

**DEVON AREA
INTERNAL REPORT**



**ENVIRONMENT
AGENCY**

**INVESTIGATION INTO THE
PROBABLE CAUSE OF THE 1999
FAILURE OF THE EC BATHING
WATERS DIRECTIVE AT SEATON
(DEVON) BEACH (70210103).**

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(CATCHMENT 02A)**

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Executive Summary

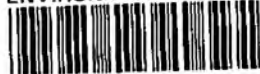
Seaton Beach (Devon) failed the European Community Bathing Waters Directive (ECBWD) faecal coliform imperative standard for 1999.

It is clear from the historic data and previous work undertaken that the bacteriological water quality of the Axe Estuary can directly affect the water quality at the beach and is very likely the cause of previous ECBWD failures. Survey work carried out for this investigation has proved that under an ebb tide, the Axe Estuary plume can sweep along the beach westward to and past the ECBWD beach site.

Storm discharges from Seaton (both 6 and 3 time dry weather flow) and Colyford STWs, Axmouth, Colyford and Horslears pumping stations were recorded during the 2000 bathing season. The stormlog data show that discharges of sewage have been occurring from STW's and pumping stations (ultimately into the Axe Estuary) during both wet and dry periods. However, very probably due to the low levels of rainfall experience during the year 2000 bathing season, the magnitude of the flows released were insufficient to result in a beach failure, unlike the previous season of 1999.

A previously unknown and illegal sewage discharge was identified from Axmouth pumping station. This was the result of sewerage failure and has been rectified by SWW.

In addition to the monitored discharges from the works, further survey work has shown bacterial inputs from the River Yarty and Bruckland Stream may prove to be significant and may require further investigation.



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INVESTIGATION INTO THE PROBABLE CAUSE OF THE 1999 FAILURE OF THE EC BATHING WATERS DIRECTIVE AT SEATON (DEVON) BEACH (70210103).

1. CATCHMENT DESCRIPTION

The River Axe rises in the low hills of west Dorset and flows west then south for approximately 52 km through a mixture of agricultural / settlement land, before finally discharging at Seaton at NGR SY 2558 8965 (see Figure 1). Seaton (Devon) Beach (site number 70214510 at NGR SY 4250 8985) is used extensively during the summer and is designated under the European Community Bathing Waters Directive (ECBWD number 76/160/EEC, for standards see APPENDIX 1). The River Axe flows to the sea at the eastern end of the beach.

The ECBWD samples are collected during the bathing season (May 1 – 30 September). Samples are normally taken at a water depth of 1 metre and 30 cm below the water's surface (Ref. 1). On the same day, a sample is also taken from the Axe Estuary at Estuary Mouth (70210103 at NGR SY 2560 8970).

2. TERMS OF REFERENCE

2.1 Objectives

Seaton beach failed the ECBWD imperative standard for faecal coliforms (FC) for 1999. (see Table 1). A previous study carried out during 1993 to investigate ECBWD failures of 1986 and 1987 concluded that the brackish plume issuing from the Axe Estuary on the ebb tide was to blame for the failures (Ref. 2). There are many potential sources of bacterial contamination which discharge to the River Axe/Estuary including sewage treatment works (STW) effluents and foul storm water discharges.

The purpose of this investigation is to determine the probable cause of the 1999 ECBWD failure at Seaton (Devon) Beach and help to identify areas of concern that may contribute to poor water quality at the beach.

2.2 Project Team

T Cronin (Project Leader)
P Rose (Project Manager, author)

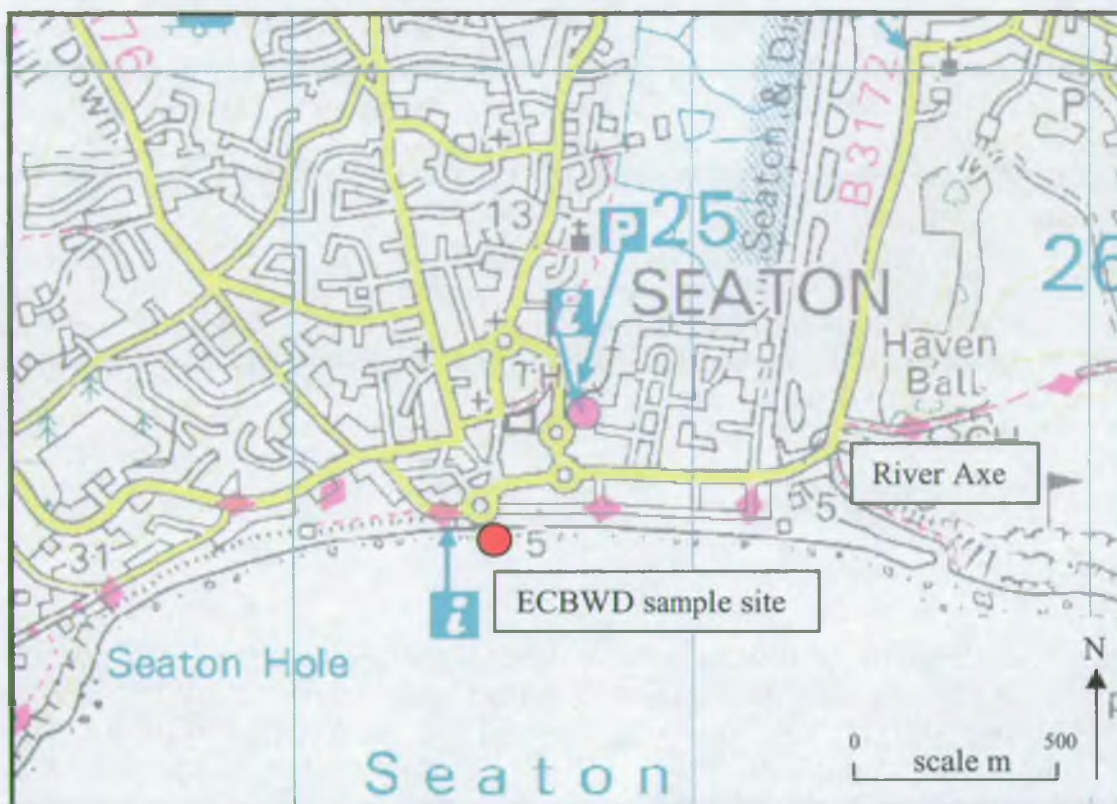
3 HISTORY

Data collected from the Seaton beach ECBWD site during the period 1990 – 2000 inclusive will be used in the historical data analysis. Ancillary data such as that from samples taken from the Axe Estuary at Estuary Mouth will also be used to help determine any trends in the water quality at the beach site.

3.1 Location

A site map of the area showing relative positions of Seaton (Devon) Beach to the Axe Estuary is presented in Figure 1.

Figure 1. Map of the area around Seaton (Devon) Beach.



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3.2 Compliance

The compliance history of Seaton (Devon) Beach with the EC standards for the period 1990 to 2000 is given below in Table 1.

Table 1. Compliance history of Seaton (Regional Bathing Water Database)

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Compliance	G	G	G	G	I	I	I	I	I	F	G
No. of samples	20	20	21	20	20	20	20	20	20	19	20
No. fail FC 'I'	0	1	0	0	0	0	0	1	0	1*	0
No. fail TC 'I'	0	1	0	0	0	0	0	0	0	0	0
No. fail FC 'G'	1	2	4	4	5	6	5	8	5	6	4
No. fail TC 'G'	1	2	2	1	3	1	1	5	2	5	0
No. fail FS 'G'	1	1	2	2	2	2	2	4	4	1	1
FC Geometric mean	18.34	27.93	33.78	34.05	40.67	45.26	28.92	72.85	39.98	61.56	29.9

Compliance to: I = Imperative, G = Guideline, F = Fail

FC = Faecal Coliforms, TC = Total Coliforms, FS = Faecal Streptococci

* 2 samples actually contained numbers of F.C. above the imperative standard, however, a bad weather waiver was granted for one.

NB Geometric mean calculated data sets with all results less than 10 as 10 to take variable lower detection limit into account.

3.3 Regional Bathing Water Database

This database identifies not only the compliance history, but also 'Factors Affecting Water Quality', 'Actions Already Taken to improve Water Quality', 'Planned Investigations', 'Planned Investment' and 'Predicted Changes in Water Quality'. The information relating to Seaton beach is presented in APPENDIX II.

4 METHOD

The investigation has been split into several parts; a biodiversity search for the area, a risk assessment, historic data analysis of data collected as part of the ECBWD and survey work to collect field data.

4.1 Biodiversity

A map of the investigation area with a brief description of the nature of the investigation was supplied to the Conservation Team to determine if any biodiversity issues or conservation designations were applicable to the site (see APPENDIX III).

4.2 Risk Assessment

The sites were inspected and risk appraisal forms completed for subsequent work (see APPENDIX IV). Some of the sites involved the installation of equipment into confined spaces.

4.3 Historic Data Analysis

All the historic data used in the analysis are available on the BADGER database.

Historic data collected at the Seaton beach site from 1990 to 2000 inclusive were analysed in order to reveal any trends. Correlation between the imperative standards exceeded, wind direction, state of tide and rainfall were all investigated.

An estimation of microbiological counts at the beach that may have originated from the associated fresh / brackish water source was made for the data set where the samples were taken on an outgoing tide.

4.4 Field Work

The fieldwork has been split into two distinct areas: monitoring the frequency of foul storm water discharges from STW's / emergency pumping station overflows to the River Axe / Estuary and a microbiological survey to assess impact of the plume from the Axe Estuary on the beach at Seaton.

4.5 Storm Discharge Monitoring

'Stormlog' devices are usually installed in discharge pipes and work by detecting the presence of a fluid. Once detected, the logger records the start time and date and subsequent stop date and time of the flow past the sensor. In this instance, six such event loggers were installed to monitor the following:

Seaton STW, storm overflow (gross) and storm overflow (settled).

Colyford STW, storm overflow (settled).

Colyford pumping station, Emergency overflow.

Axmouth pumping station, Emergency overflow.

Horslears pumping station (Axminster) Emergency overflow (settled).

It was hoped to install an event logger at Harbour Road pumping station, Seaton. Since this site is classed as a high risk confined space (breathing apparatus required for entry, see APPENDIX IV) it was not feasible to install a Stormlog. Investigations were made into detecting and logging the power drawn by the storm pumps by use of a current clamp. Due to the wiring of the pumps this also was not feasible. However, records were periodically made of the 'Hours run' of each pump.

The location and NGR of each installation is presented in Figure 2; all paper work regarding risk assessments, and permits to work are given in APPENDIX IV.

4.6 Microbiological Survey

The water in the Axe Estuary was labelled with the bacterial tracer *Bacillus globigii*. The injection of tracer spores began at 10:40 BST on 17 August 2000 at a rate of 1.16×10^{09} no/sec from the Old Axmouth Bridge (NGR SY 2536 8999), see Figure 3. (Stock solution titre results, calculations and log of injection rates are given in APPENDIX V).

When the tide started to ebb, 2 litres of Fluoresceine dye were added to the estuary water at site 1 (NGR SY 2538 8986, see Figure 3) to help visually define the plume and its development. A photographer at a high vantage point on the cliff at the eastern end of the beach recorded the progress of the plume.

Water samples were collected from 4 sites on the beach (including the ECBWD site), at the mouth of the Axe estuary and also off shore from a boat (see Figure 3). Sampling from the boat was abandoned soon after the start of the ebb tide (time 11:30 BST as noted by boat crew) due to the worsening weather conditions. As such, the small amount of data collected from the boat will not be present in this report.

Wet Weather Sampling

It was agreed that should an ECBWD sample from the Seaton beach site be collected on or after a period of wet weather during the 2000 bathing season, then an Environment Protection Officer would take a series of water samples from sites within the catchment. Results from the bacterial analyses should help highlight areas of concern should the ECBWD beach sample be high. The list of sample sites are presented in APPENDIX IX.

4.7 *Further Information*

Seaton STW

Seaton STW has discharged biologically treated (secondary) effluent to the Axe Estuary since 1986 (sample URN 70210167 at NGR SY 2480 9080). It has been suspected that there has been and continues to be premature operation of the storm overflows at the works and monitoring of these overflows forms part of this investigation. Improvements to the storm tanks at Seaton STW's and the addition of UV disinfection has been identified under the Bathing Waters Directive in Asset Management Plan 3 to be completed by March 2002 (Regional Bathing Water Database, see APPENDIX II).

Harbour Road (Racal) Pumping Station, Seaton

The combined Storm Overflow at the Harbour Road pumping station that discharges to the Axe Estuary is suspected of causing problems (Regional Bathing Water Database, see APPENDIX II). It was not feasible to log storm events from this pumping station (see 3.5 Storm Discharge Monitoring, above) but readings of the hours run between a series of dates will give an indication of operation (see APPENDIX VI).

Axmouth Pumping Station

The Axmouth pumping station that discharges to the Axe Estuary is suspected of causing problems (Regional Bathing Water Database, see APPENDIX II). A Stormlog has been installed at this location to monitor discharges from the normal discharge point (see Figure 3). However, due to a massive infiltration of fresh water to this site, a previously unknown intermittent discharge from the pumping station has been observed operating in addition to the one with the logger installed. When this was observed operating, a letter was sent to South West Water Ltd (SWWL) requesting immediate action on the matter (see APPENDIX VII).

Additional discharges to the River Axe/Estuary

Events recorded by Stormlogs installed at Colyford STW storm overflow and Colyford/Horslears pumping station emergency overflows are presented in **RESULTS**.

5 **RESULTS**

5.1 *Biodiversity*

No concerns were raised by the Conservation Team (see APPENDIX III).

5.2 *Risk Assessment*

Each of the Stormlog installations had site risk assessments carried out by the Devon Area Investigations Team (DAIT). Safe systems of work for the sites were also requested from SWW. Both sites at Seaton STW and that at Horslears pumping station were deemed as confined spaces and permits to work were granted by SWW to install the loggers. In addition to this, DAIT also issued it's own permits to work outlining strict pre, during and post work 'Health and Safety' checks (see APPENDIX IV).

Risk assessments were also carried out for the boat work and beach sampling (see APPENDIX IV).

5.3 Historic Data Analysis

A summary of data associated with the samples exceeding the imperative standards is presented in Table 2.

Table 2. Summary of the ECBWD samples which exceeded the I standard.

Date	FC no/100ml	Wind Speed	Wind dir.	Rainfall mm				state of tide rel to HW	Salinity g/kg
				On date	-1 day	-2 day	-3 day		
26-Aug-99	5600	2	SW	0.0	50.2	22.0	5.0	4.1	31.4
03-Jun-99	3700	4	SW	4.0	5.4	6.5	23.5	2.8	32.2
01-Sep-97	3150	3	SE	0.9	16.4	7.2	18.6	5.5	30.6
24-Jun-91	9200	2	SW	8.0	35.5	10.0	0.6	-5.7	28.4

Rainfall

All the results for FC counts over the period 1990 – 2000 were correlated against rainfall on the day of the result and the previous 3 days (rainfall data from Holyford gauging station ref. 353510). Of the 4 samples exceeding the Imperative standards (see Table 2), all were associated with moderate rainfall up to 3 days after the sample.

Wind Direction

At the time the exceeded samples were taken, wind direction was from the south-west, and south-east. Wind speeds ranged from 2 to 5 (Beaufort scale). On the date of the greatest exceeded value (9200 no/100ml on 24 June 1991), the wind direction was SW with a wind speed of 2.

State Of Tide

The state of the tide was generally on the ebb when the exceeded values were observed. One sample (3700 no/100ml 03-Jun-99) was taken just before the start of the ebb. However, it is possible that the sample could have been contaminated by the plume from the previous tide as the wind was SW force 4, forcing the remnants of the previous plume onto the beach (tidal stream charts and personal on site observations have been used to assess and estimate of the tidal stream for the Seaton area; Ref 3).

Salinity

The samples exceeding the standard were in the range of 28.4 to 32.2 g/kg showing contamination from a freshwater source i.e. the Axe Estuary. None of these samples had a salinity which could have been considered to have been pure sea water (35.0 g/kg).

Associated Freshwater Inputs

Samples were also taken of the Axe Estuary (the associated freshwater input) on the days of the exceeded values. Table 3 shows estimates of FC numbers in each sample that may have been present in the beach sample should the proportion of freshwater present have originated from the Axe Estuary. This is the worse case scenario and has made no allowance for die off rates experienced once FC's are in a saline environment.

Table 3. Estimates of FC's in the beach sample possibly originating from the Axe Estuary.

Date	Beach FC No/100ml	Salinity. g/kg	Estuary FC No/100ml	Estuary sal g/kg	FC estimate in Beach sample no/100ml
26-Aug-99	5600	31.40	41000	1.00	4341
03-Jun-99	3700	32.20	23000	8.10	2394
01-Sep-97	3150	30.60	34000	<1.00	4400
24-Jun-91	9200	28.40	49000	<1.00	9512

An estimate of the FC counts in the beach samples that may have originated from the Axe Estuary was also made for all the beach samples that were collected on an ebb tide (for the 1990 to 2000 period). These were plotted against the actual recorded count in the beach samples and are presented in Figure 4. The resulting plot with points spread along the $x = y$ line indicates the predicted counts were of a similar order to those actually recorded, showing the Axe Estuary to be determining the water quality at the Seaton Beach bathing site (Ref. 4).

Temporal Variation

All the FC data were plotted against time to determine any temporal trends. It should be noted that during the history of the laboratory sample culture, minimum detection limits have alternated between 1 and 10. For the purpose of calculating a geometric mean for the FC data sets (a simple statistical calculation used to give a broad overview of bacterial numbers), all counts below 10 have been raised to 10 in order to compare like with like.

FC counts have been variable throughout the period 1990-2000. Charting the geometric mean for each year of data shows a gradual increase in the FC numbers up to 1995, then variable up to the year 2000 with the highest means for 1997 and 1999 (see Figure 4 and Table 1). This trend is very similar to that of yearly rainfall totals (based on sum of rainfall on the day of the sample plus day -1, day -2 and day -3, see Figure 4).

5.4 Field Work

Storm discharge monitoring

The overflow events recorded by the stormlogs and readings taken from the storm pumps at the Harbour Road pumping station are given in APPENDIX VIII (all times in BST). Each of the stormlog data sets have been plotted against rainfall (data from Holyford rain gauge 353510 at NGR SY 2360 9226) and are presented in Figures 5 to 7.

Overflow events have been recorded at each of the overflow sites monitored. Seaton STW settled storm overflow had the greatest recorded sum of events being some 304 hours 35 minutes in total for the period 7th June 2000 to 30th September 2000. Holyford pumping had the least recorded sum of events at 13 hours 18 minutes for the period 15th May 2000 to 30th September 2000 (see Figures 5 – 7 and APPENDIX VIII).

During the day of the microbiological survey (17 August 2000) there was an overflow event recorded at Seaton STW settled overflow of 3 hours from 09:28 to 12:28 (BST). Loggers at the remaining sites recorded no events for this date.

Harbour Road Pumping Station

Event loggers were not installed at The Harbour Road pumping station. However, the readings taken from storm pumps 1 and 2 showed the pumps to have run for a total of 7.9 hours between 23rd June 2000 and 02nd October 2000 (see APPENDIX VI).

Microbiological Survey

The *Bacillus globigii* injection started at 10:40 BST. The background samples taken at sites 1 to 5 inclusive (see Figure 3) between 10:08 and 10:37 BST contained none of the tracer spores.

The first sample found to contain tracer was collected from site 2 at 12:24 BST. Spores were eventually recorded in samples taken from all sites including the site furthest away from the Axe Estuary (approximately 500 m west of the ECBWD site). From the onset of the tidal ebb (11:30 BST) to tracer spores being recorded in samples taken at the ECBWD site was approximately between 1 to 2 hours. All results from the microbiological survey are presented in Figure 8.

During the survey, none of the beach sites (sites 2 to 5) contained total or FC counts that would have exceeded the imperative standards for the bathing beach directive (see Figure 8).

Two litres of fluoresceine dye were added to the estuary (site 1) at 11:41 BST; at 14:13 a further 2 litres were released at the same site. A pictorial representation of the dye plume advection as recorded from the vantagepoint to the east of the estuary is presented in Figure 3. Although the first dye patch became very faint about 1 hour after release, it was some 200 m from the ECBWD site and the leading edge had travelled approximately 1000m from the mouth of the estuary. The plume from the second dye release also flowed west along the beach; between 14:41 BST and 15:04 BST, no further movement west was recorded. No dye was observable at the ECBWD site due to the by now high dilution of the dye plume.

Wet Weather sampling

Two wet weather sample surveys were carried out during the year 2000 bathing season. Unfortunately, only one of these surveys (9th August 2000) was carried out on the same day that the ECBWD sample was taken; also, rainfall was not recorded on that or the previous 2 days. (see Table 4)

Table 4. Wet Weather sampling.

Date	Rainfall that day (mm)	Rainfall day -1 (mm)	Rainfall day -2 (mm)
20 June 2000	4.7	1.1	0
09 August 2000	0	0	0

Results from the surveys are given in APPENDIX IX.

6. DISCUSSION

6.1 *Historic Data*

The historic data collected at Seaton (Devon) show under which conditions high numbers of FC's are recorded at the ECBWD site. The high counts were associated with rainfall on or within a few days of the sample, a general south-westerly wind direction and during an ebb tide; salinity of the samples was not total, an indication of a freshwater component.

Routine data collected from the Axe Estuary have been used to calculate what proportion of the FC's in the beach sample may have originated from the estuary. This shows that on all the occasions when the ECBWD standard for FC's was exceeded, the proportion of the sample attributable to the estuary was over the mandatory limit of 2000 no/100ml. Also, the proportion left, i.e. from the marine component, would not have been sufficient alone to result in an exceeded value. This evidence supports the view that the estuary plume is a major cause of the bacteriological contamination at the ECBWD site. It must be stressed however, that this calculation did not make allowances for natural die off in the marine environment.

6.2 *Microbiological Survey 17 August 2000*

The influencing factor under the conditions identified from the historic data has been further confirmed to be the Axe Estuary. The dye tracer work showed the brackish plume of the estuary to flow in a westerly direction and sweep along the beach on the ebb tide. Indeed, the dosing of the estuary with the bacterial tracer *B. globigii* confirmed the estuarine plume not only reached the ECBWD site but carried on to at least 500 m west of it (site 5, see Figure 8). Once the tidal stream started to ebb, the time for detection of the tracer at the ECBWD site was between 1 and 2 hours and to site 5 was between 3.5 and 4.5 hours.

None of the samples taken at the beach during the survey (sites 2 – 5) contained total or FC counts in excess of the ECBWD imperative standards. However, the Seaton STW settled storm tank was recorded as having overflowed for 3 hours during the microbiological survey but little impact was detected in the estuary or indeed at the beach sites (Stormlogs record event duration not quantities discharged). These storm tanks have been observed overflowing gently but steadily at approximately 1 litre per second at times, enough to be recorded by the Stormlog but not enough flow to result in major impact to the estuary. This may have been the case during the survey.

6.3 *Stormlog Data*

Bacterial loading into the Axe Estuary under normal conditions should not result in counts exceeding ECBWD standards at the beach site. However, the Stormlogs recorded discharges of crude / settled sewage not only during / immediately after periods of heavy rainfall but also at times of moderate, little and even no rainfall at all (see Figures 5 & 6). This would indicate that be it due to hydraulic overload (by ingress of groundwater through structural failure of sewerage or increased population served by the works) or mis-management / lack of maintenance, the premature operation of overflow discharges is and very probably has been occurring.

Seaton STW

The operation and management of the settled storm tanks at Seaton STW's is to be changed. Historically, after the two settlement tanks have filled during periods of high flow, the tanks have remained full for quite a period after the storm event. This has been long enough time for algae to grow in / on the effluent in the tanks (pers. comm.). Subsequently, at the next influent event that exceeds 3-times daily flow, the sewage flows into the already full tanks effectively resulting in an immediate discharge. Had the tanks been empty at the start of the event they may have been able to accommodate the excess flow for the duration of storm. A new system is to be brought on line to automatically trickle the effluent from the tanks back into the works influent soon after high flow events in order to keep the tanks empty for as long as possible.

Axminster Pumping station

Axminster pumping station had overflows that were not related to rainfall. These discharges were not from the discharge point where the Stormlog was installed but a previously unknown discharge point at the pumping station (see APPENDIX VII). After serving a works notice to SWW, further inspection of the sewerage revealed a collapsed pipe and ingress of groundwater into the system causing the hydraulic overload of the pumping station and subsequent discharge events (approximately some 1.5 km from the mouth of the estuary). This problem has been brought to the attention of SWW (see APPENDIX VII) and remediation work has been completed.

Horslears pumping station

Horslears pumping station (serves Axminster, pumps sewage to Kilming STW's) has also been prone to long overflow events after rainfall (see Figure 7). Although the discharge is approximately 11.5 km from the mouth of the Axe Estuary, the flows from the overflow have the potential to be considerable and are likely to increase the bacterial loading to the estuary and ultimately degrade the water quality at the beach. Again, similar to the Seaton works, the storm tanks have been observed at fullcapacity several days after rainfall events (pers. comm.). There is concern regarding the current hydraulic capacity of the pumping station, heightened by the proposal for some 200 extra houses that will also be connected to this station. The frequency of operation and consent issues for this Horslears will be investigated further in the near future.

Harbour Road Pumping Station

It was not possible to attach a logging device to monitor overflow events from this pumping station. However, the recorded number of hours run by both storm pumps indicates a total hours run between 23rd June 2000 and 02nd October 2000 as being between 4.1 and 7.9 hours (it is not clear if the pumps operate as a pair together or if they operate singly or a mixture of both). Since effluent is pumped to a discharge point in the Axe Estuary (indicated by a red marker buoy) approximately 0.5 km from the mouth of the estuary, it is very likely that this would significantly increase the bacterial loading to the estuary and thus at the bathing beach site. Telemetry is available at this site; possibly this could be utilised to record frequency and duration of overflow events considering the proximity of the discharge to the bathing site.

6.4 Year 2000 Bathing Season.

None of the ECBWD samples taken at Seaton Beach during 2000 exceeded the standards for total or faecal coliforms. However, whilst mandatory standards were not exceeded at the ECBWD site, the two highest faecal coliform counts recorded in the estuary (3500 no/100ml on 26th August 00 and 3900 no/100ml on 15th September 00) were associated with rainfall and did occur when discharges were / had recently been recorded at the stormlog sites Seaton STW gross and settled storm overflow, Colyford STW settled and Horslears PSEO.

The highest faecal coliform count recorded at the estuary site during the year 2000 bathing season did not have an associated exceeded value at the ECBWD site even though the beach sample was taken on an ebb tide. During the period 1990 to 1999, the lowest faecal coliform count recorded in the estuary mouth associated with an exceeded value at the ECBWD site was 23000 no/100ml (03rd June 1999), an order of magnitude greater than the highest recorded in 2000. Indeed, assuming the estuary salinity to be 1 g/kg (ebb tide) and a beach sample salinity of 28.4 g/kg (the lowest recorded of a Seaton beach sample with an faecal coliform count > 2000), the sample would need to contain approximately 10000 no/100ml faecal coliforms to result in an exceedance at the ECBWD site. Again, this assumes no coliform die off in the saline environment.

Although the Stormlogs have recorded sewage discharges during the year 2000 (effectively to the Axe estuary), it is likely that the magnitudes of the discharges were not sufficient to result in beach failures. If the magnitude of the discharge is quantitatively linked to rainfall, then the year 2000 data can be compared with that from a year of known failures such as 1999. Assuming the spread of ECBWD sample times / state of tide etc during the years to be similar and that there were no major changes in management of the STW's / pumping stations, the variable, rainfall, should reflect the difference in recorded water quality between the two years.

A yearly total for rainfall has been calculated based on levels recorded for the day of the ECBWD sample added to that recorded for the previous 3 days; this is done for each of the ECBWD samples for that season. Using this, total rainfall for the season 2000 was 107.2 mm compared with 280.9 mm for 1999. This dramatically illustrates there was nearly 3 times as much rainfall in 1999 than 2000 during and prior to the day of sampling. It is not unexpected that 1999 was a failure year with high bacteriological counts whilst 2000 passed the standard. Incidentally, when these totals are calculated for 1990 onwards and plotted, the trend effectively follows that for the FC geometric mean distribution for the same years (see Figure 4).

Because of the link with rainfall and high bacterial counts in the estuary / beach site, when an ECBWD sample was collected (year 2000) during or after rainfall, several samples in the localised catchment area were also to be collected by Environment Protection Officers (see APPENDIX IX). In reality, 2 surveys were carried out, one of which had no recorded associated rainfall and the other did not coincide with an ECBWD sample being taken. However, despite this, the surveys did identify the River Yarty and Bruckland Stream as sources of high bacterial contamination (see APPENDIX IX).

6.5 *In Summary*

It is clear from the historic data and that obtained from field work that the bacteriological water quality of the Axe Estuary can directly affect the water quality at Seaton Beach and ultimately can result in failure of the ECBWD at this site.

The stormlog data have also shown that discharges of sewage have been occurring from STW's and pumping stations ultimately into the Axe estuary during both wet and dry periods. However, very probably due to the low levels of rainfall experience during the 2000 season, the magnitude of the flows released were insufficient to result in a beach failure, unlike the previous season of 1999.

