

WICS Return 2008 Commentary

Table 1: Pollution Incidents WICS Lines 1 to 17

Introduction

Environmental Pollution Incidents (EPIs) is a measure of the number of incidents causing pollution of a watercourse due to discharges from Scottish Water (SW) assets. These may originate from both wastewater and clean water sources, though they predominantly originate from the former. Incidents are categorised as follows:

- Category 1 – Major
- Category 2 – Significant
- Category 3 – Minor
- Category 4 – Discharges with no environmental impacts

Only incidents that are Category 1 – 3 are classified as EPIs for the purposes of the Annual Return.

During 2007/08 Scottish Water and the Scottish Environment Protection Agency (SEPA) introduced Scotland-wide processes with associated corporate applications to record instances of pollution events. This was established to create an agreed register of pollution incidents for the financial year 1 April 2007 to 31 March 2008, and to form the basis for establishing Scottish Water's baseline performance.

Overall Performance in 2007/08

The table below summarises the EPI performance of Scottish Water for 2007/2008:

Category 1 Incidents	4
Category 2 Incidents	69
Category 3 Incidents	599
TOTAL	672

The total number of incidents reported for the year is **672**, a significant increase from the 2006/07 figure of 524. This can be explained due to the introduction of the new, more robust processes to identify, classify and record incidents between Scottish Water and SEPA.

The total number of incidents reported for 2007/08 does not include a number of events that are believed to have been Category 3 pollution incidents; however they only appear in a SW database and SEPA has no record of them. These would have potentially have been classed as self-recorded Category 3 incidents. The number decreased during the year as the process developed and bedded in. The total number of these incidents for 2007/08 is **267**. Therefore potentially there are a total number of **939**.

The reason these are being included in this commentary is that these similar incidents are likely to be reported in the future when the process compliance has improved, and as such, will indicate incorrectly that performance has significantly decreased, whereas actually process compliance has improved, resulting in better incident recording and reporting and giving the impression of an overall increase in EPIs.

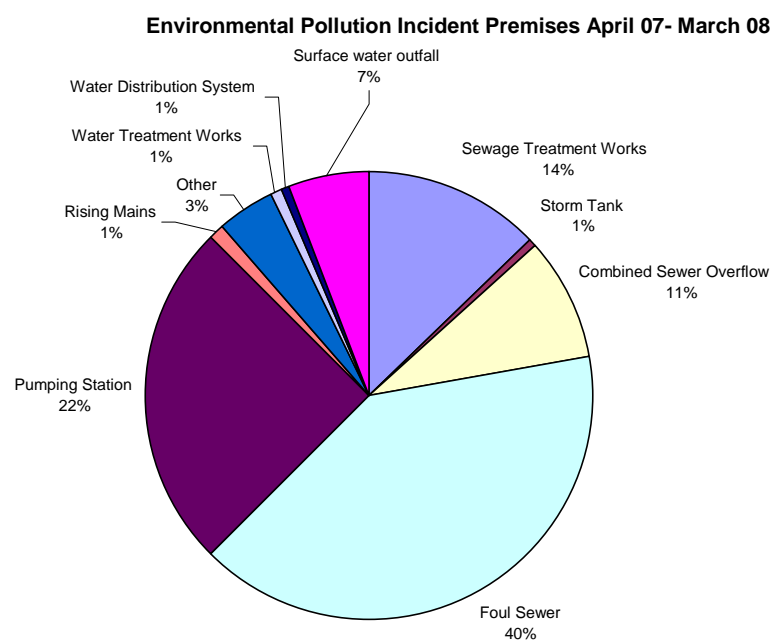
Because the definition of a pollution incident has been clarified and greater emphasis put on recording when incidents have occurred via the new processes and corporate applications, this has undoubtedly led to an increase in the total numbers of EPIs reported.

