Environmental Protection Report

INVESTIGATION OF THE IMPACT ON WATER QUALITY OF THE SWW TEIGN ESTUARY SEWERAGE TRENCHING ACTIVITY

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Authors: C Martin and N Babbedge

C.V.M. Davies
Environmental Protection Manager

NRA
National Rivers Authority
South West Region

SUMMARY

South West Water (SWW) are laying sewage pipelines along and across the Teign Estuary. The NRA considered it prudent to assess the extent of contamination relating to the turbid waters generated during digging and trenching in sediments known to be contaminated with metals and organic chemical species. Additionally, there were concerns that bacteria and viruses associated with the sediments might be released to the water column and therefore affect local shellfisheries.

Construction of the pipeline is still progressing, and water quality surveys have been undertaken to monitor the impact of operations at two of the four working sites identified for investigation. Further surveys are planned, to coincide with activity at the remaining sites.

The concentrations of metals throughout the estuary in May 1992, during some trenching activity, have been compared with data collected by Wimpol in 1988 at the same sites. Levels in May 1992 were elevated in the upper estuary (at High Water).

There is a clear relationship between suspended solids immediately downstream of the digging, and elevated levels of metals, particularly iron, zinc and lead. In the mid and far-field, levels of metals appear to be somewhat elevated, but not significantly. The relationship between suspended solids and metal concentration may assist shellfishery interests in taking action to avoid potential contamination of bivalves harvested from the estuary.

There is no evidence to suggest, at this stage, that levels of bacteria are increased in the turbid waters associated with trenching and digging.

Gas Chromatographic Mass Spectrometry (GCMS) analysis of contaminated sediments from the Riverside area (off the old gas works) has revealed high levels of poly-aromatic hydrocarbons and oils.

CONTENTS

1. INTRODUCTION

As part of the Teign Estuary resewerage programme, SWW are laying sewage pipelines along and across the Teign Estuary. The NRA were concerned about the potential impact of this construction work on water quality, particularly with respect to shellfisheries and water contact activities within the estuary.

The Tidal Waters Investigation Unit (TWIU) of the NRA South West Region undertook to monitor water quality throughout the estuary during a number of critical phases of this construction work.

Four specific geographical areas of concern, relating to the possible impact on water quality, were identified (see Fig. 1). A timescale for investigations was established, based on information from a meeting with the contractors on 8 January 1992.

The provisional survey programme was as follows :

1. Soft, fine sediments on the north shore, to the west of Luxton's Steps (anticipated date - early February). The concern here was the impact of metals, bacteria, and viruses in the re-suspended sediments.

2. The upper estuary crossing from the north shore to Buckland STW (anticipated date - late April). The concern here was, again, the impact of metals, bacteria, and viruses in the re-suspended sediments.

3. At Riverside, on the north shore west of Shaldon Bridge. The main concern here was the presence of organic compounds in the sediments resulting from the operations of the old Gas Works at that site. These organics were highlighted in trial boreholes along the route of the pipe (Ref. 1).

4. Between Riverside and Flow Point on the north shore east of Flow Point (anticipated date - July or August). The main concern here was the contamination of the sediments with metals, particularly mercury, highlighted in trial boreholes along the route of the pipe (Ref. 1).

Individual surveys would be concentrated in the immediate vicinity of digging, with further sampling at selected points throughout the estuary to assess the wider impact. As far as possible the sites chosen would coincide with those monitored by Wimpol (Ref. 2).

A survey to address the problems in the first area above, to the west of Luxton Steps, was undertaken in February 1992. Unfortunately, at the time of the survey, construction activity was limited, and therefore it was not possible to fully monitor the impact of the construction.

A survey to address the problems in the second area above (the upper estuary crossing at Buckland STW) was undertaken in May 1992. After some delay, data were collected at a time of maximum construction activity.

Activity at the last two locations (Riverside and between Riverside and Flow Point) had not commenced at the time of production of this report. Construction work at Riverside has been delayed as a result of the poor quality of sediments in that region, and it is believed that the pipe will be taken inshore at this point. When activity at the fourth location, between Riverside and Flow Point commences, a further survey is planned.

2. SURVEY DETAILS

2.1 Introduction

It was decided from the outset that survey work should only take place during maximum disturbance of sediments, in order to assess the worst possible case for any impact on water quality.

This approach presented a number of operational difficulties principally with respect to timing. Progress of the pipeline was monitored by Tidal Waters staff and the local Pollution Inspector, as well as by direct contact with Constable Hart personnel. In practice this meant that the survey personnel and equipment, and the considerable analytical support required for each survey, had to be mobilised with only a few days notice. Further problems were encountered with analytical support, particularly for saline metals analysis, because of its complexity and the extra workload imposed on NRA and other available laboratory facilities by the Wheal Jane pollution incident.

2.2 19th February 1992 Survey

Throughout early February the pipeline was progressing westwards towards the proposed survey area. Information from close liaison with K Bonner (Constable Hart), indicated that initially the trenched material was a mixture of solid rock and firm clay with large boulders. However by the middle of the month the excavations were into soft sediments. The first opportunity for this initial survey was the 19th February. Normal trenching activity was not taking place at this time, but excavations for a temporary diversion of the water main which crosses the estuary, were being carried out at a point where it crosses the route of the sewer. The anticipated disturbance of sediments associated with this operation was considered to be sufficiently similar to the pipeline trenching to warrant a survey.

This survey was planned to sample various points in the estuary, near to the excavations at mid ebb, mid flood, and at high tide. In addition it was planned to sample the low water channel immediately upstream and downstream of the digging.

In fact the survey was modified, on site, to take account of the relative lack of activity on this particular day (see Appendix 1).

The modified survey consisted of 5 sites at mid ebb and 8 sites at high water. These corresponded with Wimpey sites T7M, T2, T5N, T5M & T5S, and T7M, T5N, T5S, T4N, T4S, T3N, T3S & T2 respectively (see Fig. 1).

Samples were analysed for dissolved and particulate metals; Copper, Zinc, Arsenic, Cadmium, Iron, Lead and Nickel (all filtered on site), suspended solids, total coliforms, faecal coliforms, faecal streptococci and somatic coliphage. No analysis for mercury was considered necessary due to the low levels found in sediment boreholes (Ref. 1).

Temperature, salinity, pH, dissolved oxygen, and turbidity were profiled at each site. Samples were taken at the surface or at the depth with maximum turbidity.

2.3 20th May 1992 Survey

This survey was planned to coincide with digging in Newton Channel off Buckland STW. Liaison with K Bonner (Constable Hart) indicated that the critical digging phase (ie. into the channel) would take place on Monday 18th May. This did not occur however until Wednesday 20th May, when the survey took place.

The strategy for this survey was to concentrate in the immediate vicinity of the sediment disturbance with sites in Newton Channel both above and below the digging. Also various sites throughout the estuary, would be sampled over both high tides, to assess the wider impact (if any) on water quality.

Samples were taken, on both high tides from the sites indicated in Fig. 1, and analysed for dissolved and particulate metals; Copper, Zinc, Arsenic, Cadmium, Iron, Lead and Nickel (all filtered on site), suspended solids, total coliforms, faecal coliforms and faecal streptococci. It was not possible to analyse for somatic coliphage because of conflicting laboratory workloads.

Temperature, salinity, pH, dissolved oxygen, and turbidity were profiled at each site. Samples were taken at the surface and at 0.5 metres above bottom where there was sufficient depth.

Because of the peculiarities of the site (see Fig. 2) it was also decided to release harmless Bacillus globigii spores from Buckland STW final effluent in order to estimate the proportion of sewage works effluent in each of the near field samples.

2.4 Riverside Sediment Samples

It was known that sediments, in the vicinity of the old gasworks site at Riverside, had contained elevated phenol levels (see Ref. 1). The Tidal Waters Unit had provisionally planned a survey for this area, which would include poly-aromatic hydrocarbons (PAH) and poly-chlorinated biphenyls (PCB) analysis as well as the normal metals suite. As with the other surveys associated with the pipeline construction, this was scheduled to coincide with the contractors working in the area of interest, which we understood to be late May or early June.

TWIU personnel on instrument trials in the Teign on 26th March, noticed that trenching had started from close to Shaldon Bridge, towards Riverside. K Bonner (Constable Hart) was contacted on 1st April; he said that trenching had begun from Shaldon Bridge towards the Riverside site. However, trial excavations below the HW mark at Riverside revealed the presence of oily liquids. Samples were taken for analysis by SWW, and work had been suspended whilst results were awaited. A Traynor (SWW Plympton) indicated that a full survey had been planned, both out towards the mussel beds and on the Riverside site. The estuarine work was due to start on Friday 3rd, landward drilling would start on Monday 6th April.

During early April, several site visits were made to Riverside :

(a) **Site Visit 1 April 1992**

A large water filled trench extended from close to Shaldon Bridge to 100 metres or so short of the Riverside site. Material from the excavations had been heaped on the estuary side of the trench and consisted of estuary mud and the underlying sandstone. No oil film was apparent on the water trapped in the trench.

The following information was acquired from a Constable Hart engineer on site:

A series of trial pits (TP1 to TP5) (see Fig. 3) had been dug (with an excavator) along the intertidal strip between Riverside and the mussel beds. An "oily liquid" was seen to be percolating through the sediments at about 1.5 to 2 metres deep. Samples were taken from each pit for analysis by SWW. All pits were then back-filled.

There was some evidence of oil film in small pools near to TP3 but insufficient for a sample. Photographs of the trial pit positions, oil film (see Fig.4), and overall site, were taken.

(b) **Site Visit 3 April 1992**

Personnel from Research Consultants Cambridge (RCC) were co-ordinating the core sampling, which was being carried out by the Institute Of Hydrology. The core sampling was to be perpendicular from the shoreline near TP3, at 10 metre intervals. If visibly clean cores were obtained the plan was then to drill parallel to the shoreline from that point. It was not possible to sample any of the material because it was all required by RCC for analysis.

(c) **Site Visit 4 April 1992**

Same personnel on site, photographs taken of samples, and cleaning procedure for coring equipment. The samples appeared to consist largely of oily/tarry material (see photograph in Fig. 4).

(d) **Site Visits 7 April 1992 to 13 April 1992**

7 April 1992 Engineer from ERL (Environmental Research Limited) at Riverside outlined plans for the landward survey. Boreholes were to be sunk (seven in total) at various points around the boatyard. The work was anticipated to take about one week. Containers were left for ERL personnel to sample contaminated material from the boreholes (for analysis by NRA) as they progressed.

Further visits were made throughout the week by Investigations Officer (Tidal Waters), Senior Pollution Inspector, and the local Pollution Inspector.

Samples from ERL boreholes BH4 (3.2 metres below surface), BH5 (4.5 metres below surface), and BH6 (composite sample from various depths), were analysed for PAH's, PCB's and organochlorine pesticides. The results are presented in Appendix 3 and discussed in section 4.3.

3. COMPARISON OF RESULTS WITH HISTORICAL DATA

The surveys undertaken by the NRA have indicated that the digging operations have no significant impact on levels of bacteria in the estuary (see Section 4.2.1). Hence, comparisons with previous data have been made for metals only.

The most suitable data set with which to make any comparison is the Wimpol 1988 survey data. Table 1 summarises the values obtained in 1988 and in May 1992. The 1988 data represents 4 values, and the 1992 data 2 values (20 May). For most sites there are data from both years. All the data were collected around HW - hence the lower estuary is unlikely to be significantly affected by working at the top of the estuary. In fact there is no evidence of impact at T7, T6, or T5. However, at T4, T3, and T2 there is evidence that the levels were higher in May 1992 than in 1988. Zinc levels show the highest increase with the mean value of 41.15 μg/litre for 'total zinc' at T2, based on 2 measurements, compared with the EQS for dissolved zinc of 40 μg/litre, and a measured total zinc concentration of 12.25 μg/litre in 1988.

Note that the riverine input of metals to the estuary will be highly variable, the loading varying with flow and concentration. At the time of the 20 May survey, river flows were quite low being 2.8 cumecs compared to a Q95 of about 1.0 cumecs, and therefore inputs from the river would have been relatively small.

To summarise, there is evidence that metals concentrations in the upper estuary were elevated at HW as a result of the trenching activity. At different states of the tide, some elevation of levels would be expected lower down the estuary.

4. DISCUSSION OF RESULTS

4.1 19th February 1992 Survey

Tables 2a and 2b show the data collected on the February survey.

There was little significant construction activity on this day, apart from the digging from a floating crane. However, the following points are of relevance.

Firstly, there are a number of EQS exceedances for dissolved copper (EQS 5.0 µg/litre), and dissolved zinc (EQS 40 µg/litre). The exceedances at Newton Abbot Quay on the morning ebb tide, in freshwater, indicate that the River Teign carries significant amounts of dissolved metals. Similarly, the exceedances on the evening ebb tide at T3N, T3S, and Newton Abbot Quay all occur in water of salinity 2.9 or less.

Over the period 1340 to 1420, a floating crane was observed digging opposite Hackney Lane on the north side of the channel. Samples taken upstream and 150m downstream of this activity at 1450 and 1416 hours respectively showed a large increase in suspended solids concentration, from 4.1 to 99.0 mg/litre. At the same time, concentrations of most metals increased, some quite significantly. Dissolved zinc increased from 59 µg/litre to 260 µg/litre (EQS 40 µg/litre), and particulate iron from 192 to 3370 µg/litre. Measured increases in dissolved iron were within the EQS (1,000 µg/litre) value.

4.2 20th May 1992 Survey

4.2.1 Bacteria

B.globigii spores were injected into the STW effluent in order to assist in the determination of the sources of bacteria in the samples. The spore injection did not commence until 0947, about 5 minutes after the visible turn of the tide. No analyses for B.globigii were undertaken, therefore, on samples collected during the morning HW run (0830 to 1010).

During the ebb tide and the subsequent flood, the samples collected at Newton Channel (T3S) and Hackney Lane (T4S) can be considered to demonstrate the local impact of the digging operations on the water quality. The samples collected at Newton Channel (T3S) are up-current on the ebb tide and down-current on the flood tide.

Referring to Table 5a, in general, levels of bacteria and suspended solids increased from Newton Channel to Hackney Lane on the ebb tide, and vice versa on the flood tide. There were some exceptions : the 1230/1246 sample pair showed a decrease in bacteria levels down-current, although suspended solids increased as expected; whilst over the period 1735 - 1833 on the early flood, the complications of the mud bank and diggers causing a partial barrier to the flood tide resulted in levels of bacteria and suspended solids continuing to increase down estuary.

For all pairs except the 1230/1246 pair, the higher levels of bacteria and suspended solids were found in the sample collected down-current of the STW and digging operations (assuming the current was down estuary between 1735 and 1820).

The increases in suspended solids down-current are almost certainly caused by the digging operations. However, there are two possible sources of bacterial contamination: the STW and the disturbed sediments. Clearly, the STW will have a significant impact on the bacterial concentrations, making it difficult to determine the impact of the digging on bacteria levels. The B.globigii can be used to assist in this matter.

To do this, the ratio of the change in E.Coli concentration to the change in B.globigii concentrations, R1, for each up-current/down-current pair has been calculated and presented in Table 5a. The ratio R_1 given in Table 5a is remarkably constant. Excluding the 1230/1246 pair, the ratio varies between 3.01 and 11.14, but with 6 of the 10 values between 4.04 and 4.63. This indicates that any increase in E.Coli levels resulting from the digging is unlikely to be at all significant when compared to that resulting from the sewage discharge.