In addition to the discharges from the works monitored, further bacterial inputs from the River Yarty and Bruckland Stream may prove to be significant and may require further investigation.

7 *CONCLUSIONS*

1. Seaton Beach passed the ECBWD imperative and guideline standards for the year 2000 bathing season.
2. The ECBWD failures for FC at Seaton Beach during the period 1990 to 2000 were generally associated with rainfall and were very probably due to a poor water quality component from the Axe estuary (probably originating from operation of storm discharges within the immediate catchment) under the influence of an ebb tide.
3. The microbiological tracer survey has confirmed that the plume from the Axe Estuary sweeps along Seaton Beach under the influence of the ebb tide.
4. The time taken for the Axe Estuary plume to reach the ECBWD beach site was between 1 and 2 hours from the onset of the of the ebb tide during the microbiological survey.
5. The bacterial tracer injected to the Axe Estuary was recorded up to 500 m west of the ECBWD site, between about 3.5 to 4.5 hours after the start of the ebb tide.
6. That there were no ECBWD imperative standard failures during 2000 is very likely due to the low rainfall experienced during and immediately prior to the day of the beach sample being taken.
7. Stormlog devices installed at storm / pumping station overflows within the catchment have recorded discharges of crude / settled sewage during both wet and dry weather
8. The premature operation of the storm / pumping station during periods of light / no rainfall are an indication of hydraulic overload / mismanagement of works.
9. The River Yarty and the Bruckland Stream have been flagged as potential sources of bacterial contamination and should be investigated further.

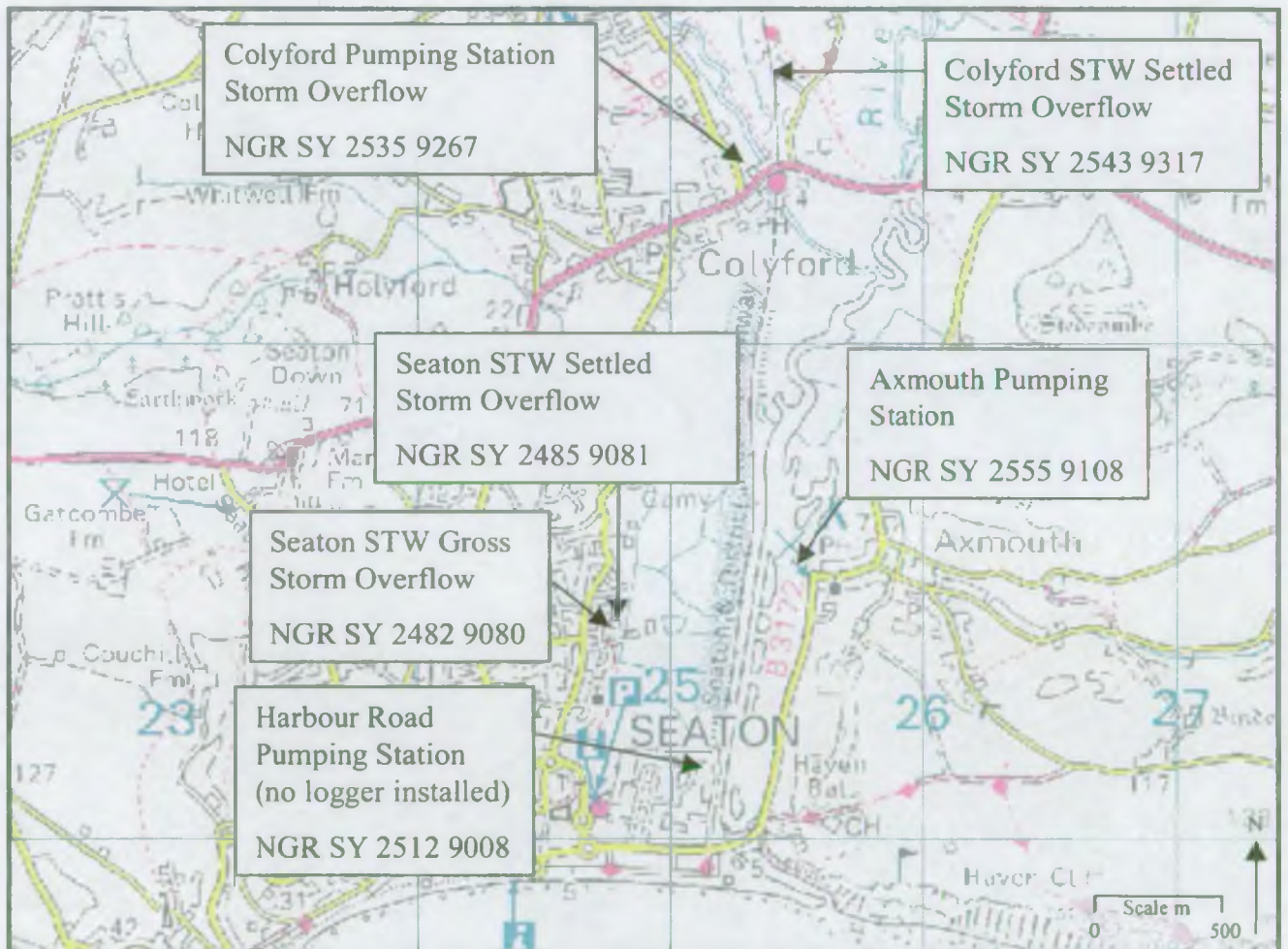
8 *REFERENCES*

1. Bathing Water Quality in England & Wales 1999. A summary report. Environment Agency.
2. Investigation into causes of non-compliance of bathing waters at Seaton, Devon, with the EC Bathing Water Directive. July 1993. TWU/93/11. N. Babbedge. NRA.
3. Admiralty tidal stream atlas. The English and Bristol Channels. 1973 3rd ed. Hydrographic Office.
4. Environment Agency seminar on non-compliant bathing waters investigations July 1999, D. Lowthian, Ref 10141.

Figure 2. Maps showing the locations of the stormlogs within the Axe Catchment



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Figure 3. Maps showing the development of plumes 1 and 2 at Seaton Beach (Devon). All times in BST

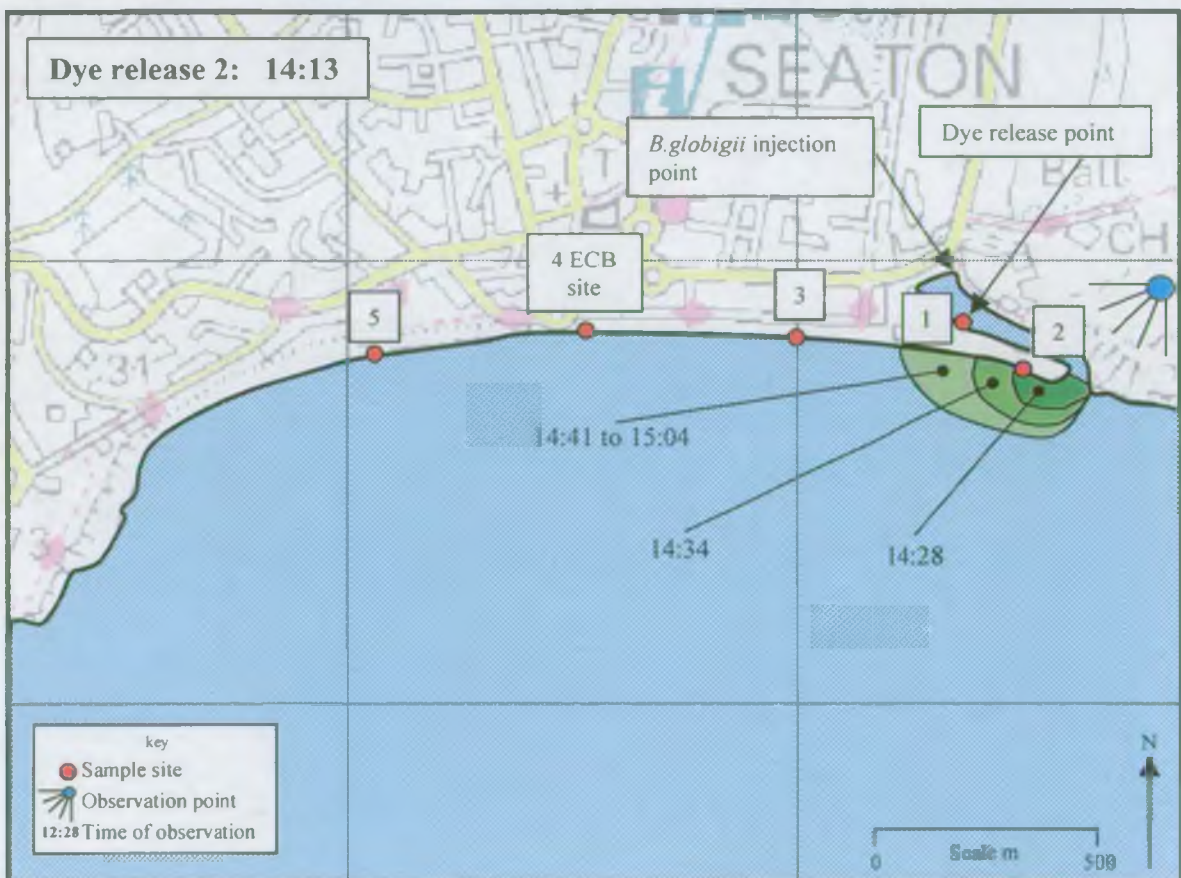
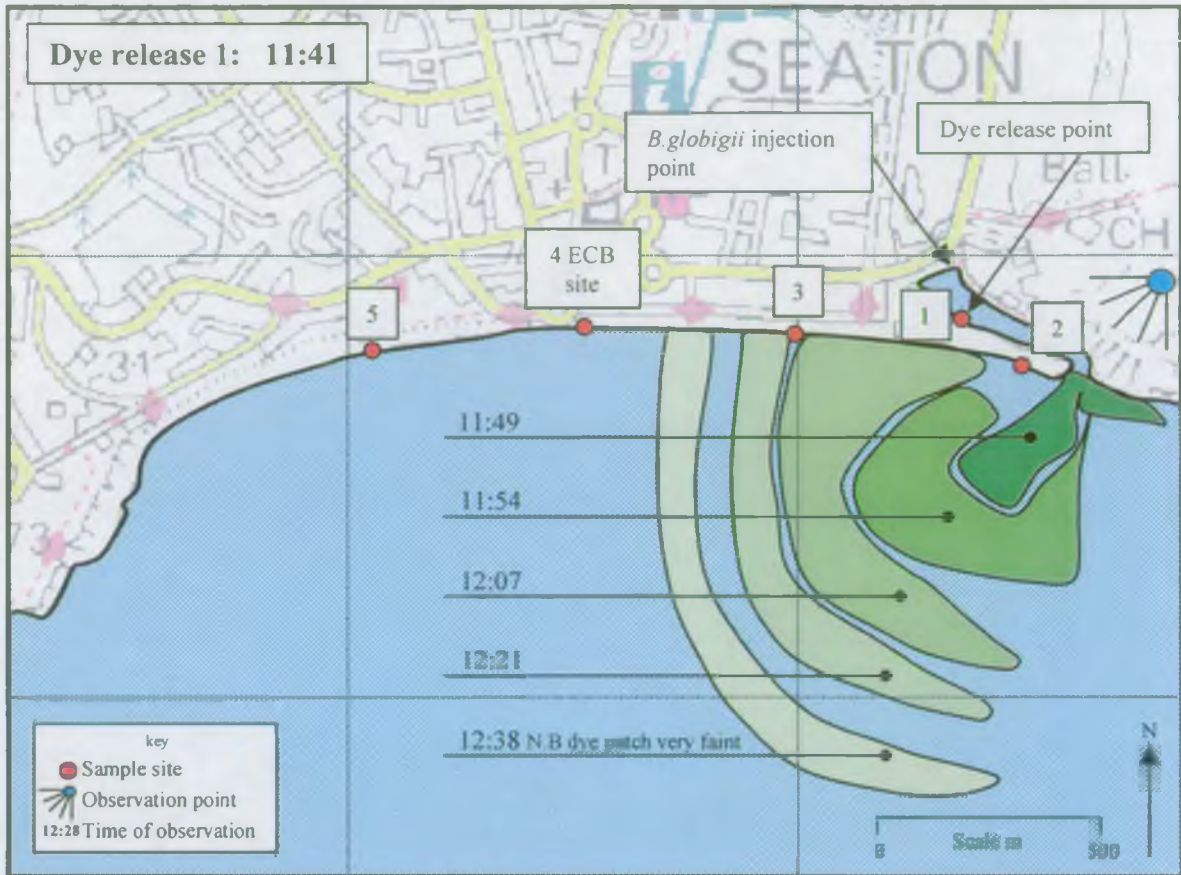
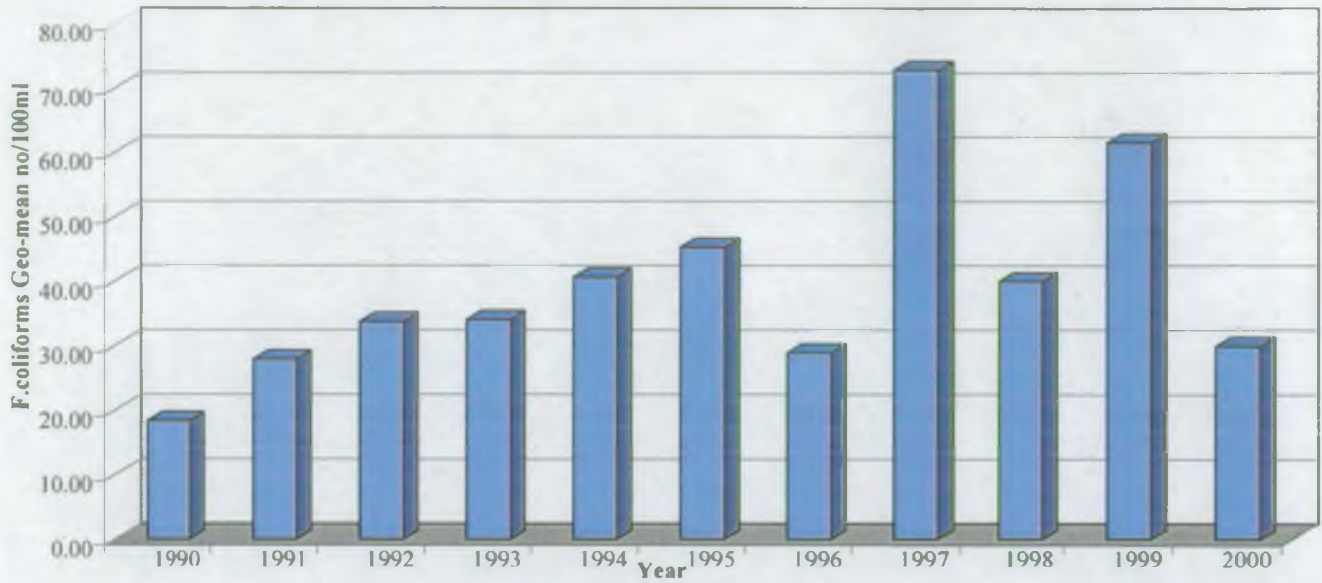


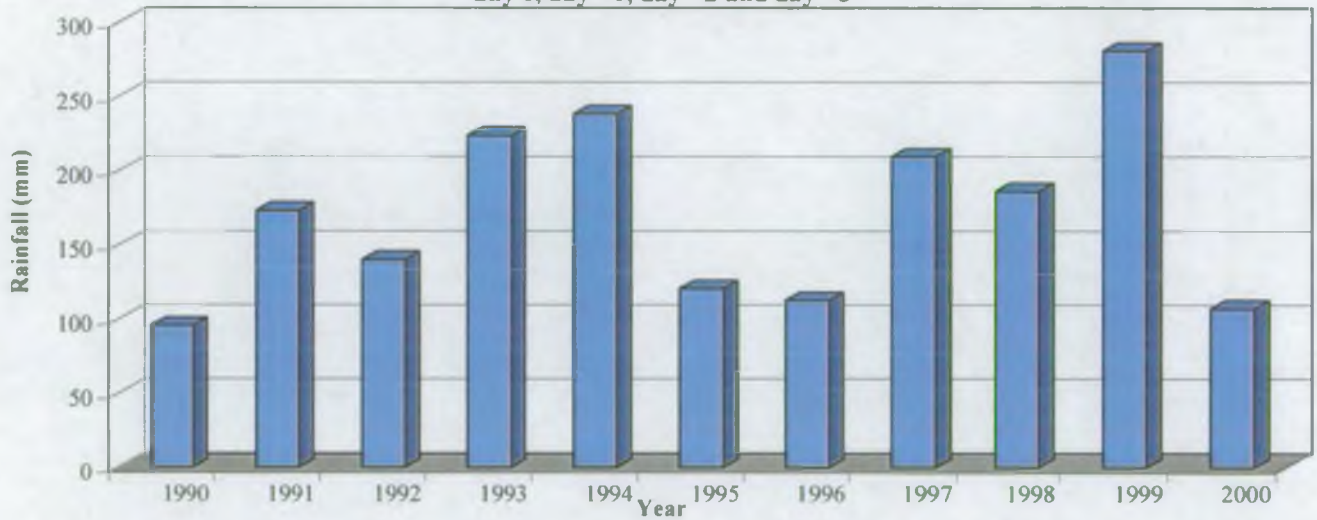
Figure 4. FC geometric means, rainfall data and 'Predicted against actual' FC numbers.

Seaton, Devon, Beach (70214510)

Geometric Means for the years 1990 to 2000 inclusive for faecal coliforms



Holyford (Seaton), Rainfall for season based on sum for day 0, day +1, day +2 and day +3



Seaton, Devon, Beach (70214510)

Predicted FC in Bathing Water against Actual FC (1991 to 2000 data)

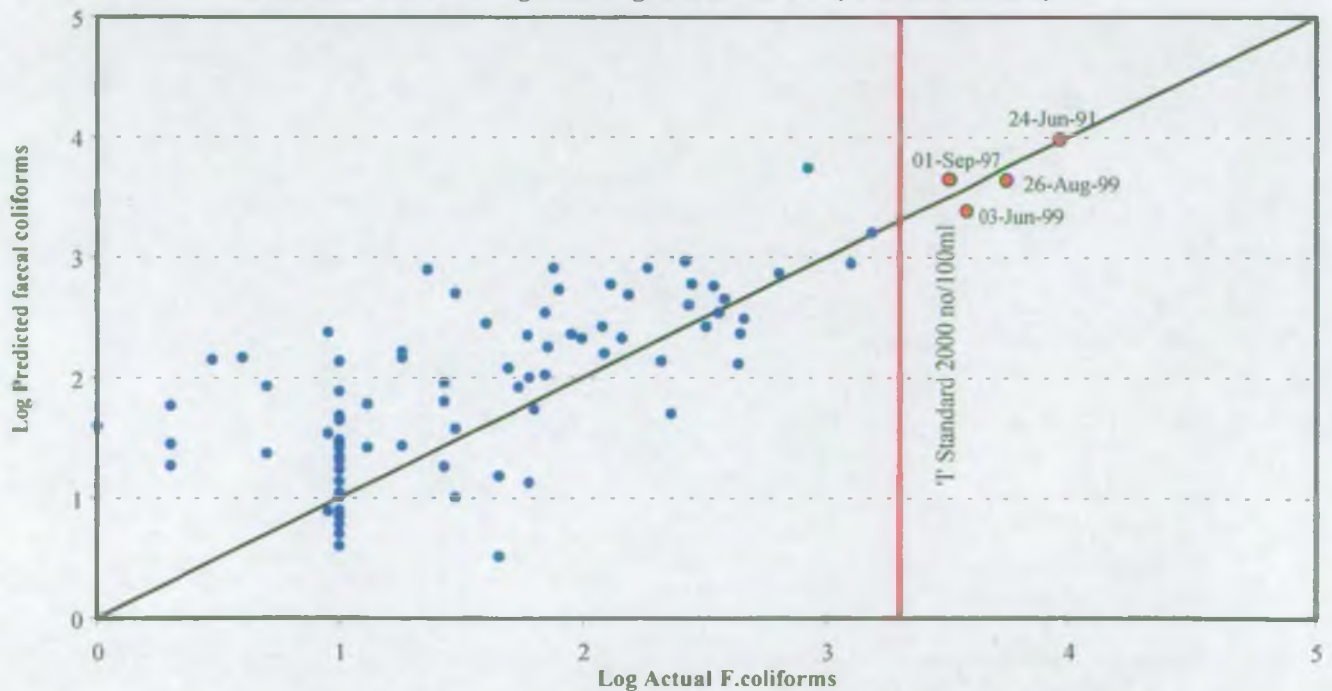


Figure 5. Seaton STW. Recorded Gross and Settled storm discharges plotted with rainfall.

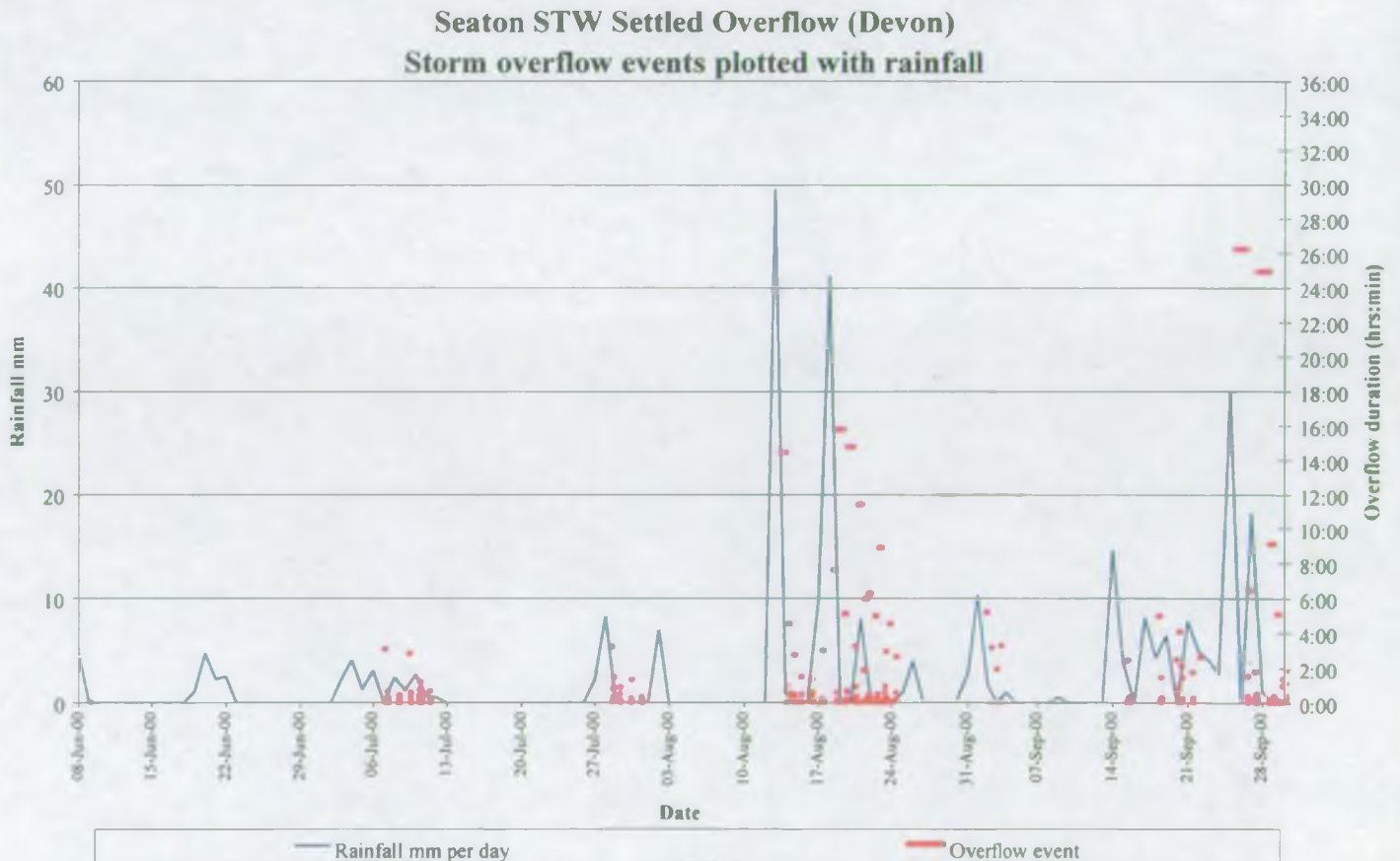
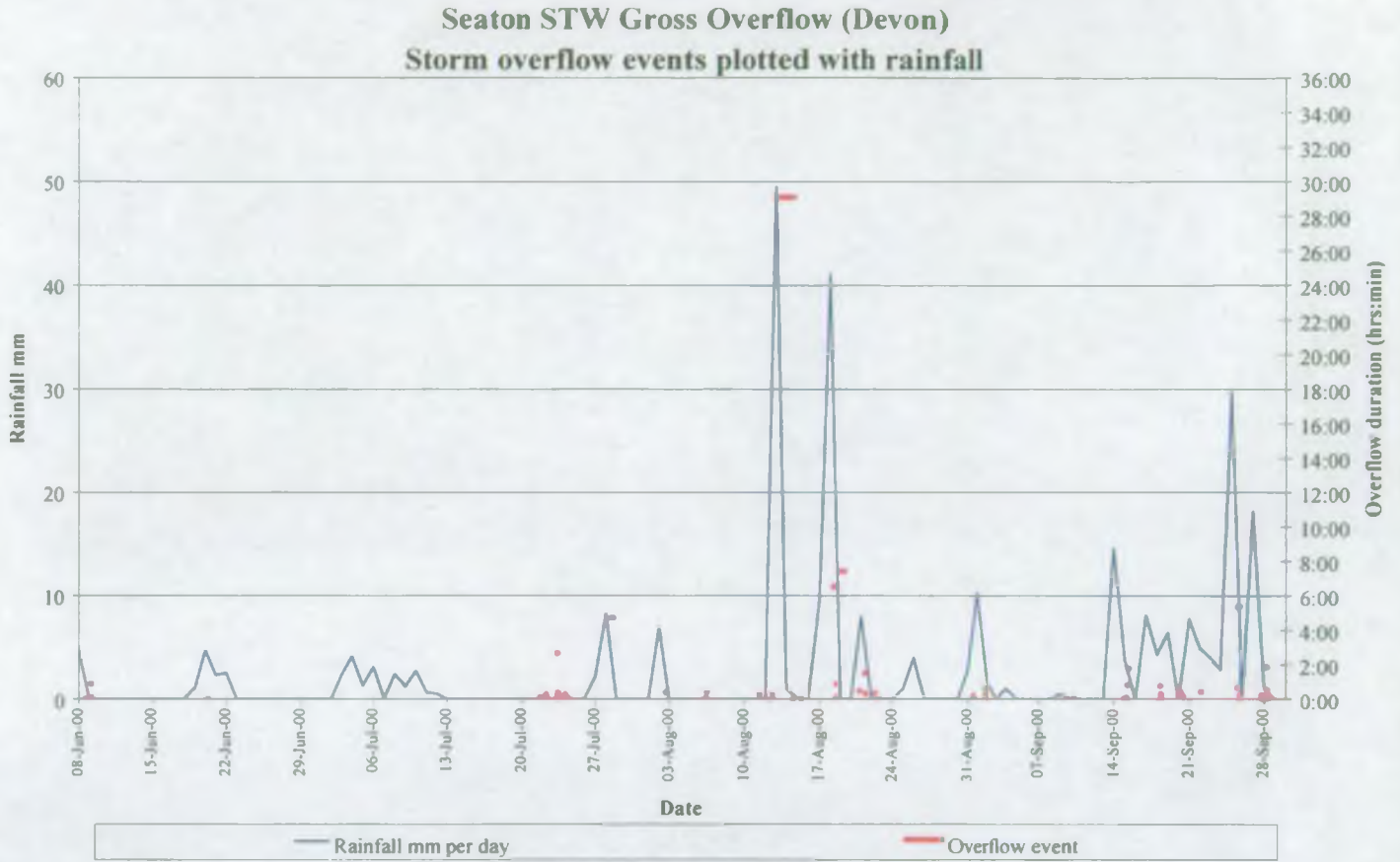


Figure 6. Colyford STW and Pumping Station. Recorded storm discharges plotted with rainfall.