The Table 1 return in Appendix 1 of this commentary shows a significant proportion (89%) of incidents are categorised as Category 3 (minor), with 10% Category 2 and less than 1% Category 1. Details of the Category 1 incidents are outlined below:

- EPI-CDR No. 47, ELMS No. ENV/0818554, Incident occurred 19 April 2007. Spill identified to Molindinar Burn, Glasgow, from a combined sewer overflow (CSO) due to heavily silted main sewer.
- EPI-CDR No. 56, ELMS No. ENV/0818366, Incident occurred 19 April 2007. Discharge of sludge to Rotten Calder Water from Allers Sewage Treatment Works, East Kilbride, due to operator error.
- EPI-CDR No. 44, ELMS No. ENV/0818169, Incident occurred 20 April 2007. Failure at PFI operated Marine Esplanade Sewage Pumping Station (inlet pumping station to Seafield Sewage Treatment Works, Edinburgh) led to significant discharge of partially screened effluent to the Firth of Forth from Albert Road SPS.
- EPI-CDR No. 347, ELMS No. ENV/0820396, Incident occurred 14 July 2007. Discharge to North Berwick Harbour from STW inlet pumping station. Resulted in failed bathing water sample at North Berwick Bay.

Though there are too many Category 2 incidents to outline in detail in this commentary, some general points can be made. The most common premise involved foul sewers, most often due to blockages and chokes within the sewer network causing discharges from the nearest overflow. Other Category 2 incidents were fairly evenly spread amongst Sewage Treatment Works, Sewage Pumping Stations and Combined Sewer Overflows, with a variety of root causes.

The graph below shows the distribution of incidents by premise for 2007/08. This clearly establishes that the greatest proportion of incidents (91%) involve wastewater assets, with only 2% of incidents occurring from Water Treatment Works or water distribution networks, and 7% originating from Surface Water Outfalls.



Lines 8 and 12 of Table 1 in the Annual Return are to include numbers of pollution incidents that occurred within CAR License conditions. For the 2007/08 period no incidents were identified as being compliant within License conditions, primarily due to database functionality and the availability of evidence to suggest the conditions, such as pass forward flow or duration of the discharge to watercourse, were met. The main focus of 2007/08 for Scottish Water and SEPA principally revolved around initiating and embedding the processes to capture basic incident data, however for 2008/09 this issue will become a more important focus for both Scottish Water and SEPA, with the aim that this will be robustly recorded by 2009/10. Because Lines 8 and 12 are not currently reported by SEPA and Scottish Water, Lines 14 and 16 can not be returned as these are summaries of Lines 8 and 12.

The number of incidents self-reported to SEPA by Scottish Water was **101** (15%).

Changes to Systems, Processes and Methodology

There have been many changes to the systems, processes and methodology for identifying, recording and reporting Pollution Incidents for both SEPA and Scottish Water for 2007/08. The first and most obvious is that there was no return for EPIs as an indicator in previous years, other than Scottish Water's Table G9.11 'Number of Pollution Incidents'.

The new return table requires much greater detail of incident severity and premise (root cause), for which greater detail in capturing information is required, resulting in the new processes for both Scottish Water and SEPA that were introduced this year. The processes introduced to the organisations require a great deal of interaction and co-operation to ensure there is consistent reporting of incidents with details, as well as verification. This has often resulted in monthly queries for both Scottish Water and SEPA to resolve internally, to achieve a significantly more robust data set than previous years.

Scottish Water's database that was set up in early 2007 was the Environmental Pollution Incidents Corporate Data Repository (EPI-CDR), which is a bespoke database allow recording of EPI details and produces self-notification reports for email transfer to SEPA. The other important corporate system for Scottish Water is PROMISE, which is the customer service centre application for recording all contacts and enquiries made to Scottish Water via the main contact telephone centre. This is the starting point for Scottish Water to react to issues reported by both customers and SEPA. The application developed by SEPA is known as ELMS (Electronic License Management System). This contains details of all pollution events, not necessarily Scottish Water-related.