The levels of suspended solids are a direct indicator of the potential impact of the digging. The ratio of the increase in E.Coli to the increase in suspended solids, R_2, is also given in Table 5a. Excluding the value from the 1230/1246 pair, this ratio varies from 69 to 7860, two orders of magnitude, thus demonstrating virtually no correlation between the two. In addition, the data for the 1230/1246 pair show that, despite an increase in suspended solids, the E.Coli concentration decreased.

To summarise, the increase in E.Coli levels from the up-current site to the down-current site is very well correlated with the increase in B.globigii, the tracer injected into the STW effluent, but is uncorrelated with the increase in suspended solids resulting from the digging operations. Therefore, levels of E.Coli resulting from the digging operation are believed to be insignificant when compared to those derived from the STW.

Note that the impact on levels of viruses, which are longer lived that bacteria, was not assessed.

4.2.2 Metals

The local and direct impact of the digging operations on suspended solids and metals levels in the estuary is shown in Table 5b, and in Figures 5 to 10 where time series of suspended solids and metals concentrations at Newton Channel (T3S) and Hackney Lane (T4S) have been plotted. The EQS values for dissolved metals are given on Figures 6 - 10, but these EQS's are annual averages. No plot for particulate copper is presented, because all values were below detection limits, no results are plotted for Cadmium since all results were either below the detection limit or only slightly above it.

Figure 5 shows the time series of suspended solids at T3S and T4S. The two peaks of T4S reflect the activity on the ebb tide. At 1333, two large excavators moved into the channel, moved upchannel, and then back onto the inter-tidal mud. This resulted in the peak at 1342. At 1630, the excavators broke through to the estuary, where they continued digging until 1835, producing the peak over that period. The peak at T3S resulted from the flood tide surging past the mud barrier, carrying turbid waters with it, and actively eroding the mud barrier and bottom sediments due to the increased flow.

The graphs demonstrate the impact of the workings on metal concentrations; over the 'ebb' tide, (1125 - 1740) when T4S was down-current, and over the 'flood' tide (1925 - 2217) when T3S was down-current. The impact is most noticeable at the time of the three peaks in suspended solids as discussed above.

The greatest impact is evident around Low Water, when dilutions were less (and activity greatest). However, dissolved copper, arsenic, and lead levels did not exceed the EQS values at any stage. Dissolved zinc levels exceeded the EQS of 40 mg/litre on one occasion, at Hackney Lane at 1735. Dissolved iron levels exceeded the EQS of 1,000 μg/litre on one occasion, at Hackney Lane (T4S) at 1735 and on one occasion, at Newton Channel (T3S) at 1925.

4.3 Riverside Sediment Samples

Analysis of sediments from three ERL boreholes by GCMS (Gas Chromatographic Mass Spectrometry) indicated the presence of oil in all samples. In the case of borehole 4, interpretation of the chromatograph indicates an older, more weathered oil.

Poly-aromatic hydrocarbons were present in samples from boreholes 4 (10 ppm), and 5 (1500 ppm), this latter result is particularly high.

Provisional screening for polychlorinated biphenyls and organochlorine pesticides has proved negative.

The above results confirm what was already known, namely that there were residues from the old gasworks at Riverside. Obviously the magnitude of the problem was not known, and with only three samples from the landward drilling, we are not in a position to assess either the quality, or extent of contaminated land. However a full report is expected from ERL, which should indicate the levels of contaminants, and the extent of contaminated ground, both horizontally and vertically, at Riverside.

5. CONCLUSIONS

The trenching activity throws up considerable quantities of suspended sediment, which can reach levels well in excess of 100 mg/litre in the near field. These suspended solids have associated with them a load of particulate and dissolved metals, which are present in varying proportions dependent on a number of factors such as pH and salinity. No cadmium was found in significant quantities in the water samples collected.

Levels of all metals were elevated in the plume of suspended solids, but the greatest impact was on levels of iron, zinc, lead, and copper. Dissolved levels of iron and zinc exceeded EQS levels for brief periods of time in the lower salinity waters of the upper estuary. On the ebb tide, the metal contaminated plume will be carried down estuary onto the shell-fisheries. Whilst dissolved metals may reduce further down the estuary as a result of dilution and precipitation, the impact of the particulate metals on the quality of shell fish warrants further consideration.

There was no evidence in the May survey of elevated levels of bacteria resulting from the re-suspension of sediments. However, this work was undertaken in the immediate vicinity of the Buckland STW effluent outfall, which may have masked any small impact from the digging. No measurements of viruses have yet been made.

Sediment samples from Riverside indicated the presence of oil in all samples, some old and weathered. High levels of poly-aromatic hydrocarbons were found in one of the samples. A further detailed report by ERL will be made.

No recommendations can be made at this time as this is an interim report.

6. REFERENCES

1 "Teign Estuary Regional Sewage Disposal Scheme - Onshore : Contaminant Testing, Figures L6/1 to L6/6" Exploration Associates Contract HO242.

2 "Environmental Survey and Mathematical Modelling of the River Teign Estuary and Coastal Region" South West Water Services Report, prepared by Wimpol Ltd 1989.

TEIGN ESTUARY PIPELINE SURVEY

20th May 1992

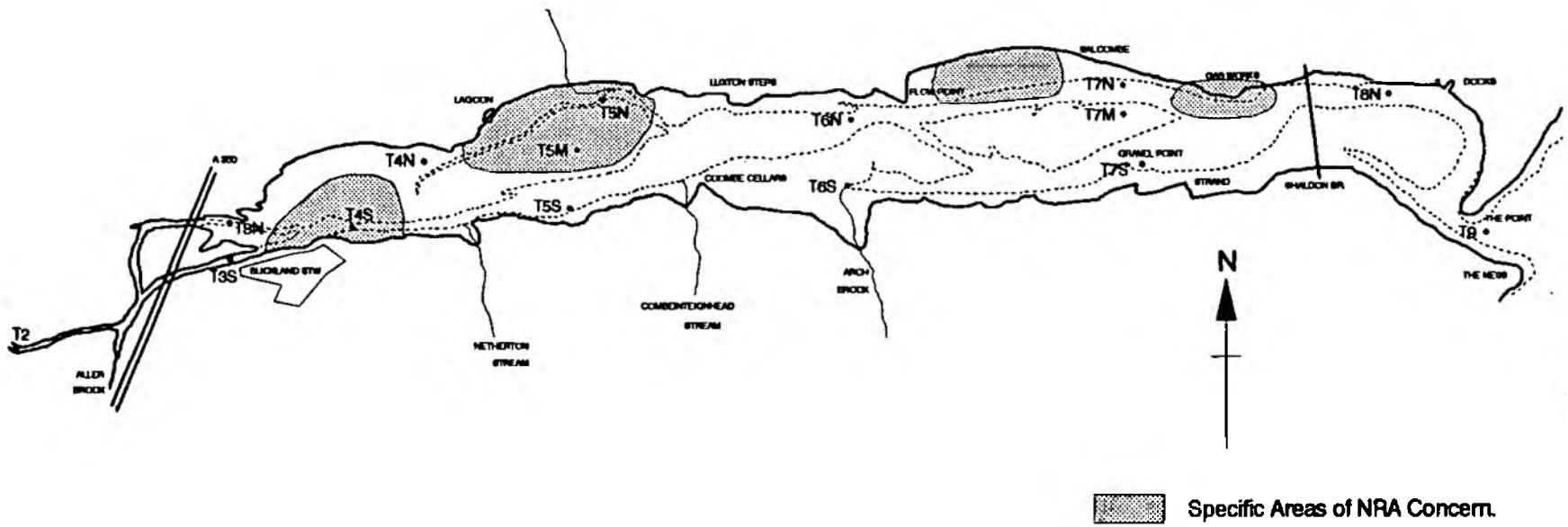


Fig 1 Map of Survey Area.

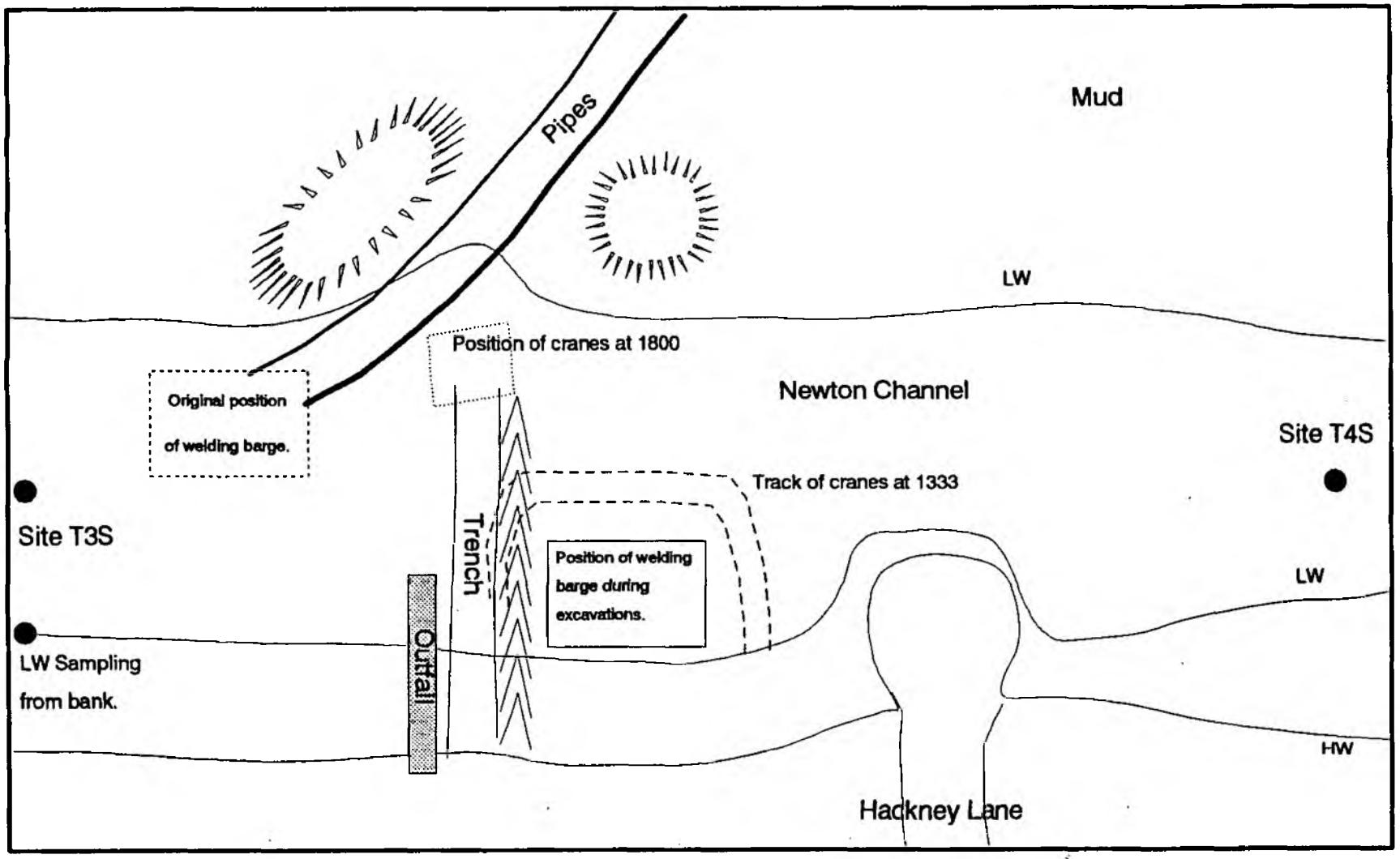


Fig. 2 Sketch map of Teign pipeline operations.

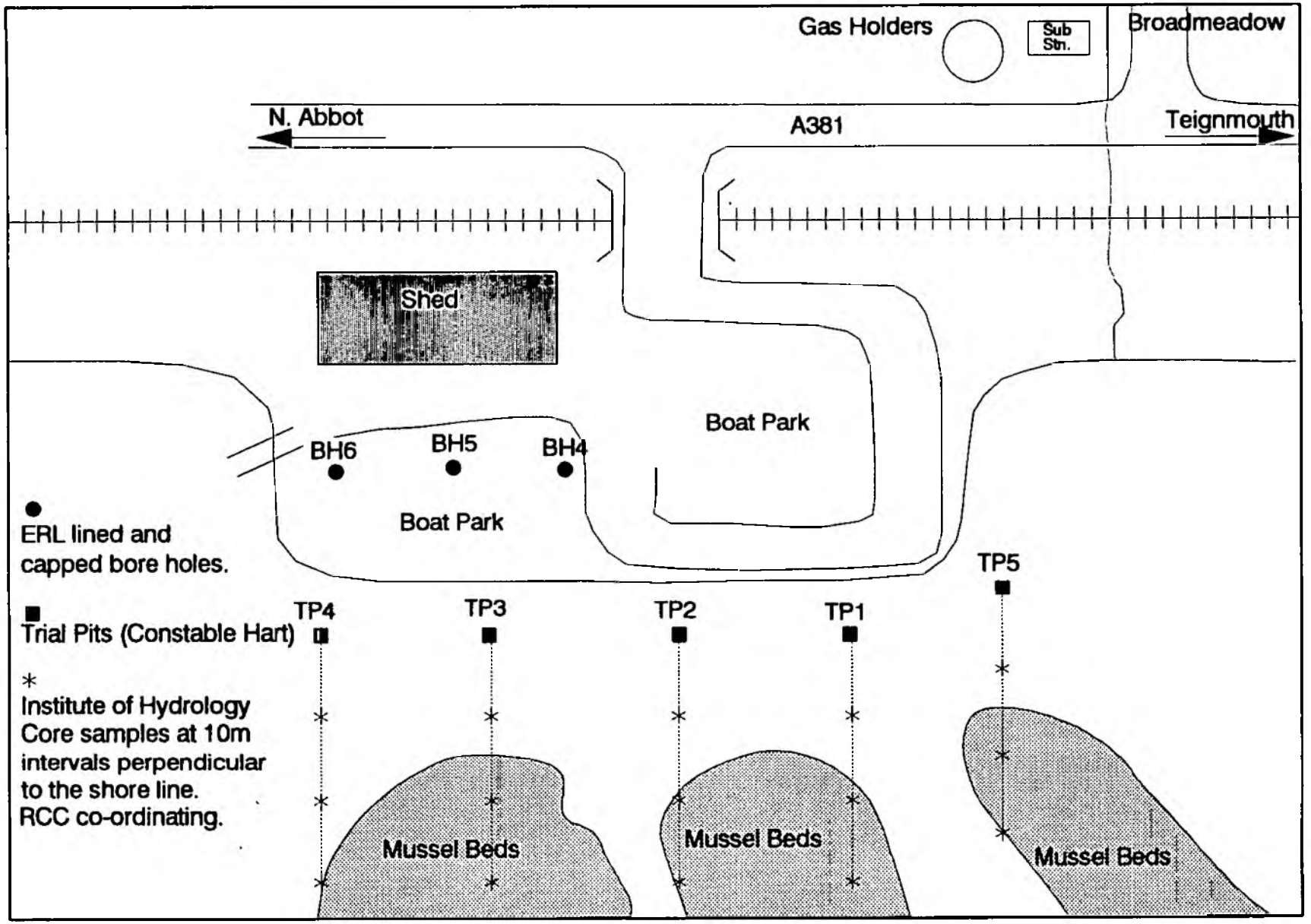


Fig 3 Sketch Map of Riverside.

01.04.92 Oil film on surface near Constable Hart trial pit No. 3.

04.04.92 Core samples taken by Institute of Hydrology for R.C.C.

Fig 4 Photographs of Oil Film on Mud and Oily Sediment from Riverside.