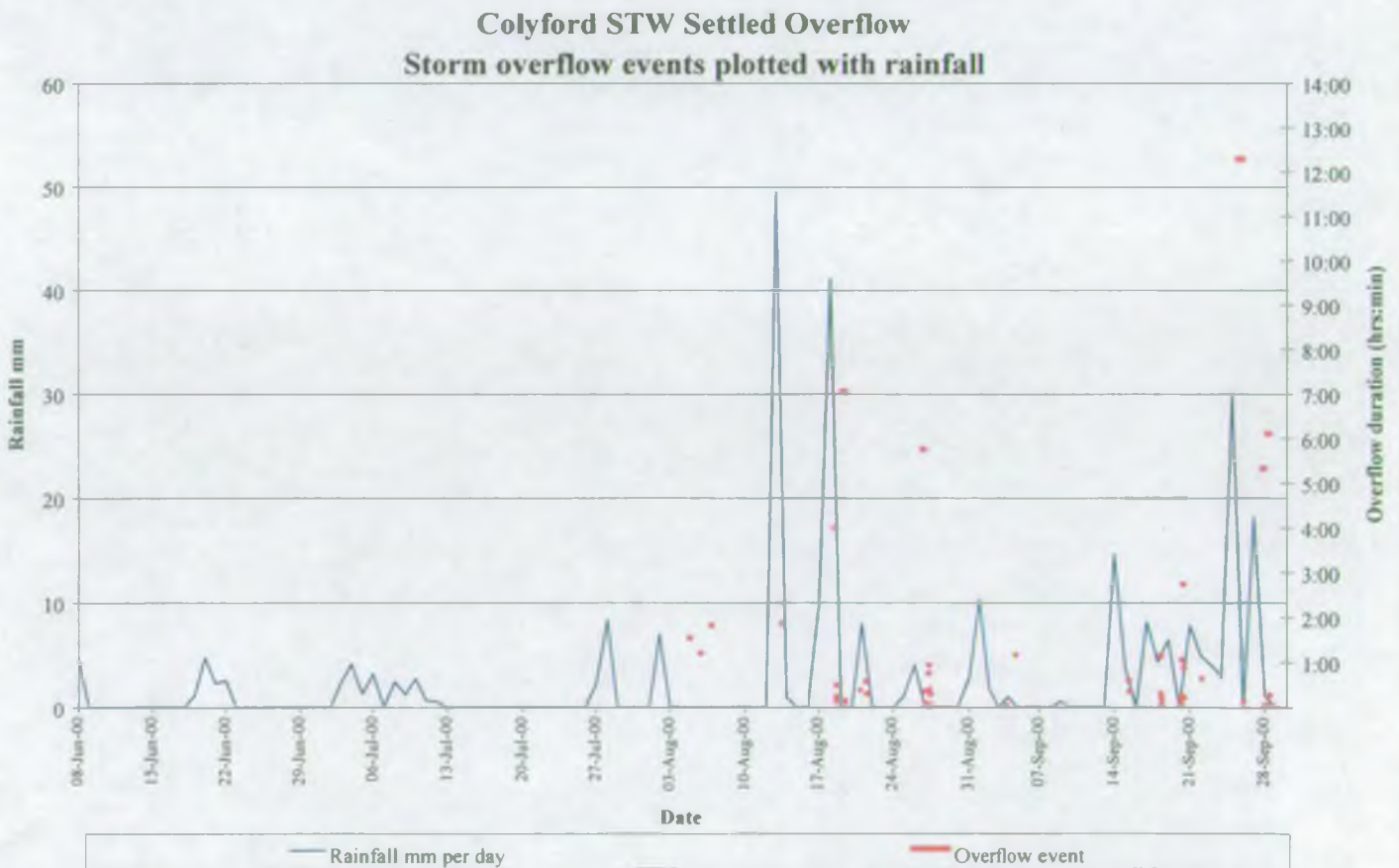
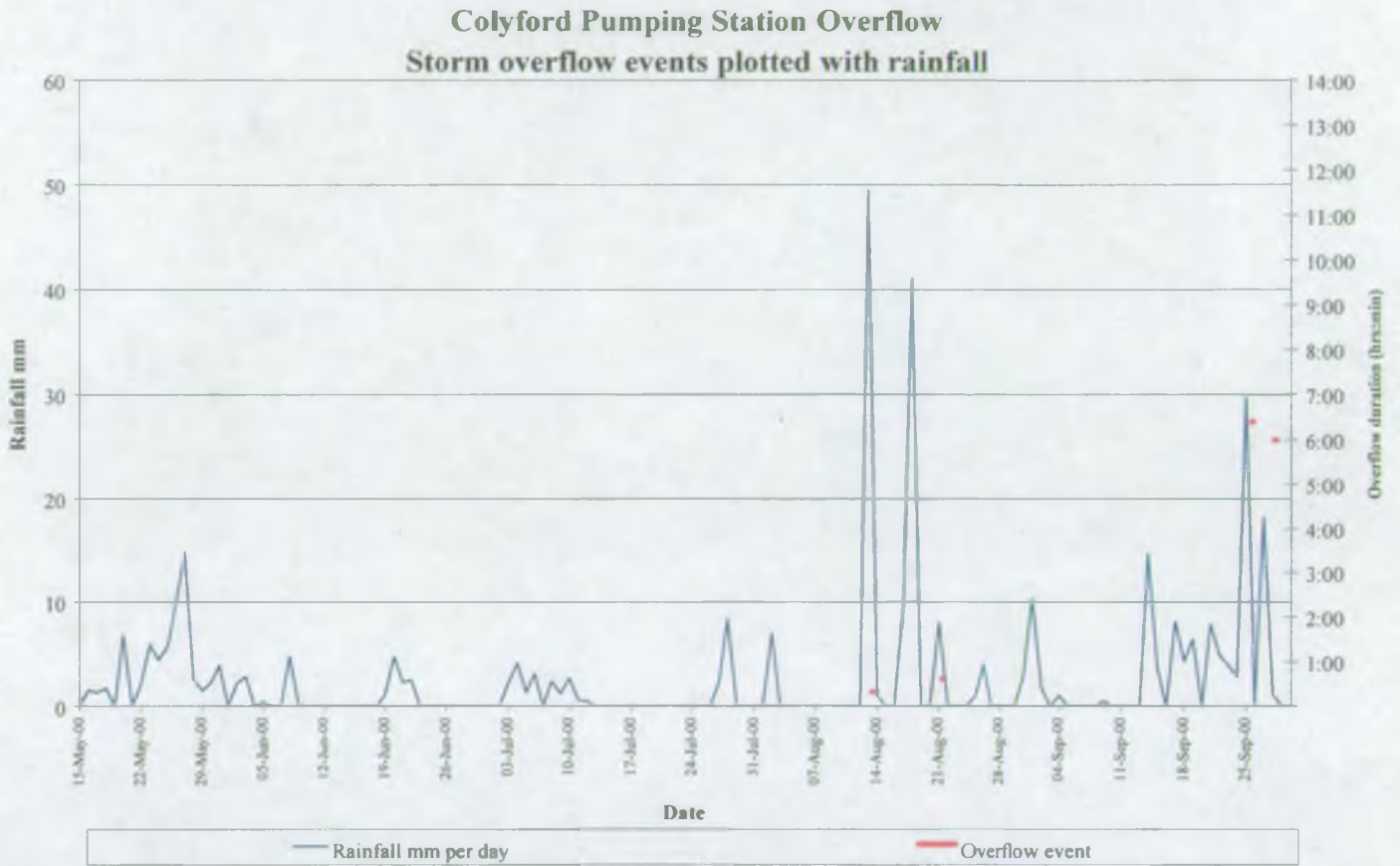


Figure 7. Axmouth & Horslears Pumping Stations.. Recorded storm discharges plotted with rainfall.

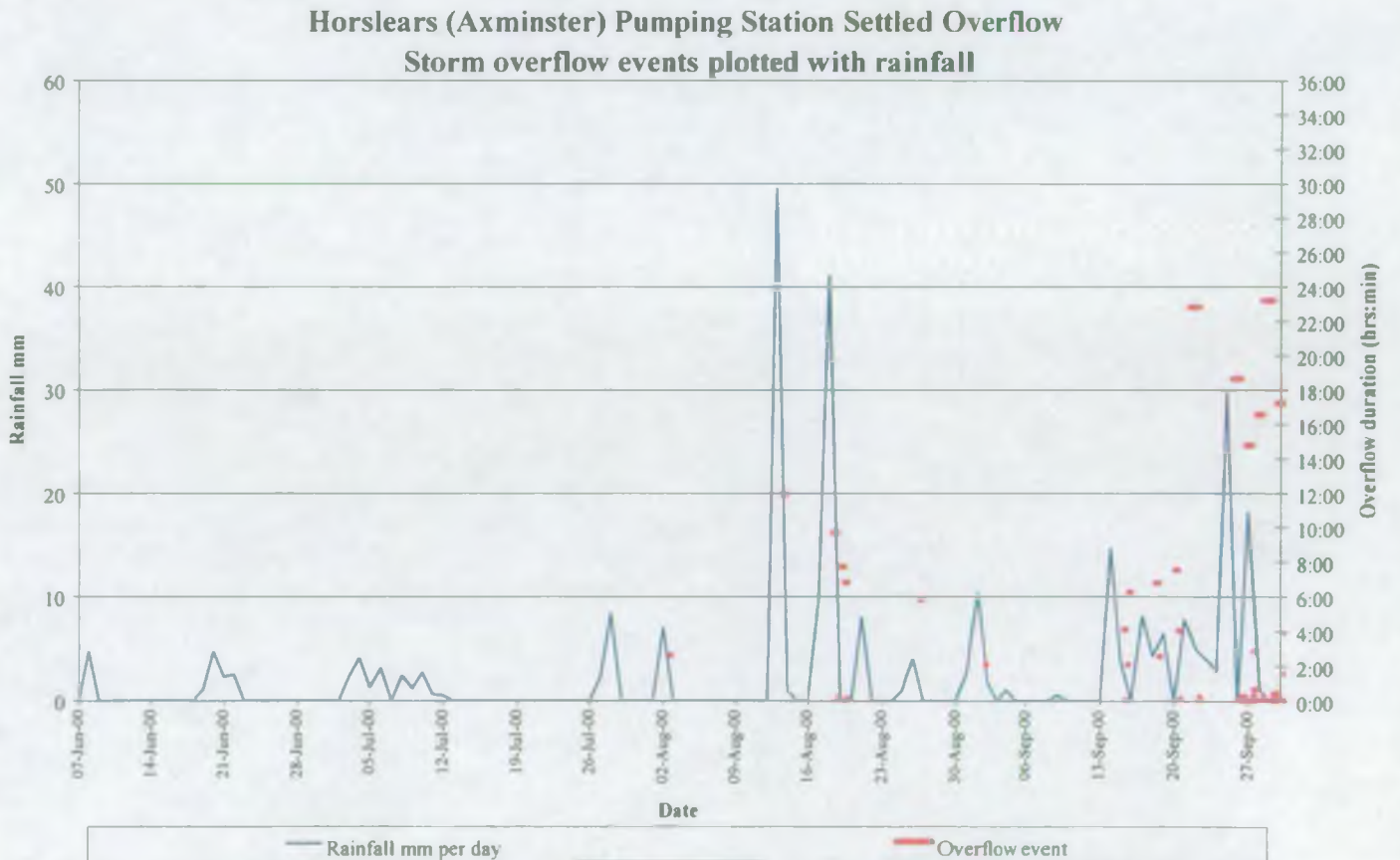
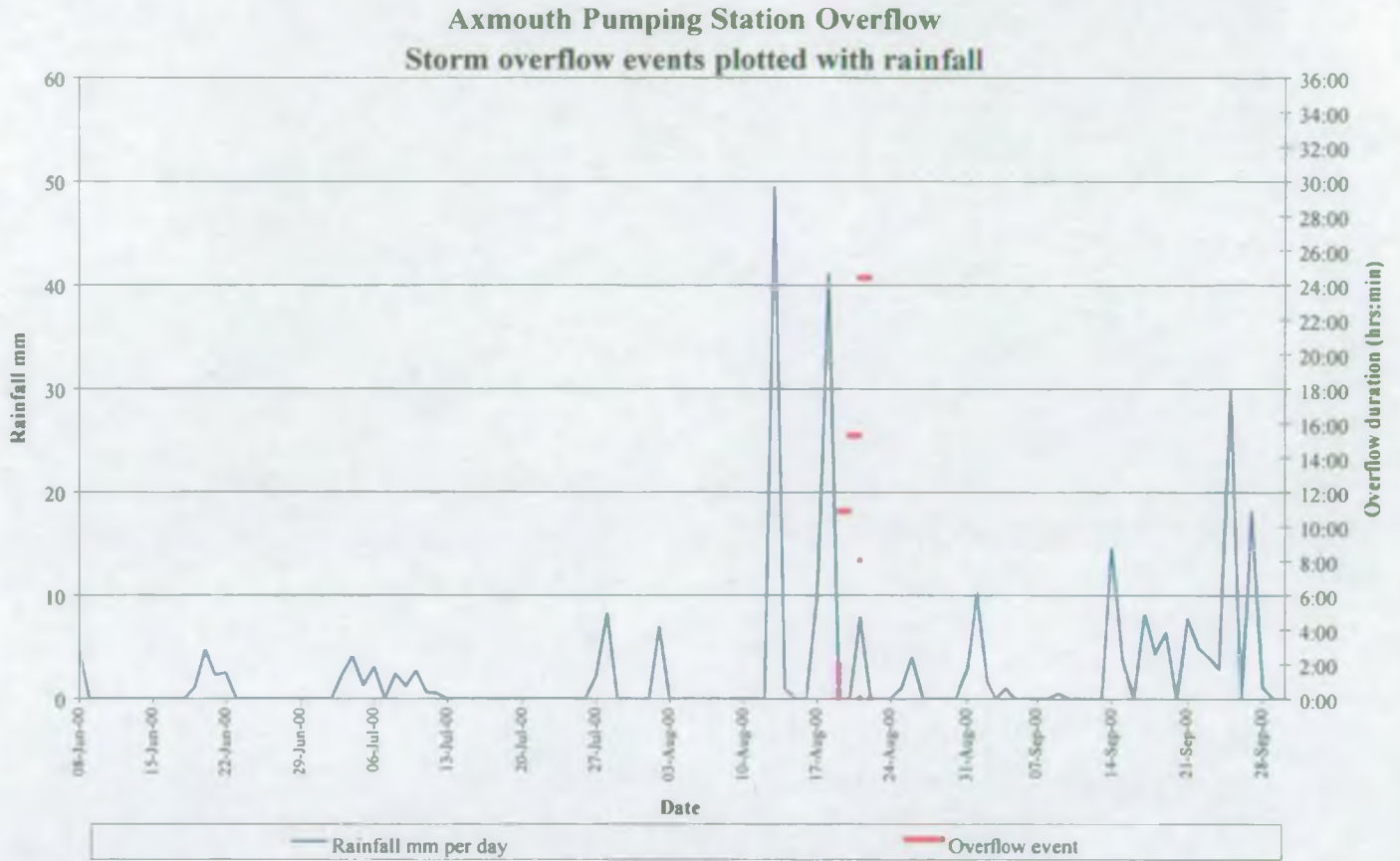
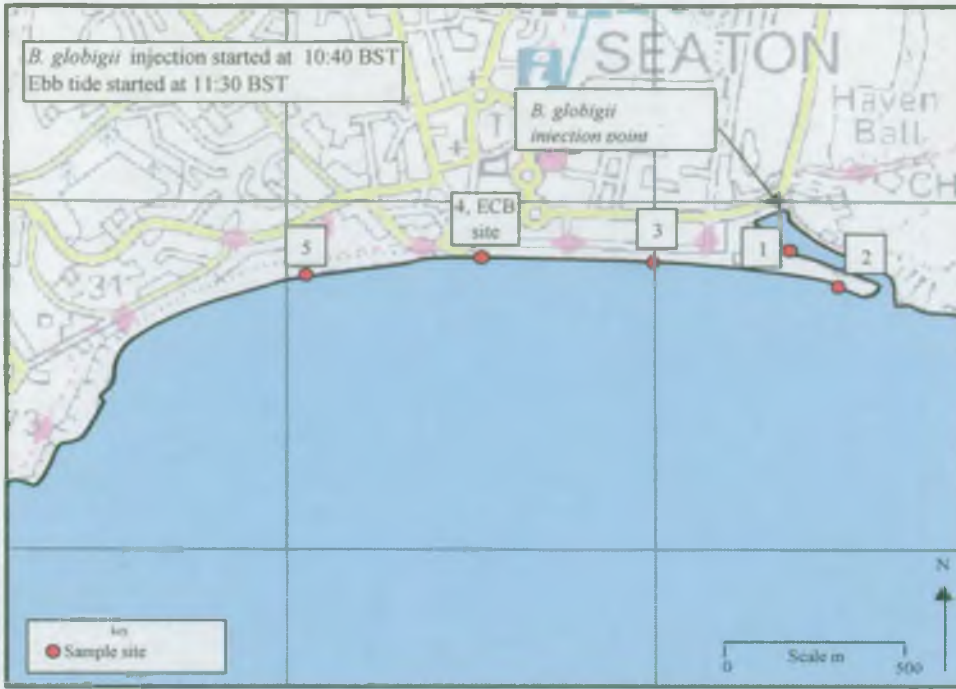


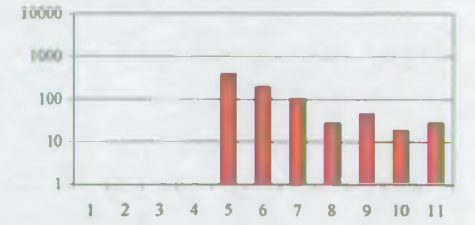
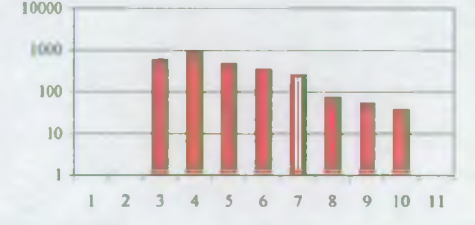
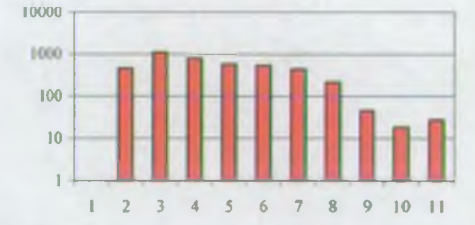
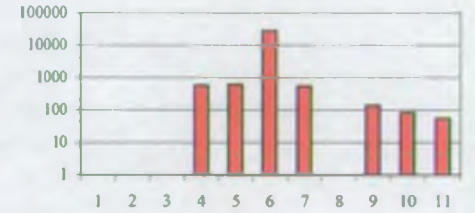
Figure 8. Results of the *Bacillus globigii* survey, Seaton (Devon) Beach survey 17 August 2001



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NB for all *B. globigii* all < 10's replaced with 0 for charts.

Date	Site	Time BST	Run	Salinity g/kg	Glob No/100ml	F Strep No/100ml	T.Coli No/100ml	F Coli No/100ml
17-Aug-00	B1	10:08	1	34.8	< 0	18	117	36
17-Aug-00	B1	12:21	2	18.7	< 0	260	3900	1636
17-Aug-00	B1	13:14	3	19.6	< 0	290	11000	2100
17-Aug-00	B1	14:11	4	14	560	600	25000	3300
17-Aug-00	B1	15:16	5	9.7	610	510	8000	2900
17-Aug-00	B1	16:24	6	7.7	28000	420	17000	2600
17-Aug-00	B1	18:24	7	33.3	540	< 10	144	117
17-Aug-00	B1	17:15	8	-	-	-	-	-
17-Aug-00	B1	19:24	9	34.3	135	18	90	36
17-Aug-00	B1	20:24	10	32	81	< 10	910	630
17-Aug-00	B1	21:24	11	34.5	54	63	99	81
17-Aug-00	B2	10:12	1	34.9	< 0	< 10	< 10	18
17-Aug-00	B2	12:24	2	31.1	840	< 10	540	320
17-Aug-00	B2	13:17	3	28.1	1455	54	2500	660
17-Aug-00	B2	14:15	4	24.7	4800	162	4400	1182
17-Aug-00	B2	15:25	5	21.1	2200	310	4700	1273
17-Aug-00	B2	16:30	6	31.5	1636	81	450	340
17-Aug-00	B2	17:30	7	33	856	27	200	153
17-Aug-00	B2	18:30	8	33.7	290	< 10	135	90
17-Aug-00	B2	19:30	9	34	72	< 10	18	< 10
17-Aug-00	B2	20:30	10	34.6	27	< 10	27	< 10
17-Aug-00	B2	21:15	11					
17-Aug-00	B3	10:23	1	34.9	< 0	< 10	< 10	< 10
17-Aug-00	B3	12:34	2	31.8	460	18	460	220
17-Aug-00	B3	13:29	3	29	1091	36	1364	220
17-Aug-00	B3	14:29	4	30.4	780	72	660	360
17-Aug-00	B3	15:40	5	32.5	570	< 10	260	153
17-Aug-00	B3	16:35	6	32.8	530	18	180	81
17-Aug-00	B3	17:40	7	33.4	430	< 10	90	63
17-Aug-00	B3	18:35	8	34.1	210	< 10	90	45
17-Aug-00	B3	19:35	9	34.5	45	18	18	< 10
17-Aug-00	B3	20:40	10	34.7	18	< 10	36	27
17-Aug-00	B3	21:40	11	34.7	27	< 10	< 10	< 10
17-Aug-00	ECB site	10:30	1	35	< 0	< 10	27	< 10
17-Aug-00	ECB site	12:41	2	34.8	< 0	< 10	45	< 10
17-Aug-00	ECB site	13:37	3	30.9	580	< 10	470	240
17-Aug-00	ECB site	14:38	4	31	910	18	440	230
17-Aug-00	ECB site	15:47	5	33.1	470	36	153	54
17-Aug-00	ECB site	16:45	6	33.3	340	< 10	117	63
17-Aug-00	ECB site	17:45	7	33.8	250	< 10	135	54
17-Aug-00	ECB site	18:40	8	34.4	72	63	90	72
17-Aug-00	ECB site	19:40	9	34.5	54	81	18	36
17-Aug-00	ECB site	20:45	10	34.6	36	54	36	18
17-Aug-00	ECB site	21:45	11	34.6	< 0	27	18	18
17-Aug-00	B5	10:37	1	34.8	< 0	< 10	27	< 10
17-Aug-00	B5	12:48	2	34.8	< 0	< 10	36	18
17-Aug-00	B5	13:46	3	34.8	< 0	< 10	< 10	18
17-Aug-00	B5	14:48	4	33.4	< 0	< 10	90	36
17-Aug-00	B5	15:58	5	32.8	380	18	162	54
17-Aug-00	B5	16:50	6	33.8	189	27	117	54
17-Aug-00	B5	17:50	7	34.2	99	380	320	144
17-Aug-00	B5	18:45	8	34.6	27	99	63	54
17-Aug-00	B5	19:50	9	30.6	45	153	27	18
17-Aug-00	B5	20:50	10	34.8	18	99	180	200
17-Aug-00	B5	21:50	11	34.8	27	18	126	63



APPENDIX I

EC Directive Concerning the Quality of Bathing Waters (76/160/EEC)

Microbiological Standards

Parameter	Units	Value (1)		Status	
		I	G	I	G
Total coliforms	no/100ml	10,000	500	95% of samples	80% of samples
Faecal coliforms	no/100ml	2,000	100	95% of samples	80% of samples
Faecal streptococci	no/100ml	-	100	-	80% of samples
Salmonella	no/l	0	-	95% of samples	-
Enterovirus	PFU/10l	0	-	95% of samples	-

PFU = Plaque Forming Units

Notes :

- (1) I = Imperative or Mandatory standard.
G = Guideline standard.
- (2) There is currently no imperative standard for faecal streptococci, however, it has been proposed that the Directive should be revised and should include an imperative standard for faecal streptococci of 400/100ml.

Aesthetic Criteria

Parameter	Analysis Method	Description/Standard
Colour	Visual inspection	No abnormal change
Mineral oils	Visual inspection	No visible surface film
	Olfactory inspection	No odour
	mg/l after extraction and washing dried residue	<0.3
Surface-active substances (methylene-blue active)	Visual inspection	No fatness foam
	mg/l as lauryl sulphate	<0.3
Phenols	Olfactory inspection	No specific odour
	mg/l	<0.05
Transparency	m	1
Tarry residues, solid floating material, effluent sludge	Visual inspection	Absent

APPENDIX II

Environment Agency



Region South West (SW)

Sampling Point 21600 Seaton Beach (Devon)

NGR SY24508985 Updated 29 March 2000

Year of Identification 1987

Category Pre AMP1/2 6 End of 1997 5 End of 1998 4 End of 1999 5 Post AMP2 5 Post AMP3 4

Compliance Record and Water Quality Summary

The table below includes the following abbreviations - FC: Faecal Coliforms, TC: Total Coliforms, FS: Faecal Streptococci

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Compliance	Guideline	Guideline	Guideline	Guideline	Imperative	Imperative	Imperative	Imperative	Imperative	Fail
No. Samples	20	20	21	20	20	20	20	20	20	19
No. Fail FC Imperative	0	1	0	0	0	0	0	1	0	1
No. Fail TC Imperative	0	1	0	0	0	0	0	0	0	0
No. Fail FC Guideline	1	2	4	4	5	6	5	8	5	6
No. Fail TC Guideline	1	2	2	1	3	1	1	5	2	5
No. Fail FS Guideline	1	1	2	2	2	2	2	4	4	1
FC Geomean	11.08	28.72	21.9	34.73	29.39	45.9	28.27	73.7	40.75	45.6
TC Geomean	20.59	57.89	38.04	54.94	52.84	63.88	39.58	124.06	58.01	85.6
FS Geomean	4.92	17.6	8.08	18.66	12.84	29.84	20.31	31.47	23.46	16.6
FC Median	15	10	38	31	23	45	18	57	27	27
TC Median	15	35	57	60	36	60	32	105	45	54
FS Median	3	10	11	10	13	10	10	18	10	10

Risk of Future Non-Compliance with Imperative and Guideline Standards Based on Historical Data

Percentage Risk of Non-Compliance

	1990 to 1999 inclusive	1991 to 1999 inclusive	1992 to 1999 inclusive	1993 to 1999 inclusive	1994 to 1999 inclusive	1995 to 1999 inclusive	1996 to 1999 inclusive	1997 to 1999 inclusive
Imperative Faecal Coliforms						6		
Imperative Total Coliforms						0		

Risk Assessment Undertaken for Imperative Standards

	1990 to 1999 inclusive	1991 to 1999 inclusive	1992 to 1999 inclusive	1993 to 1999 inclusive	1994 to 1999 inclusive	1995 to 1999 inclusive	1996 to 1999 inclusive	1997 to 1999 inclusive
Guideline Faecal Coliforms								
Guideline Total Coliforms								
Guideline Faecal Streptococci								

Risk Assessment Undertaken for Guideline Standards :

Notes:

Actions Already Taken To Improve Water Quality

Before 1990 the Bathing Waters failed 'Imperative' standards in 1986 and 1987.

Water Company Improvements

Seaton Sewage Treatment Works has discharged biologically treated (secondary) effluent to the Axe since 1986.

Other Actions

The River Axe has been monitored since 1987. There have been a number of pollution prevention and control exercises on the Axe. Investigations of the lower river have found that the Axe was more polluted at high river flows. Combined Storm Overflows at the Racal Pumping Station in Seaton and Axminster Pumping Station are suspected of causing problems, but this has not been proven to date. In 1997, an investigation into a sample which exceeded the 'Imperative' standard for faecal coliforms could not pinpoint a cause.

22/3/00

Factors Affecting Water Quality

WSC/PD	Name	Discharge Location	Comments
SWW	Seaton (Southern)STW	River Axe	
PDs	Various small discharges	Seaton ECBW	
	Numerous inputs	River Axe	
	River Axe	W of Seaton ECBW	
	Unnamed watercourse	Seaton Hole	

The main influence on the Bathing Water is the River Axe and all the discharges to it. Average concentrations of faecal coliforms in the River Axe are low, however the quality is very variable, and on occasion could be sufficient to cause occasional failure at the Bathing Water. In 1999, this resulted in a failure to comply with the Directive. It should be noted that one of the sample failures occurred following exceptional rainfall during the preceding 48 hours, exceeding the two-day 1 in 5 year storm event for the local rain gauge.

Abbreviations:

CSO - Combined Storm Overflow, ECBW - EC identified Bathing Water, MLWS - Mean Low Water Springs, O'F - Outfall, PD - Private Discharge, PS - Pumping Station, PSEO - PS Emergency Overflow, STW - Sewage Treatment Works, SWW - South West Water, WSC - Water Service Company, WxW - Wessex Water.

31/3/00

Planned Investigation

Some monitoring of the operation of Seaton STW and pumping stations has been undertaken, with regard to suspected premature storm operation. Further investigations

are planned for the forthcoming financial year (2000/2001), in relation to the impact of water company discharges on Bathing Water quality.

22/3/00

Planned Investment

Improvements to the storm tank at Seaton sewage treatment works and the addition of UV disinfection has been identified under the Bathing Waters Directive in Asset Management Plan 3 to be completed by March 2002.

22/3/00

Predicted Changes in Water Quality

Following completion of the improvements identified under AMP3, this Bathing Water is generally expected to pass imperative standards, but not to achieve 'Guideline' standards, due to the diffuse sources of contamination of the River Axe.

