify systems with high risk overflows. Where a system's overflows are low risk, DEC is unlikely to require any further action beyond meeting the current licence requirements. Where systematic issues or high risk overflows have been identified, DEC is likely to negotiate a further PRP with the licensee to reduce the risks associated with these overflows.

PRP 100 brings consistency to the reporting and management of sewer overflow risk across the state. The reported information will create a platform of knowledge, eventually leading to a higher level of consultation between local and state governments in regards to sewer overflows. This will in turn lead to improved environmental and human health outcomes for all councils.