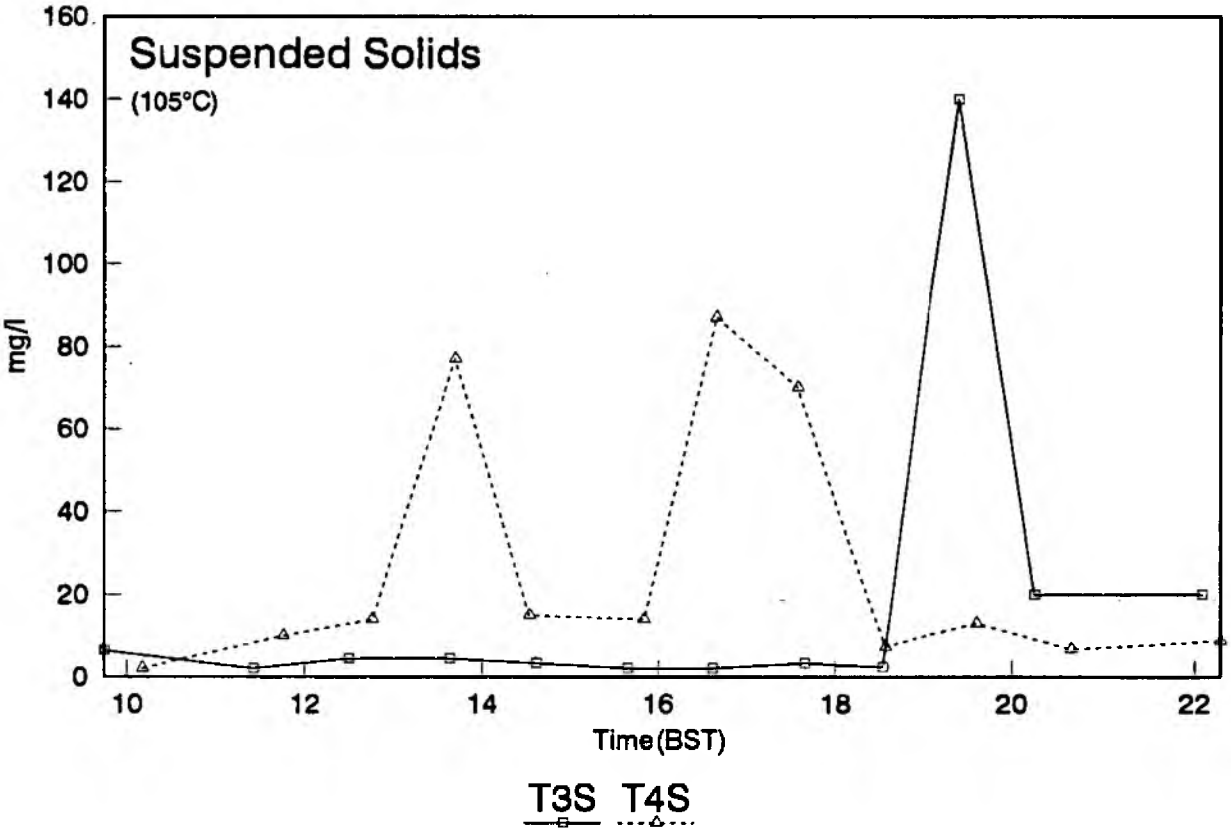
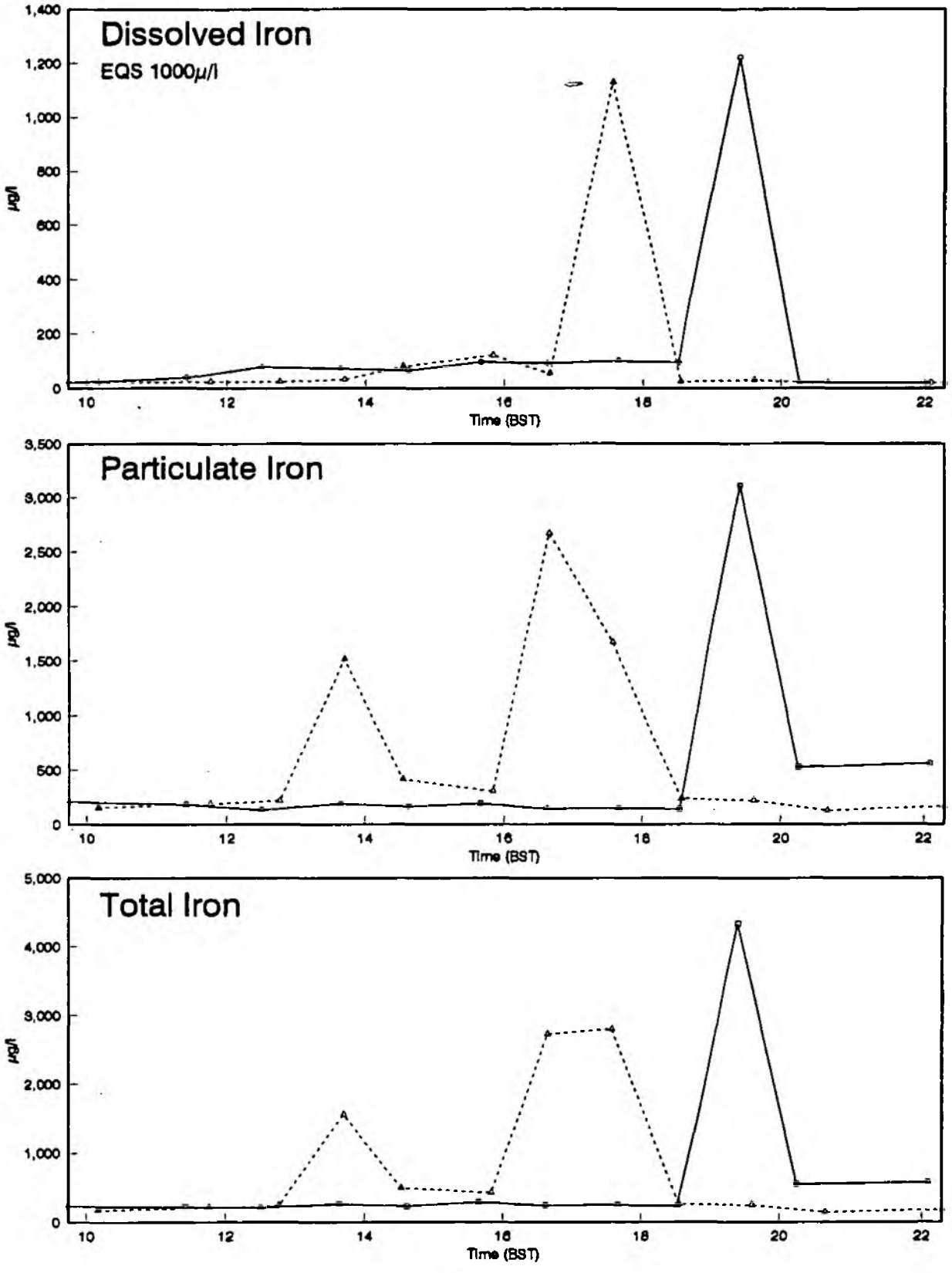
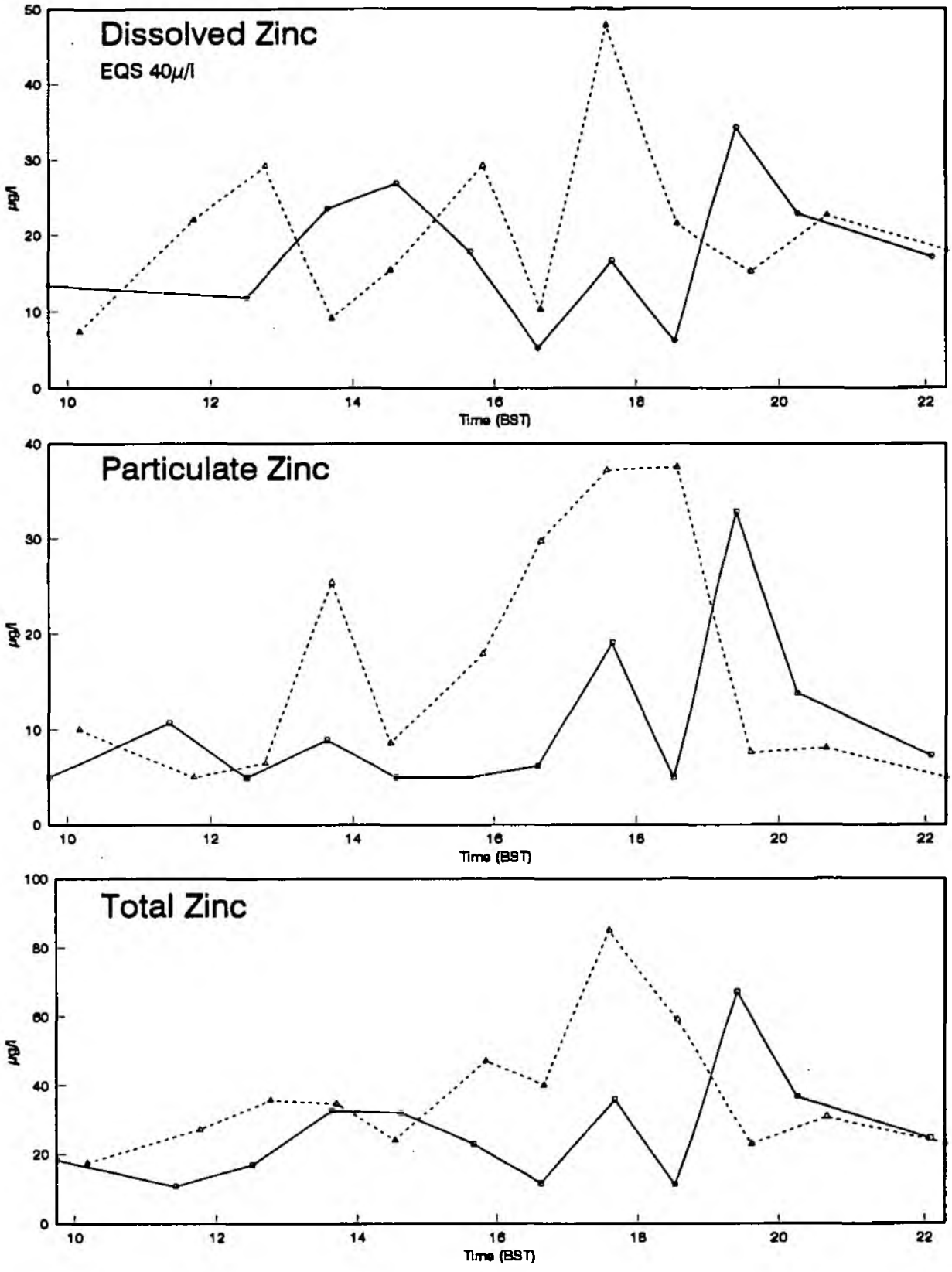