22/3/99

APPENDIX III

TO: PETER ROSE

FROM: CONSERVATION (DEVON AREA)

(Jo Homan)

CODE: INVS

REF NR: _____

NGR100: SY

NGRE: 245

NGRN: 898

SITE: SEATON, EAST DEVON

DESCRIPTION: Chemical / microbiology investigation at STW's and pumping station

DESIGNATION: Seaton Marshes County Wildlife Site, EAST DEVON HERITAGE COAST, SEATON ROAD BRIDGE Scheduled Ancient Monument

LAND USE: _____

COMMENTS: Conservation designations have been highlighted on the attached plan. I do not envisage any conflicts arising from your investigations.

CONSULT: _____

REPLY BY: 22/02/01

DATE: 22/02/01

RESPONSE BY: JMH

Biodiversity Appraisal Form

TO: CONSERVATION

FROM: DEVON AREA INVESTIGATION

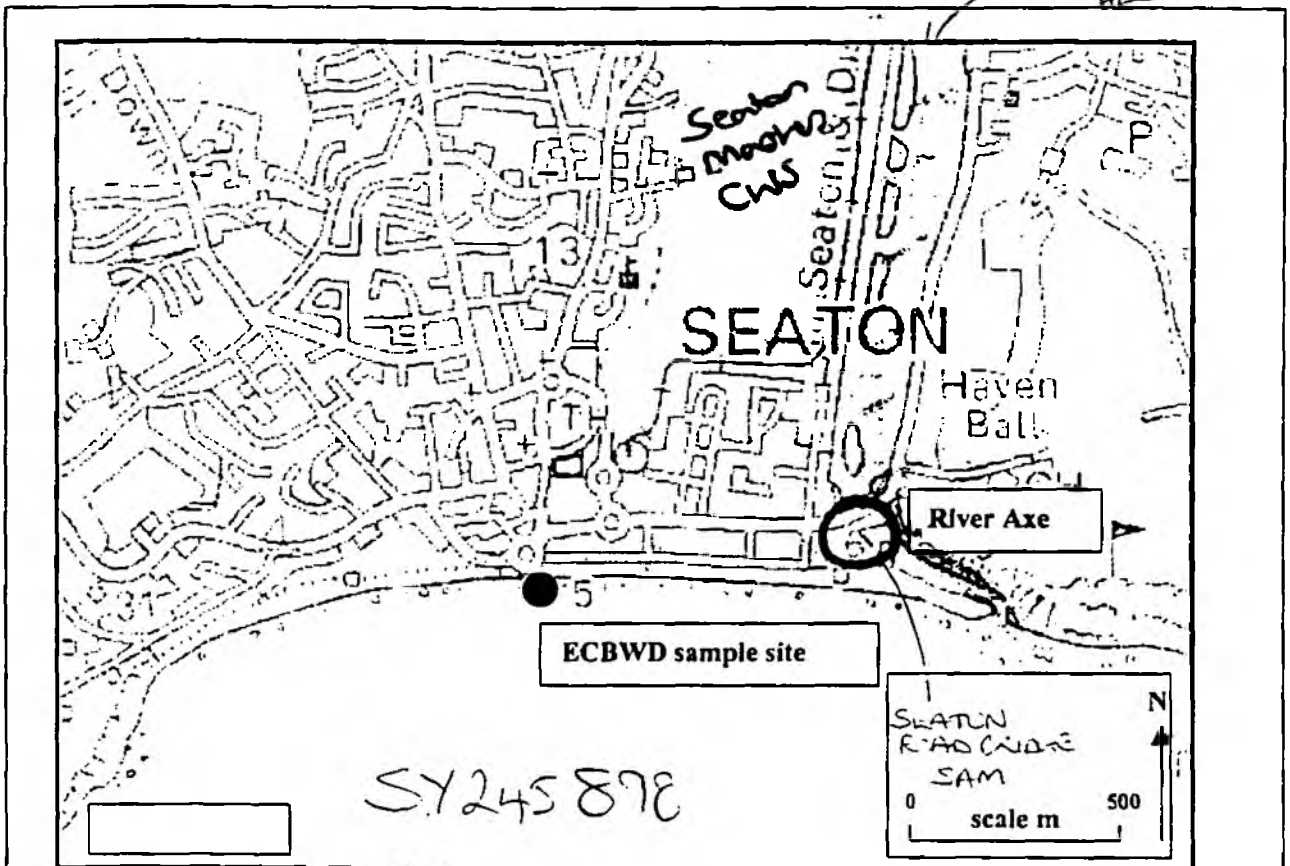
Date:

Name: *Peter Rose* Ext: *6105*

An investigation is currently being undertaken at *Seaton (Devon)*.....NGR. *See below*

Please could you check your records for any possible conservation sites or environmentally sensitive areas at or in close proximity to the investigation.

MAP SHOWING SITE OF INVESTIGATION AND SURROUNDING AREA



Stormlogs also installed at:
Seaton STW (Devon) In compound
Colyford STW In compound
Colyford pumping station in compound
Axmouth pumping station - in compound
Horslears pumping station Axminster - in compound.

Nature of Investigation:

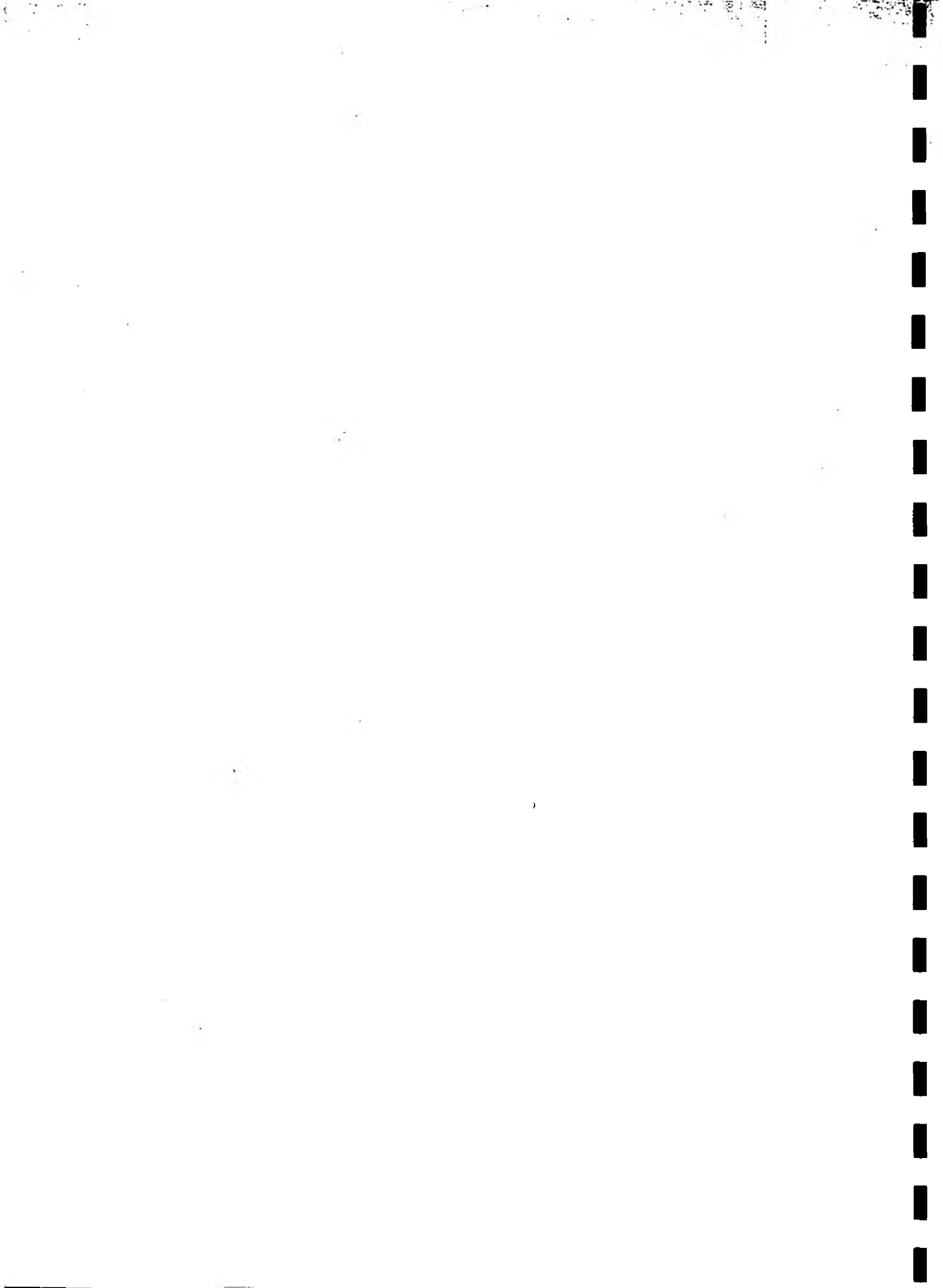
Chemical - Microbiology samples in highlighted area -
Also a series of storm logs installed at STWs + pumping stations
(see above list) but there on river land shouldn't be a problem.

✓

APPENDIX IV

SOUTH WEST WATER SAFE SYSTEM OF WORK - CONFINED SPACES				
SSMC CONTRACTOR		SOUTH WEST WATER SERVICES LIMITED		
REFERENCE NUMBER:	1/33341/2 of 2/1/MD	OS GRID REF:	BY 25123 90071	
NAME OF WORKS:	HARDOUR ROAD SP2	ENTRY AREA:	WET WELL	
PLACE OF WORKS:	RIVERSIDE WAY, SEAYON, DEVON.			
CONTRACTORS MUST SIGN TO AGREE COMPLIANCE WITH THE COMPANY'S HEALTH & SAFETY MANUAL.				
NOTIFY CONTROL OF COMMENCEMENT OF WORKS EITHER BY RADIO LINK OR TELEPHONE				
ITEMS THAT ARE MARKED YES MUST BE COMPLIED WITH.				
PRE-ENTRY				
1	PERMIT TO WORK			Yes
2	MINIMUM NUMBER OF OPERATORS			4
3	CHECK WEATHER CONDITION IF RISK OF FLOODING OR TIDE			Yes
4	PUT OUT ROAD SIGNS (SIGNING, LIGHTING & GUARDING REGS)			Yes
5	RAISE - REMOVE/SECURE COVERS, OPEN DOORS			Yes
6	ERECT/MAINTAIN BARRIERS			Yes
7	VENTILATE	30 MINUTES		Yes
8	ISOLATE		FLOW IN	Yes
			ELECTRICAL PLANT/EQUIPMENT	Yes
			MECHANICAL PLANT/EQUIPMENT	Yes
9	TEST GAS DETECTION EQUIPMENT (DO NOT ENTER IF FAULTY)			Yes
10	LOWER GAS DETECTION EQUIPMENT TO WORK LEVEL, MONITOR FOR 5 MINUTES. IF UNSAFE, DO NOT ENTER			Yes
11	ERECT WINCH SYSTEM			Yes
12	PROTECTIVE CLOTHING TO BE WORN			Yes
	OTHER CLOTHING:		1 HELMET	Yes
	1. Or similar for entry into chamber		2 OVERALLS	Yes
	3. Top men only.		3 SAFETY FOOTWEAR	Yes
	YOU MUST WEAR CLOVES		4 PVC SUIT	Yes
	OR USE BARRIER CREAM		5 REFLECTIVE JACKET	Yes
			6 OTHER (SPECIFY)	
13	SAFETY EQUIPMENT TO BE WORN/USED			Yes
	BREATHING APPARATUS:		11 HELMET	Yes
	FULL BA, AIR SUPPLY BOTTLE		12 SAFETY HARNESS	Yes
	BACK PACK OR AIRLINE.		13 BREATHING APPARATUS (SPECIFY TYPE)	Yes
	OTHER SAFETY EQUIP:		14 ARRESTER BLOCK SAFETY LINE	Yes
	Intrinsically safe lighting only.		15 AIR BLOWER	Yes
			16 MANHOLE LIFTING EQUIPMENT	Yes
			17 HAND LAMP	Yes
			18 MONKEY LAMP	No
			19 COMMUNICATION EQUIPMENT	Yes
			20 LOCK OFF EQUIPMENT	Yes
			21 GAS DETECTOR	Yes
			22 OTHER	
14	ESTABLISH COMMUNICATION SYSTEM			Yes
15	NO SMOKING, NO NAKED LIGHTS			Yes
PRE-ENTRY CONTINUED				
16	CHECK GAS DETECTION EQUIPMENT, IF NO ALARM TRIGGERED, SAFE TO ENTER			Yes
17	ATTACH WINCH LINE TO BODY HARNESS			Yes
18	USE LADDERSTEP IRONS WITH WINCH (BACK UP)			Yes
19	IF NO LADDERSTEP IRONS USE ARRESTER BLOCK AND WINCH			Yes
ENTRY				
20	TOP MAN TO STAY ON TOP AND MAINTAIN CONTACT WITH OPERATOR IN CONFINED SPACE			Yes
21	OPERATOR IN CONFINED SPACE TO REMAIN ATTACHED TO WINCH			Yes
22	IF ALARM SOUNDS - PUT ON BREATHING APPARATUS			Yes
	GET OUT AS QUICKLY AS POSSIBLE			Yes
EXIT				
23	LEAVE CONFINED SPACE IN REVERSE MANNER TO ENTRY			Yes
24	CLOSE COVERS, DISMANTLE BARRIERS/ROAD SIGNS			Yes
25	CLEAN EQUIPMENT, LEAVE SITE TIDY, CARRY OUT PERSONAL HYGIENE			Yes
26	ADVISE CONTROL JOB COMPLETED			Yes
SPECIAL SKILLS/KNOWLEDGE REQUIRED				
A	1 CONFINED SPACE ENTRY TRAINING AND CERTIFICATION			Yes
B	2 GAS DETECTOR			Yes
C	3 BREATHING APPARATUS TRAINING AND CERTIFICATION			Yes
D	4 WINCH TRAINING			Yes
E	5 SIGNING, LIGHTING & GUARDING (MSSWA)			Yes
F	6 ESTABLISH LINK WITH EMERGENCY SERVICE			Yes
G	7			
H	8			
EMERGENCY PROCEDURE				
RADIO CONTROL OR TELEPHONE 999				
NEAREST TELEPHONE: SEWAGE PUMPING STATION - 01297 21344				
Check location & that it is operational.				
1) ASK FOR EMERGENCY SERVICES: FIRE BRIGADE/POLICE/AMBULANCE				
2) GIVE LOCATION AND GRID REFERENCE				
3) GIVE BRIEF BUT CLEAR DETAILS OF EMERGENCY				
SIGNED:		PRINT NAME:		DATE:
<i>Trevor Nolt</i>		Trevor Nolt		27/12/96

NOTE 1. This form to be completed by the supervisor responsible for planning the work. A copy is to be given to each person carrying out the work.
 NOTE 2. Nominated person to use this form as a check list and cross tick each operation carried out. This form to be returned to the supervisor on job completion.



SITE : AXMOUTH PUMPING STATION

ENTRY INTO STORM DISCHARGE CHAMBER.

IDENTIFIED AS A CONFINED SPACE.

Work to be carried out in storm discharge chamber at low water.

Work to be carried out during dry weather flows only.

- 1) Lower gas detector into chamber and test for 5 minutes.
- 2) Continuous monitoring of atmosphere while work is carried out.
- 3) Entry into storm discharge chamber by step irons.
- 4) If alarm sounds, exit chamber immediately.

Caution : Floor of chamber will be slippery.

Peter Turney
Area Supervisor

15th Oct 99

11:00

PT

suspend
 very poor
 no stable
 standards
 (with a diagram of a vertical line with a circle at the bottom and an arrow pointing down)

DEVON AREA H&S SITE RISK ASSESSMENT

ver 1.1
14/02/00

TRADE / FARMS / INVESTIGATIONS / STW / FRESHWATER / MARINE

SITE: Axemouth pumping station

CATCHMENT / NGR

Mobile phone reception Good / Poor

Date of Assessment 12/5/00

Name of Officer PK

URN

CONSIDERATION

(A) GENERAL	YES	NO	RISK H/M/L	ACTIONS REQUIRED
1. Do you need to notify site manager/ landowner of Agency presence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Do you need to be accompanied by site staff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Does task require more than one person?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Installation of loggers yes but no for download
4. Are you working outside daylight hours?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
5. Do you need to employ Lone Worker procedures?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
6. Is protective clothing required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
7. Will seasonal factors affect site safety?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

8. Are there dangers from the following	YES	NO	RISK H/M/L	
chemicals	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
biological hazard / infection from animals / pathogens	<input checked="" type="checkbox"/>	<input type="checkbox"/>		sewage
explosive / noxious gases	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Yes, potentially, in confined space - no or general download
inhalation of fumes/dust/asbestos	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
moving vehicles	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
machinery	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
falling objects	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
electricity sources	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
open tanks / lagoons / catch pits	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
ladders / steps / scaffolding	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

	YES	NO	RISK H/M/L	
9. Are overhead power supplies present?	<input type="checkbox"/>	<input type="checkbox"/>		
10. Is site secure for equipment installation?	<input type="checkbox"/>	<input type="checkbox"/>		ish - Compound locked but fence not very high

(B) VEHICLE ACCESS

	YES	NO	RISK	H/M/L
1. Is there safe vehicle access to site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Can vehicles be parked/left safely?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

(C) FOOT ACCESS

	YES	NO	RISK	H/M/L
1. Is there safe foot access to the site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Are there fences/ditches etc. to cross?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(D) BANK SITES

	YES	NO	RISK	H/M/L
1. Are banks steep or slippery?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Might banks be undercut?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Is water deep/strong currents?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(E) CLIFF OR SIMILAR SITES

	YES	NO	RISK	H/M/L
1. Are there dangers from falling?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Is the terrain steep/slippy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Might the cliff be overhanging?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4. Are ropes required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(F) CONFINED SPACES

	YES	NO	RISK	H/M/L
1. Are confined spaces involved? IF YES YOU MUST COMPLETE THE CONFINED SPACE FORM HELD IN OFFICE	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>for installation of logger - download only - No.</i>

(G) BOAT WORK

	YES	NO	RISK	H/M/L
1. Is boat work involved? IF YES YOU MUST COMPLETE THE BOAT WORK FORM HELD IN OFFICE	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(H) MANHOLES

	YES	NO	RISK	H/M/L
1. Is the area around the manhole safe?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Are bollards/cones required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Can cover be lifted safely?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
4. Are cover keys/other equipment needed?	<input type="checkbox"/>	<input type="checkbox"/>		<i>E2 to open pit back installation only</i>

(I) AGGRESSIVE BEHAVIOUR

	YES	NO	RISK	H/M/L
1. Are people likely to be aggressive?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Are guard dogs/farm dogs/other livestock a risk?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<i>- Park Rd. side of PD - Farmer had run in with dog</i>

(J) OTHER

	RISK	H/M/L

DEVON AREA H&S SITE RISK ASSESSMENT

ver 1.1
14/02/00

TRADE / FARMS / INVESTIGATIONS / STW / FRESHWATER / MARINE

SITE: Seaton Bathing Water Inu

CATCHMENT / NGR
OZA

Date of Assessment 15/8/00

Name of Officer P. Rose

Mobile phone reception Good / Poor

URN

CONSIDERATION

(A) GENERAL	YES	NO	RISK H/M/L	ACTIONS REQUIRED
1. Do you need to notify site manager/ landowner of Agency presence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<u>but SWW Agencies, Local council, Yacht Club informed</u>
2. Do you need to be accompanied by site staff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Does task require more than one person?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<u>Boat work + evening beach sampling</u>
4. Are you working outside daylight hours?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<u>Beach sampling</u>
5. Do you need to employ Lone Worker procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<u>Boat + Beach sampling</u>
6. Is protective clothing required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<u>life jacket, boots, gloves floatation suit</u>
7. Will seasonal factors affect site safety?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<u>Do not attempt in bad weather</u>

8. Are there dangers from the following

	YES	NO	RISK H/M/L
chemicals	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
biological hazard / infection from animals / pathogens	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>CSO's + FE in River</u>
explosive / noxious gases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Inhalation of fumes/dust/asbestos	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
moving vehicles	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>other boats + Road Vehicles,</u>
machinery	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
falling objects	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
electricity sources	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
open tanks / lagoons / catch pits	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
ladders / steps / scaffolding	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Steps to beach</u>

	YES	NO	RISK H/M/L
9. Are overhead power supplies present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10. Is site secure for equipment installation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

(B) VEHICLE ACCESS

	YES	NO	RISK H/M/L	
1. Is there safe vehicle access to site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		To launch Side-TC permission
2. Can vehicles be parked/left safely?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Car parking areas Nearby

(C) FOOT ACCESS

	YES	NO	RISK H/M/L	
1. Is there safe foot access to the site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		But Sampler not to go near steep shingle by river mouth
2. Are there fences/ditches etc. to cross?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(D) BANK SITES

	YES	NO	RISK H/M/L	
1. Are banks steep or slippery?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		at low tide See above
2. Might banks be undercut?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Is water deep/strong currents?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		by Mouth of River

(E) CLIFF OR SIMILAR SITES

	YES	NO	RISK H/M/L	
1. Are there dangers from falling?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Don't go near cliff edge
2. Is the terrain steep/slippery?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Might the cliff be overhanging?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4. Are ropes required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(F) CONFINED SPACES

	YES	NO	RISK H/M/L	
1. Are confined spaces involved? IF YES YOU MUST COMPLETE THE CONFINED SPACE FORM HELD IN OFFICE	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(G) BOAT WORK

	YES	NO	RISK H/M/L	
1. Is boat work involved? IF YES YOU MUST COMPLETE THE BOAT WORK FORM HELD IN OFFICE	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

(H) MANHOLES

	YES	NO	RISK H/M/L	
1. Is the area around the manhole safe?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Are bollards/cones required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Can cover be lifted safely?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4. Are cover keys/other equipment needed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(I) AGGRESSIVE BEHAVIOUR

	YES	NO	RISK H/M/L	
1. Are people likely to be aggressive?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Are guard dogs/farm dogs/other livestock a risk?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(J) OTHER

	RISK H/M/L	

SITE : SEATON SOUTH W.W.T.W

ENTRY INTO STORM TANK CHAMBER.

IDENTIFIED AS A CONFINED SPACE.

Storm tanks to be empty before entry permitted.

SWW operator to be on site to supervise EA staff before entry and monitor flow through works.

- 1) Remove grid over storm chamber.
- 2) Lower gas detector into chamber and test for 5 minutes.
- 3) Continuous monitoring of atmosphere while work is carried out.
- 4) Entry into chamber by step irons or ladder (on site).
- 5) If alarm sounds, exit chamber immediately.

Caution : Floor of chamber will be slippery.

Peter Turney
Area Supervisor

15th Oct 99

1:00

[Handwritten signature]

SITE : SEATON SOUTH W.W.T.W

ENTRY INTO GROSS STORM CHAMBER – WORKS INLET.

IDENTIFIED AS A CONFINED SPACE.

SWW operator to be on site to supervise EA staff before entry and monitor flow through works.

- 1) Remove grid over gross storm chamber.
- 2) Lower gas detector into chamber and test for 5 minutes.
- 3) Continuous monitoring of atmosphere while work is carried out.
- 4) Entry into chamber by step irons or ladder (on site).
- 5) If alarm sounds, exit chamber immediately.

Caution : Floor of chamber will be slippery.

Peter Turney
Area Supervisor

15th Oct '99
11:00
PCT

DEVON AREA INVESTIGATIONS TEAM ACTIVITY RISK ASSESSMENT

CONFINED SPACES

Anyone entering a confined space is legally obliged to complete a risk assessment beforehand.

SITE: Section (Devon South) SWW-
inlet Storm screen / discharge

CATCHMENT

Date of Assessment 8/15/00

Name of Officer PR

HAZARD	YES	NO	CONTROL MEASURES
8. Noxious or asphyxiating gases	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Gas monitors. Escape set. Ventilation of confined space. Active ventilation.
9. Explosion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	IS rated equipment. Gas monitors. Non-static clothing.
10. Hazardous Chemicals	<input type="checkbox"/>	<input checked="" type="checkbox"/>	COSHH regulations. PPE.
11. Drowning (a) Falling into liquid (b) Rising Water Levels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lifejacket. <u>Ropes</u> . Use safety chains.
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Suspended <u>any</u> process that is a potential hazard (eg. discharges). Obtain weather forecast.
12. Slips, trips, falls.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Visual inspection structures (e.g. ladders, manhole access steps, etc.). Hard hat. Winch.
13. Falling debris	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hard hat. Appropriate PPE.
14. Electrocution	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Isolate power supplies</u>
15. Entrapment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Secure all moving surfaces.
16. Infection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Appropriate PPE. Washing facilities. Wipes. Barrier cream.
17. Darkness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Torch. Head lamps. Site lighting. <u>Available daylight</u>
18. Communication loss (a) On site (b) External communication	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Maintain visual contact. Use hand-line. IS radio.
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Use PMR + mobile telephone. Establish exact site location with personnel at base.
19. Dangers to public	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Erect notices. Physically isolate site. Maintain presence.

Is the site a Low, Medium or High risk site M

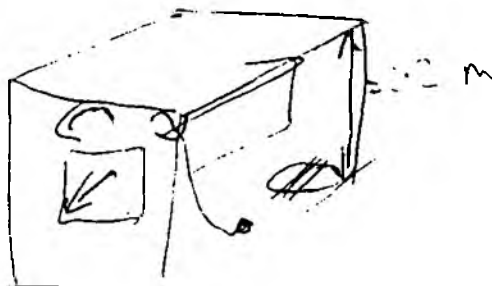
GENERAL PROCEDURE

	YES	NO
1. Has site owner been informed (nature of work/exact location/duration)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Is a Permit to Work required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Do you need RA assessment/code of practice from site owner	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Does a DAIT Risk Assessment already exist for the site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Has all equipment been checked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Have staff roles been identified (including designating Top Person)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Are all Team members fully trained in equipment/procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Do you have an agreed emergency procedure?	<input type="checkbox"/>	<input type="checkbox"/>

<u>Supplied by SWW</u>
<u>Top person Emma May</u>

Now ensure Safe Systems of Work and Risk Assessment forms are obtained from Site operators i.e. SWW

DAIT Operating Procedures need to be completed and a Permit to Work is required.



DEVON AREA INVESTIGATIONS TEAM ACTIVITY RISK ASSESSMENT

CONFINED SPACES PRE ENTRY CHECK LIST

PERMIT TO WORK REF:

SAFE SYSTEMS OF WORK REF:

	YES	NO	
1. Risk assessment of site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Check weather (if applicable): - is it ok?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OK - see light shower
3. Has site been secured?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Carry out communications check	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5. Comms or office informed of work plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	office
6. Size of entry point checked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7. Vent site for ten min. check for surface gas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8. Check entrance to site for gas for 5 minutes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9. Do you have an agreed emergency procedure?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10. Check access structure including ladders and steps	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ladder provided by SWW
11. Are there any unusual smells?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12. Does water levels look ok?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13. Is it safe to enter?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
14. Have team been read the caution and informed of emergency procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
15. Is there a first Aid kit available?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yon
16. Check PPE is correctly fitted before entry.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
17. Has the site risk level changed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If YES then suspend operation.

CONFINED SPACES POST ENTRY CHECK LIST

1. Is the work completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Has the work been stopped?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Are all personnel out of the confined space?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Has the site been left in a safe condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

DEVON AREA INVESTIGATION TEAM (D.A.I.T.)
PROCEDURE FOR WORKING IN CONFINED SPACES

Date 7/6/00

Name of site Seaton (Devon) STW - Graw Storm

Indicate nature of work.

Install Event logger on storm intake works.

List any hazards highlighted during risk assessment, along with control measures to be put in place.

Slips Trips + Falls - good foot wear - Rope - Hard Hat
Infection - gloves
Darkness - torch
Explosion - Cont. Gas monitoring
Noxious gas - " + Escape set

Indicate communications procedure in the event of an emergency.

SNW operative on site
Doctaphone - PMR + land line phone at works -
999
112.

Signature of Authorised Person [Signature]

Signature of Person in Charge [Signature]

DEVON AREA INVESTIGATIONS TEAM ACTIVITY RISK ASSESSMENT
CONFINED SPACES

Anyone entering a confined space is legally obliged to complete a risk assessment beforehand.

SITE: Seaton Devon South STW - Settled Storm sump.

CATCHMENT

Date of Assessment 8/5/00

Name of Officer PR

HAZARD	YES	NO	CONTROL MEASURES
8. Noxious or asphyxiating gases	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Gas monitors, <u>Escape set</u> , Ventilation of confined space. Active ventilation.
9. Explosion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	IS rated equipment, Gas monitors, <u>Non-static clothing</u> .
10. Hazardous Chemicals	<input type="checkbox"/>	<input checked="" type="checkbox"/>	COSHH regulations. PPE.
11. Drowning (a) Falling into liquid (b) Rising Water Levels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lifejacket, Ropes, Use safety chains. Suspended any process that is a potential hazard (eg. discharges). <u>Obtain weather forecast</u> .
12. Slips, trips, falls.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Visual inspection</u> structures (e.g. ladders, manhole access steps, etc.) <u>Hard hat</u> , Winch.
13. Falling debris	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Hard hat. Appropriate PPE.
14. Electrocutation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Isolate power supplies
15. Entrapment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Secure all moving surfaces.
16. Infection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Appropriate PPE</u> , Washing facilities, <u>Wipes</u> , Barrier cream.
17. Darkness	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Torch. Head lamps. Site lighting. Available daylight.
18. Communication loss (a) On site (b) External communication	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Maintain visual contact. Use hand-line, IS radio. Use PMR + mobile telephone. Establish exact site location with personnel at base.
19. Dangers to public	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Erect notices. Physically isolate site. Maintain presence.