In order to provide a like-for-like comparison of Scottish Water's performance with England and Wales water companies, it was necessary to ensure the categorisation of incidents was the same. To achieve this, the Pollution Matrix, shown in Appendix 2 of this commentary, was revised by SEPA to ensure different environmental, amenity and social impacts would be used to make an accurate assessment. While Scottish Water often makes an initial estimate as to the pollution category, the final determination is the sole decision of SEPA.

Line 17 of Table 1 (shown in Appendix 1) indicates that Scottish Water self-reported (101) incidents to SEPA, meaning that Scottish Water were the first to notify SEPA of the incident. This happens when SW is alerted to an issue through telemetry alarms, routine inspections or contact from a member of the public. The remainder of incidents are listed by SEPA as being either identified by SEPA themselves during routine inspections (137) or by a member of the public notifying SEPA directly (434).

In order for the pollution incident records to be validated between SEPA and SW, data is shared between the two organisations on a monthly basis. Where an incident has both an

ELMS number and an EPI-CDR number, this entry is generally confirmed, with only minor verification work required. SEPA queries internally any information that Scottish Water has reported but is not on ELMS. In a similar fashion, Scottish Water queries internally any information that SEPA has reported but is not on the ELMS system, as well as querying details in PROMISE of contact made by SEPA or calls logged as Pollution. Once queries are resolved internally, information is shared between Scottish Water and SEPA in an iterative process, often at monthly meetings, until an agreed data set for each month is produced.

2007/08 Data Trends

As stated earlier in this commentary, previous reporting of EPIs was simply represented in Table G9, Line 11 as a single figure, with the reported figure for 2006/07 being 524. The reported figure for 2007/08 of **672** includes greater detail of premise and severity of the incident. While at first glance appearing like a significant deterioration in performance, this is believed to be as a result of the defined process to record and agree incidents between SW and SEPA introduced in March 2007, as well as agreed definitions of what constitutes a pollution incident. Because this was the first year for both organisations to report and agree incident data in this manner to obtain the 2007/08 figure, it is understood that this will form the baseline against which future performance in this area will be assessed.

Again, due to this being the first year of recording and reporting EPIs to this level of detail, it is difficult to make any assessment on trends or reasons behind the figures. One such comparison might be to look at what effect the above average rainfall experienced in 2007 had on the number of pollution incidents, but again, because there have been such significant changes to the way the incidents are recorded and agreed, comparison on an equal footing is not possible.

Because of the level of detail now being reported, it is believed that in future years the trend information will be comprehensive enough to allow a significantly greater understanding of performance of Scottish Water in many areas, as well as allow Scottish Water to use this information to drive improvements through capital and operational interventions.

Confidence Grades

The Scottish Water data for EPIs has been assessed as being grade [C4] for 2007/08. The [C] grade is reflective of the fact that, though data from both organisations is predominantly captured within corporate applications, much of the verification of data is still undertaken using spreadsheets. The [4] grade, indicating an accuracy of $\pm 10 - 25\%$, indicates that, though major improvements have been made to capture all pollution events, there is still some uncertainty in the data, reflected in the number of incidents downgraded, and captured only in the PROMISE system.

Future Reporting and Performance

As stated previously in this commentary, a new process was introduced by Scottish Water and SEPA for the 2007/08 financial year to allow greater detail and robustness in reporting performance of EPIs caused by discharges from Scottish Water assets. However, given the scale of the operations, there are still improvements required moving forward from both organisations to improve the quality of the information and the associated confidence grades. Of particular note is the fact that from April 2010, the EPI performance becomes a contributor to the Overall Performance Assessment (OPA) score, a measure of various key performance areas for Scottish Water.