Fig. 5 Suspended Solids Either Side of the Trenching Activity - 20th May



T3S T4S

Fig. 6 Iron Concentrations Either Side of the Trenching Activity - 20th May



T3S T4S

Fig. 7 Zinc Concentrations Either Side of the Trenching Activity - 20th May

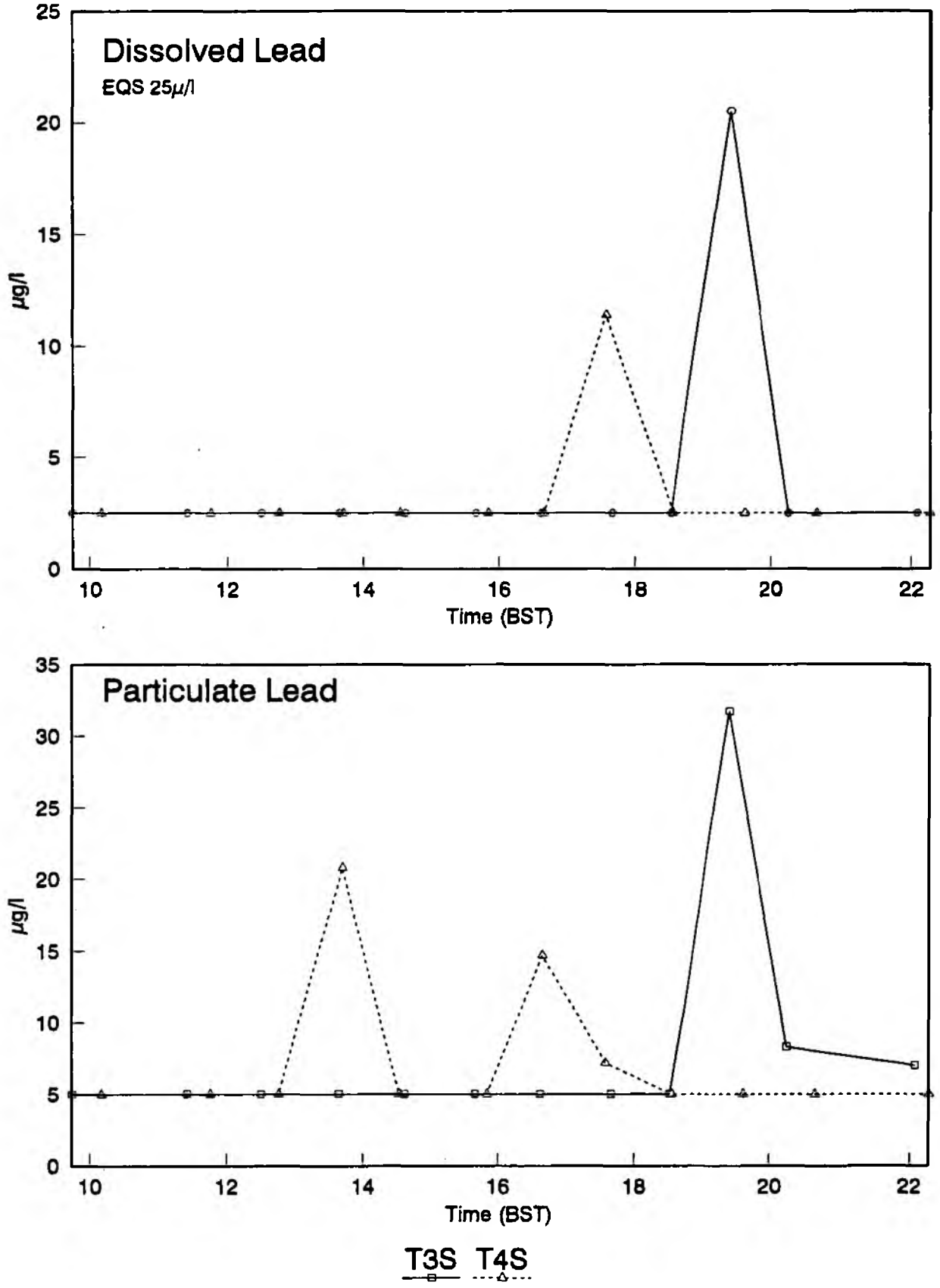
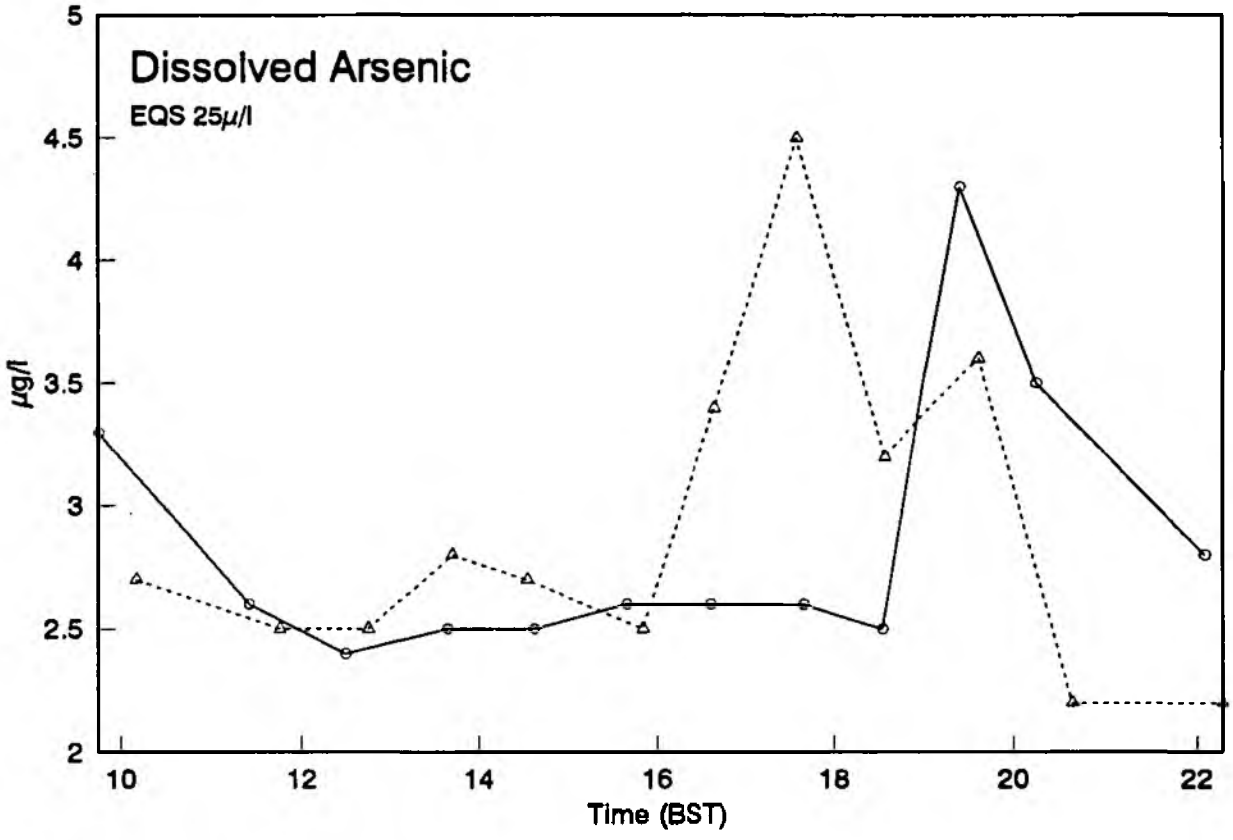
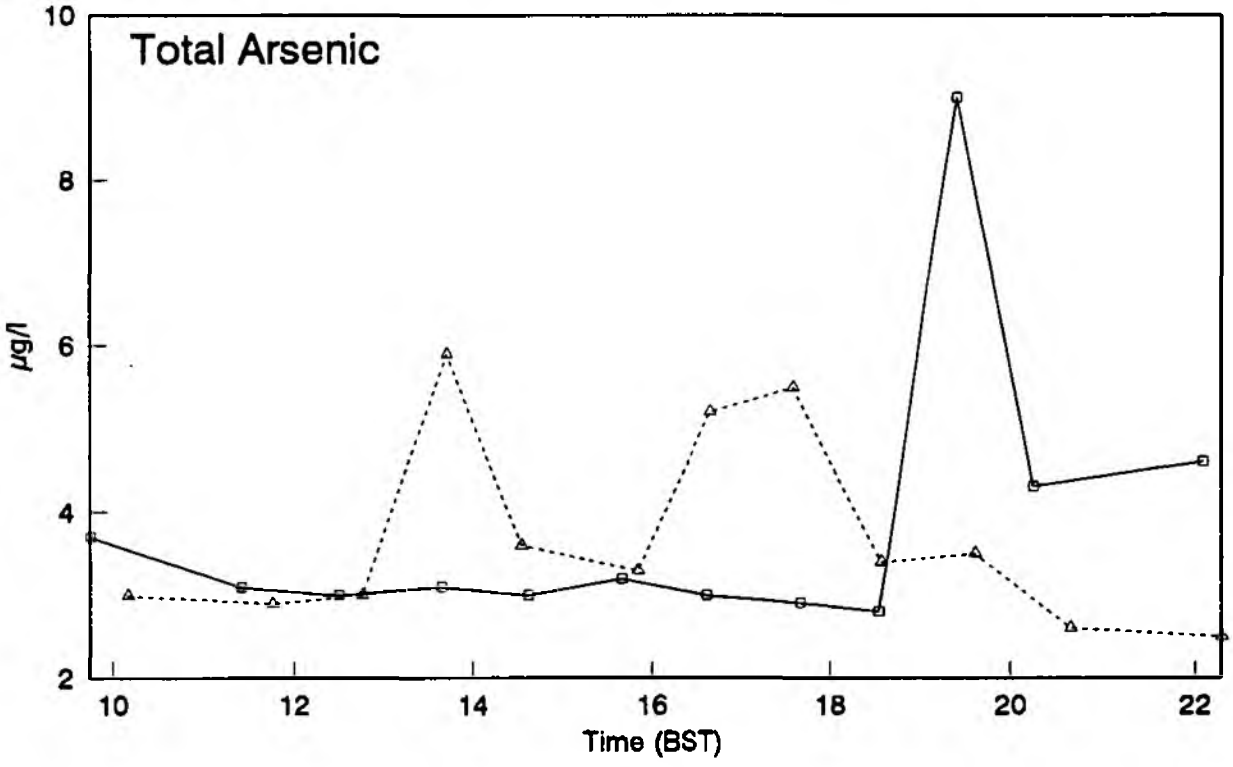


Fig. 8 Lead Concentrations Either Side of the Trenching Activity - 20th May





T3S T4S

Fig. 9 Arsenic Concentrations Either Side of the Trenching Activity - 20th May

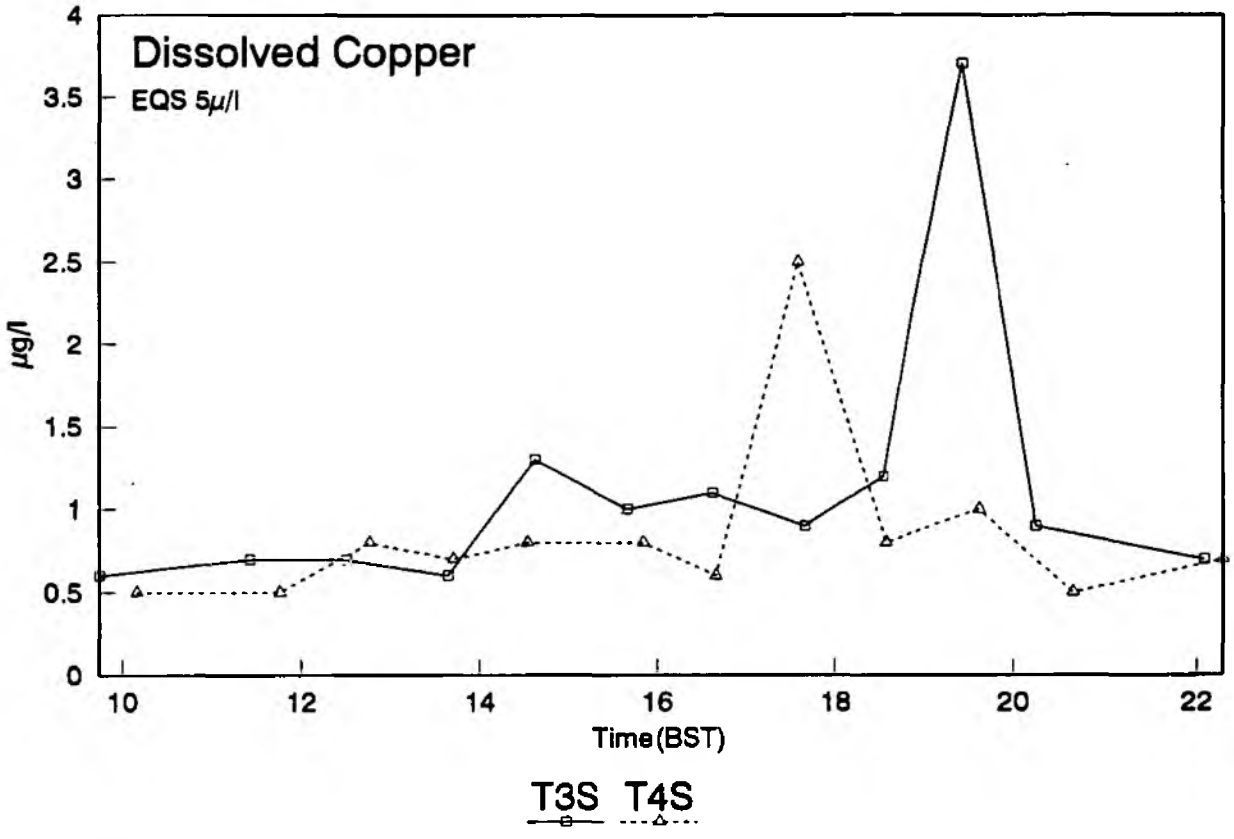


Fig. 10 Copper Concentrations Either Side of the Trenching Activity - 20th May

DATA SOURCE	POSITION	TIME w.r.t. HIGH WATER	TOTAL METALS DATA (ug) IRON Maximum	IRON Mean	IRON S.D.	ARSENIC Maximum	ARSENIC Mean	ARSENIC S.D.	ZINC Maximum	ZINC Mean	ZINC S.D.	COPPER Maximum	COPPER Mean	COPPER S.D.	LEAD Maximum
1988 Survey	T9	+1 to -1				1.3	1.30	0.00	28.7	13.45	9.60	13.1	4.05	5.23	<0.7
1988 Survey	T8N	+1 to -1				1.0			49.5	20.10	17.31	12.2	3.40	5.00	<0.7
1992 Survey	T7M	+1 to -1	17.0 - 37.0			1.5	1.45	0.05	16.5 - 21.0			<5.5			<7.5
1988 Survey	T7N	+1 to -1				1.3	1.30	0.00	31.4	18.58	12.41	3.4	1.55	1.07	1.8
1988 Survey	T7S	+1 to -1				1.4	1.33	0.04	8.3	6.20	1.68	2.2	1.73	0.29	<0.7
1988 Survey	T6N	+1 to -1				2.0	1.95	0.09	12.8	6.63	4.30	1.0	0.85	0.20	<0.7
1988 Survey	T6S	+1 to -1				1.8	1.55	0.15	46.3	15.95	17.95	0.9	0.70	0.12	<0.7
1992 Survey	T5M	+1 to -1	71.0 - 91.0			1.9	1.80	0.10	9.8 - 14.8			<5.5			<7.5
1992 Survey	T5S	+1 to -1	77.0			2.0	2.00	0.00	23.0	22.55	5.45	1.2 - 6.2			<7.5
1988 Survey	T5S	+1 to -1				3.2	2.13	0.77	48.4	17.80	18.03	2.2	1.22	0.53	<0.7
1992 Survey	T4S	+1 to -1	175.0	141.5	37.1	3.0	3.30	1.12	53.6	26.78	15.79	0.7 - 5.7			<7.5
1988 Survey	T4S	+1 to -1				2.4	1.95	0.27	11.5	10.88	0.37	1.8	1.28	0.30	<0.7
1992 Survey	T3S	+1 to -1	581.0	324.0	154.7	5.3	4.00	0.70	28.4	23.10	3.73	0.8 - 5.7			<7.5
1988 Survey	T3S	+1 to -1				3.0	2.70	0.31	12.0	11.13	0.54	2.9	1.55	0.87	<0.7
1992 Survey	T2	+1 to -1	675.0	485.5	175.7	5.2	4.48	0.65	54.2	41.15	9.00	2.2 - 7.2			13.6
1988 Survey	T2	+1 to -1				3.3	2.98	0.34	13.2	12.25	0.96	2.8	2.38	0.80	7.3

Note: A maximum value given as a range of possible values results from a combined total of particulate and dissolved metal samples where one sample has had a lower concentration than the sensitivity of the measuring instrument.

Table 1. Comparison of May 1992 Total Metal Concentrations with those Measured by Wimpey in 1988.

Teign Pipeline Survey

File Name: TEIGNPIPE_FEB92

Date: 19 February 1992

Shaldon Tides HW: 0725 & 1950
LW: 1238

Site	Time (local)	Depth (m)	Sal. psu	Cond mS	DO	pH	Temp oC	Turb ftu
Mid Lower Estuary	09.33	2.0	34.4		94	8.30	7.6	12.8
SX 9232 7275		1.5	34.4		95	8.30	7.7	12.3
T7M		1.0	34.3		96	8.30	7.7	11.8
		0.5	34.4		95	8.30	7.7	11.5
		0.0	34.3		96	8.30	7.7	11.3
N Abbot Quay	10.05	2.0		0.20	98	7.80	6.1	23.8
SX 8694 7162		1.5		0.20	97	7.80	6.2	20.5
T2		1.0		0.18	98	7.80	6.1	20.1
		0.5		0.18	97	7.70	6.1	19.8
		0.0		0.18	98	7.80	6.1	19.5
SX 8955 7260	10.29	1.0	35.0		94	8.30	7.1	26.5
T5M		0.5	28.0		93	8.30	6.9	23.0
		0.0	13.6		94	8.20	6.4	20.5
Bishop's Rock	10.45	1.0	33.0		91	8.25	7.5	18.8
SX 8950 7281		0.5	32.9		90	8.25	7.5	23.0
T5N		0.0	13.9		93	8.20	6.3	38.0
SX 8970 7251	11.10	Bott	13.2		96	8.16	6.9	80.0
T5S		Surf	12.7		95	8.14	6.9	83.0
150m D/S crane	14.16	1.0	0.30		103	7.90	6.7	o/scale
off Hackney Lane		0.5	0.30		102	7.90	6.7	199.0
		0.0	0.30		102	7.90	6.7	o/scale
U/S crane off	14.50	1.0		0.34	104	7.94	6.6	22.5
Hackney Lane		0.5		0.34	104	8.05	6.6	21.1
		0.0		0.34	104	8.05	6.6	24.6
Mid Lower Estuary	18.59	2.5	34.1		99	8.30	7.7	140.5
SX 9232 7275		2.0	34.1		98	8.30	7.7	140.2
T7M		1.5	34.1		98	8.30	7.7	13.6
		1.0	34.1		98	8.30	7.7	13.6
		0.5	34.1		98	8.31	7.7	13.5
		0.0	34.1		98	8.31	7.7	13.2
Bishop's Rock	19.16	2.5	32.6		95	8.30	7.5	22.8
SX 8950 7281		2.0	32.6		96	8.30	7.5	22.1
T5N		1.5	32.6		95	8.30	7.5	21.6
		1.0	32.4		95	8.30	7.5	19.7
		0.5	31.8		94	8.30	7.5	21.2
		0.0	30.0		95	8.30	7.4	19.8

TABLE 2a - February Survey, Microbiology.