Is the site a Low, Medium or High risk site M

GENERAL PROCEDURE

	YES	NO	
1. Has site owner been informed (nature of work/exact location/duration)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Is a Permit to Work required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. Do you need RA assessment/code of practice from site owner?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Supplied by SWW</u>
4. Does a DAIT Risk Assessment already exist for the site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5. Has all equipment been checked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6. Have staff roles been identified (including designating Top Person)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Evans-May</u>
7. Are all Team members fully trained in equipment/procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8. Do you have an agreed emergency procedure?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Now ensure Safe Systems of Work and Risk Assessment forms are obtained from Site operators i.e. SWW
D.A.I.T Operating Procedures need to be completed and a Permit to Work is required.



DEVON AREA INVESTIGATIONS TEAM ACTIVITY RISK ASSESSMENT

CONFINED SPACES PRE ENTRY CHECK LIST

PERMIT TO WORK REF:

SAFE SYSTEMS OF WORK REF:

	YES	NO	
1. Risk assessment of site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Check weather (if applicable): - is it ok?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	acc showers tight
3. Has site been secured?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Carry out communications check	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5. Comms or office informed of work plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	office
6. Size of entry point checked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7. Vent site for ten min. check for surface gas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not applicable
8. Check entrance to site for gas for 5 minutes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9. Do you have an agreed emergency procedure?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10. Check access structure including ladders and steps	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11. Are there any unusual smells?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12. Does water levels look ok?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13. Is it safe to enter?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
14. Have team been read the caution and informed of emergency procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
15. Is there a first Aid kit available?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yan
16. Check PPE is correctly fitted before entry.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
17. Has the site risk level changed ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
			if YES then suspend operation.

CONFINED SPACES POST ENTRY CHECK LIST

1. Is the work completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Has the work been stopped?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Are all personnel out of the confined space?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Has the site been left in a safe condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

DEVON AREA INVESTIGATION TEAM (D.A.I.T.)
PROCEDURE FOR WORKING IN CONFINED SPACES

Date 8/6/00

Name of site Section (Devon) STW - settle storm

Indicate nature of work.

Install Event logger on storm out let

List any hazards highlighted during risk assessment, along with control measures to be put in place.

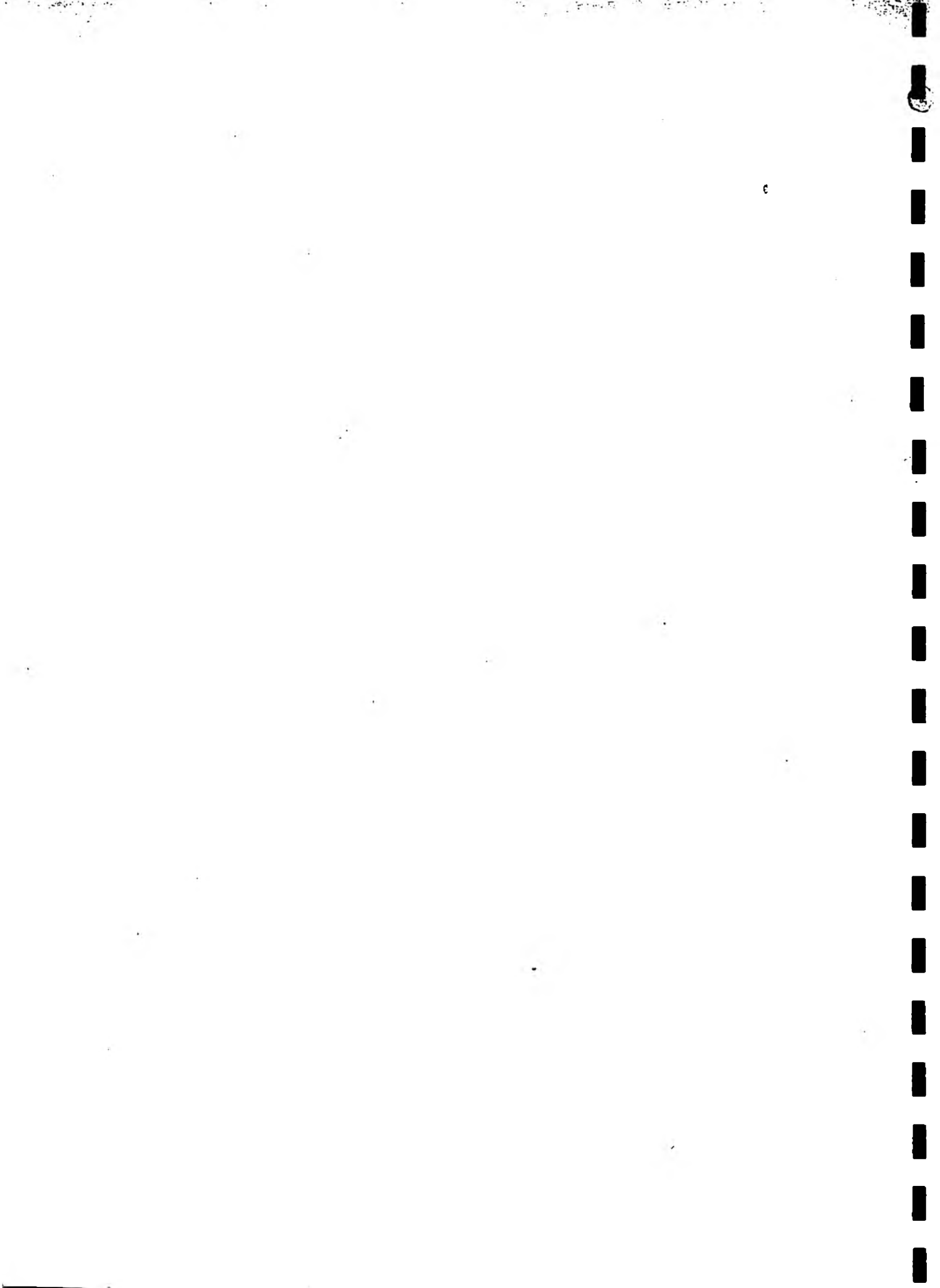
Slips trips + falls - Good foot wear - Rope Hand Hat
injection - gloves
Explosion + Noxious gases - Cont. Monitoring + Escapade

Indicate communications procedure in the event of an emergency.

SWW operative on site
Use phone - PMR + land line phone at work
999
112

Signature of Authorised Person [Signature]

Signature of Person in Charge [Signature]



DEVON AREA H&S SITE RISK ASSESSMENT

ver 1.1
14/02/00

TRADE / FARMS / INVESTIGATIONS / STW / FRESHWATER / MARINE

CATCHMENT / NGR

SITE: *Seaton Devon South STW -*

Mobile phone reception Good / Poor

Date of Assessment *8/5/00*

Name of Officer *PK*

URN

CONSIDERATION

(A) GENERAL	YES	NO	RISK H/M/L	ACTIONS REQUIRED
1. Do you need to notify site manager/ landowner of Agency presence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<i>just let yourself be known if anyone on site.</i>
2. Do you need to be accompanied by site staff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Does task require more than one person?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<i>Not for download of logger - installation / removal = confined space</i>
4. Are you working outside daylight hours?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
5. Do you need to employ Lone Worker procedures?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
6. Is protective clothing required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Good trap to boots - access ladders could be slippery when wet</i>
7. Will seasonal factors affect site safety?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Could be slippery when wet</i>

8. Are there dangers from the following	YES	NO	RISK H/M/L	
chemicals	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
biological hazard / infection from animals / pathogens	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>sewage</i>
explosive / noxious gases	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<i>not if just downloading loggers.</i>
inhalation of fumes/dust/asbestos	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
moving vehicles	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
machinery	<input type="checkbox"/>	<input type="checkbox"/>		
falling objects	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
electricity sources	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
open tanks / lagoons / catch pits	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>but routed off</i>
ladders / steps / scaffolding	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>to both sites (Storm banks + stormscreen)</i>

	YES	NO	RISK H/M/L	
9. Are overhead power supplies present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
10. Is site secure for equipment installation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>locked STW</i>

(B) VEHICLE ACCESS

	YES	NO	RISK	
			H/M/L	
1. Is there safe vehicle access to site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Can vehicles be parked/left safely?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

(C) FOOT ACCESS

	YES	NO	RISK	
			H/M/L	
1. Is there safe foot access to the site?	<input type="checkbox"/>	<input type="checkbox"/>		
2. Are there fences/ditches etc. to cross?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

(D) BANK SITES

	YES	NO	RISK	
			H/M/L	
1. Are banks steep or slippery?	<input type="checkbox"/>	<input type="checkbox"/>		
2. Might banks be undercut?	<input type="checkbox"/>	<input type="checkbox"/>		
3. Is water deep/strong currents?	<input type="checkbox"/>	<input type="checkbox"/>		

(E) CLIFF OR SIMILAR SITES

	YES	NO	RISK	
			H/M/L	
1. Are there dangers from falling?	<input type="checkbox"/>	<input type="checkbox"/>		
2. Is the terrain steep/slippery?	<input type="checkbox"/>	<input type="checkbox"/>		
3. Might the cliff be overhanging?	<input type="checkbox"/>	<input type="checkbox"/>		
4. Are ropes required?	<input type="checkbox"/>	<input type="checkbox"/>		

(F) CONFINED SPACES

	YES	NO	RISK	
			H/M/L	
1. Are confined spaces involved? IF YES YOU MUST COMPLETE THE CONFINED SPACE FORM HELD IN OFFICE	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>for installation-Removal of storm loggers</i>

(G) BOAT WORK

	YES	NO	RISK	
			H/M/L	
1. Is boat work involved? IF YES YOU MUST COMPLETE THE BOAT WORK FORM HELD IN OFFICE	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(H) MANHOLES

	YES	NO	RISK	
			H/M/L	
1. Is the area around the manhole safe?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Are bollards/cones required?	<input type="checkbox"/>	<input type="checkbox"/>		
3. Can cover be lifted safely?	<input type="checkbox"/>	<input type="checkbox"/>		
4. Are cover keys/other equipment needed?	<input type="checkbox"/>	<input type="checkbox"/>		

(I) AGGRESSIVE BEHAVIOUR

	YES	NO	RISK	
			H/M/L	
1. Are people likely to be aggressive?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Are guard dogs/farm dogs/other livestock a risk?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(J) OTHER

	RISK	
	H/M/L	

DEVON AREA H&S SITE RISK ASSESSMENT

ver 1.1
14/02/00

TRADE / FARMS / INVESTIGATIONS / STW / FRESHWATER / MARINE

SITE: *Colyford PS Stormlog*

CATCHMENT / NGR

Date of Assessment *12/5/00*

Name of Officer *PR*

Mobile phone reception *Good / Poor*

URN

CONSIDERATION

(A) GENERAL	YES	NO	RISK H/M/L	ACTIONS REQUIRED
1. Do you need to notify site manager/ landowner of Agency presence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Do you need to be accompanied by site staff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Does task require more than one person?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Install yes - download NO</i>
4. Are you working outside daylight hours?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
5. Do you need to employ Lone Worker procedures?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
6. Is protective clothing required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
7. Will seasonal factors affect site safety?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>possibly slippery</i>

B. Are there dangers from the following

	YES	NO	RISK H/M/L	
chemicals	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
biological hazard / infection from animals / pathogens	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>sewage</i>
explosive / noxious gases	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
inhalation of fumes/dust/asbestos	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
moving vehicles	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
machinery	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
falling objects	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
electricity sources	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
open tanks / lagoons / catch pits	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
ladders / steps / scaffolding	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

	YES	NO	RISK H/M/L	
9. Are overhead power supplies present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
10. Is site secure for equipment installation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>E2 key but fence not high</i>

(B) VEHICLE ACCESS

	YES	NO	RISK H/M/L	
1. Is there safe vehicle access to site?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<i>Parking pub - permission granted, becareful on Rd! see above</i>
2. Can vehicles be parked/left safely?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

(C) FOOT ACCESS

	YES	NO	RISK H/M/L	
1. Is there safe foot access to the site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>see above</i>
2. Are there fences/ditches etc. to cross?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(D) BANK SITES

	YES	NO	RISK H/M/L	
1. Are banks steep or slippery?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>possibly with rain yes.</i>
2. Might banks be undercut?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. Is water deep/strong currents?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(E) CLIFF OR SIMILAR SITES

	YES	NO	RISK H/M/L	
1. Are there dangers from falling?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Is the terrain steep/slippery?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. Might the cliff be overhanging?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
4. Are ropes required?	<input type="checkbox"/>	<input type="checkbox"/>		

(F) CONFINED SPACES

	YES	NO	RISK H/M/L	
1. Are confined spaces involved? IF YES YOU MUST COMPLETE THE CONFINED SPACE FORM HELD IN OFFICE	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(G) BOAT WORK

	YES	NO	RISK H/M/L	
1. Is boat work involved? IF YES YOU MUST COMPLETE THE BOAT WORK FORM HELD IN OFFICE	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(H) MANHOLES


	YES	NO	RISK H/M/L	
1. Is the area around the manhole safe?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Are bollards/cones required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Can cover be lifted safely?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4. Are cover keys/other equipment needed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

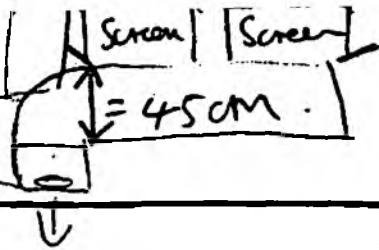
(I) AGGRESSIVE BEHAVIOUR

	YES	NO	RISK H/M/L	
1. Are people likely to be aggressive?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Are guard dogs/farm dogs/other livestock a risk?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(J) OTHER

	RISK H/M/L	
		<i>Take care walking across Rd. U-busy + not good vis.</i>

sign flag

 Suggest stake in ground frothed
 logger - band = 8-9"



DEVON AREA H&S SITE RISK ASSESSMENT

ver 1.1
14/02/00

TRADE / FARMS / INVESTIGATIONS / STW / FRESHWATER / MARINE

SITE: *Colyford STW - storm tanks*

CATCHMENT / NGR

Mobile phone reception **Good / Poor**

Date of Assessment *12/5/00*

Name of Officer *PTC*

URN

CONSIDERATION

(A) GENERAL	YES	NO	RISK H/M/L	ACTIONS REQUIRED
1. Do you need to notify site manager/ landowner of Agency presence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Do you need to be accompanied by site staff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Does task require more than one person?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4. Are you working outside daylight hours?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
5. Do you need to employ Lone Worker procedures?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
6. Is protective clothing required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Gloves!</i>
7. Will seasonal factors affect site safety?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

8. Are there dangers from the following	YES	NO	RISK H/M/L	ACTIONS REQUIRED
chemicals	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
biological hazard / infection from animals / pathogens	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Sewage</i>
explosive / noxious gases	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
inhalation of fumes/dust/asbestos	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
moving vehicles	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
machinery	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
falling objects	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
electricity sources	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
open tanks / lagoons / catch pits	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Storm tanks - No side rails</i>
ladders / steps / scaffolding	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

	YES	NO	RISK H/M/L	ACTIONS REQUIRED
9. Are overhead power supplies present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
10. Is site secure for equipment installation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

(B) VEHICLE ACCESS

	YES	NO	RISK	
			H/ML	
1. Is there safe vehicle access to site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		E2
2. Can vehicles be parked/left safely?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

(C) FOOT ACCESS

	YES	NO	RISK	
			H/ML	
1. Is there safe foot access to the site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Are there fences/ditches etc. to cross?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(D) BANK SITES

	YES	NO	RISK	
			H/ML	
1. Are banks steep or slippery?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Might banks be undercut?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Is water deep/strong currents?	<input type="checkbox"/>	<input type="checkbox"/>		

(E) CLIFF OR SIMILAR SITES

	YES	NO	RISK	
			H/ML	
1. Are there dangers from falling?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Is the terrain steep/slippery?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. Might the cliff be overhanging?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4. Are ropes required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

(F) CONFINED SPACES

	YES	NO	RISK	
			H/ML	
1. Are confined spaces involved? IF YES YOU MUST COMPLETE THE CONFINED SPACE FORM HELD IN OFFICE	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(G) BOAT WORK

	YES	NO	RISK	
			H/ML	
1. Is boat work involved? IF YES YOU MUST COMPLETE THE BOAT WORK FORM HELD IN OFFICE	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

(H) MANHOLES

	YES	NO	RISK	
			H/ML	
1. Is the area around the manhole safe?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Are bollards/cones required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. Can cover be lifted safely?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4. Are cover keys/other equipment needed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(I) AGGRESSIVE BEHAVIOUR

	YES	NO	RISK	
			H/ML	
1. Are people likely to be aggressive?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Are guard dogs/farm dogs/other livestock a risk?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(J) OTHER

	RISK	
	H/ML	

DEVON AREA LAUNCHING AND RECOVERY OF BOATS.

ver 1.0
09/02/00

SITE: *Seaton Yacht Club*

CATCHMENT
OUA

Date of Assessment *15/8/00*

Name of Officer *PRose*

Mobile phone reception *Good* / Poor

CONSIDERATION

ACTIONS REQUIRED

(A) GENERAL

	YES	NO	RISK H/M/L	
1. All crew adequately trained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>1 RYA Day Skipper / Advanced powerboat 1 RYA 2 1 passenger</i>
2. All crew aware of routes and tasks to be completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. Have emergency procedures been agreed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>on boat prior launch</i>
4. Base personnel aware of routes, tasks, times, communications etc?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
5. RCC personnel aware of routes, tasks, times, communications etc?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>by phone before launch</i>

8. Are there dangers from the following

	YES	NO	RISK H/M/L	
Boat passage to and from site	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
weather conditions	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
State of tide	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>at low tide difficult to get into harbour</i>
Risk of grounding	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>" Near mouth + W of beach</i>
Daylight constraints	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(B) LAUNCHING

	YES	NO	RISK H/M/L	
1. Can the boat be prepared on level ground?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Has boat been secured to trailer by two means i.e. winch strap and painter?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. Has winch strap been checked for signs of damage?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

(C) VEHICLE ACCESS

	YES	NO	RISK H/M/L	
1. Is there safe vehicle access to site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Yacht Club key provided</i>
2. Can vehicles be parked/left safely?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>in above</i>

(D) BOAT CHECK LIST

YES NO

RISK
H/M/L

ACTIONS REQUIRED

	YES	NO	RISK	ACTIONS REQUIRED
Fuel in boat?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Spare fuel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Auxiliary engine and fuel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Charts?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
VHF working?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
GPS working?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Navigaton lights?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Engine oil?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Air pump?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Basic tool kit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Flares?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Rope?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Ignition keys?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Trailer tyres ok?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Trailer board lights?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<i>in L. Rowers</i>
Trailer keys?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Lif jackets?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
PPE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Water / Food?	<input type="checkbox"/>	<input type="checkbox"/>		
Spare clothing?	<input type="checkbox"/>	<input type="checkbox"/>		

(E) OTHER

RISK
H/M/L

Safe System of Work

SITE : HORSELEARS PS - AXMINSTER

ENTRY INTO STORM TANKS

TWO PERSONS PRESENT WHEN INSTALLATION IS CARRIED OUT

CONTACT KILMINGTON WWTW ON MORNING WORK IS DUE TO START. TO CHECK THAT STORM TANKS ARE EMPTY AND NO RAIN IS FORECAST ON TEL : 0129732670

1. Remove safety chains from railings.
2. Entry into tank by fixed ladder.
3. Small portable ladder required if entry into bottom of storm tank is required.
4. Gas detection equipment not required.
5. Remove all equipment after installation of recorder.

CAUTION : Walls and floor of storm tank could be slippery.

Peter Turney
Works Supervisor
19/05/00

2. Health and Safety Management Action Plan

The following Action Plan is based on the Health and Safety Management Systems in the Agency's Health and Safety Management Procedures Manual.

Management system	Priority	Key note / Recommendations	Action	Methodology	Timescale	Responsible Person
4. Risk Management	High	Incomplete recording of risks ¹ .	1. Functions identify a staff member(s) to act as a focal point for the production of risk assessments. The work should be co-ordinated with other functions to avoid duplication of effort.	Discussions at Management Group meetings and feedback through Health & Safety "Zap" team.	Generic risk assessments to be completed by 31/3/00, specifics by 30/9/00.	Section manager.
	High	Monitoring and updating risk assessments ² .	2. Existing assessments should be reviewed regularly and certainly during the period of identification of tasks requiring assessments.	Staff members with responsibility for risk assessments should list all tasks and review or produce assessments as necessary.	As above.	Team leader.
	High	Identify resource implication.	3. Section managers/team leaders to assess projected time needed to complete risk assessments.	Set Performance Objective for staff as per Action 1.	At next quarterly review.	Area Manager to cascade.
	High	New tasks/burdens need to be assessed prior to work taking place ³ .	4. Nominated member of staff (Action 1) to be advised when new tasks/burdens to be introduced to enable risk assessment to be completed.	As part of the production of Job Descriptions for new burdens posts, line managers should advise nominated staff member of the need for a risk assessment. If existing Job Descriptions are to be amended either formally or informally the same process must occur.	As and when necessary.	Section manager.
7. Managing Contractors	High	Need to review situations where contractors are used.	5. Section managers and team leaders to identify all current external contractors, use of consultants etc. and measure the level of compliance against the relevant management standard. All new arrangements are to be controlled under a 'responsible manager' and comply with latest guidance ¹ .	Any orders/works requests made to outside bodies must be classed as 'contractors' and should be dealt with accordingly. (This applies to a one-off pollution response as well as construction/ maintenance works.)	As and when necessary.	Section manager.
	High	Monitoring and recording of contractors' performance ¹ .	6. Regular meetings with contractors to review performance ¹ .	A detailed work plan and timescale should be presented by the contractor prior to work commencing. This should be in a measurable format. Meetings should be held at pre-determined intervals to allow both the Agency and the contractor to report on problems or successes.	When new works are undertaken and a plan is in place for suggested reviews of existing works by End January 2000.	Section managers.

The following national work has been highlighted as important for the completion of local Action Plans:

¹ Further guidance and help on the keeping of records.

² Further help with quality control of risk assessments and their implementation.

³ Production of a code of practice on Contractor Management.

PERMIT TO WORK IN A CONFINED SPACE

Site: Honbaers PS
 Permit Serial Number: 7/6/00-1

Notes.

The Authorised Person (Confined Spaces) shall.

1. Complete and sign Part 1.
2. Cancel the Permit Part 4 when Part 3 has been completed by the person in charge.

Notes.

The Person in charge shall.

1. Countersign Part 1 & Complete Part 2 before starting work
2. Sign Part 3 when the work is complete, personnel and all equipment has been withdrawn.

Part 1

Identity and description of Confined Space.

Steam turbine overhaul

Reason for Entry/ Work to be carried out (The Task)

Install Steamlog

Expected Duration of Task (Hours) 2
 Starting at (Hours) 12 On (Date) 7/6/00

Names of Persons (Full) involved in task whether or not they may enter the Confined Space.

Alan King
Emma May Harrison

Special Precautions/Equipment Taken/Required
 Tick Box for Yes Cross Box X for No

Risk Assessment carried out	<input checked="" type="checkbox"/>
Warning Signs/Barriers installed	<input type="checkbox"/> X
Liquid flow Stopped/Diverted	<input type="checkbox"/> X
Gaseous Flow Stopped/Sealed	<input type="checkbox"/> X
Continuos Atmosphere testing required	<input checked="" type="checkbox"/>
Forced Air Ventilation installed	<input type="checkbox"/> X
Warning Systems for Rainfall/Tides	<input type="checkbox"/> X
Lighting Required	<input type="checkbox"/> X
Escape Breathing Apparatus Required	<input type="checkbox"/> X

Other _____

Location of Nearest Telephone Mobile + Land
 Numbers to call in an Emergency 999
112

Signature of Authorised Person [Signature]

Signature of Person in Charge [Signature]

Date 7/6/00

Part 2

I confirm that all the persons listed in Part 1 are familiar with the Safety and Emergency arrangements and are properly equipped.

I am satisfied that the Atmosphere within the Confined Space is safe to work in at the present and will be monitored continuously.

Time Atmosphere check started 11:25
 The proper equipment necessary to carry out the task safely, is serviced and available.

Caution to Entrant(s) TO BE READ ALOUD

At the first sign of dizziness, eye irritation, headache, pulsating of the temples, nausea or audible alarm Vacate Confined Spaces at once.

Caution to Gang member outside Confined Space.
 If you hear an audible alarm or suspect that an entrant has been overcome do not attempt to enter the Confined Space unless equipped with and trained in the use of suitable breathing apparatus. Summon effective help quickly.

Signature of person in charge [Signature]
 Date 7/6/00

Part 3

The work detailed in Part 1 of the Permit has been Completed / Stopped (if stopped enter reason below)

and that all personnel and equipment under my control has been withdrawn, and warned that it is no longer safe to work within the Confined Space.

I confirm that the site has been made safe and any deficiencies of equipment will be reported.

Signature of Person in Charge [Signature]
 Date 7/6/00

Part 4

This permit has been cancelled. Any changes will be reported and acted on.

Signature of Authorised Person _____

Date _____

DEVON AREA H&S SITE RISK ASSESSMENT

ver 1.1
14/02/00

TRADE / FARMS / INVESTIGATIONS / STW / FRESHWATER / MARINE

SITE: *Abisclears pumping station*

CATCHMENT / NGR

Mobile phone reception *Good* / Poor

Date of Assessment *8/5/00*

Name of Officer *P/L*

URN

CONSIDERATION

(A) GENERAL	YES	NO	RISK H/M/L	ACTIONS REQUIRED
1. Do you need to notify site manager/ landowner of Agency presence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Do you need to be accompanied by site staff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
3. Does task require more than one person?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<i>Not for lone worker - for installations, confined space</i>
4. Are you working outside daylight hours?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
5. Do you need to employ Lone Worker procedures?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
6. Is protective clothing required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Good grip on boots - may be slippery in wet weather</i>
7. Will seasonal factors affect site safety?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>See above</i>

8. Are there dangers from the following	YES	NO	RISK H/M/L	
chemicals	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
biological hazard / infection from animals / pathogens	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Sewage</i>
explosive / noxious gases	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Confined space area otherwise no</i>
Inhalation of fumes/dust/asbestos	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
moving vehicles	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
machinery	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
falling objects	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
electricity sources	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
open tanks / lagoons / catch pits	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Railed off</i>
ladders / steps / scaffolding	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>only for installation / removed</i>

	YES	NO	RISK H/M/L	
9. Are overhead power supplies present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>Not using sampling pole so ok</i>
10. Is site secure for equipment installation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

(B) VEHICLE ACCESS

	YES	NO	RISK	
			H/M/L	
1. Is there safe vehicle access to site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Can vehicles be parked/left safely?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

(C) FOOT ACCESS

	YES	NO	RISK	
			H/M/L	
1. Is there safe foot access to the site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. Are there fences/ditches etc. to cross?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

(D) BANK SITES

	YES	NO	RISK	
			H/M/L	
1. Are banks steep or slippery?	<input type="checkbox"/>	<input type="checkbox"/>		
2. Might banks be undercut?	<input type="checkbox"/>	<input type="checkbox"/>		
3. Is water deep/strong currents?	<input type="checkbox"/>	<input type="checkbox"/>		

(E) CLIFF OR SIMILAR SITES

	YES	NO	RISK	
			H/M/L	
1. Are there dangers from falling?	<input type="checkbox"/>	<input type="checkbox"/>		
2. Is the terrain steep/slippy?	<input type="checkbox"/>	<input type="checkbox"/>		
3. Might the cliff be overhanging?	<input type="checkbox"/>	<input type="checkbox"/>		
4. Are ropes required?	<input type="checkbox"/>	<input type="checkbox"/>		

(F) CONFINED SPACES

	YES	NO	RISK	
			H/M/L	
1. Are confined spaces involved? IF YES YOU MUST COMPLETE THE CONFINED SPACE FORM HELD IN OFFICE	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>only if installing + removing manholes</i>

(G) BOAT WORK

	YES	NO	RISK	
			H/M/L	
1. Is boat work involved? IF YES YOU MUST COMPLETE THE BOAT WORK FORM HELD IN OFFICE	<input type="checkbox"/>	<input type="checkbox"/>		

(H) MANHOLES

	YES	NO	RISK	
			H/M/L	
1. Is the area around the manhole safe?	<input type="checkbox"/>	<input type="checkbox"/>		
2. Are bollards/cones required?	<input type="checkbox"/>	<input type="checkbox"/>		
3. Can cover be lifted safely?	<input type="checkbox"/>	<input type="checkbox"/>		
4. Are cover keys/other equipment needed?	<input type="checkbox"/>	<input type="checkbox"/>		

(I) AGGRESSIVE BEHAVIOUR

	YES	NO	RISK	
			H/M/L	
1. Are people likely to be aggressive?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
2. Are guard dogs/farm dogs/other livestock a risk?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<i>PS on foot - may have called on dogs</i>

(J) OTHER

	RISK	
	H/M/L	

DEVON AREA INVESTIGATIONS TEAM ACTIVITY RISK ASSESSMENT

CONFINED SPACES

Anyone entering a confined space is legally obliged to complete a risk assessment beforehand.