Appendix 1

SEPA Annual Report to The Water Industry Commission for Scotland

**Table 1: Pollution Incidents
(Report Year 2007/08)**

		Year 2007/08			Total
		Category 1	Category 2	Category 3	
Sewage Related Premises		Total Number	Total Number	Total Number	Total Number (Cat 1-3 incidents) (Automatically Calculated)
1	Sewage Treatment Works	2	10	80	92
2	Storm Tank	0	0	5	5
3	Combined Sewer Overflow	1	9	62	72
4	Foul Sewer	0	31	237	268
5	Pumping Station	1	11	135	147
6	Rising Mains	0	2	7	9
7	Other	0	2	16	18
8	<i>Number of incidents where site compliant with discharge consent</i>	0	0	0	0
Water and Surface Water Related Premises		Total Number	Total Number	Total Number	Total Number (Cat 1-3 incidents) (Automatically Calculated)
9	Water Treatment Works	0	0	6	6
10	Water Distribution System	0	0	5	5
11	Surface Water Outfall	0	4	46	50
12	<i>Number of incidents where site compliant with discharge consent</i>	0	0	0	0
13	Total (Sewage and Water and Surface Water) related Premises (Automatically Calculated)	4	69	599	
14	<i>Total (Sewage and Water and Surface Water) number of Incidents where site compliant with Discharge Consent (Automatically Calculated)</i>	0	0	0	
15	Total Number of all Category 1-3 incidents (Automatically Calculated)	672			
16	Total Number where site compliant with Consent (Automatically Calculated)	0			
17	Total Number of Water Company self reported incidents	101			

Note: This data is based on the SEPA-verified number of incidents (672) and does not include 267 Category 3 incidents that are only recorded by Scottish Water. The potential total is therefore 939 of which 368 would be self-reported.

Appendix 2

SEPA Environmental Event Categories (Water)

Impact Categories	Category 1	Category 2	Category 3	Category 4
Length of Watercourse/Area of Waterbody Impacted	<p>Major Pollution Event</p> <ul style="list-style-type: none"> • Environmental damage to ecosystem over a length greater than 1 km or an area greater than 1km². 	<p>Significant Pollution Event</p> <ul style="list-style-type: none"> • Environmental damage to ecosystem over a length less than 1 km or an area of less than 1 km². 	<p>Minor Pollution Event</p> <ul style="list-style-type: none"> • Localised and limited environmental damage to ecosystem. 	<p>Other Environmental Event</p> <ul style="list-style-type: none"> • All other Events which are likely to be seen by SEPA as Pollution Events
Environmental Impact	<ul style="list-style-type: none"> • Fish kill in excess of 100 and/or; • Contamination >10 x EQS 	<ul style="list-style-type: none"> • Fish kill in excess of 10 - 100 and/or; • Contamination >2 x EQS 	<ul style="list-style-type: none"> • Fish kill less than 10 and/or; • Contamination >EQS 	<ul style="list-style-type: none"> • Inability to locate or substantiate reported event and; • Minor impairment of STW process.
Amenity Impact	<ul style="list-style-type: none"> • Extensive visible pollution or littering of watercourse and/or; • Any loss or closure of a designated Bathing/Shellfish Water or Drinking Water source. 	<ul style="list-style-type: none"> • Significant visible pollution or littering of watercourse and/or; • Significant reduction in amenity value i.e. Urgent notification of downstream abstractors 	<ul style="list-style-type: none"> • Minor visible pollution or littering of watercourse and/or; • Reduction in amenity value i.e. Routine (non-urgent) notification of downstream abstractors. 	<ul style="list-style-type: none"> • No visible evidence of pollution and; • No amenity impact.
Economic Impact	<ul style="list-style-type: none"> • Extensive damage to and/or closure of agricultural or other commercial activities. 	<ul style="list-style-type: none"> • Significant damage to agricultural or other commercial activities. 	<ul style="list-style-type: none"> • Agricultural or other commercial activities affected. 	<ul style="list-style-type: none"> • No damage to agricultural or other commercial activities.