T.Coli (/100ml)	E.Coli (/100ml)	F.Streps (/100ml)	Somatic Coliphage PFU/10l	SSolids (105oC) (mg/l)
480	340	100	95	3.5
9000	3100	420	103	<2.0
3400	2100	200	433	5.5
7000	5600	400	277	8.5
4300	2800	340	4140	8.5
			480	99.0
			237	4.1
420	220	60	277	5.1
1200	630	260	484	18.0

Teign Pipeline Survey

File Name: TEIGNPIPE_FEB92

Date: 19 February 1992

Shaldon Tides HW: 0725 & 1950
LW: 1238

Site	Time (local)	Depth (m)	Sal. psu	Cond mS	DO	pH	Temp oC	Turb ftu
Netherton House	19.28	2.5	33.7		97	8.30	7.6	26.3
SX 8945 7238		2.0	33.6		98	8.30	7.6	25.4
T5S		1.5	33.3		98	8.30	7.6	22.8
		1.0	32.7		97	8.30	7.5	21.2
		0.5	31.4		97	8.30	7.4	18.6
		0.0	29.5		97	8.30	7.2	17.6
Weare Barton	19.41	1.5	30.4		103	8.30	7.4	22.0
SX 8858 7254		1.0	28.7		101	8.30	7.3	21.7
T4N		0.5	26.0		98	8.30	7	19.5
		0.0	14.0		95	8.30	6.5	19.6
Hackney Lane	19.59	3.5	29.0		96	8.30	7.4	12.5
SX 8848 7220		3.0	29.2		96	8.30	7.4	23.2
T4S		2.5	28.5		96	8.30	7.4	21.2
		2.0	28.3		96	8.30	7.4	20.3
		1.5	27.1		96	8.30	7.3	20.4
		1.0	22.8		96	8.30	7.1	21.4
		0.5	8.4		97	8.30	6.5	24.9
		0.0	5.4		98	8.10	6	39.6
Passage House	20.14	2.0	23.9		97	8.30	7.2	20.3
SX 8790 7227		1.5	21.9		95	8.30	7	20.8
T03N		1.0	15.0		95	8.20	6.9	24.8
		0.5	4.7		97	8.30	6.3	30.1
		0.0	2.9		98	8.20	6.2	52.9
Newton Channel	20.24	3.0	27.4		95	8.30	7.3	20.9
U/S off STW		2.5	27.0		95	8.30	7.3	20.4
SX 8813 7208		2.0	25.6		94	8.30	7.3	20.4
T03S		1.5	22.0		93	8.30	7.1	21.4
		1.0	13.2		95	8.30	6.8	22.3
		0.5	6.9		96	8.20	6.6	28.4
		0.0	2.6		98	8.20	6.4	36.8
N Abbot Quay	20.35	3.0		0.26	104	8.60	6.4	17.6
SX 8694 7162		2.5		0.26	104	8.00	6.4	17.6
T2		2.0		0.26	105	8.00	6.4	17.2
		1.5		0.23	104	8.00	6.3	17.5
		1.0		0.23	104	7.90	6.3	16.8
		0.5		0.21	105	7.90	6.3	29.8
		0.0		0.23	102	7.90	6.3	36.8

T.Coli (/100ml)	E.Coli (/100ml)	F.Streps (/100ml)	Somatic Coliphage PFU/101	SSolids (105oC) (mg/1)
1700	530	260	518	<2.0
1900	900	300	4270	<2.0
3400	2000	550	5210	8.1
8000	3600	860	654	23.0
14000	4300	510	256	15.0
16000	2700	800	60	5.1

Teign Pipeline Survey

Date: 19 February 1992 — Shaldon Tides — HW: 0725 & 1950 — LW: 1238

Site	Time (local)	Depth (m)	SSolids (105oC) (mg/l)	Metals data (ug/l) Cadmium Dis.	Cadmium Part.	Copper Dis.	Copper Part.	Zinc Dis.	Zinc Part.	Arsenic Dis.	Arsenic Total	Iron Dis.	Iron Part.	Nickel Dis.	Nickel Part.	Lead Dis.	Lead Part.
Mid Lower Estuary	09.33	2.0															
SX 9232 7275		1.5															
T7M		1.0															
		0.5															
		0.0	3.5	<0.13	<0.5	2.8	<5	32	<5.0	1.8	1.9	<10	69	3.4	<5	3.64	<5
N Abbot Quay	10.05	2.0															
SX 8694 7162		1.5															
T2		1.0															
		0.5															
		0.0	<2.0	0.28	<0.5	9.3	<5	73	<5.0	1.5	1.6	146	175	4.5	<5	5.3	<5
SX 8955 7260	10.29	1.0															
T5M		0.5															
		0.0	5.5	<0.13	<0.5	7.9	<5	44	<5.0	1.6	1.8	25	280	6.4	<5	<2.5	<5
Bishop's Rock	10.45	1.0															
SX 8950 7281		0.5															
T5N		0.0	8.5	<0.13	<0.5	3.3	<5	32	<5.0	1.9	2.0	25	458	20.8	<5	<2.5	<5
SX 8970 7251	11.10	Bott															
T5S		Surf	8.5	<0.13	<0.5	1.6	<5	33	<5.0	1.6	1.7	13	272	3.4	<5	<2.5	<5
150m D/S crane	14.16	1.0															
off Hackney Lane		0.5															
		0.0	99.0	0.16	<0.5	2.6	<5	260	57.2	2.6	5.7	262	3370	<3.0	<5	2.5	10
U/S crane off	14.50	1.0															
Hackney Lane		0.5															
		0.0	4.1	0.16	<0.5	2.0	<5	59	<5.0	1.5	2.0	157	192	4.7	<5	<2.5	<5
Mid Lower Estuary	18.59	2.5	5.1	<0.13	<0.5	6.4	<5	21	<5.0	1.5	1.7	51	103	20.1	<5	7.1	8
SX 9232 7275		2.0															
T7M		1.5															
		1.0															
		0.5															
		0.0															
Bishop's Rock	19.16	2.5	18.0	<0.13	<0.5	1.7	<5	32	16.0	1.6	2.2	39	410	10.6	<5	2.7	<5
SX 8950 7281		2.0															
T5N		1.5															
		1.0															
		0.5															
		0.0															

TABLE 2b - February Survey, Metals.

Teign Pipeline Survey

Date: 19 February 1992 — Shaldon Tides — HW: 0725 & 1950 — LW: 1238

Site	Time (local)	Depth (m)	SSolids (105oC) (mg/l)	Metals data (ug/l)													
				Cadmium		Copper		Zinc		Arsenic		Iron		Nickel		Lead	
				Dis.	Part.	Dis.	Part.	Dis.	Part.	Dis.	Total	Dis.	Part.	Dis.	Part.	Dis.	Part.
Netherton House	19.28	2.5	<2.0	<0.13	<0.5	1.7	<5	14	<5.0	1.6	1.7	11	154	4.2	<5	2.8	<5
SX 8945 7238		2.0															
T5S		1.5															
		1.0															
		0.5															
		0.0															
Weare Barton	19.41	1.5	<2.0	<0.13	<0.5	1.7	<5	21	<5.0	1.6	2.0	30	233	11.0	<5	<2.5	<5
SX 8858 7254		1.0															
T4N		0.5															
		0.0															
Hackney Lane	19.59	3.5															
SX 8848 7220		3.0															
T4S		2.5															
		2.0															
		1.5															
		1.0															
		0.5															
		0.0	8.1	<0.13	<0.5	3.6	<5	31	7.7	1.7	1.9	23	190	<3.0	<5	<2.5	<5
Passage House	20.14	2.0															
SX 8790 7227		1.5															
T03N		1.0															
		0.5															
		0.0	23.0	<0.13	<0.5	1.7	<5	42	20.2	2.0	3.0	62	577	4.2	<5	<2.5	<5
Newton Channel	20.24	3.0															
U/S off STW		2.5															
SX 8813 7208		2.0															
T03S		1.5															
		1.0															
		0.5															
		0.0	15.0	<0.13	<0.5	1.9	<5	99	11.3	2.1	2.7	73	521	19.5	<5	<2.5	<5
N Abbot Quay	20.35	3.0															
SX 8694 7162		2.5															
T2		2.0															
		1.5															
		1.0															
		0.5															
		0.0	5.1	<0.13	<0.5	6.4	<5	50	<5.0	1.6	2.1	158	211	4.6	<5	<2.5	<5

Teign Pipeline Survey

File Name: TEIGNPIPE_MAY92

Date: 20 May 1992

Shaldon Tides (BST) HW: 0930 & 2140
LW: 1520

Site	Time (local)	Depth (m)	Sal. psu	DO	pH	Temp oC	Turb ftu	T.Coli /100ml	E.Coli /100ml	F.Streps /100ml	Globigii /100ml	SSolids (105oC) (mg/l)	SSolids (500oC) (mg/l)
Mid Lower Est (T07M)	8.30	1.7	35.1	103		13.7	4.8						
SX 9232 7275		1.0	35.1	104		13.6	4.6						
		0.5	35.1	103		13.6	4.5						
		0.0	35.1	105		13.6	4.0	80	10	<10	-	4.3	
Mid Upper Est (T05M)	8.45	1.5	34.3	102		14.0	6.2						
SX 8955 7260		1.0	34.3	104		14.0	5.5						
		0.5	34.2	104		14.0	5.2						
		0.0	33.9	103		14.3	4.9	390	110	20	-	22	
Netherton Hse (T05S)	9.05	1.4	33.7	102		14.3	6.3						
SX 8970 7251		1.0	33.8	103		14.3	5.9						
		0.5	33.7	103		14.3	4.9						
		0.0	33.2	103		15.0	4.9	900	170	80	-	2.3	
N Abbot Quay (T02)	9.22	2.8	7.1	72		15.0	31.3						
SX 8694 7162		2.5	6.7	71		15.0	22.3	88000	42000	2000	-	7.3	
		2.0	5.7	67		15.0	18.4						
		1.5	3.7	67		15.0	40.3						
		1.0	1.7	66		14.9	14.9						
		0.5	1.6	66		14.9	15.0						
		0.0	1.4	67		15.0	24.9	76000	25000	800	-	4.3	
Newton Chnl U/S STW	9.45	2.9	26.1	84		15.7	9.3						
(T03S)		2.5	26.2	85		15.6	9.4	25000	7400	410	-	11	
		2.0	26.0	87		15.6	11.6						
		1.5	25.7	92		15.7	12.1						
		1.0	25.0	92		15.6	10.9						
		0.5	20.0	97		15.5	14.7						
		0.0	17.3	103		15.6	19.2	31000	6000	300	-	6.3	
Hackney Lane D/S STW	10.10	2.7	30.2	85		15.4	8.4						
(T04S)		2.0	30.1	81		15.4	7.6	9000	4000	180	-	<2	
		1.5	29.7	87		15.5	6.2						
		1.0	28.9	92		15.6	8.1						
		0.5	28.1	99		15.8	7.1						
		0.0	25.9	103		15.9	7.5	84000	37000	1000	-	<2	

Table 3a May HW Run 1 - Microbiology

Teign Pipeline Survey

File Name: TEIGNPIPE_MAY92

Date: 20 May 1992

Shaldon Tides (BST) HW: 0930 & 2140
LW: 1520

Site	Time (local)	Depth (m)	Sal. psu	SSolids (105oC) (mg/l)	SSolids (500oC) (mg/l)	Metals data (ug/l) — Cadmium Dis.	Cadmium Part.	Copper Dis.	Copper Part.	Zinc Dis.	Zinc Part.	Arsenic Dis.	Arsenic Total	Iron Dis.	Iron Part.	Nickel Dis.	Nickel Part.	Lead Dis.	Lead Part.
Mid Lower Est (T07M)	8.30	1.7	35.1																
SX 9232 7275		1.0	35.1																
		0.5	35.1																
		0.0	35.1	4.3		<0.13	<0.5	<0.5	<5.0	16.5	<5.0	1.4	1.5	<20	<5	<3.0	<5	<2.5	<5.0
Mid Upper Est (T05M)	8.45	1.5	34.3																
SX 8955 7260		1.0	34.3																
		0.5	34.2																
		0.0	33.9	22		<0.13	<0.5	<0.5	<5.0	5.9	5.2	1.6	1.7	<20	59	<3.0	<5	<2.5	<5.0
Netherton Hse (T05S)	9.05	1.4	33.7																
SX 8970 7251		1.0	33.8																
		0.5	33.7																
		0.0	33.2	2.3		<0.13	<0.5	<0.5	<5.0	10.3	6.8	1.9	2.0	23	65	<3.0	<5	<2.5	<5.0
N Abbot Quay (T02)	9.22	2.8	7.1																
SX 8694 7162		2.5	6.7	7.3		<0.13	<0.5	0.9	<5.0	26.9	11.2	3.0	3.5	46	267	<3.0	<5	<2.5	<5.0
		2.0	5.7																
		1.5	3.7																
		1.0	1.7																
		0.5	1.6																
		0.0	1.4	4.3		<0.13	<0.5	0.9	<5.0	28.3	14.7	3.0	4.9	94	298	<3.0	<5	<2.5	<5.0
Newton Chnl U/S STW	9.45	2.9	26.1																
(T03S)		2.5	26.2	11		<0.13	<0.5	0.7	<5.0	13.8	14.6	2.6	3.0	<20	162	<3.0	<5	<2.5	<5.0
		2.0	26.0																
		1.5	25.7																
		1.0	25.0																
		0.5	20.0																
		0.0	17.3	6.3		<0.13	<0.5	0.6	<5.0	13.4	<5.0	3.3	3.7	<20	208	<3.0	<5	<2.5	<5.0
Hackney Lane D/S STW	10.10	2.7	30.2																
(T04S)		2.0	30.1	<2		<0.13	<0.5	0.6	<5.0	8.2	<5.0	2.2	2.4	<20	83	3.1	<5	<2.5	<5.0
		1.5	29.7																
		1.0	28.9																
		0.5	28.1																
		0.0	25.9	<2		<0.13	<0.5	<0.5	<5.0	7.4	10.0	2.7	3.0	21	154	<3.0	<5	<2.5	<5.0

Table 3b May HW Run 1 - Metals

Teign Pipeline Survey

File Name: TEIGNPIPE_MAY92

Date: 20 May 1992

Shaldon Tides (BST) HW: 0930 & 2140
LW: 1520

Site	Time (local)	Depth (m)	Sal. psu	DO	pH	Temp oC	Turb ftu	T.Coli /100ml	E.Coli /100ml	F.Streps /100ml	Globigii /100ml	SSolids (105oC) (mg/l)	SSolids (500oC) (mg/l)
Mid Lower Est (T07M)	21.15	2.0	34.8	111	8.20	14.2	5.4						
SX 9232 7275		1.5	34.8	110	8.20	14.2	2.5						
		1.0	34.8	111	8.20	14.2	2.3						
		0.5	34.8	113	8.20	14.2	2.1						
		0.0	34.8	114	8.20	14.2	1.8	100	100	50	2	13	
Mid Upper Est (T05M)	21.26	1.8	34.2	108	8.20	15.2	5.2						
SX 8955 7260		1.0	34.0	108	8.20	15.3	4.6						
		0.5	33.7	114	8.20	15.4	6.0						
		0.0	33.4	113	8.20	15.5	5.2	320	170	30	77	17	
Netherton Hse (T05S)	21.34	1.7	33.7	109	8.20	15.3	5.1						
SX 8970 7251		1.0	32.9	114	8.20	15.8	4.2						
		0.5	32.7	115	8.20	15.8	4.4						
		0.0	31.7	118	8.20	16.3	5.3	220	50	20	160	<2	
N Abbot Quay (T02)	21.46	3.0	13.3	136	8.50	19.3	49.0						
SX 8694 7162		2.5	12.9	127	8.50	19.3	44.0	72000	41000	2600	8900	22	<20
		2.0	10.5	120	8.50	19.3	38.8						
		1.5	5.4	114	8.40	19.0	51.2						
		1.0	1.6	122	8.60	18.1	56.2						
		0.5	1.4	124	8.50	18.0	44.6						
		0.0	1.3	123	8.50	18.0	42.2	32000	6000	420	3100	4.7	
Newton Chnl U/S STW	22.05	2.8	25.7	160	8.50	18.3	18.2						
(T03S)		2.0	25.6	166	8.50	18.3	15.2	28000	11000	6600	940	11	
		1.5	25.0	163	8.60	18.5	16.1						
		1.0	23.3	176	8.60	18.9	17.6						
		0.5	18.0	157	8.60	19.3	23.0						
		0.0	16.7	145	8.60	19.3	20.8	75000	32000	3800	8800	20	
Hackney Lane D/S STW	22.17	2.9	31.8	116	8.20	16.4	7.1						
(T04S)		2.0	30.6	120	8.30	16.8	6.4	1300	380	120	250	<2	
		1.5	28.4	131	8.30	17.7	9.1						
		1.0	25.4	160	8.40	18.1	7.9						
		0.5	24.2	173	8.60	18.2	8.6						
		0.0	23.9	172	8.60	18.4	8.8	220000	70000	2700	1900	8.7	<20