SITE: Hosbears, PS Axminster
Steam tanks

CATCHMENT

Date of Assessment 8/5/00

Name of Officer PK

HAZARD	YES	NO	CONTROL MEASURES
8. Noxious or asphyxiating gases	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Gas monitors. Escape set. Ventilation of confined space. Active ventilation.
9. Explosion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	IS rated equipment. Gas monitors. Non-static clothing.
10. Hazardous Chemicals	<input type="checkbox"/>	<input checked="" type="checkbox"/>	COSHH regulations. PPE.
11. Drowning (a) Falling into liquid (b) Rising Water Levels	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Lifejacket. Ropes. Use safety chains. Suspended any process that is a potential hazard (eg. discharges). <u>Obtain weather forecast.</u>
12. Slips, trips, falls.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Visual inspection structures (e.g. ladders, manhole access steps, etc.). Hard hat. Winch.
13. Falling debris	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Hard hat. Appropriate PPE.
14. Electrocutation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Isolate power supplies
15. Entrapment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Secure all moving surfaces.
16. Infection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Appropriate PPE. Washing facilities. Wipes. Barrier cream.
17. Darkness	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Torch. Head lamps. Site lighting. Available daylight.
18. Communication loss (a) On site (b) External communication	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Maintain visual contact. Use hard-line. IS radio. Use PMR + mobile telephone. Establish exact site location with personnel at base.
19. Dangers to public	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Erect notices. Physically isolate site. Maintain presence.

Is the site a Low, Medium or High risk site

GENERAL PROCEDURE

	YES	NO	
1. Has site owner been informed (nature of work/exact location/duration)	<input type="checkbox"/>	<input type="checkbox"/>	
2. Is a Permit to Work required?	<input type="checkbox"/>	<input type="checkbox"/>	
3. Do you need RA assessment/code of practice from site owner	<input type="checkbox"/>	<input type="checkbox"/>	
4. Does a DAIT Risk Assessment already exist for the site?	<input type="checkbox"/>	<input type="checkbox"/>	
5. Has all equipment been checked?	<input type="checkbox"/>	<input type="checkbox"/>	
6. Have staff roles been identified (including designating Top Person)?	<input type="checkbox"/>	<input type="checkbox"/>	
7. Are all Team members fully trained in equipment/procedures?	<input type="checkbox"/>	<input type="checkbox"/>	
8. Do you have an agreed emergency procedure?	<input type="checkbox"/>	<input type="checkbox"/>	

Now ensure Safe Systems of Work and Risk Assessment forms are obtained from Site operators i.e. SWW

DAIT Operating Procedures need to be completed and a Permit to Work is required.

Handwritten notes and diagrams:
 Lunch ends
 at base
 [Diagram showing a structure with an arrow pointing to a specific part]

DEVON AREA INVESTIGATIONS TEAM ACTIVITY RISK ASSESSMENT

CONFINED SPACES PRE ENTRY CHECK LIST

PERMIT TO WORK REF: 6/6/00-1

SAFE SYSTEMS OF WORK REF:

	YES	NO	
1. Risk assessment of site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Check weather (if applicable): - is it ok?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	light showers occ.
3. Has site been secured?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Carry out communications check	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5. Comms or office informed of work plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	sj/ue
6. Size of entry point checked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7. Vent site for ten min. check for surface gas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not applicable - open site
8. Check entrance to site for gas for 5 minutes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9. Do you have an agreed emergency procedure?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10. Check access structure including ladders and steps	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11. Are there any unusual smells?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12. Does water levels look ok?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13. Is it safe to enter?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
14. Have team been read the caution and informed of emergency procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
15. Is there a first Aid kit available?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes
16. Check PPE is correctly fitted before entry.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
17. Has the site risk level changed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
			# YES then suspend operation.

CONFINED SPACES POST ENTRY CHECK LIST

1. Is the work completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Has the work been stopped?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Are all personnel out of the confined space?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Has the site been left in a safe condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**DEVON AREA INVESTIGATION TEAM (D.A.I.T.)
PROCEDURE FOR WORKING IN CONFINED SPACES**

Date 7/6/00

Name of site Horsbeers PS overflow from storm tanks

Indicate nature of work.

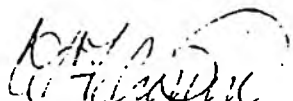
Install monitor on overflow from storm tanks


List any hazards highlighted during risk assessment, along with control measures to be put in place.

Slips trips + falls - foot wear + Rope - Hard Hat
Infection - Gloves
Explosive gases - wind - Monitoring of gases

Indicate commutations procedure in the event of an emergency.

Mobile + PMR
999
112

Signature of Authorised Person 

Signature of Person in Charge 

APPENDIX V

APPENDIX VI

Harbour Road Pumping Station

Date	Hours run		Comments
	Storm pump 1	Storm pump 2	
23-Jun-00	1579.6	1482.6	
08-Jul-00	1579.1	1482.6	
28-Jul-00	1579.1	1482.6	
07-Aug-01	1579.1	1482.6	
22-Aug-00	1582.3	1485.8	
24-Aug-00	1582.3	1485.8	Pump Fail light on
19-Sep-00	1582.7	1486.0	
02-Oct-00	1583.4	1486.7	

Total Hours Run for the period 23rd June 2000 to 2nd October 2000:	
Storm Pump 1	4.1
Storm Pump 2	3.8
Total	7.9 hrs

APPENDIX VII

Our ref: AFS/02A/rt
Your ref:



ENVIRONMENT
AGENCY

Date: 8 January 2001

Mr Graham Murphy
Waste Water Manager
South West Water
Peninsula House
Rydon Lane
Exeter
EX2 7HR

Dear Sir

DISCHARGE OF EFFLUENT FROM AXMOUTH PUMPING STATION

It has come to my attention that a near - continuous discharge of sewage effluent is occurring from the above pumping station overflow to the Axe Estuary.

Having investigated the matter with the local operators and discussed it with their manager Jack Board, it would appear that the underlying cause of the problem is massive groundwater infiltration of the drainage network.

What concerns me particularly about this situation is that, although the effluent is dilute and having only local environmental impact at present, there is easy public access to the discharge point with the inevitable public health risks.

For formal action to be avoided over this matter, it is essential that appropriate emergency works are carried out immediately. Please inform me within 48 hours of receipt of this letter (initially to be sent by fax), of the steps proposed and their likely timescale.

Notwithstanding the above, should the situation worsen, or public complaint be received, we reserve the right to instigate legal action immediately, either in the form of prosecution for illegal discharge or the serving of an appropriate notice.

Yours faithfully

A F Sweetapple

AF A F SWEETAPPLE
Environment Protection Officer

Please ask for A F Sweetapple ext 6115

cc Mr Simon Smale, Environmental Health Department, EDDC, The Knowle, Sidmouth,
Mr Jack Board, South West Water, Cullompton Waste Water Treatment Works,
Cullompton, Devon

Environment Agency
Exminster House, Miller Way, Exminster, Exeter, EX6 8AS
Tel: 01392 444000 Fax: 01392 316016

Our Ref: AFS/RT/02A
Your Ref:

Date: 5 February 2001

TO: The Company Secretary
South West Water Ltd
Peninsula House
Rydon Lane
Exeter
Devon EX2 7HR

Dear Sir,

Water Resources Act 1991 Section 90B (as amended by Environment Act 1995 Schedule 22. paragraph 142) - Enforcement Notice

DISCHARGE CONSENT NUMBER FOLIO 67 (Dated 14 June 1977)

AXMOUTH SEWAGE PUMPING STATION (Overflow from). AXMOUTH. DEVON

BREACH OF CONSENT

I am writing to advise you that failure to comply with condition (b)1 has been noted by the Environment Agency.

It is believed that massive clean water infiltration of the sewerage network serving the Axmouth Pumping Station is occurring and that it is currently causing a near-continuous discharge of sewage effluent to the Axe estuary.

The view of this Agency is that the increased volumes of effluent occurring at the pumping station, as the result of this infiltration, do not constitute storm sewage and are therefore not permitted to be discharged in whole or in part to the Axe Estuary under the terms of this consent.

Unless remedial action is taken by you to ensure compliance with condition(b)1 an Enforcement Notice, requiring steps to be taken to remedy the contravention within a specified time period will be served on you.

The notice will require you to

- (a) carry out immediate survey work to determine the significant point(s) of infiltration
- (b) notify the agency in writing within 7 days of the results of the survey and provide a timetable of appropriate remedial works.

(c) carry out the appropriate remedial works according to a timetable agreed with the Agency.

If appropriate works cannot be achieved within an acceptable timescale, the Agency may require other actions such as the tankering away of effluent on an indefinite basis.

If you consider that I should not issue such a notice, or that its requirements should be changed, you should telephone, write, or make an appointment to see my manager. Otherwise you will receive the notice in not less than 10 working days (*or shorter period if risk requires*). If you would like anything explained in more detail or further discussion please contact me by telephoning 01392 316115.

My manager is Mr D Brogden, Team Leader Environment Protection extension 6114.

Yours faithfully,

A F Sweetapple
Environment Protection Officer

APPENDIX VIII

Seaton STW Settled Storm Overflow

5454-004

installed 7/6/00

START DATE	START TIME	END DATE	END TIME	DURATION Hrs:Mins:Sec	DD/MM/Yr Hrs:Min
09/06/00	05:17:00	09/06/00	05:20:00	0:03:00	00/01/00 00:03
				Total	00/01/00 00:03 0 hr 3 min
07/07/00	01:22:00	07/07/00	04:26:00	3:04:00	00/01/00 03:04
07/07/00	04:51:00	07/07/00	04:52:00	0:01:00	00/01/00 00:01
07/07/00	09:14:00	07/07/00	09:54:00	0:40:00	00/01/00 00:40
07/07/00	09:58:00	07/07/00	10:01:00	0:03:00	00/01/00 00:03
07/07/00	10:02:00	07/07/00	10:13:00	0:11:00	00/01/00 00:11
07/07/00	10:20:00	07/07/00	10:22:00	0:02:00	00/01/00 00:02
07/07/00	10:24:00	07/07/00	10:28:00	0:04:00	00/01/00 00:04
07/07/00	10:30:00	07/07/00	10:31:00	0:01:00	00/01/00 00:01
07/07/00	10:32:00	07/07/00	10:36:00	0:04:00	00/01/00 00:04
07/07/00	10:37:00	07/07/00	10:56:00	0:19:00	00/01/00 00:19
07/07/00	10:58:00	07/07/00	11:00:00	0:02:00	00/01/00 00:02
07/07/00	11:02:00	07/07/00	11:05:00	0:03:00	00/01/00 00:03
07/07/00	11:07:00	07/07/00	11:08:00	0:01:00	00/01/00 00:01
07/07/00	11:09:00	07/07/00	11:11:00	0:02:00	00/01/00 00:02
07/07/00	11:16:00	07/07/00	11:20:00	0:04:00	00/01/00 00:04
07/07/00	11:21:00	07/07/00	11:31:00	0:10:00	00/01/00 00:10
07/07/00	11:37:00	07/07/00	11:40:00	0:03:00	00/01/00 00:03
07/07/00	11:42:00	07/07/00	11:43:00	0:01:00	00/01/00 00:01
07/07/00	12:11:00	07/07/00	12:12:00	0:01:00	00/01/00 00:01
07/07/00	12:14:00	07/07/00	12:16:00	0:02:00	00/01/00 00:02
08/07/00	10:07:00	08/07/00	10:08:00	0:01:00	00/01/00 00:01
08/07/00	10:25:00	08/07/00	10:27:00	0:02:00	00/01/00 00:02
08/07/00	10:28:00	08/07/00	10:29:00	0:01:00	00/01/00 00:01
08/07/00	10:39:00	08/07/00	10:43:00	0:04:00	00/01/00 00:04
08/07/00	10:52:00	08/07/00	11:19:00	0:27:00	00/01/00 00:27
08/07/00	11:24:00	08/07/00	11:28:00	0:04:00	00/01/00 00:04
08/07/00	11:34:00	08/07/00	11:48:00	0:14:00	00/01/00 00:14
08/07/00	11:50:00	08/07/00	12:06:00	0:16:00	00/01/00 00:16
08/07/00	12:13:00	08/07/00	12:39:00	0:26:00	00/01/00 00:26
08/07/00	12:40:00	08/07/00	12:44:00	0:04:00	00/01/00 00:04
08/07/00	12:46:00	08/07/00	12:48:00	0:02:00	00/01/00 00:02
08/07/00	12:52:00	08/07/00	12:54:00	0:02:00	00/01/00 00:02
08/07/00	12:56:00	08/07/00	13:00:00	0:04:00	00/01/00 00:04
08/07/00	13:06:00	08/07/00	13:09:00	0:03:00	00/01/00 00:03
08/07/00	13:14:00	08/07/00	13:17:00	0:03:00	00/01/00 00:03
08/07/00	13:19:00	08/07/00	13:23:00	0:04:00	00/01/00 00:04
08/07/00	13:25:00	08/07/00	13:26:00	0:01:00	00/01/00 00:01
08/07/00	13:27:00	08/07/00	13:28:00	0:01:00	00/01/00 00:01
08/07/00	13:31:00	08/07/00	13:33:00	0:02:00	00/01/00 00:02
09/07/00	08:45:00	09/07/00	11:34:00	2:49:00	00/01/00 02:49
09/07/00	12:21:00	09/07/00	12:43:00	0:22:00	00/01/00 00:22
09/07/00	13:05:00	09/07/00	13:41:00	0:36:00	00/01/00 00:36
09/07/00	13:45:00	09/07/00	13:50:00	0:05:00	00/01/00 00:05
09/07/00	13:52:00	09/07/00	13:53:00	0:01:00	00/01/00 00:01
09/07/00	13:55:00	09/07/00	14:00:00	0:05:00	00/01/00 00:05
09/07/00	14:05:00	09/07/00	14:10:00	0:05:00	00/01/00 00:05
09/07/00	14:15:00	09/07/00	14:16:00	0:01:00	00/01/00 00:01
10/07/00	08:29:00	10/07/00	08:52:00	0:23:00	00/01/00 00:23
10/07/00	08:53:00	10/07/00	09:00:00	0:07:00	00/01/00 00:07
10/07/00	09:09:00	10/07/00	09:11:00	0:02:00	00/01/00 00:02
10/07/00	09:16:00	10/07/00	09:17:00	0:01:00	00/01/00 00:01
10/07/00	09:20:00	10/07/00	09:22:00	0:02:00	00/01/00 00:02
10/07/00	09:25:00	10/07/00	10:11:00	0:46:00	00/01/00 00:46
10/07/00	10:19:00	10/07/00	10:26:00	0:07:00	00/01/00 00:07
10/07/00	10:31:00	10/07/00	11:43:00	1:12:00	00/01/00 01:12
10/07/00	11:44:00	10/07/00	11:45:00	0:01:00	00/01/00 00:01
10/07/00	11:46:00	10/07/00	11:47:00	0:01:00	00/01/00 00:01

10/07/00	11:54:00	10/07/00	11:55:00	0:01:00	00/01/00 00:01
10/07/00	12:03:00	10/07/00	12:09:00	0:06:00	00/01/00 00:06
10/07/00	12:13:00	10/07/00	12:20:00	0:07:00	00/01/00 00:07
10/07/00	12:26:00	10/07/00	12:28:00	0:02:00	00/01/00 00:02
10/07/00	12:30:00	10/07/00	12:32:00	0:02:00	00/01/00 00:02
10/07/00	13:07:00	10/07/00	13:08:00	0:01:00	00/01/00 00:01
10/07/00	13:14:00	10/07/00	13:56:00	0:42:00	00/01/00 00:42
10/07/00	13:57:00	10/07/00	13:58:00	0:01:00	00/01/00 00:01
10/07/00	13:59:00	10/07/00	14:35:00	0:36:00	00/01/00 00:36
10/07/00	14:36:00	10/07/00	15:02:00	0:26:00	00/01/00 00:26
10/07/00	15:05:00	10/07/00	15:06:00	0:01:00	00/01/00 00:01
10/07/00	15:07:00	10/07/00	15:14:00	0:07:00	00/01/00 00:07
10/07/00	15:15:00	10/07/00	15:17:00	0:02:00	00/01/00 00:02
10/07/00	15:18:00	10/07/00	15:21:00	0:03:00	00/01/00 00:03
10/07/00	15:22:00	10/07/00	15:27:00	0:05:00	00/01/00 00:05
10/07/00	15:31:00	10/07/00	15:32:00	0:01:00	00/01/00 00:01
10/07/00	15:36:00	10/07/00	15:37:00	0:01:00	00/01/00 00:01
10/07/00	15:39:00	10/07/00	15:41:00	0:02:00	00/01/00 00:02
10/07/00	15:51:00	10/07/00	15:52:00	0:01:00	00/01/00 00:01
11/07/00	09:18:00	11/07/00	09:59:00	0:41:00	00/01/00 00:41
11/07/00	10:02:00	11/07/00	10:04:00	0:02:00	00/01/00 00:02
11/07/00	10:05:00	11/07/00	10:06:00	0:01:00	00/01/00 00:01
11/07/00	10:07:00	11/07/00	10:13:00	0:06:00	00/01/00 00:06
11/07/00	10:14:00	11/07/00	10:15:00	0:01:00	00/01/00 00:01
11/07/00	10:18:00	11/07/00	10:20:00	0:02:00	00/01/00 00:02
11/07/00	10:26:00	11/07/00	10:27:00	0:01:00	00/01/00 00:01
11/07/00	10:32:00	11/07/00	10:41:00	0:09:00	00/01/00 00:09
11/07/00	10:43:00	11/07/00	10:48:00	0:05:00	00/01/00 00:05
11/07/00	10:56:00	11/07/00	11:01:00	0:05:00	00/01/00 00:05
11/07/00	11:25:00	11/07/00	11:26:00	0:01:00	00/01/00 00:01
28/07/00	13:10:00	28/07/00	16:23:00	3:13:00	00/01/00 03:13
28/07/00	16:24:00	28/07/00	16:26:00	0:02:00	00/01/00 00:02
28/07/00	17:25:00	28/07/00	18:14:00	0:49:00	00/01/00 00:49
28/07/00	18:15:00	28/07/00	18:25:00	0:10:00	00/01/00 00:10
28/07/00	18:27:00	28/07/00	18:47:00	0:20:00	00/01/00 00:20
28/07/00	18:49:00	28/07/00	20:18:00	1:29:00	00/01/00 01:29
28/07/00	20:19:00	28/07/00	21:11:00	0:52:00	00/01/00 00:52
29/07/00	09:18:00	29/07/00	09:27:00	0:09:00	00/01/00 00:09
29/07/00	09:31:00	29/07/00	10:01:00	0:30:00	00/01/00 00:30
29/07/00	10:03:00	29/07/00	10:11:00	0:08:00	00/01/00 00:08
29/07/00	10:12:00	29/07/00	10:16:00	0:04:00	00/01/00 00:04
29/07/00	10:17:00	29/07/00	11:11:00	0:54:00	00/01/00 00:54
29/07/00	11:15:00	29/07/00	11:16:00	0:01:00	00/01/00 00:01
29/07/00	11:18:00	29/07/00	11:25:00	0:07:00	00/01/00 00:07
30/07/00	10:20:00	30/07/00	10:24:00	0:04:00	00/01/00 00:04
30/07/00	10:25:00	30/07/00	10:27:00	0:02:00	00/01/00 00:02
30/07/00	10:30:00	30/07/00	10:46:00	0:16:00	00/01/00 00:16
30/07/00	10:47:00	30/07/00	10:53:00	0:06:00	00/01/00 00:06
30/07/00	10:54:00	30/07/00	11:00:00	0:06:00	00/01/00 00:06
30/07/00	11:01:00	30/07/00	11:02:00	0:01:00	00/01/00 00:01
30/07/00	11:04:00	30/07/00	12:24:00	1:20:00	00/01/00 01:20
30/07/00	12:25:00	30/07/00	12:31:00	0:06:00	00/01/00 00:06
31/07/00	09:32:00	31/07/00	09:52:00	0:20:00	00/01/00 00:20
31/07/00	09:54:00	31/07/00	09:55:00	0:01:00	00/01/00 00:01
31/07/00	09:56:00	31/07/00	10:12:00	0:16:00	00/01/00 00:16
31/07/00	10:19:00	31/07/00	10:29:00	0:10:00	00/01/00 00:10
31/07/00	10:33:00	31/07/00	10:34:00	0:01:00	00/01/00 00:01
31/07/00	10:46:00	31/07/00	10:48:00	0:02:00	00/01/00 00:02
31/07/00	10:51:00	31/07/00	11:05:00	0:14:00	00/01/00 00:14
31/07/00	11:57:00	31/07/00	11:58:00	0:01:00	00/01/00 00:01
			Total		01/01/00 05:20 29 hr 20 min
13/08/00	12:05:00	14/08/00	02:31:00	14:26:00	00/01/00 14:26
14/08/00	02:32:00	14/08/00	02:33:00	0:01:00	00/01/00 00:01
14/08/00	02:36:00	14/08/00	03:34:00	0:58:00	00/01/00 00:58
14/08/00	04:10:00	14/08/00	04:12:00	0:02:00	00/01/00 00:02

14/08/00	04:13:00	14/08/00	04:15:00	0:02:00	00/01/00 00:02
14/08/00	07:10:00	14/08/00	11:42:00	4:32:00	00/01/00 04:32
14/08/00	11:43:00	14/08/00	11:54:00	0:11:00	00/01/00 00:11
14/08/00	11:55:00	14/08/00	12:04:00	0:09:00	00/01/00 00:09
14/08/00	12:06:00	14/08/00	12:37:00	0:31:00	00/01/00 00:31
14/08/00	12:38:00	14/08/00	12:56:00	0:18:00	00/01/00 00:18
14/08/00	12:57:00	14/08/00	13:15:00	0:18:00	00/01/00 00:18
14/08/00	13:19:00	14/08/00	13:32:00	0:13:00	00/01/00 00:13
14/08/00	18:16:00	14/08/00	18:21:00	0:05:00	00/01/00 00:05
14/08/00	18:22:00	14/08/00	18:35:00	0:13:00	00/01/00 00:13
14/08/00	18:36:00	14/08/00	21:22:00	2:46:00	00/01/00 02:46
14/08/00	21:23:00	14/08/00	21:24:00	0:01:00	00/01/00 00:01
14/08/00	21:38:00	14/08/00	22:05:00	0:27:00	00/01/00 00:27
14/08/00	22:06:00	14/08/00	22:07:00	0:01:00	00/01/00 00:01
14/08/00	22:08:00	14/08/00	22:09:00	0:01:00	00/01/00 00:01
15/08/00	08:53:00	15/08/00	09:01:00	0:08:00	00/01/00 00:08
15/08/00	09:22:00	15/08/00	09:30:00	0:08:00	00/01/00 00:08
15/08/00	09:36:00	15/08/00	09:38:00	0:02:00	00/01/00 00:02
15/08/00	09:40:00	15/08/00	09:42:00	0:02:00	00/01/00 00:02
15/08/00	09:53:00	15/08/00	09:59:00	0:06:00	00/01/00 00:06
15/08/00	10:05:00	15/08/00	11:34:00	1:29:00	00/01/00 01:29
15/08/00	11:35:00	15/08/00	12:04:00	0:29:00	00/01/00 00:29
15/08/00	12:06:00	15/08/00	12:07:00	0:01:00	00/01/00 00:01
15/08/00	12:11:00	15/08/00	12:12:00	0:01:00	00/01/00 00:01
15/08/00	12:18:00	15/08/00	12:19:00	0:01:00	00/01/00 00:01
16/08/00	09:15:00	16/08/00	09:39:00	0:24:00	00/01/00 00:24
16/08/00	09:43:00	16/08/00	09:47:00	0:04:00	00/01/00 00:04
16/08/00	09:51:00	16/08/00	10:18:00	0:27:00	00/01/00 00:27
16/08/00	10:19:00	16/08/00	11:40:00	1:21:00	00/01/00 01:21
16/08/00	11:42:00	16/08/00	11:49:00	0:07:00	00/01/00 00:07
16/08/00	12:07:00	16/08/00	12:43:00	0:36:00	00/01/00 00:36
16/08/00	12:45:00	16/08/00	12:56:00	0:11:00	00/01/00 00:11
16/08/00	12:59:00	16/08/00	13:01:00	0:02:00	00/01/00 00:02
17/08/00	08:56:00	17/08/00	09:09:00	0:13:00	00/01/00 00:13
17/08/00	09:20:00	17/08/00	09:22:00	0:02:00	00/01/00 00:02
17/08/00	09:24:00	17/08/00	09:25:00	0:01:00	00/01/00 00:01
17/08/00	09:28:00	17/08/00	12:28:00	3:00:00	00/01/00 03:00
17/08/00	12:31:00	17/08/00	12:33:00	0:02:00	00/01/00 00:02
17/08/00	12:34:00	17/08/00	12:36:00	0:02:00	00/01/00 00:02
17/08/00	12:38:00	17/08/00	12:40:00	0:02:00	00/01/00 00:02
17/08/00	12:42:00	17/08/00	12:44:00	0:02:00	00/01/00 00:02
17/08/00	12:48:00	17/08/00	12:49:00	0:01:00	00/01/00 00:01
18/08/00	08:28:00	18/08/00	16:05:00	7:37:00	00/01/00 07:37
18/08/00	16:06:00	18/08/00	16:40:00	0:34:00	00/01/00 00:34
18/08/00	16:41:00	18/08/00	16:42:00	0:01:00	00/01/00 00:01
18/08/00	16:48:00	18/08/00	16:49:00	0:01:00	00/01/00 00:01
18/08/00	16:51:00	18/08/00	16:59:00	0:08:00	00/01/00 00:08
18/08/00	17:01:00	18/08/00	17:03:00	0:02:00	00/01/00 00:02
18/08/00	17:04:00	18/08/00	17:05:00	0:01:00	00/01/00 00:01
18/08/00	17:07:00	18/08/00	17:08:00	0:01:00	00/01/00 00:01
18/08/00	17:10:00	19/08/00	08:56:00	15:46:00	00/01/00 15:46
19/08/00	08:57:00	19/08/00	08:58:00	0:01:00	00/01/00 00:01
19/08/00	09:31:00	19/08/00	09:35:00	0:04:00	00/01/00 00:04
19/08/00	09:38:00	19/08/00	09:39:00	0:01:00	00/01/00 00:01
19/08/00	09:40:00	19/08/00	09:45:00	0:05:00	00/01/00 00:05
19/08/00	09:47:00	19/08/00	09:48:00	0:01:00	00/01/00 00:01
19/08/00	09:49:00	19/08/00	09:51:00	0:02:00	00/01/00 00:02
19/08/00	09:52:00	19/08/00	09:53:00	0:01:00	00/01/00 00:01
19/08/00	09:55:00	19/08/00	09:56:00	0:01:00	00/01/00 00:01
19/08/00	09:57:00	19/08/00	10:01:00	0:04:00	00/01/00 00:04
19/08/00	10:02:00	19/08/00	15:09:00	5:07:00	00/01/00 05:07
19/08/00	15:24:00	19/08/00	15:30:00	0:06:00	00/01/00 00:06
19/08/00	15:32:00	19/08/00	15:34:00	0:02:00	00/01/00 00:02
19/08/00	15:39:00	19/08/00	15:51:00	0:12:00	00/01/00 00:12
19/08/00	15:58:00	19/08/00	16:05:00	0:07:00	00/01/00 00:07
19/08/00	16:06:00	19/08/00	16:47:00	0:41:00	00/01/00 00:41