Table 4a May HW Run 2 - Microbiology

Teign Pipeline Survey

File Name: TEIGNPIPE_MAY92

Date: 20 May 1992

Shaldon Tides (BST) HW: 0930 & 2140
LW: 1520

Site	Time (local)	Depth (m)	Sal. psu	SSolids (105oC) (mg/l)	SSolids (500oC) (mg/l)	Metals data (ug/l) Cadmium Dis.	Cadmium Part.	Copper Dis.	Copper Part.	Zinc Dis.	Zinc Part.	Arsenic Dis.	Arsenic Total	Iron Dis.	Iron Part.	Nickel Dis.	Nickel Part.	Lead Dis.	Lead Part.
Mid Lower Est (T07M)	21.15	2.0	34.8																
SX 9232 7275		1.5	34.8																
		1.0	34.8																
		0.5	34.8																
		0.0	34.8	13		<0.13	<0.5	<0.5	<5.0	10.4	<5.0	1.3	1.4	<20	17	<3.0	<5	<2.5	<5.0
Mid Upper Est (T05M)	21.26	1.8	34.2																
SX 8955 7260		1.0	34.0																
		0.5	33.7																
		0.0	33.4	17		<0.13	<0.5	<0.5	<5.0	9.8	<5.0	1.7	1.9	<20	71	<3.0	<5	<2.5	<5.0
Netherton Hse (T05S)	21.34	1.7	33.7																
SX 8970 7251		1.0	32.9																
		0.5	32.7																
		0.0	31.7	<2		<0.13	<0.5	1.2	<5.0	23.0	<5.0	1.8	2.0	<20	47	<3.0	<5	<2.5	<5.0
N Abbot Quay (T02)	21.46	3.0	13.3																
SX 8694 7162		2.5	12.9	22	<20	<0.13	<0.5	2.2	<5.0	42.9	11.3	2.4	4.3	98	677	<3.0	<5	6.9	6.7
		2.0	10.5																
		1.5	5.4																
		1.0	1.6																
		0.5	1.4																
		0.0	1.3	4.7		<0.13	<0.5	1.1	<5.0	20.8	8.5	3.5	5.2	91	373	<3.0	<5	<2.5	<5.0
Newton Chnl U/S STW	22.05	2.8	25.7																
(T03S)		2.0	25.6	11		<0.13	<0.5	0.8	<5.0	16.1	<5.0	2.5	4.7	<20	285	<3.0	<5	<2.5	5.4
		1.5	25.0																
		1.0	23.3																
		0.5	18.0																
		0.0	16.7	20		<0.13	<0.5	0.7	<5.0	17.2	7.3	2.8	4.6	21	560	<3.0	<5	<2.5	7.0
Hackney Lane D/S STW	22.17	2.9	31.8																
(T04S)		2.0	30.6	<2		<0.13	<0.5	0.5	<5.0	32.8	20.8	2.5	5.3	<20	86	<3.0	<5	<2.5	<5.0
		1.5	28.4																
		1.0	25.4																
		0.5	24.2																
		0.0	23.9	8.7	<20	<0.13	<0.5	0.7	<5.0	18.1	<5.0	2.2	2.5	<20	162	<3.0	<5	<2.5	<5.0

Table 4b May HW Run 2 - Metals

Teign Pipeline Survey — File Name: TEIGNPIPE_MAY92

Date: 20 May 1992 — Shaldon Tides (BST) HW: 0930 & 2140 LW: 1520

Site	Time (local)	Depth (m)	Sal. psu	DO	pH	Temp oC	Turb ftu	T.Coli /100ml	E.Coli /100ml	F.Streps /100ml	Globigii /100ml	SSolids (105oC) (mg/l)	SSolids (500oC) (mg/l)	dE.Coli/ dGlob.	dE.Coli/ dSS(105)
Newton Chnl U/S STW	9.45	2.9	26.1	84		15.7	9.3								
(T03S)		2.5	26.2	85		15.6	9.4	25000	7400	410	-	11			
		2.0	26.0	87		15.6	11.6								
		1.5	25.7	92		15.7	12.1								
		1.0	25.0	92		15.6	10.9								
		0.5	20.0	97		15.5	14.7								
		0.0	17.3	103		15.6	19.2	31000	6000	300	-	6.3			
Hackney Lane D/S STW	10.10	2.7	30.2	85		15.4	8.4								
(T04S)		2.0	30.1	81		15.4	7.6	9000	4000	180	-	<2			
		1.5	29.7	87		15.5	6.2								
		1.0	28.9	92		15.6	8.1								
		0.5	28.1	99		15.8	7.1								
		0.0	25.9	103		15.9	7.5	84000	37000	1000	-	<2			
Newton Chnl U/S STW	11.25	2.4	24.7	97	8.20	15.6	9.8								
(T03S)		2.0	23.6	100	8.20	15.5	11.2	31000	13000	270	0	12			
		1.5	14.1	94	8.20	15.4	11.4								
		1.0	5.8	90	7.90	15.5	10.0								
		0.5	4.9	89	7.80	15.5	9.6								
		0.0	4.7	89	7.80	15.6	10.1	39000	20000	470	0	<2			
														4.63	5375
Hackney Lane D/S STW	11.46	2.0	30.2	117	8.28	15.3	9.5								
(T04S)		1.5	27.7	134	8.45	15.7	24.7								
		1.0	23.4	117	8.35	15.5	21.2								
		0.5	22.5	117	8.36	15.5	24.9								
		0.0	15.9	106	8.28	15.6	13.1	140000	45000	1400	5400	10			
Newton Chnl U/S STW	12.30	1.5	14.4	92	8.16	15.2	15.4								
(T03S)		1.0	10.7	91	8.10	15.2	12.4								
		0.5	6.9	96	8.00	15.2	10.8								
		0.0	3.5	97	8.00	15.2	9.1	53000	23000	800	0	4.3			
														-	-412
Hackney Lane D/S STW	12.46	1.4	10.3	97	8.10	16.3	37.8								
(T04S)		1.0	9.3	96	8.00	15.9	31.4								
		0.5	9.2	97	8.00	15.9	28.6								
		0.0	8.1	97	8.00	15.6	20.5	46000	19000	540	150	14			
Newton Chnl U/S STW	13.38							17000	9000	510	0	4.3			
														6.41	68.8
Hackney Lane D/S STW	13.42	1.0	6.3	102	8.02	16.4	83.6								
		0.5	5.8	102	8.01	16.3	80.0								
		0.0	5.6	101	7.99	16.3	131.0	38000	14000	400	780	77	69		
Newton Chnl U/S STW	14.37							16000	3500	290	0	3.3			
														4.25	726.5
Hackney Lane D/S STW	14.32	0.7	3.6	109	8.16	16.5	35.2								
		0.0	3.0	111	8.17	16.4	25.5	53000	12000	790	2000	15			

Table 5a May Up Current/Down Current Sampling - Microbiology

Teign Pipeline Survey

File Name: TEIGNPIPE_MAY92

Date: 20 May 1992

Shaldon Tides (BST) HW: 0930 & 2140
LW: 1520

Site	Time (local)	Depth (m)	Sal. psu	DO	pH	Temp oC	Turb ftu	T.Coli /100ml	E.Coli /100ml	F.Streps /100ml	Globigii /100ml	SSolids (105oC) (mg/l)	SSolids (500oC) (mg/l)	dE.Coli/ dGlob.	dE.Coli/ dSS(105)
Newton Chnl U/S STW	15.40							9000	3000	140	0	<2			
														4.04	6833
Hackney Lane D/S STW	15.50							170000	85000	2700	20300	14			
Newton Chnl U/S STW	16.37							12000	4000	90	2	<2			
														4.5	1012
Hackney Lane D/S STW	16.40	0.5	1.1	122	8.51	17.6	174.3								
		0.0	1.1	120	8.49	17.6	187.2	280000	90000	4800	19100	87	84		
Newton Chnl U/S STW	17.40							9000	2600	110	0	3.3			
														3.01	785
Hackney Lane D/S STW	17.35							160000	55000	1400	17400	70	70		
Newton Chnl U/S STW	18.31							13000	1700	50	0	2.3			
														4.27	7860
Hackney Lane D/S STW	18.33	1.3	2.9	131	8.50	18.7	29.8								
		0.5	2.7	134	8.50	18.8	11.8								
		0.0	2.7	135	8.60	19.0	12.0	69000	41000	2500	9200	7.3			
Newton Chnl U/S STW	19.25	1.6	3.6	122	8.37	18.8	o/s								
(T03S)		1.0	3.6	123	8.32	18.7	198.0								
		0.5	3.2	121	8.30	18.6	192.0								
		0.0	3.3	121	8.30	18.7	185.0	121000	56000	3200	11800	140	130		
														5.44	402
Hackney Lane D/S STW	19.37	1.8	21.1	197	8.66	19.2	34.8								
(T04S)		1.0	20.8	190	8.68	19.3	20.8								
		0.5	17.6	171	8.60	19.6	16.2								
		0.0	13.0	147	8.50	19.9	16.4	20000	4900	670	2400	13			
Newton Chnl U/S STW	20.15	2.5	18.3	170	8.60	19.3	106.0								
(T03S)		2.0	18.0	165	8.60	19.5	53.0	26000	11000	2800	2600	56	40		
		1.5	17.6	161	8.60	19.5	58.0								
		1.0	17.0	161	8.60	19.5	49.0								
		0.5	16.8	157	8.60	19.6	46.0								
		0.0	16.0	158	8.60	19.6	44.0	22000	9000	880	1500	20			
														4.6	381
														11.14	586
Hackney Lane D/S STW	20.39	2.6	27.4	155	8.50	18.1	13.4								
(T04S)		2.0	27.4	157	8.50	18.1	12.9	1900	700	350	360	29	21		
		1.5	27.4	161	8.40	18.1	12.8								
		1.0	27.0	168	8.50	18.1	11.8								
		0.5	26.9	170	8.50	18.2	11.6								
		0.0	26.7	170	8.50	18.3	11.3	2500	1200	420	800	6.7			
Newton Chnl U/S STW	22.05	2.8	25.7	160	8.50	18.3	18.2								
(T03S)		2.0	25.6	166	8.50	18.3	15.2	28000	11000	6600	940	11			
		1.5	25.0	163	8.60	18.5	16.1								

Table 5a Continued

Teign Pipeline Survey

File Name: TEIGNPIPE_MAY92

Date: 20 May 1992

Shaldon Tides (BST) HW: 0930 & 2140
LW: 1520

Site	Time (local)	Depth (m)	Sal. psu	DO	pH	Temp oC	Turb ftu	T.Coli /100ml	E.Coli /100ml	F.Streps /100ml	Globigii /100ml	SSolids (105oC) (mg/l)	SSolids (500oC) (mg/l)	dE.Coli/ dGlob.	dE.Coli/ dSS(105)
		1.0	23.3	176	8.60	18.9	17.6								
		0.5	18.0	157	8.60	19.3	23.0								
		0.0	16.7	145	8.60	19.3	20.8	75000	32000	3800	8800	20			
Hackney Lane D/S STW (T04S)	22.17	2.9	31.8	116	8.20	16.4	7.1								
		2.0	30.6	120	8.30	16.8	6.4	1300	380	120	250	<2			
		1.5	28.4	131	8.30	17.7	9.1								
		1.0	25.4	160	8.40	18.1	7.9								
		0.5	24.2	173	8.60	18.2	8.6								
		0.0	23.9	172	8.60	18.4	8.8	220000	70000	2700	1900	8.7	<20		

Table 5a Continued

Teign Pipeline Survey

File Name: TEIGNPIPE_MAY92

Date: 20 May 1992

Shaldon Tides (BST) HW: 0930 & 2140
LW: 1520

Site	Time (local)	Depth (m)	Sal. psu	SSolids (105oC) (mg/l)	SSolids (500oC) (mg/l)	Metals data (ug/l) Cadmium Dis.	Cadmium Part.	Copper Dis.	Copper Part.	Zinc Dis.	Zinc Part.	Arsenic Dis.	Arsenic Total	Iron Dis.	Iron Part.	Nickel Dis.	Nickel Part.	Lead Dis.	Lead Part.	Comments
Newton Chnl U/S STW (T03S)	9.45	2.9	26.1																	
		2.5	26.2	11		<0.13	<0.5	0.7	<5.0	13.8	14.6	2.6	3.0	<20	162	<3.0	<5	<2.5	<5.0	
		2.0	26.0																	
		1.5	25.7																	
		1.0	25.0																	
		0.5	20.0																	
		0.0	17.3	6.3		<0.13	<0.5	0.6	<5.0	13.4	<5.0	3.3	3.7	<20	208	<3.0	<5	<2.5	<5.0	
Hackney Lane D/S STW (T04S)	10.10	2.7	30.2																	
		2.0	30.1	<2		<0.13	<0.5	0.6	<5.0	8.2	<5.0	2.2	2.4	<20	83	3.1	<5	<2.5	<5.0	
		1.5	29.7																	
		1.0	28.9																	
		0.5	28.1																	
		0.0	25.9	<2		<0.13	<0.5	<0.5	<5.0	7.4	10.0	2.7	3.0	21	154	<3.0	<5	<2.5	<5.0	
Newton Chnl U/S STW (T03S)	11.25	2.4	24.7																	
		2.0	23.6	12		<0.13	<0.5	0.6	<5.0	12.8	16.6	2.6	2.9	45	156	<3.0	<5	<2.5	<5.0	
		1.5	14.1																	
		1.0	5.8																	
		0.5	4.9																	
		0.0	4.7	<2		<0.13	<0.5	0.7	<5.0		10.7	2.6	3.1	39	182	<3.0	<5	<2.5	<5.0	
Hackney Lane D/S STW (T04S)	11.46	2.0	30.2																	
		1.5	27.7																	
		1.0	23.4																	
		0.5	22.5																	
		0.0	15.9	10		<0.13	<0.5	0.5	<5.0	22.1	<5.0	2.5	2.9	24	188	<3.0	<5	<2.5	<5.0	
Newton Chnl U/S STW (T03S)	12.30	1.5	14.4																	
		1.0	10.7																	
		0.5	6.9																	
		0.0	3.5	4.3		<0.13	<0.5	0.7	<5.0	11.9	<5.0	2.4	3.0	78	134	<3.0	<5	<2.5	<5.0	
Hackney Lane D/S STW (T04S)	12.46	1.4	10.3																	
		1.0	9.3																	
		0.5	9.2																	
		0.0	8.1	14		<0.13	<0.5	0.8	<5.0	29.2	6.5	2.5	3.0	24	217	<3.0	<5	<2.5	<5.0	
Newton Chnl U/S STW	13.38			4.3		<0.13	<0.5	0.6	<5.0	23.6	8.9	2.5	3.1	73	190	<3.0	<5	<2.5	<5.0	
Hackney Lane D/S STW	13.42	1.0	6.3																	
		0.5	5.8																	
		0.0	5.6	77	69	<0.13	<0.5	0.7	<5.0	9.2	25.4	2.8	5.9	33	1520	<3.0	<5	<2.5	20.8	
Newton Chnl U/S STW	14.37			3.3		<0.13	<0.5	1.3	<5.0	27.8	5.0	2.5	3.0	66	164	<3.0	<5	<2.5	<5.0	
Hackney Lane D/S STW	14.32	0.7	3.6																	
		0.0	3.0	15		<0.13	<0.5	0.8	<5.0	15.5	8.6	2.7	3.6	81	417	<3.0	<5	<2.5	<5.0	