19/08/00	16:48:00	19/08/00	16:50:00	0:02:00	00/01/00 00:02
19/08/00	16:51:00	19/08/00	17:26:00	0:35:00	00/01/00 00:35
19/08/00	17:29:00	20/08/00	08:15:00	14:46:00	00/01/00 14:46
20/08/00	08:16:00	20/08/00	08:29:00	0:13:00	00/01/00 00:13
20/08/00	08:36:00	20/08/00	08:52:00	0:16:00	00/01/00 00:16
20/08/00	08:59:00	20/08/00	09:13:00	0:14:00	00/01/00 00:14
20/08/00	09:15:00	20/08/00	09:20:00	0:05:00	00/01/00 00:05
20/08/00	09:24:00	20/08/00	09:28:00	0:04:00	00/01/00 00:04
20/08/00	09:29:00	20/08/00	09:31:00	0:02:00	00/01/00 00:02
20/08/00	09:35:00	20/08/00	09:37:00	0:02:00	00/01/00 00:02
20/08/00	09:38:00	20/08/00	12:52:00	3:14:00	00/01/00 03:14
20/08/00	12:53:00	20/08/00	12:54:00	0:01:00	00/01/00 00:01
20/08/00	12:55:00	20/08/00	13:10:00	0:15:00	00/01/00 00:15
20/08/00	13:11:00	20/08/00	14:05:00	0:54:00	00/01/00 00:54
20/08/00	14:06:00	20/08/00	14:07:00	0:01:00	00/01/00 00:01
20/08/00	14:08:00	20/08/00	14:23:00	0:15:00	00/01/00 00:15
20/08/00	14:24:00	20/08/00	14:46:00	0:22:00	00/01/00 00:22
20/08/00	14:47:00	20/08/00	14:48:00	0:01:00	00/01/00 00:01
20/08/00	14:50:00	20/08/00	15:12:00	0:22:00	00/01/00 00:22
20/08/00	15:21:00	20/08/00	15:25:00	0:04:00	00/01/00 00:04
20/08/00	17:17:00	20/08/00	17:18:00	0:01:00	00/01/00 00:01
20/08/00	17:19:00	20/08/00	17:22:00	0:03:00	00/01/00 00:03
20/08/00	17:24:00	21/08/00	04:51:00	11:27:00	00/01/00 11:27
21/08/00	04:53:00	21/08/00	04:54:00	0:01:00	00/01/00 00:01
21/08/00	05:17:00	21/08/00	07:08:00	1:51:00	00/01/00 01:51
21/08/00	07:09:00	21/08/00	07:15:00	0:06:00	00/01/00 00:06
21/08/00	07:23:00	21/08/00	09:15:00	1:52:00	00/01/00 01:52
21/08/00	09:16:00	21/08/00	09:21:00	0:05:00	00/01/00 00:05
21/08/00	09:23:00	21/08/00	15:20:00	5:57:00	00/01/00 05:57
21/08/00	16:44:00	21/08/00	16:47:00	0:03:00	00/01/00 00:03
21/08/00	16:48:00	21/08/00	17:03:00	0:15:00	00/01/00 00:15
21/08/00	17:07:00	21/08/00	17:25:00	0:18:00	00/01/00 00:18
21/08/00	17:26:00	21/08/00	17:51:00	0:25:00	00/01/00 00:25
21/08/00	17:52:00	21/08/00	17:56:00	0:04:00	00/01/00 00:04
21/08/00	17:57:00	21/08/00	17:59:00	0:02:00	00/01/00 00:02
21/08/00	18:01:00	22/08/00	00:17:00	6:16:00	00/01/00 06:16
22/08/00	00:18:00	22/08/00	00:38:00	0:20:00	00/01/00 00:20
22/08/00	00:39:00	22/08/00	00:40:00	0:01:00	00/01/00 00:01
22/08/00	00:41:00	22/08/00	00:42:00	0:01:00	00/01/00 00:01
22/08/00	08:34:00	22/08/00	13:32:00	4:58:00	00/01/00 04:58
22/08/00	13:34:00	22/08/00	13:35:00	0:01:00	00/01/00 00:01
22/08/00	13:36:00	22/08/00	13:48:00	0:12:00	00/01/00 00:12
22/08/00	13:56:00	22/08/00	14:25:00	0:29:00	00/01/00 00:29
22/08/00	15:12:00	22/08/00	15:22:00	0:10:00	00/01/00 00:10
22/08/00	15:26:00	22/08/00	15:27:00	0:01:00	00/01/00 00:01
22/08/00	16:05:00	22/08/00	16:19:00	0:14:00	00/01/00 00:14
22/08/00	16:23:00	22/08/00	16:27:00	0:04:00	00/01/00 00:04
22/08/00	16:47:00	22/08/00	16:51:00	0:04:00	00/01/00 00:04
22/08/00	17:06:00	22/08/00	17:35:00	0:29:00	00/01/00 00:29
22/08/00	17:36:00	22/08/00	17:37:00	0:01:00	00/01/00 00:01
22/08/00	17:38:00	23/08/00	02:32:00	8:54:00	00/01/00 08:54
23/08/00	02:33:00	23/08/00	02:34:00	0:01:00	00/01/00 00:01
23/08/00	02:35:00	23/08/00	02:38:00	0:03:00	00/01/00 00:03
23/08/00	02:39:00	23/08/00	02:40:00	0:01:00	00/01/00 00:01
23/08/00	02:42:00	23/08/00	02:44:00	0:02:00	00/01/00 00:02
23/08/00	02:45:00	23/08/00	02:47:00	0:02:00	00/01/00 00:02
23/08/00	02:50:00	23/08/00	02:51:00	0:01:00	00/01/00 00:01
23/08/00	07:34:00	23/08/00	08:10:00	0:36:00	00/01/00 00:36
23/08/00	08:15:00	23/08/00	08:30:00	0:15:00	00/01/00 00:15
23/08/00	08:39:00	23/08/00	09:35:00	0:56:00	00/01/00 00:56
23/08/00	09:38:00	23/08/00	12:34:00	2:56:00	00/01/00 02:56
23/08/00	12:35:00	23/08/00	12:37:00	0:02:00	00/01/00 00:02
23/08/00	12:39:00	23/08/00	12:52:00	0:13:00	00/01/00 00:13
23/08/00	13:00:00	23/08/00	13:09:00	0:09:00	00/01/00 00:09
23/08/00	14:04:00	23/08/00	14:05:00	0:01:00	00/01/00 00:01
23/08/00	14:09:00	23/08/00	14:18:00	0:09:00	00/01/00 00:09

23/08/00	14:19:00	23/08/00	14:35:00	0:16:00	00/01/00 00:16
23/08/00	18:26:00	23/08/00	22:58:00	4:32:00	00/01/00 04:32
23/08/00	22:59:00	23/08/00	23:01:00	0:02:00	00/01/00 00:02
23/08/00	23:03:00	23/08/00	23:05:00	0:02:00	00/01/00 00:02
24/08/00	08:53:00	24/08/00	09:27:00	0:34:00	00/01/00 00:34
24/08/00	09:30:00	24/08/00	09:41:00	0:11:00	00/01/00 00:11
24/08/00	09:43:00	24/08/00	12:21:00	2:38:00	00/01/00 02:38
				Total	06/01/00 01:20 145 hr 20 min

01/09/00	19:52:00	02/09/00	01:04:00	5:12:00	00/01/00 05:12
02/09/00	09:22:00	02/09/00	09:23:00	0:01:00	00/01/00 00:01
02/09/00	09:26:00	02/09/00	12:36:00	3:10:00	00/01/00 03:10
02/09/00	23:55:00	03/09/00	01:50:00	1:55:00	00/01/00 01:55
03/09/00	01:51:00	03/09/00	01:52:00	0:01:00	00/01/00 00:01
03/09/00	09:55:00	03/09/00	13:11:00	3:16:00	00/01/00 03:16
03/09/00	13:12:00	03/09/00	13:14:00	0:02:00	00/01/00 00:02
03/09/00	13:15:00	03/09/00	13:17:00	0:02:00	00/01/00 00:02
15/09/00	06:46:00	15/09/00	09:11:00	2:25:00	00/01/00 02:25
15/09/00	09:12:00	15/09/00	09:13:00	0:01:00	00/01/00 00:01
15/09/00	09:14:00	15/09/00	09:16:00	0:02:00	00/01/00 00:02
15/09/00	09:17:00	15/09/00	09:19:00	0:02:00	00/01/00 00:02
15/09/00	09:20:00	15/09/00	11:47:00	2:27:00	00/01/00 02:27
15/09/00	11:49:00	15/09/00	11:57:00	0:08:00	00/01/00 00:08
15/09/00	11:58:00	15/09/00	12:01:00	0:03:00	00/01/00 00:03
15/09/00	12:03:00	15/09/00	12:05:00	0:02:00	00/01/00 00:02
15/09/00	12:06:00	15/09/00	12:08:00	0:02:00	00/01/00 00:02
15/09/00	12:11:00	15/09/00	12:12:00	0:01:00	00/01/00 00:01
15/09/00	12:51:00	15/09/00	13:10:00	0:19:00	00/01/00 00:19
15/09/00	13:39:00	15/09/00	13:40:00	0:01:00	00/01/00 00:01
15/09/00	13:56:00	15/09/00	14:02:00	0:06:00	00/01/00 00:06
15/09/00	14:04:00	15/09/00	14:11:00	0:07:00	00/01/00 00:07
15/09/00	14:12:00	15/09/00	14:14:00	0:02:00	00/01/00 00:02
15/09/00	14:24:00	15/09/00	14:30:00	0:06:00	00/01/00 00:06
15/09/00	14:32:00	15/09/00	14:34:00	0:02:00	00/01/00 00:02
15/09/00	15:00:00	15/09/00	15:08:00	0:08:00	00/01/00 00:08
15/09/00	15:12:00	15/09/00	15:13:00	0:01:00	00/01/00 00:01
18/09/00	06:34:00	18/09/00	11:32:00	4:58:00	00/01/00 04:58
18/09/00	11:33:00	18/09/00	11:35:00	0:02:00	00/01/00 00:02
18/09/00	11:36:00	18/09/00	11:44:00	0:08:00	00/01/00 00:08
18/09/00	11:46:00	18/09/00	12:02:00	0:16:00	00/01/00 00:16
18/09/00	12:03:00	18/09/00	12:07:00	0:04:00	00/01/00 00:04
18/09/00	12:09:00	18/09/00	13:37:00	1:28:00	00/01/00 01:28
18/09/00	13:38:00	18/09/00	13:41:00	0:03:00	00/01/00 00:03
18/09/00	14:16:00	18/09/00	14:22:00	0:06:00	00/01/00 00:06
18/09/00	14:39:00	18/09/00	14:56:00	0:17:00	00/01/00 00:17
19/09/00	22:03:00	20/09/00	00:31:00	2:28:00	00/01/00 02:28
20/09/00	02:53:00	20/09/00	03:44:00	0:51:00	00/01/00 00:51
20/09/00	03:47:00	20/09/00	03:48:00	0:01:00	00/01/00 00:01
20/09/00	03:49:00	20/09/00	07:53:00	4:04:00	00/01/00 04:04
20/09/00	08:20:00	20/09/00	08:24:00	0:04:00	00/01/00 00:04
20/09/00	08:25:00	20/09/00	08:35:00	0:10:00	00/01/00 00:10
20/09/00	08:48:00	20/09/00	08:49:00	0:01:00	00/01/00 00:01
20/09/00	08:50:00	20/09/00	08:53:00	0:03:00	00/01/00 00:03
20/09/00	09:14:00	20/09/00	11:20:00	2:06:00	00/01/00 02:06
20/09/00	11:45:00	20/09/00	13:11:00	1:26:00	00/01/00 01:26
20/09/00	13:17:00	20/09/00	13:30:00	0:13:00	00/01/00 00:13
21/09/00	10:14:00	21/09/00	11:58:00	1:44:00	00/01/00 01:44
21/09/00	12:00:00	21/09/00	12:02:00	0:02:00	00/01/00 00:02
21/09/00	12:03:00	21/09/00	12:07:00	0:04:00	00/01/00 00:04
21/09/00	12:08:00	21/09/00	12:16:00	0:08:00	00/01/00 00:08
21/09/00	12:17:00	21/09/00	12:34:00	0:17:00	00/01/00 00:17
21/09/00	12:38:00	21/09/00	12:39:00	0:01:00	00/01/00 00:01
21/09/00	12:45:00	21/09/00	12:46:00	0:01:00	00/01/00 00:01
21/09/00	13:11:00	21/09/00	13:12:00	0:01:00	00/01/00 00:01
22/09/00	02:58:00	22/09/00	05:34:00	2:36:00	00/01/00 02:36
25/09/00	12:38:00	26/09/00	14:52:00	26:14:00	01/01/00 02:14

26/09/00	14:55:00	26/09/00	14:56:00	0:01:00	00/01/00 00:01
26/09/00	14:58:00	26/09/00	15:01:00	0:03:00	00/01/00 00:03
26/09/00	15:02:00	26/09/00	15:12:00	0:10:00	00/01/00 00:10
26/09/00	15:15:00	26/09/00	15:38:00	0:23:00	00/01/00 00:23
26/09/00	15:39:00	26/09/00	15:41:00	0:02:00	00/01/00 00:02
26/09/00	15:42:00	26/09/00	15:43:00	0:01:00	00/01/00 00:01
26/09/00	15:46:00	26/09/00	15:48:00	0:02:00	00/01/00 00:02
26/09/00	16:09:00	26/09/00	16:10:00	0:01:00	00/01/00 00:01
26/09/00	16:11:00	26/09/00	17:43:00	1:32:00	00/01/00 01:32
26/09/00	17:47:00	26/09/00	17:49:00	0:02:00	00/01/00 00:02
26/09/00	17:50:00	26/09/00	18:01:00	0:11:00	00/01/00 00:11
26/09/00	18:02:00	27/09/00	00:28:00	6:26:00	00/01/00 06:26
27/09/00	08:06:00	27/09/00	09:53:00	1:47:00	00/01/00 01:47
27/09/00	09:54:00	27/09/00	09:55:00	0:01:00	00/01/00 00:01
27/09/00	09:56:00	27/09/00	10:00:00	0:04:00	00/01/00 00:04
27/09/00	10:02:00	27/09/00	10:03:00	0:01:00	00/01/00 00:01
27/09/00	10:05:00	27/09/00	10:31:00	0:26:00	00/01/00 00:26
27/09/00	10:32:00	27/09/00	10:45:00	0:13:00	00/01/00 00:13
27/09/00	10:46:00	27/09/00	10:48:00	0:02:00	00/01/00 00:02
27/09/00	10:50:00	27/09/00	10:51:00	0:01:00	00/01/00 00:01
27/09/00	10:52:00	27/09/00	10:53:00	0:01:00	00/01/00 00:01
27/09/00	10:58:00	27/09/00	10:59:00	0:01:00	00/01/00 00:01
27/09/00	11:00:00	27/09/00	11:01:00	0:01:00	00/01/00 00:01
27/09/00	11:02:00	27/09/00	11:07:00	0:05:00	00/01/00 00:05
27/09/00	11:24:00	27/09/00	11:25:00	0:01:00	00/01/00 00:01
27/09/00	11:26:00	27/09/00	11:49:00	0:23:00	00/01/00 00:23
27/09/00	11:53:00	27/09/00	11:54:00	0:01:00	00/01/00 00:01
27/09/00	11:55:00	27/09/00	12:26:00	0:31:00	00/01/00 00:31
27/09/00	12:30:00	27/09/00	12:45:00	0:15:00	00/01/00 00:15
27/09/00	12:46:00	27/09/00	12:48:00	0:02:00	00/01/00 00:02
27/09/00	13:20:00	27/09/00	13:23:00	0:03:00	00/01/00 00:03
27/09/00	13:25:00	27/09/00	13:30:00	0:05:00	00/01/00 00:05
27/09/00	13:32:00	27/09/00	13:33:00	0:01:00	00/01/00 00:01
27/09/00	13:35:00	27/09/00	13:36:00	0:01:00	00/01/00 00:01
27/09/00	13:37:00	27/09/00	13:39:00	0:02:00	00/01/00 00:02
27/09/00	13:47:00	27/09/00	13:48:00	0:01:00	00/01/00 00:01
27/09/00	14:27:00	27/09/00	14:29:00	0:02:00	00/01/00 00:02
27/09/00	14:31:00	28/09/00	15:27:00	24:56:00	01/01/00 00:56
28/09/00	15:29:00	28/09/00	15:30:00	0:01:00	00/01/00 00:01
28/09/00	15:33:00	28/09/00	15:35:00	0:02:00	00/01/00 00:02
28/09/00	15:36:00	28/09/00	15:37:00	0:01:00	00/01/00 00:01
28/09/00	15:53:00	28/09/00	15:54:00	0:01:00	00/01/00 00:01
28/09/00	15:55:00	28/09/00	15:56:00	0:01:00	00/01/00 00:01
28/09/00	15:58:00	28/09/00	16:00:00	0:02:00	00/01/00 00:02
28/09/00	16:14:00	28/09/00	16:15:00	0:01:00	00/01/00 00:01
28/09/00	16:20:00	28/09/00	16:21:00	0:01:00	00/01/00 00:01
28/09/00	16:22:00	28/09/00	16:23:00	0:01:00	00/01/00 00:01
28/09/00	16:32:00	28/09/00	16:33:00	0:01:00	00/01/00 00:01
28/09/00	16:39:00	28/09/00	16:40:00	0:01:00	00/01/00 00:01
28/09/00	16:42:00	28/09/00	16:43:00	0:01:00	00/01/00 00:01
28/09/00	16:44:00	29/09/00	01:51:00	9:07:00	00/01/00 09:07
29/09/00	01:52:00	29/09/00	02:17:00	0:25:00	00/01/00 00:25
29/09/00	02:33:00	29/09/00	02:34:00	0:01:00	00/01/00 00:01
29/09/00	02:35:00	29/09/00	02:38:00	0:03:00	00/01/00 00:03
29/09/00	02:55:00	29/09/00	03:06:00	0:11:00	00/01/00 00:11
29/09/00	03:08:00	29/09/00	03:10:00	0:02:00	00/01/00 00:02
29/09/00	07:36:00	29/09/00	12:40:00	5:04:00	00/01/00 05:04
29/09/00	12:41:00	29/09/00	12:48:00	0:07:00	00/01/00 00:07
29/09/00	12:49:00	29/09/00	12:53:00	0:04:00	00/01/00 00:04
29/09/00	12:54:00	29/09/00	12:57:00	0:03:00	00/01/00 00:03
29/09/00	12:59:00	29/09/00	13:00:00	0:01:00	00/01/00 00:01
29/09/00	13:01:00	29/09/00	13:06:00	0:05:00	00/01/00 00:05
29/09/00	13:15:00	29/09/00	13:17:00	0:02:00	00/01/00 00:02
29/09/00	13:18:00	29/09/00	13:19:00	0:01:00	00/01/00 00:01
29/09/00	13:43:00	29/09/00	13:44:00	0:01:00	00/01/00 00:01
29/09/00	19:21:00	29/09/00	20:19:00	0:58:00	00/01/00 00:58

29/09/00	20:21:00	29/09/00	21:44:00	1:23:00	00/01/00 01:23
29/09/00	21:45:00	29/09/00	21:46:00	0:01:00	00/01/00 00:01
30/09/00	08:52:00	30/09/00	09:17:00	0:25:00	00/01/00 00:25
30/09/00	09:19:00	30/09/00	09:35:00	0:16:00	00/01/00 00:16
30/09/00	09:36:00	30/09/00	11:28:00	1:52:00	00/01/00 01:52
30/09/00	11:29:00	30/09/00	11:32:00	0:03:00	00/01/00 00:03
30/09/00	11:33:00	30/09/00	11:46:00	0:13:00	00/01/00 00:13
30/09/00	11:47:00	30/09/00	11:51:00	0:04:00	00/01/00 00:04
30/09/00	11:52:00	30/09/00	12:59:00	1:07:00	00/01/00 01:07
30/09/00	13:02:00	30/09/00	13:04:00	0:02:00	00/01/00 00:02
30/09/00	13:08:00	30/09/00	13:10:00	0:02:00	00/01/00 00:02
30/09/00	13:13:00	30/09/00	13:15:00	0:02:00	00/01/00 00:02
30/09/00	13:23:00	30/09/00	13:24:00	0:01:00	00/01/00 00:01
				Total	05/01/00 09:42 129 hr 42 min

Total time of recorded discharges 304 Hrs 35 minutes for the period 07 June 2000 to 30 September 2000

Seaton STW Gross Storm Overflow

0599-014

Installed 7/6/00

START DATE	START TIME	END DATE	END TIME	DURATION Hrs:Mins:Sec	DD/MM/YY Hrs:Mins
08/06/00	16:58:00	08/06/00	16:59:00	0:01:00	00/01/00 00:01
09/06/00	05:26:00	09/06/00	05:29:00	0:03:00	00/01/00 00:03
09/06/00	05:43:00	09/06/00	06:36:00	0:53:00	00/01/00 00:53
09/06/00	06:37:00	09/06/00	06:42:00	0:05:00	00/01/00 00:05
20/06/00	06:38:00	20/06/00	06:39:00	0:01:00	00/01/00 00:01
			Total		00/01/00 01:03 1 hr 3 min
03/07/00	08:09:00	13/07/00	11:33:00	243:24:00	10/01/00 03:24 Disregard...Ragged sensor
21/07/00	19:16:00	21/07/00	19:22:00	0:06:00	00/01/00 00:06
21/07/00	20:13:00	21/07/00	20:17:00	0:04:00	00/01/00 00:04
21/07/00	20:28:00	21/07/00	20:31:00	0:03:00	00/01/00 00:03
22/07/00	08:31:00	22/07/00	08:42:00	0:11:00	00/01/00 00:11
22/07/00	09:58:00	22/07/00	10:15:00	0:17:00	00/01/00 00:17
22/07/00	13:07:00	22/07/00	13:10:00	0:03:00	00/01/00 00:03
23/07/00	09:56:00	23/07/00	09:58:00	0:02:00	00/01/00 00:02
23/07/00	10:08:00	23/07/00	12:47:00	2:39:00	00/01/00 02:39
23/07/00	12:50:00	23/07/00	13:12:00	0:22:00	00/01/00 00:22
23/07/00	13:22:00	23/07/00	13:25:00	0:03:00	00/01/00 00:03
23/07/00	13:39:00	23/07/00	13:52:00	0:13:00	00/01/00 00:13
23/07/00	13:59:00	23/07/00	14:00:00	0:01:00	00/01/00 00:01
23/07/00	14:03:00	23/07/00	14:08:00	0:05:00	00/01/00 00:05
23/07/00	14:09:00	23/07/00	14:10:00	0:01:00	00/01/00 00:01
23/07/00	14:16:00	23/07/00	14:18:00	0:02:00	00/01/00 00:02
24/07/00	05:53:00	24/07/00	06:08:00	0:15:00	00/01/00 00:15
24/07/00	06:49:00	24/07/00	06:53:00	0:04:00	00/01/00 00:04
24/07/00	07:02:00	24/07/00	07:08:00	0:06:00	00/01/00 00:06
24/07/00	07:20:00	24/07/00	07:25:00	0:05:00	00/01/00 00:05
24/07/00	07:38:00	24/07/00	07:41:00	0:03:00	00/01/00 00:03
24/07/00	07:43:00	24/07/00	07:49:00	0:06:00	00/01/00 00:06
24/07/00	07:50:00	24/07/00	07:54:00	0:04:00	00/01/00 00:04
24/07/00	07:55:00	24/07/00	07:56:00	0:01:00	00/01/00 00:01
24/07/00	08:24:00	24/07/00	08:32:00	0:08:00	00/01/00 00:08
24/07/00	12:14:00	24/07/00	12:18:00	0:04:00	00/01/00 00:04
28/07/00	12:45:00	28/07/00	17:28:00	4:43:00	00/01/00 04:43
			Total		00/01/00 09:51 9 hr 51 min
02/08/00	16:17:00	02/08/00	16:39:00	0:22:00	00/01/00 00:22
06/08/00	09:23:00	06/08/00	09:25:00	0:02:00	00/01/00 00:02
06/08/00	09:26:00	06/08/00	09:30:00	0:04:00	00/01/00 00:04
06/08/00	12:29:00	06/08/00	12:53:00	0:24:00	00/01/00 00:24
11/08/00	10:41:00	11/08/00	10:57:00	0:16:00	00/01/00 00:16
12/08/00	09:26:00	12/08/00	09:27:00	0:01:00	00/01/00 00:01
12/08/00	14:53:00	12/08/00	15:10:00	0:17:00	00/01/00 00:17
12/08/00	15:11:00	12/08/00	15:29:00	0:18:00	00/01/00 00:18
12/08/00	15:30:00	12/08/00	15:33:00	0:03:00	00/01/00 00:03
12/08/00	15:34:00	12/08/00	15:35:00	0:01:00	00/01/00 00:01
12/08/00	15:36:00	12/08/00	15:37:00	0:01:00	00/01/00 00:01
12/08/00	15:38:00	12/08/00	15:39:00	0:01:00	00/01/00 00:01
12/08/00	15:45:00	12/08/00	16:00:00	0:15:00	00/01/00 00:15
12/08/00	16:02:00	12/08/00	16:10:00	0:08:00	00/01/00 00:08
12/08/00	16:12:00	12/08/00	16:13:00	0:01:00	00/01/00 00:01
13/08/00	10:42:00	14/08/00	15:48:00	29:06:00	01/01/00 05:06
14/08/00	15:53:00	14/08/00	15:54:00	0:01:00	00/01/00 00:01
15/08/00	09:00:00	15/08/00	09:01:00	0:01:00	00/01/00 00:01

18/08/00	08:31:00	18/08/00	15:03:00	6:32:00	00/01/00 06:32
18/08/00	15:06:00	18/08/00	15:12:00	0:06:00	00/01/00 00:06
18/08/00	15:20:00	18/08/00	15:23:00	0:03:00	00/01/00 00:03
18/08/00	15:32:00	18/08/00	15:35:00	0:03:00	00/01/00 00:03
18/08/00	15:51:00	18/08/00	16:43:00	0:52:00	00/01/00 00:52
19/08/00	02:13:00	19/08/00	09:38:00	7:25:00	00/01/00 07:25
20/08/00	19:44:00	20/08/00	20:12:00	0:28:00	00/01/00 00:28
21/08/00	08:32:00	21/08/00	10:02:00	1:30:00	00/01/00 01:30
21/08/00	10:39:00	21/08/00	10:58:00	0:19:00	00/01/00 00:19
22/08/00	08:15:00	22/08/00	08:36:00	0:21:00	00/01/00 00:21
22/08/00	17:47:00	22/08/00	17:48:00	0:01:00	00/01/00 00:01
31/08/00	14:27:00	31/08/00	14:37:00	0:10:00	00/01/00 00:10
				Total	02/01/00 01:12 49 hr 12 min

01/09/00	19:47:00	01/09/00	20:24:00	0:37:00	00/01/00 00:37
01/09/00	20:44:00	01/09/00	20:47:00	0:03:00	00/01/00 00:03
01/09/00	20:53:00	01/09/00	21:10:00	0:17:00	00/01/00 00:17
10/09/00	07:47:00	10/09/00	07:51:00	0:04:00	00/01/00 00:04
14/09/00	23:56:00	14/09/00	23:58:00	0:02:00	00/01/00 00:02
15/09/00	04:54:00	15/09/00	04:55:00	0:01:00	00/01/00 00:01
15/09/00	04:56:00	15/09/00	04:58:00	0:02:00	00/01/00 00:02
15/09/00	04:59:00	15/09/00	05:04:00	0:05:00	00/01/00 00:05
15/09/00	06:35:00	15/09/00	07:24:00	0:49:00	00/01/00 00:49
15/09/00	08:06:00	15/09/00	09:52:00	1:46:00	00/01/00 01:46
18/09/00	07:36:00	18/09/00	08:22:00	0:46:00	00/01/00 00:46
18/09/00	09:32:00	18/09/00	09:35:00	0:03:00	00/01/00 00:03
18/09/00	09:37:00	18/09/00	09:55:00	0:18:00	00/01/00 00:18
18/09/00	10:01:00	18/09/00	10:05:00	0:04:00	00/01/00 00:04
18/09/00	10:08:00	18/09/00	10:14:00	0:06:00	00/01/00 00:06
20/09/00	02:52:00	20/09/00	03:09:00	0:17:00	00/01/00 00:17
20/09/00	03:27:00	20/09/00	03:49:00	0:22:00	00/01/00 00:22
20/09/00	04:43:00	20/09/00	05:06:00	0:23:00	00/01/00 00:23
20/09/00	05:19:00	20/09/00	05:37:00	0:18:00	00/01/00 00:18
20/09/00	09:41:00	20/09/00	09:51:00	0:10:00	00/01/00 00:10
22/09/00	03:01:00	22/09/00	03:26:00	0:25:00	00/01/00 00:25
25/09/00	12:40:00	25/09/00	13:19:00	0:39:00	00/01/00 00:39
25/09/00	14:00:00	25/09/00	19:22:00	5:22:00	00/01/00 05:22
25/09/00	19:29:00	25/09/00	19:42:00	0:13:00	00/01/00 00:13
25/09/00	19:43:00	25/09/00	19:53:00	0:10:00	00/01/00 00:10
25/09/00	19:55:00	25/09/00	20:06:00	0:11:00	00/01/00 00:11
25/09/00	20:12:00	25/09/00	20:16:00	0:04:00	00/01/00 00:04
25/09/00	20:25:00	25/09/00	20:29:00	0:04:00	00/01/00 00:04
25/09/00	20:51:00	25/09/00	20:53:00	0:02:00	00/01/00 00:02
27/09/00	19:34:00	27/09/00	19:43:00	0:09:00	00/01/00 00:09
27/09/00	19:45:00	27/09/00	19:58:00	0:13:00	00/01/00 00:13
27/09/00	20:00:00	27/09/00	20:07:00	0:07:00	00/01/00 00:07
27/09/00	20:16:00	27/09/00	20:19:00	0:03:00	00/01/00 00:03
27/09/00	21:16:00	27/09/00	21:17:00	0:01:00	00/01/00 00:01
27/09/00	21:24:00	27/09/00	21:32:00	0:08:00	00/01/00 00:08
27/09/00	21:39:00	27/09/00	21:44:00	0:05:00	00/01/00 00:05
27/09/00	22:06:00	27/09/00	22:08:00	0:02:00	00/01/00 00:02
27/09/00	22:17:00	27/09/00	22:23:00	0:06:00	00/01/00 00:06
27/09/00	22:56:00	27/09/00	23:01:00	0:05:00	00/01/00 00:05
27/09/00	23:18:00	27/09/00	23:21:00	0:03:00	00/01/00 00:03
28/09/00	05:30:00	28/09/00	07:21:00	1:51:00	00/01/00 01:51
28/09/00	07:23:00	28/09/00	07:56:00	0:33:00	00/01/00 00:33
28/09/00	08:00:00	28/09/00	08:06:00	0:06:00	00/01/00 00:06
28/09/00	08:08:00	28/09/00	08:17:00	0:09:00	00/01/00 00:09
28/09/00	08:27:00	28/09/00	08:32:00	0:05:00	00/01/00 00:05
28/09/00	08:38:00	28/09/00	08:46:00	0:08:00	00/01/00 00:08
28/09/00	08:49:00	28/09/00	08:56:00	0:07:00	00/01/00 00:07
28/09/00	09:01:00	28/09/00	09:06:00	0:05:00	00/01/00 00:05
28/09/00	09:13:00	28/09/00	09:18:00	0:05:00	00/01/00 00:05