Table 5b May Up Current/Down Current Sampling - Metals

Teign Pipeline Survey

File Name: TEIGNPIPE.MAY92

Date: 20 May 1992

Shaldon Tides (BST) HW: 0930 & 2140
LW: 1520

Site	Time (local)	Depth (m)	Sal. psu	SSolids (105oC) (mg/l)	SSolids (500oC) (mg/l)	Metals data (ug/l) Cadmium Dis.	Cadmium Part.	Copper Dis.	Copper Part.	Zinc Dis.	Zinc Part.	Arsenic Dis.	Arsenic Total	Iron Dis.	Iron Part.	Nickel Dis.	Nickel Part.	Lead Dis.	Lead Part.	Comments
Newton Chnl U/S STW	15.40			<2		<0.13	<0.5	1.0	<5.0	17.9	5.0	2.6	3.2	96	193	<3.0	<5	<2.5	<5.0	
Hackney Lane D/S STW	15.50			14		<0.13	<0.5	0.8	<5.0	29.3	17.9	2.5	3.3	122	306	<3.0	<5	<2.5	<5.0	
Newton Chnl U/S STW	16.37			<2		<0.13	<0.5	1.1	<5.0	5.3	6.2	2.6	3.0	93	145	<3.0	<5	<2.5	<5.0	
Hackney Lane D/S STW	16.40	0.5	1.1																	
		0.0	1.1	87	94	<0.13	<0.5	0.6	<5.0	10.4	29.7	3.4	5.2	55	2670	<3.0	<5	<2.5	14.7	
Newton Chnl U/S STW	17.40			3.3		<0.13	<0.5	0.9	<5.0	16.7	19.1	2.6	2.9	101	148	<3.0	<5	<2.5	<5.0	
Hackney Lane D/S STW	17.35			70	70	0.13	<0.5	2.5	<5.0	47.8	37.2	4.5	5.5	1130	1670	5.2	<5	11.4	7.2	
Newton Chnl U/S STW	18.31			2.3		<0.13	<0.5	1.2	<5.0	6.2	<5.0	2.5	2.8	94	140	<3.0	<5	<2.5	<5.0	
Hackney Lane D/S STW	18.33	1.3	2.9																	
		0.5	2.7																	
		0.0	2.7	7.3		<0.13	<0.5	0.8	<5.0	21.6	37.5	3.2	3.4	24	235	<3.0	<5	<2.5	<5.0	
Newton Chnl U/S STW (T03S)	19.25	1.6	3.6																	
		1.0	3.6																	
		0.5	3.2																	
		0.0	3.3	140	130	<0.13	<0.5	3.7	<5.0	34.3	32.8	4.3	9.0	1220	3110	3.3	<5	20.5	31.7	
Hackney Lane D/S STW (T04S)	19.37	1.8	21.1																	
		1.0	20.8																	
		0.5	17.6																	
		0.0	13.0	13		<0.13	<0.5	1.0	<5.0	15.3	7.6	3.6	3.5	30	219	<3.0	<5	<2.5	<5.0	Total Arsenic: re-tested
Newton Chnl U/S STW (T03S)	20.15	2.5	18.3																	
		2.0	18.0	56	40	<0.13	<0.5	0.7	<5.0	6.2	16.3	3.2	4.6	<20	1730	<3.0	<5	<2.5	13.6	
		1.5	17.6																	
		1.0	17.0																	
		0.5	16.8																	
		0.0	16.0	20		<0.13	<0.5	0.9	<5.0	22.9	13.8	3.5	4.3	21	527	<3.0	<5	<2.5	8.3	
Hackney Lane D/S STW (T04S)	20.39	2.6	27.4																	
		2.0	27.4	29	21	<0.13	<0.5	0.7	<5.0	21.7	5.6	2.4	2.3	33	120	<3.0	<5	<2.5	<5.0	Total Arsenic: re-tested
		1.5	27.4																	
		1.0	27.0																	
		0.5	26.9																	
		0.0	26.7	6.7		<0.13	<0.5	<0.5	<5.0	22.7	8.1	2.2	2.6	<20	126	<3.0	<5	<2.5	<5.0	
Newton Chnl U/S STW (T03S)	22.05	2.8	25.7																	
		2.0	25.6	11		<0.13	<0.5	0.8	<5.0	16.1	<5.0	2.5	4.7	<20	285	<3.0	<5	<2.5	5.4	
		1.5	25.0																	

Table 5b Continued

Teign Pipeline Survey

File Name: TEIGNPIPE_MAY92

Date: 20 May 1992

Shaldon Tides (BST) HW: 0930 & 2140
LW: 1520

Site	Time (local)	Depth (m)	Sal. psu	SSolids (105oC) (mg/l)	SSolids (500oC) (mg/l)	Metals data (ug/l) Cadmium Dis.	Cadmium Part.	Copper Dis.	Copper Part.	Zinc Dis.	Zinc Part.	Arsenic Dis.	Arsenic Total	Iron Dis.	Iron Part.	Nickel Dis.	Nickel Part.	Lead Dis.	Lead Part.	Comments
		1.0	23.3																	
		0.5	18.0																	
		0.0	16.7	20		<0.13	<0.5	0.7	<5.0	17.2	7.3	2.8	4.6	21	560	<3.0	<5	<2.5	7.0	
Hackney Lane D/S STW (T04S)	22.17	2.9	31.8																	
		2.0	30.6	<2		<0.13	<0.5	0.5	<5.0	32.8	20.8	2.5	5.3	<20	86	<3.0	<5	<2.5	<5.0	
		1.5	28.4																	
		1.0	25.4																	
		0.5	24.2																	
		0.0	23.9	8.7	<20	<0.13	<0.5	0.7	<5.0	18.1	<5.0	2.2	2.5	<20	162	<3.0	<5	<2.5	<5.0	

Table 5b Continued

APPENDIX 1

Survey Activity Log 19 February 1992

APPENDIX 1

Activity Log 19.02.92 HW = 07.25 and 19.50 GMT.

09.33 First sample taken in lower estuary.

09.56 Large excavators on shore but smaller excavator and compressor on raft with c.50 metre length of blue pipe alongside in approximate area of water main crossing.

09.59 Large crane (not working) on barge beside heap of sediment opposite Hackney Lane quay. Barges alongside the quay.

10.24 Small excavator on raft now joined by large 'CAT' excavator.

11.10 Last sample from mid ebb run off Netherton House. Excavators now digging at water main/sewer crossing.

13.00 CM/TC set out on foot from Coombe Cellars for low water monitoring (no activity on north shore).

13.35 CM/TC arrive at welding barge/diggings (no activity).

13.40 Observed crane on barge at Hackney Lane in operation. CM/TC set out for Hackney Lane.

13.55 Excavators at crossing site start up and begin digging.

14.16 Samples taken 150 metres downstream of Hackney Lane.

14.20 Crane stopped digging, operator rowed across to Hackney Lane quay.

14.50 Samples taken immediately above crane at Hackney Lane.

15.30 Arrive Coombe Cellars.

15.50 Crane at Hackney Lane observed digging again.

18.30 HW run started.

19.59 Barge with crane being re-positioned by small vessels.

20.40 HW run completed, survey ends.

APPENDIX 2

Survey Activity Log 20 May 1992

APPENDIX 2

Activity Log 20.05.92 HW = 09.30 and 21.40 BST.

08.30 First sample taken in lower estuary.

09.22 Monitoring above and below work area commenced.

09.42 Observed turn of tide at Buckland STW.

09.47 B.globigii dosing equipment turned on.

11.00 Boat activity around welding barge and in channel leading to Passage House.

11.35 Welding barge moved downstream from original position to the south bank below Buckland STW outfall.

13.33 CAT 235 and 225 excavators mounted on KORI amphibious undercarriages (diggers) begin to move into Hackney Channel and progress upstream to just below the STW outfall.

13.33 Survey boat failed to move upstream to site T03S, because of insufficient depth of water.

13.38 Sampling from the shore commenced above the workings.

14.40 Diggers observed excavating deep trench, high up the bank, immediately downstream of the STW outfall.

15.40 Excavation continuing but still short of the water line.

16.15 Direction of flow, on south shore at Site T04S now up-estuary and water level rising.

16.30 Excavations now broken through to estuary, estuary water filling trench.

16.40 Excavation now extending out into Hackney Channel with trenched material forming a ridge on the downstream side. Water surrounding welding barge very turbid.

17.30 Trench progressing across channel, water still flowing down estuary, around the obstruction.

18.20 Survey boat attempted and failed to get past diggers. Water now flowing rapidly up-estuary around the obstruction.

18.35 Trench and ridge almost completely across Hackney Channel. Excavators ceased digging, washed off with grab fulls of water, one moored to post, the other moved to south shore.

18.50 Survey boat past obstruction.

19.05 Plume of turbid water moving upstream past site T03S.

19.25 Resume mid channel sampling/profiling at site T03S.

20.20 Ridge of trenched material almost covered by tide.

21.15 First sample in lower estuary for HW (2) run.

21.46 B.globigii dosing equipment turned off.

22.05 Last sample from T03S.

22.17 Last sample from T04S, survey ends.

APPENDIX 3

Results of GCMS Analysis of Borehole Samples from Riverside

```
SW4001                    NRA Exeter Regional Laboratory                09-JUN-92
                          Full Sample Analysis Enquiry V2               Page 1 of 2
SAMPLE DETAILS:(QUERY ONLY).....................................................
 Sampling Pt. Id. : RPL/06A        POLLUTION IN CATCHMENT 06A      Purpose: MS
 Lab.Reference No.: E66448      Date Taken (for Query):            Priority: 4
[Run Identifier   : TW03 08-APR-92 1  ]    ARGs  : TW05           Material: 21
[Date/Time Taken  : 08-APR-92 12:00 ]      Status: C

.Press COMMIT Key, after Query, to select Print Request Screen.............
Sampler's comments :
3,2 METRES BELOW GROUND LEVEL


Confirmation comments:

Analyst's comments:


Sample address: RIVERSIDE - BOREHOLE 4


        Char Mode: Replace  Page 1                          Count: *1
SW3007B                   NRA Exeter Regional Laboratory              09-JUN-92
                          Text-Format Result Entry

......ENTER A LAB. REF. NUMBER FOR QUERY.....................................
Lab. Ref. No. : E66448              Date/Time Taken : 08-APR-92 12:00
    Spt. No. : RPL/06A           POLLUTION IN CATCHMENT 06A

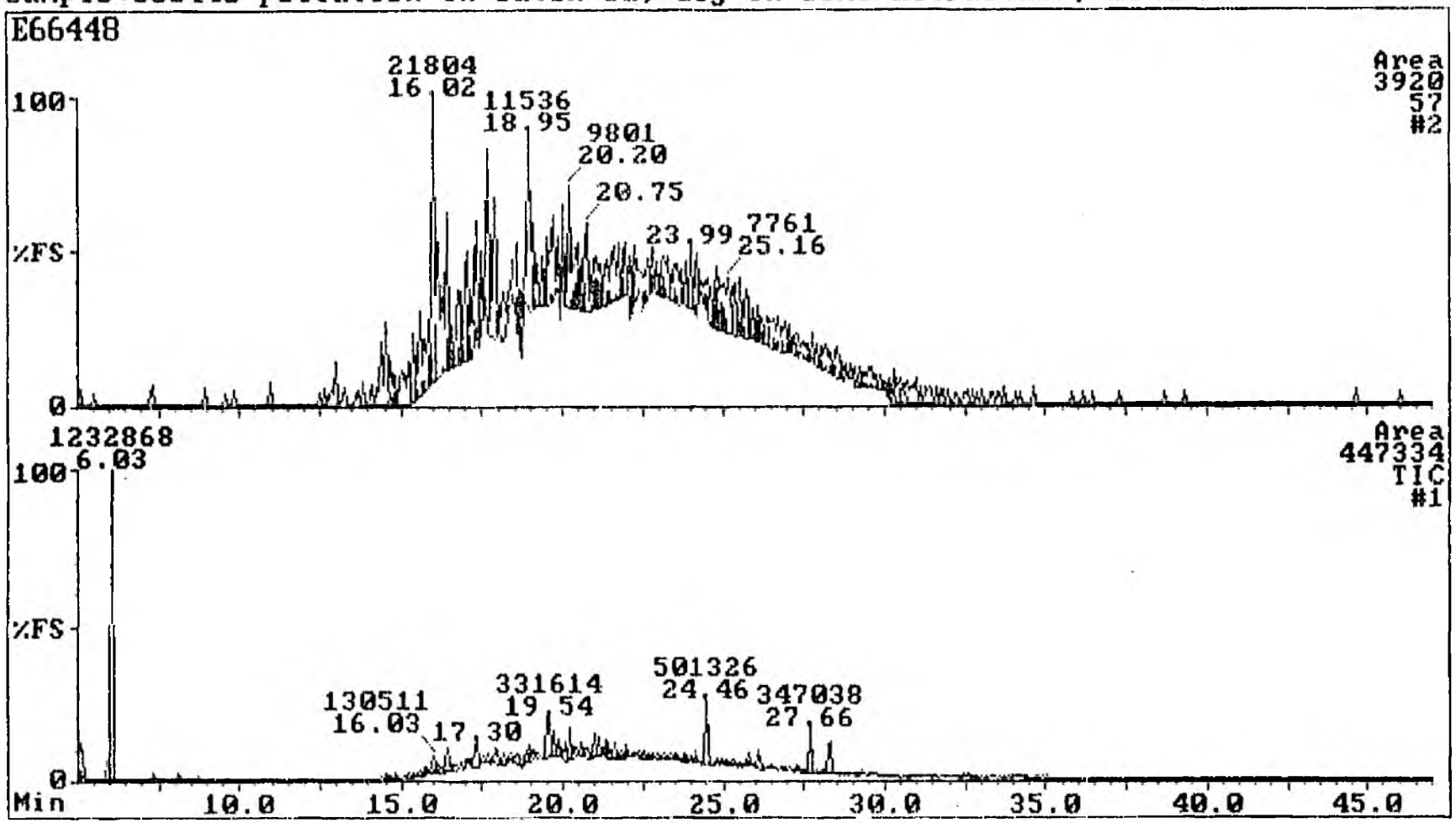
.....ENTER A DETERMINAND CODE FOR QUERY.....................................
   Det. Code : 3106                      Description : MASS-SPEC
               ANALYSIS BY MASS-SPEC
Work Sheet No.:                        Enter 'N' to No Result :

.....RESULT TEXT ENTRY.....................................................
Line/Text
10  PAH'S ( PYRENE, FLUORANTHENE, PHENANTHENE) APPROX 10 PPM.
20  TOGETHER AN OLDER TYPE OIL.
30  VERY WEATHERED DIESEL/HEATING OIL .


        Char Mode: Replace  Page 1                          Count: *1
```