28/09/00	09:27:00	28/09/00	09:29:00	0:02:00	00/01/00 00:02
28/09/00	09:39:00	28/09/00	09:42:00	0:03:00	00/01/00 00:03
28/09/00	09:50:00	28/09/00	09:55:00	0:05:00	00/01/00 00:05
28/09/00	10:04:00	28/09/00	10:07:00	0:03:00	00/01/00 00:03
Total					00/01/00 18:07 18 hr 7 min

Total time of recorded discharges 78 Hrs 13 minutes for the period 07 June 2000 to 30 September 2000

Horslears PS Emergency Overflow

0899-006

Installed 7/6/00

START DATE	START TIME	END DATE	END TIME	DURATION Hrs:Mins:Sec	DD/MM/YY Hrs:Mins	
June	-	-	-	-	-	
July	-	-	-	-	-	
02/08/00	17:25:00	02/08/00	20:01:00	2:36:00	00/01/00 02:36	
13/08/00	12:22:00	14/08/00	00:18:00	11:56:00	00/01/00 11:56	
18/08/00	09:14:00	18/08/00	18:53:00	9:39:00	00/01/00 09:39	
18/08/00	18:54:00	18/08/00	19:03:00	0:09:00	00/01/00 00:09	
19/08/00	02:36:00	19/08/00	10:17:00	7:41:00	00/01/00 07:41	
19/08/00	10:18:00	19/08/00	10:20:00	0:02:00	00/01/00 00:02	
19/08/00	10:21:00	19/08/00	17:09:00	6:48:00	00/01/00 06:48	
19/08/00	17:11:00	19/08/00	17:17:00	0:06:00	00/01/00 00:06	
26/08/00	17:54:00	26/08/00	23:42:00	5:48:00	00/01/00 05:48	
				Total	01/01/00 20:45	44 hr 45 min
01/09/00	20:37:00	01/09/00	22:42:00	2:05:00	00/01/00 02:05	
15/09/00	08:24:00	15/09/00	12:29:00	4:05:00	00/01/00 04:05	
15/09/00	12:33:00	15/09/00	12:35:00	0:02:00	00/01/00 00:02	
15/09/00	16:02:00	15/09/00	18:07:00	2:05:00	00/01/00 02:05	
15/09/00	18:56:00	16/09/00	01:11:00	6:15:00	00/01/00 06:15	
18/09/00	07:31:00	18/09/00	14:17:00	6:46:00	00/01/00 06:46	
18/09/00	14:38:00	18/09/00	17:11:00	2:33:00	00/01/00 02:33	
20/09/00	03:07:00	20/09/00	10:38:00	7:31:00	00/01/00 07:31	
20/09/00	10:40:00	20/09/00	14:41:00	4:01:00	00/01/00 04:01	
20/09/00	14:53:00	20/09/00	14:59:00	0:06:00	00/01/00 00:06	
21/09/00	11:11:00	22/09/00	09:59:00	22:48:00	00/01/00 22:48	
22/09/00	10:00:00	22/09/00	10:01:00	0:01:00	00/01/00 00:01	
22/09/00	10:02:00	22/09/00	10:12:00	0:10:00	00/01/00 00:10	
22/09/00	10:28:00	22/09/00	10:41:00	0:13:00	00/01/00 00:13	
25/09/00	13:55:00	26/09/00	08:33:00	18:38:00	00/01/00 18:38	
26/09/00	08:34:00	26/09/00	08:36:00	0:02:00	00/01/00 00:02	
26/09/00	08:41:00	26/09/00	08:56:00	0:15:00	00/01/00 00:15	
26/09/00	14:52:00	26/09/00	14:53:00	0:01:00	00/01/00 00:01	
26/09/00	14:58:00	26/09/00	14:59:00	0:01:00	00/01/00 00:01	
26/09/00	15:29:00	26/09/00	15:32:00	0:03:00	00/01/00 00:03	
26/09/00	16:14:00	26/09/00	16:15:00	0:01:00	00/01/00 00:01	
26/09/00	16:34:00	26/09/00	16:39:00	0:05:00	00/01/00 00:05	
26/09/00	16:47:00	26/09/00	16:49:00	0:02:00	00/01/00 00:02	
26/09/00	17:02:00	26/09/00	17:08:00	0:06:00	00/01/00 00:06	
26/09/00	17:10:00	26/09/00	17:14:00	0:04:00	00/01/00 00:04	
26/09/00	17:31:00	26/09/00	17:32:00	0:01:00	00/01/00 00:01	
26/09/00	17:33:00	26/09/00	17:37:00	0:04:00	00/01/00 00:04	
26/09/00	17:43:00	26/09/00	17:45:00	0:02:00	00/01/00 00:02	
26/09/00	17:53:00	26/09/00	17:54:00	0:01:00	00/01/00 00:01	
26/09/00	17:57:00	26/09/00	17:59:00	0:02:00	00/01/00 00:02	
26/09/00	18:00:00	26/09/00	18:14:00	0:14:00	00/01/00 00:14	
26/09/00	18:18:00	26/09/00	18:31:00	0:13:00	00/01/00 00:13	

26/09/00	18:32:00	27/09/00	09:18:00	14:46:00	00/01/00 14:46
27/09/00	09:20:00	27/09/00	09:21:00	0:01:00	00/01/00 00:01
27/09/00	09:22:00	27/09/00	09:23:00	0:01:00	00/01/00 00:01
27/09/00	12:37:00	27/09/00	12:38:00	0:01:00	00/01/00 00:01
27/09/00	12:53:00	27/09/00	12:59:00	0:06:00	00/01/00 00:06
27/09/00	13:00:00	27/09/00	13:01:00	0:01:00	00/01/00 00:01
27/09/00	13:02:00	27/09/00	13:03:00	0:01:00	00/01/00 00:01
27/09/00	13:07:00	27/09/00	13:08:00	0:01:00	00/01/00 00:01
27/09/00	13:18:00	27/09/00	13:37:00	0:19:00	00/01/00 00:19
27/09/00	13:45:00	27/09/00	13:47:00	0:02:00	00/01/00 00:02
27/09/00	13:56:00	27/09/00	14:35:00	0:39:00	00/01/00 00:39
27/09/00	14:40:00	27/09/00	17:32:00	2:52:00	00/01/00 02:52
27/09/00	17:34:00	27/09/00	17:37:00	0:03:00	00/01/00 00:03
27/09/00	17:39:00	28/09/00	10:12:00	16:33:00	00/01/00 16:33
28/09/00	10:15:00	28/09/00	10:20:00	0:05:00	00/01/00 00:05
28/09/00	10:21:00	28/09/00	10:33:00	0:12:00	00/01/00 00:12
28/09/00	10:38:00	29/09/00	09:50:00	23:12:00	00/01/00 23:12
29/09/00	09:51:00	29/09/00	10:02:00	0:11:00	00/01/00 00:11
29/09/00	10:04:00	29/09/00	10:07:00	0:03:00	00/01/00 00:03
29/09/00	10:09:00	29/09/00	10:10:00	0:01:00	00/01/00 00:01
29/09/00	10:11:00	29/09/00	10:17:00	0:06:00	00/01/00 00:06
29/09/00	10:19:00	29/09/00	10:27:00	0:08:00	00/01/00 00:08
29/09/00	10:28:00	29/09/00	10:34:00	0:06:00	00/01/00 00:06
29/09/00	10:35:00	29/09/00	10:39:00	0:04:00	00/01/00 00:04
29/09/00	10:42:00	29/09/00	10:48:00	0:06:00	00/01/00 00:06
29/09/00	10:50:00	29/09/00	11:15:00	0:25:00	00/01/00 00:25
29/09/00	11:18:00	29/09/00	11:24:00	0:06:00	00/01/00 00:06
29/09/00	11:26:00	29/09/00	11:48:00	0:22:00	00/01/00 00:22
29/09/00	11:49:00	29/09/00	11:50:00	0:01:00	00/01/00 00:01
29/09/00	11:51:00	29/09/00	11:55:00	0:04:00	00/01/00 00:04
29/09/00	12:04:00	29/09/00	12:07:00	0:03:00	00/01/00 00:03
29/09/00	12:08:00	29/09/00	12:10:00	0:02:00	00/01/00 00:02
29/09/00	12:11:00	29/09/00	12:17:00	0:06:00	00/01/00 00:06
29/09/00	12:20:00	29/09/00	12:26:00	0:06:00	00/01/00 00:06
29/09/00	12:30:00	29/09/00	12:36:00	0:06:00	00/01/00 00:06
29/09/00	12:37:00	29/09/00	12:39:00	0:02:00	00/01/00 00:02
29/09/00	12:40:00	29/09/00	12:46:00	0:06:00	00/01/00 00:06
29/09/00	12:49:00	29/09/00	12:52:00	0:03:00	00/01/00 00:03
29/09/00	12:53:00	29/09/00	12:58:00	0:05:00	00/01/00 00:05
29/09/00	12:59:00	29/09/00	13:00:00	0:01:00	00/01/00 00:01
29/09/00	13:01:00	29/09/00	13:02:00	0:01:00	00/01/00 00:01
29/09/00	13:03:00	29/09/00	13:06:00	0:03:00	00/01/00 00:03
29/09/00	13:07:00	29/09/00	13:10:00	0:03:00	00/01/00 00:03
29/09/00	13:11:00	29/09/00	13:20:00	0:09:00	00/01/00 00:09
29/09/00	13:22:00	29/09/00	13:25:00	0:03:00	00/01/00 00:03
29/09/00	13:26:00	29/09/00	13:30:00	0:04:00	00/01/00 00:04
29/09/00	13:31:00	29/09/00	13:33:00	0:02:00	00/01/00 00:02
29/09/00	13:35:00	29/09/00	13:36:00	0:01:00	00/01/00 00:01
29/09/00	13:41:00	29/09/00	13:42:00	0:01:00	00/01/00 00:01
29/09/00	13:44:00	29/09/00	13:46:00	0:02:00	00/01/00 00:02
29/09/00	13:50:00	29/09/00	14:00:00	0:10:00	00/01/00 00:10
29/09/00	14:03:00	29/09/00	14:18:00	0:15:00	00/01/00 00:15

29/09/00	14:19:00	29/09/00	14:23:00	0:04:00	00/01/00	00:04
29/09/00	14:28:00	29/09/00	14:29:00	0:01:00	00/01/00	00:01
29/09/00	14:31:00	29/09/00	14:42:00	0:11:00	00/01/00	00:11
29/09/00	14:43:00	29/09/00	14:47:00	0:04:00	00/01/00	00:04
29/09/00	14:49:00	29/09/00	14:58:00	0:09:00	00/01/00	00:09
29/09/00	15:01:00	29/09/00	15:09:00	0:08:00	00/01/00	00:08
29/09/00	15:12:00	29/09/00	15:13:00	0:01:00	00/01/00	00:01
29/09/00	15:16:00	29/09/00	15:39:00	0:23:00	00/01/00	00:23
29/09/00	15:40:00	29/09/00	15:52:00	0:12:00	00/01/00	00:12
29/09/00	15:53:00	29/09/00	15:57:00	0:04:00	00/01/00	00:04
29/09/00	16:01:00	29/09/00	16:05:00	0:04:00	00/01/00	00:04
29/09/00	16:06:00	29/09/00	16:34:00	0:28:00	00/01/00	00:28
29/09/00	16:35:00	29/09/00	16:51:00	0:16:00	00/01/00	00:16
29/09/00	16:54:00	30/09/00	10:08:00	17:14:00	00/01/00	17:14
30/09/00	10:13:00	30/09/00	10:16:00	0:03:00	00/01/00	00:03
30/09/00	10:22:00	30/09/00	11:57:00	1:35:00	00/01/00	01:35
30/09/00	12:00:00	30/09/00	15:54:00	3:54:00	00/01/00	03:54
30/09/00	15:55:00	30/09/00	15:57:00	0:02:00	00/01/00	00:02
			Total		06/01/00	21:41 165 hr 41min

Total time of recorded discharges 210 Hrs 26 minutes for the period 07 June 2000 to 30 September 2000

Axmouth PS Emergency Overflow

9454-027

Installed 13/6/00

START DATE	START TIME	END DATE	END TIME	DURATION Hrs:Mins:Sec	DD/MM/YY Hrs:Mins
June	-	-	-	-	-
July	-	-	-	-	-
19/08/00	11:52:00	19/08/00	11:55:00	0:03:00	00/01/00 00:03
19/08/00	12:21:00	19/08/00	12:37:00	0:16:00	00/01/00 00:16
19/08/00	13:06:00	19/08/00	13:34:00	0:28:00	00/01/00 00:28
19/08/00	14:04:00	19/08/00	15:07:00	1:03:00	00/01/00 01:03
19/08/00	15:30:00	19/08/00	17:19:00	1:49:00	00/01/00 01:49
19/08/00	17:44:00	19/08/00	18:44:00	1:00:00	00/01/00 01:00
19/08/00	18:55:00	19/08/00	20:22:00	1:27:00	00/01/00 01:27
19/08/00	20:48:00	19/08/00	20:50:00	0:02:00	00/01/00 00:02
19/08/00	21:15:00	19/08/00	23:12:00	1:57:00	00/01/00 01:57
19/08/00	23:39:00	20/08/00	10:33:00	10:54:00	00/01/00 10:54
20/08/00	10:34:00	21/08/00	01:52:00	15:18:00	00/01/00 15:18
21/08/00	01:54:00	21/08/00	01:56:00	0:02:00	00/01/00 00:02
21/08/00	01:57:00	21/08/00	09:59:00	8:02:00	00/01/00 08:02
21/08/00	10:00:00	22/08/00	10:26:00	24:26:00	01/01/00 00:26
22/08/00	10:27:00	22/08/00	10:29:00	0:02:00	00/01/00 00:02
22/08/00	10:31:00	22/08/00	10:32:00	0:01:00	00/01/00 00:01
22/08/00	10:36:00	22/08/00	10:37:00	0:01:00	00/01/00 00:01
				Total	02/01/00 18:51 66 hr 51 min

Total time of recorded discharges **66 Hrs 51 minutes** for the period 13 June 2000 to 30 September 2000

Colyford PS Emergency Overflow

9454-014

Installed 15/5/00

START DATE	START TIME	END DATE	END TIME	DURATION Hrs:Mins:Sec	DD/MM/YY Hrs:Mins
May	-	-	-	-	-
June	-	-	-	-	-
July	-	-	-	-	-
13/08/00	10:52:00	13/08/00	11:11:00	0:19:00	00/01/00 00:19
13/08/00	12:13:00	19/08/00	05:26:00	137:13:00	05/01/00 17:13 Disregard Ragged sensor
21/08/00	08:59:00	21/08/00	09:36:00	0:37:00	00/01/00 00:37
			Total		00/01/00 00:56 0 hr 56 min
25/09/00	15:15:00	25/09/00	21:38:00	6:23:00	00/01/00 06:23
28/09/00	05:40:00	28/09/00	11:39:00	5:59:00	00/01/00 05:59
			Total		00/01/00 12:22 12 hr 22 min

Total time of recorded discharges 13 Hrs 18 minutes for the period 15 May 2000 to 30 September 2000

Colyford STW Settled Storm Overflow

9454-007

Installed 15/5/00

Period covered 15/05/00 to 30/09/00

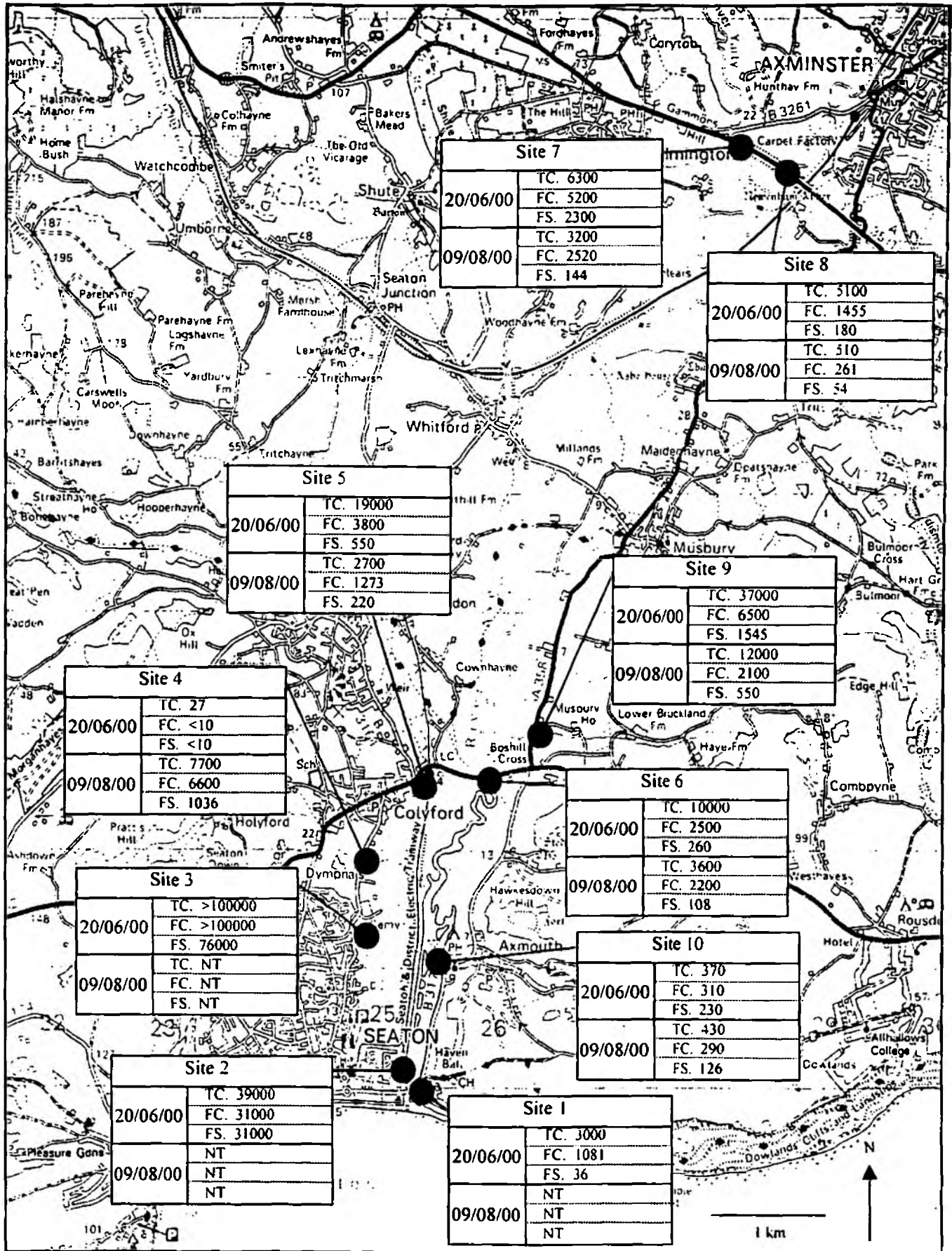
START DATE	START TIME	END DATE	END TIME	DURATION Hrs:Mins:Sec	DD/MM/YY Hrs:Min
27/05/00	22:30:00	28/05/00	04:43:00	6:13:00	00/01/00 06:13
31/05/00	21:06:00	31/05/00	21:07:00	0:01:00	00/01/00 00:01
				Total	00/01/00 06:14 6 hr 14 min
June	-	-	-	-	-
July	-	-	-	-	-
04/08/00	20:48:00	04/08/00	22:20:00	1:32:00	00/01/00 01:32
05/08/00	20:32:00	05/08/00	21:44:00	1:12:00	00/01/00 01:12
06/08/00	20:40:00	06/08/00	22:29:00	1:49:00	00/01/00 01:49
13/08/00	13:01:00	13/08/00	14:53:00	1:52:00	00/01/00 01:52
13/08/00	15:04:00	13/08/00	17:23:00	2:19:00	00/01/00 02:19
18/08/00	09:22:00	18/08/00	13:22:00	4:00:00	00/01/00 04:00
18/08/00	13:23:00	18/08/00	13:31:00	0:08:00	00/01/00 00:08
18/08/00	13:41:00	18/08/00	13:55:00	0:14:00	00/01/00 00:14
18/08/00	13:58:00	18/08/00	14:27:00	0:29:00	00/01/00 00:29
19/08/00	02:26:00	19/08/00	09:29:00	7:03:00	00/01/00 07:03
19/08/00	09:31:00	19/08/00	09:40:00	0:09:00	00/01/00 00:09
19/08/00	09:42:00	19/08/00	09:49:00	0:07:00	00/01/00 00:07
20/08/00	20:05:00	20/08/00	20:28:00	0:23:00	00/01/00 00:23
21/08/00	09:09:00	21/08/00	09:43:00	0:34:00	00/01/00 00:34
21/08/00	10:52:00	21/08/00	11:10:00	0:18:00	00/01/00 00:18
26/08/00	18:07:00	26/08/00	23:52:00	5:45:00	00/01/00 05:45
26/08/00	23:59:00	27/08/00	00:20:00	0:21:00	00/01/00 00:21
27/08/00	00:35:00	27/08/00	00:40:00	0:05:00	00/01/00 00:05
27/08/00	00:55:00	27/08/00	00:59:00	0:04:00	00/01/00 00:04
27/08/00	08:22:00	27/08/00	08:23:00	0:01:00	00/01/00 00:01
27/08/00	08:24:00	27/08/00	08:28:00	0:04:00	00/01/00 00:04
27/08/00	08:30:00	27/08/00	08:31:00	0:01:00	00/01/00 00:01
27/08/00	08:32:00	27/08/00	08:33:00	0:01:00	00/01/00 00:01
27/08/00	08:36:00	27/08/00	09:21:00	0:45:00	00/01/00 00:45
27/08/00	09:23:00	27/08/00	10:19:00	0:56:00	00/01/00 00:56
27/08/00	10:20:00	27/08/00	10:24:00	0:04:00	00/01/00 00:04
27/08/00	10:25:00	27/08/00	10:29:00	0:04:00	00/01/00 00:04
27/08/00	10:43:00	27/08/00	10:44:00	0:01:00	00/01/00 00:01
27/08/00	10:49:00	27/08/00	11:13:00	0:24:00	00/01/00 00:24
27/08/00	11:30:00	27/08/00	11:31:00	0:01:00	00/01/00 00:01
27/08/00	11:32:00	27/08/00	11:34:00	0:02:00	00/01/00 00:02
27/08/00	12:02:00	27/08/00	12:04:00	0:02:00	00/01/00 00:02
27/08/00	12:05:00	27/08/00	12:06:00	0:01:00	00/01/00 00:01
27/08/00	12:07:00	27/08/00	12:09:00	0:02:00	00/01/00 00:02
27/08/00	12:13:00	27/08/00	12:14:00	0:01:00	00/01/00 00:01
27/08/00	12:30:00	27/08/00	12:47:00	0:17:00	00/01/00 00:17
				Total	01/01/00 07:11 31 hr 11 min
03/09/00	19:53:00	03/09/00	19:54:00	0:01:00	00/01/00 00:01
03/09/00	19:56:00	03/09/00	19:57:00	0:01:00	00/01/00 00:01
03/09/00	20:03:00	03/09/00	20:06:00	0:03:00	00/01/00 00:03
03/09/00	20:08:00	03/09/00	20:09:00	0:01:00	00/01/00 00:01
03/09/00	20:12:00	03/09/00	20:13:00	0:01:00	00/01/00 00:01
04/09/00	19:39:00	04/09/00	20:49:00	1:10:00	00/01/00 01:10
15/09/00	08:35:00	15/09/00	09:11:00	0:36:00	00/01/00 00:36
15/09/00	10:05:00	15/09/00	10:26:00	0:21:00	00/01/00 00:21

18/09/00	06:56:00	18/09/00	07:14:00	0:18:00	00/01/00 00:18
18/09/00	07:37:00	18/09/00	08:45:00	1:08:00	00/01/00 01:08
18/09/00	08:47:00	18/09/00	08:49:00	0:02:00	00/01/00 00:02
18/09/00	10:07:00	18/09/00	10:19:00	0:12:00	00/01/00 00:12
18/09/00	10:21:00	18/09/00	10:26:00	0:05:00	00/01/00 00:05
18/09/00	10:29:00	18/09/00	10:33:00	0:04:00	00/01/00 00:04
20/09/00	03:34:00	20/09/00	03:43:00	0:09:00	00/01/00 00:09
20/09/00	03:49:00	20/09/00	03:53:00	0:04:00	00/01/00 00:04
20/09/00	05:42:00	20/09/00	06:45:00	1:03:00	00/01/00 01:03
20/09/00	06:46:00	20/09/00	07:00:00	0:14:00	00/01/00 00:14
20/09/00	07:04:00	20/09/00	07:16:00	0:12:00	00/01/00 00:12
20/09/00	07:20:00	20/09/00	07:32:00	0:12:00	00/01/00 00:12
20/09/00	07:36:00	20/09/00	10:20:00	2:44:00	00/01/00 02:44
20/09/00	10:21:00	20/09/00	11:14:00	0:53:00	00/01/00 00:53
20/09/00	11:16:00	20/09/00	11:28:00	0:12:00	00/01/00 00:12
22/09/00	03:13:00	22/09/00	03:51:00	0:38:00	00/01/00 00:38
25/09/00	12:38:00	26/09/00	00:55:00	12:17:00	00/01/00 12:17
26/09/00	01:05:00	26/09/00	01:12:00	0:07:00	00/01/00 00:07
27/09/00	19:19:00	28/09/00	00:38:00	5:19:00	00/01/00 05:19
28/09/00	00:45:00	28/09/00	00:48:00	0:03:00	00/01/00 00:03
28/09/00	00:49:00	28/09/00	00:50:00	0:01:00	00/01/00 00:01
28/09/00	00:51:00	28/09/00	00:53:00	0:02:00	00/01/00 00:02
28/09/00	05:38:00	28/09/00	11:44:00	6:06:00	00/01/00 06:06
28/09/00	11:45:00	28/09/00	12:01:00	0:16:00	00/01/00 00:16
28/09/00	12:10:00	28/09/00	12:12:00	0:02:00	00/01/00 00:02
28/09/00	20:32:00	28/09/00	20:33:00	0:01:00	00/01/00 00:01
				Total	01/01/00 10:38 34 hr 38 min

Total time of recorded discharges 72 Hrs 03 minutes for the period 15 May 2000 to 30 September 2000

APPENDIX IX

APPENDIX IX. Map showing wet weather sites and survey results.



TC Total coliforms no/100ml
 FC Faecal coliforms no/100ml
 FS Faecal Streptococci no/100ml
 NT Not Taken

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AXE ESTUARY SAMPLING

The view is that fresh water inputs may contribute to failures at Seaton Beach, especially in wet weather, it is therefore planned to undertake some additional sampling.

If a Bathing Beach sample is to be taken at Seaton and there has been significant wet weather then one EPO will undertake sampling at defined locations on the Axe Estuary to assist in determining stormwater impacts. "Wet Weather" will be defined as heavy overnight rain or prolonged wet weather prior to sampling.

The Bathing Beach sample will be taken by Gordon Clark's team. EPO's will sample defined sites on each bank. Sampling will start 1 hour before the bathing beach sample is taken. This is to minimise the length of sampling time as the 6 hour rule applies. Samples to be analysed for TC, FC, FS.

EPO's to undertake survey on an availability basis:-

Andrew
Tony
Derek

Locations:-

Axe

- 1 - Axmouth Harbour bridge SY 253 899
- 2 - Stream behind Harbour Road units SY 252 903
- 3 - Seaton (s) note if settled or gross storm operating, sample combined effluent.
- 4 - Holyford Brook SY 247 917
- 5 - Coly, bottom end Colyvale Caravan Park SY 254 926
- 6 - Axe at tide limit, A3052 road bridge
- 7 - Yarty at A35 bridge
- 8 - Axe at A35 bridge
- 9 - Bruckland Stream at A358 bridge SY 264 929
- 10 - Axmouth Stream u/s of Axmouth PG

Also check operation of: Colyford STW, Colyford PS, Kilmington STW, Horsleaze's PS, Axmouth PS.