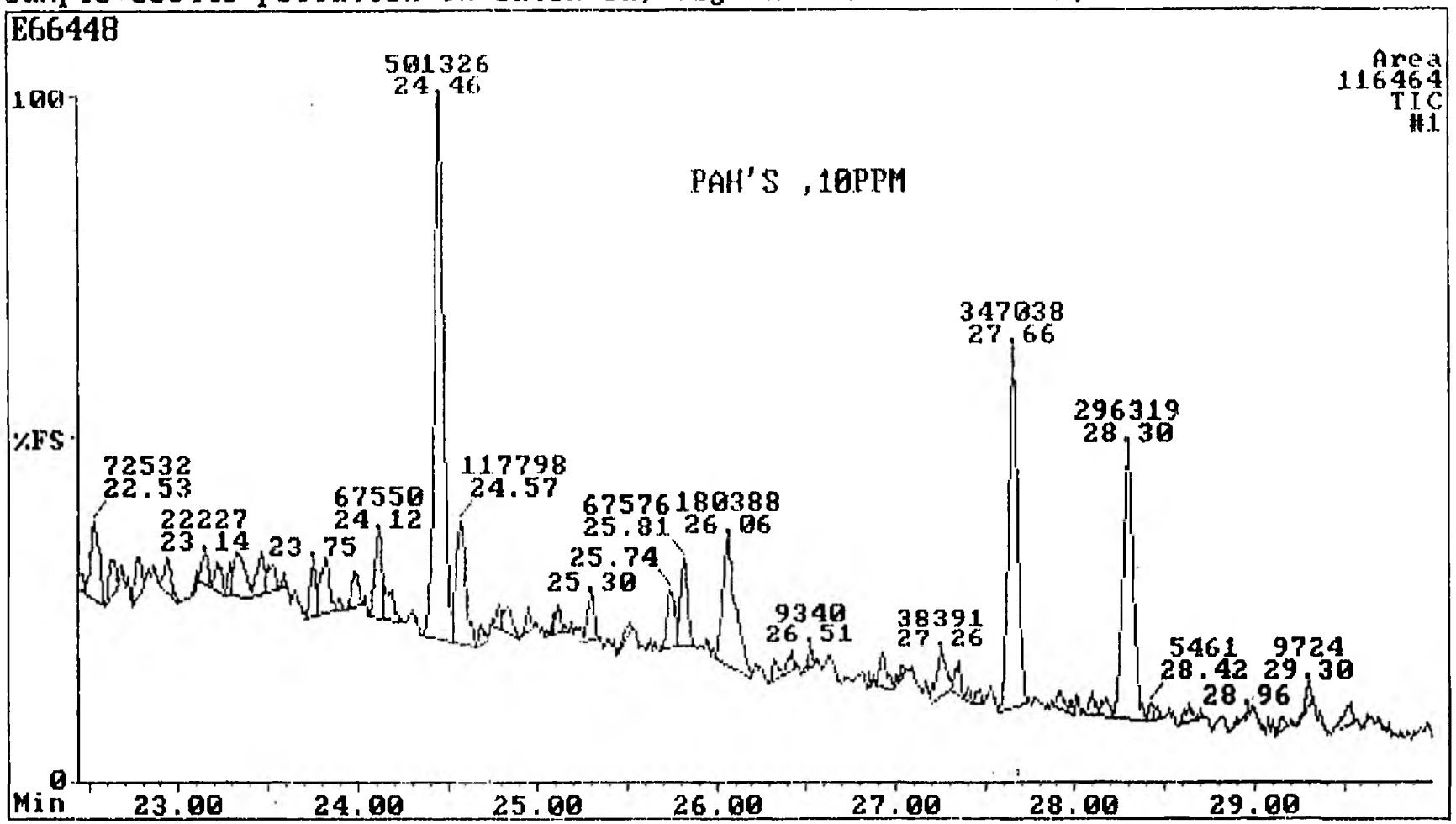
File:E66448 LAB-BASE - The GC-MS Data System 23/04/1992 13:08

Sample:e66448 pollution in catch 6a, 10g in 50ml ultrasonic, 23\4\92



File:E66448 LAB-BASE - The GC-MS Data System 23/04/1992 13:08

Sample:e66448 pollution in catch 6a, 10g in 50ml ultrasonic, 23\4\92



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SW4001                    NRA Exeter Regional Laboratory                 08-JUN-92
                          Full Sample Analysis Enquiry V2                Page 1 of
SAMPLE DETAILS:(QUERY ONLY).....................................................
 Sampling Pt. Id. : RPL/06A        POLLUTION IN CATCHMENT 06A      Purpose: M
 Lab.Reference No.: E67571      Date Taken (for Query):            Priority: 4
[Run Identifier   : TW03 13-APR-92 1  ]    ARGs  : TW05           Material: 2
[Date/Time Taken  : 12-APR-92 12:01 ]      Status: C

.Press COMMIT Key, after Query, to select Print Request Screen.............
ampler's comments :
SAMPLE COLLECTED BY ERL PERSONNEL

Confirmation comments:

nalyst's comments:


ample address: RIVERSIDE BOREHOLE NO. 5        4.5M


        Char Mode: Replace  Page 1                          Count: *1
SW3007B                   NRA Exeter Regional Laboratory                 08-JUN-92
                          Text-Format Result Entry

......ENTER A LAB. REF. NUMBER FOR QUERY.....................................
ab. Ref. No. : E67571              Date/Time Taken : 12-APR-92 12:01
    Spt. No. : RPL/06A          POLLUTION IN CATCHMENT 06A

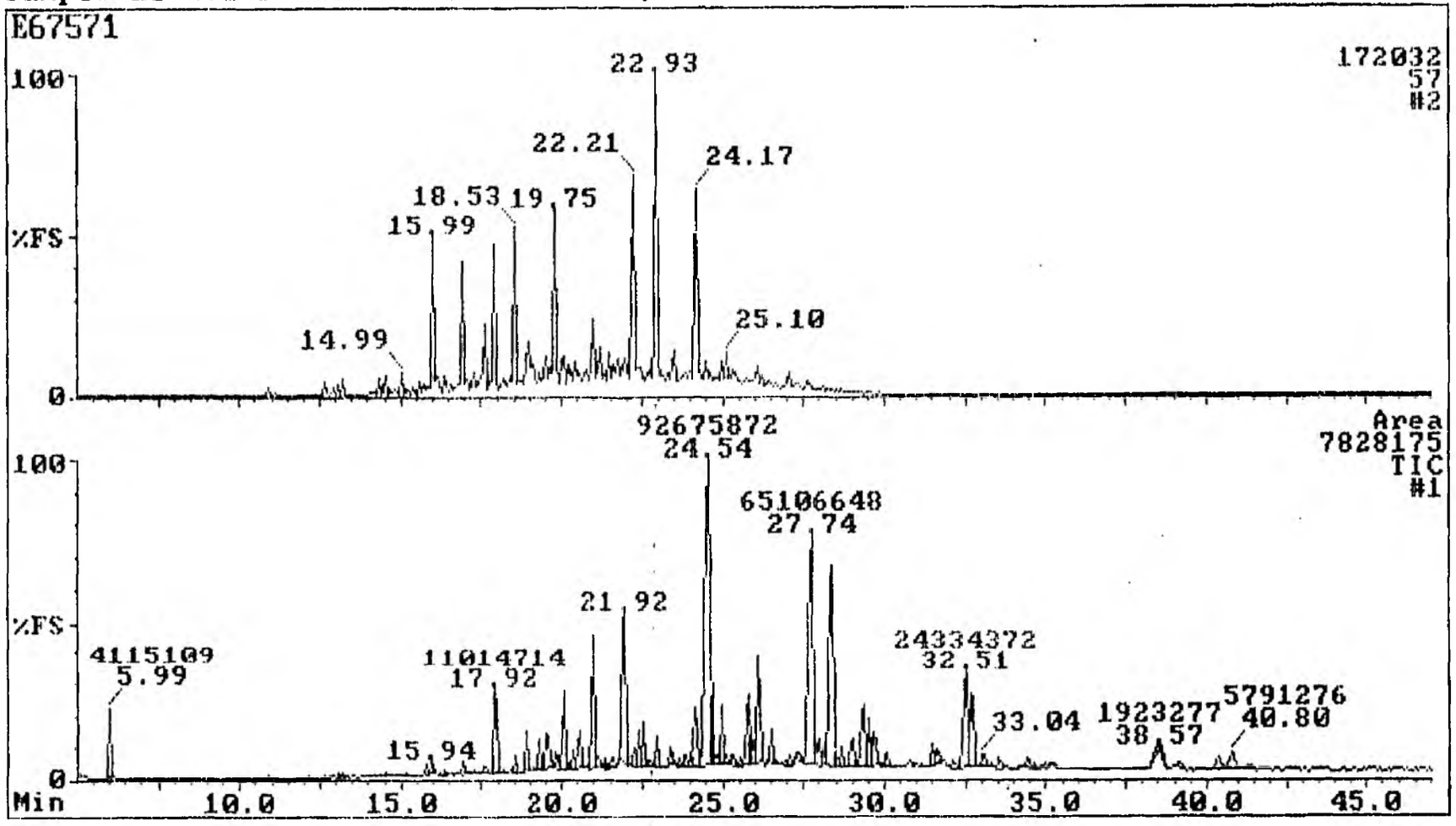
.....ENTER A DETERMINAND CODE FOR QUERY.....................................
   Det. Code : 3106                    Description : MASS-SPEC
               ANALYSIS BY MASS-SPEC
Work Sheet No.:                        Enter 'N' to No Result :

......RESULT TEXT ENTRY.....................................................
Line/Text
 0  PAH'S APPROX 1500 PPM
 0  HYDROCARBONS C13  - C19,INDICATING THE PRESENCE OF OIL.
30  PAH'S PRESENT INCLUDE NAPHTHALENE,PYRENE,PHENANTHRENE AND FLUORENE.
 0  THE HYDROCARBON PATTERN FOUND IS SIMILAR TO THAT OF E67570.


        Char Mode: Replace  Page 1                          Count: *1
```

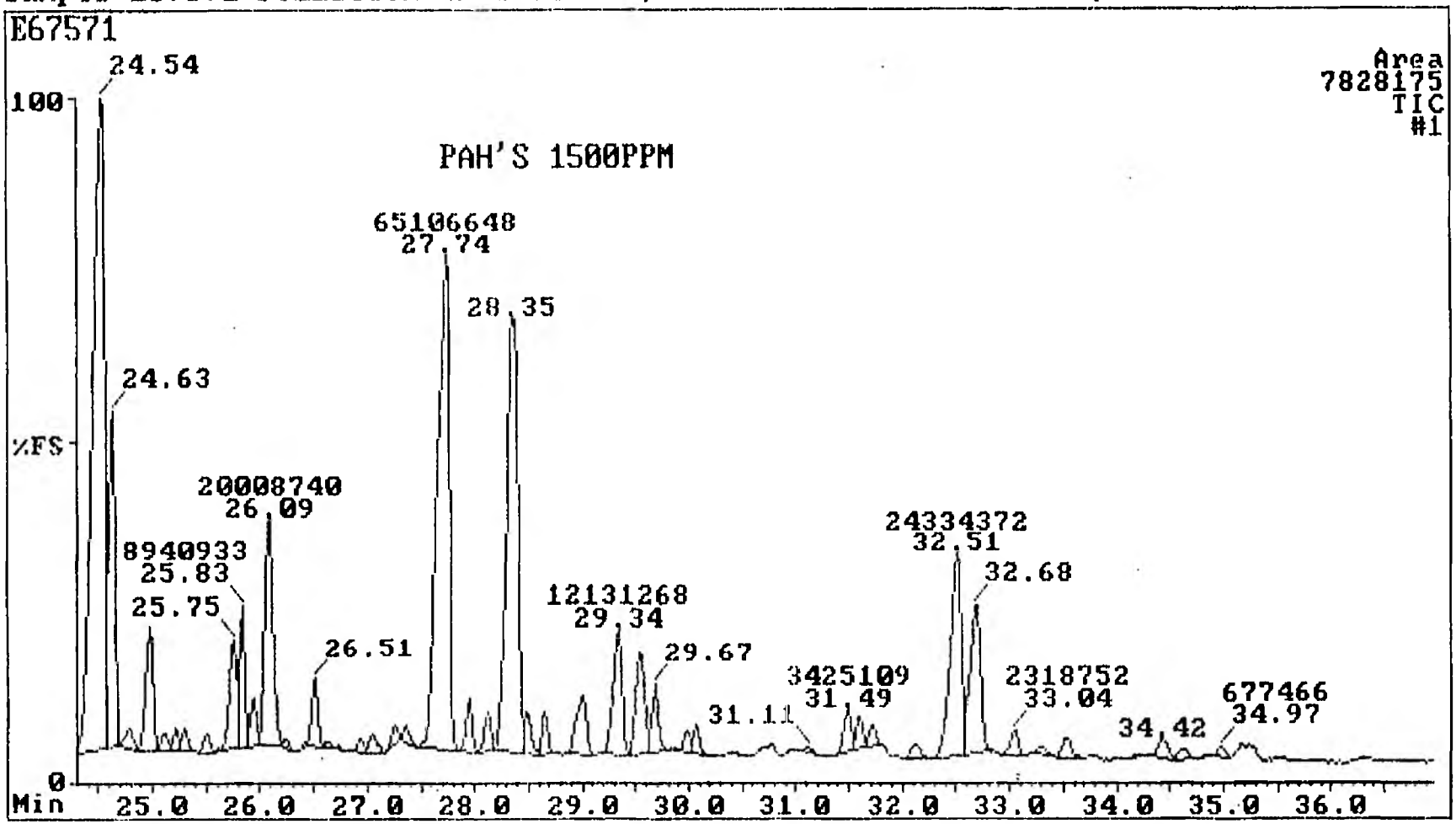
File:E67571 LAB-BASE - The GC-MS Data System 28/04/1992 14:08

Sample:E67571 POLLUTION IN CATCH 6A, 10G IN 50 ML ULTRASONIC, 28\4\92



File:E67571 LAB-BASE - The GC-MS Data System 28/04/1992 14:08

Sample:E67571 POLLUTION IN CATCH 6A, 10G IN 50 ML ULTRASONIC, 28\4\92



```
SW4001                    NRA Exeter Regional Laboratory                08-JUN-92
                          Full Sample Analysis Enquiry V2               Page 1 of 2
SAMPLE DETAILS:(QUERY ONLY).....................................................
  Sampling Pt. Id. : RPL/06A        POLLUTION IN CATCHMENT 06A      Purpose: MS
  Lab.Reference No.: E67570      Date Taken (for Query):            Priority: 4
[Run Identifier    : TW03 13-APR-92 1  ]    ARGs  : TW05            Material: 2
[Date/Time Taken   : 12-APR-92 12:00 ]      Status: C

.Press COMMIT Key, after Query, to select Print Request Screen.................
ampler's comments :
SAMPLE COLLECTED BY ERL PERSONNEL


Confirmation comments:

nalyst's comments:


ample address: RIVERSIDE BOREHOLE NO. 6        COMPOSITE


        Char Mode: Replace  Page 1                          Count: *1
SW3007B                   NRA Exeter Regional Laboratory                08-JUN-92
                          Text-Format Result Entry

......ENTER A LAB. REF. NUMBER FOR QUERY.....................................
ab. Ref. No. : E67570              Date/Time Taken : 12-APR-92 12:00
   Spt. No. : RPL/06A           POLLUTION IN CATCHMENT 06A

....ENTER A DETERMINAND CODE FOR QUERY.....................................
  Det. Code : 3106                      Description : MASS-SPEC
              ANALYSIS BY MASS-SPEC
Work Sheet No.:                         Enter 'N' to No Result :

....RESULT TEXT ENTRY.......................................................
Line/Text
0  HYDROCARBONS C13 - C19, INDICATING THE PRESENCE OF OIL.




        Char Mode: Replace  Page 1                          Count: *1
```

File:E67570 LAB-BASE - The GC-MS Data System 28/04/1992 18:55
Sample:E67570 POLLUTION IN CATCH 6A, 10G IN 50 ML TO 5ML, 28\4\92