

EA-South West Box 4



ENVIRONMENT
AGENCY

**WATER QUALITY SECTION
CORNWALL AREA**

FINAL DRAFT REPORT

**INVESTIGATE EC DANGEROUS
SUBSTANCE FAILURE AT R18A007
FOR 1994**

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INVESTIGATE EC DANGEROUS SUBSTANCE FAILURE AT R18A007 FOR 1994

1. INTRODUCTION

1.1 Background

The St. Austell River at Moliney Gauging Station (R18A007) failed the Environmental Quality Standard (EQS) for Dieldrin on 31st October 1994. The failure coincided with high rainfall on the day (30mm) and high BOD's at both the gauging station and Pentewan Bridge (R18A008) which is located downstream. No other Dieldrin data was collected that day. Commercial property has been developed on an area once used as a joinery near St. Austell (figure 1).

1.2 Objectives

To determine the cause of the EC Dangerous Substance Directive EQS failure in the St. Austell River at the monitoring site R18A007.

2. METHODS

The following methods were adopted to identify possible sources of Dieldrin in the lower catchment.

- i) Review of archive data for all the relevant sampling sites and rainfall gauges.
- ii) Include sampling for Organochlorines in the routine monitoring program at Menagwins STW(WSTW 1702FE).
- iii) Conduct a 'walk over' study to identify sample points for a wet weather survey.
- iv) Conduct a wet weather chemical sampling survey of the St. Austell River and possible point sources of dieldrin from R18A007 to West Bridge (St. Austell), to include all drains from the commercial property downstream of Penwinnick road bridge.
- v) Review the data collected and discuss results with the Water Quality department.
- vi) Conduct a further wet weather survey targeting key points.

3. RESULTS

A summary of the data collected from both surveys is contained in Table 1. A map of the middle section of the St. Austell river showing the sampling points used is shown in Figure 1.

Table 2 contains the dieldrin and aldrin concentrations from routine monitoring data collected from the beginning of 1994 to date.



4. CONCLUSIONS

- i) The Dangerous Substance Directive EQS for List 1 substances (Inland Waters) is 10 ng/l taken over an annual average. Data collected from routine monitoring and in this investigation show dieldrin levels below detection limits at Moliney gauging station except for the EQS failure on 31/10/94.
- ii) The drainage pipes downstream of Penwinnick road Bridge (sites V+ W) and Menagwins STW are known to be sources of dieldrin. The effluent from pipes V+W consist mainly of road run off from the main A390. Dieldrin loadings from these pipes are not sufficient as to cause an EC Dangerous Substance failure in the St. Austell River.
- iii) The failure at R18A007 was most likely to have been caused by a 'one off' discharge from a point source within the catchment.

Note: Due to the resources required to conduct an Investigation of this nature it may not be appropriate to commission an Investigation on the basis of a single determinand failure.

5. RECOMMENDATIONS

- i) Spot samples from the pipe effluent at site V (downstream of Penwinnick Road bridge) are taken during heavy rainfall to monitor dieldrin concentrations during wet weather. Data should be reviewed and further investigation work carried out if necessary.

Action: Rob Torr

- ii) Cornwall Investigations Co-ordination Group to seek advice from Region Water Quality and discuss how to tackle single determinand failures.

Action: Chris Leach

ST. AUSTELL RIVER WATER QUALITY INVESTIGATION

TABLE 1. WET WEATHER SURVEYS (5-2-96 & 22-5-96)

	SITE DESCRIPTION	URN
A	ST.AUSTELL RIVER AT MOLINGEY GAUGING STATION	R18A007
B	LITTLE POLGOOTH STREAM	
C	ST.AUSTELL RIVER D/S POLGOOTH STREAM	
D	POLGOOTH STREAM	R18A010
E	ST.AUSTELL RIVER U/S POLGOOTH STREAM	
F	MULVRA TRIBUTARY	
G	ST.AUSTELL RIVER AT MOLINGEY CARAVAN PARK BR.	
H	TREGORRICK STREAM	
I	ST.AUSTELL RIVER D/S OF MENAGWINS STW	WSTW1702B
J	MENAGWINS FE	WSTW1702FE
K	ST.AUSTELL RIVER U/S OF MENAGWINS FE	
L	MENAGWINS STW STORM OVERFLOW	
M	ST.AUSTELL RIVER AT IRON BRIDGE	R18A006
N	BY-PASS CULVERT	
O	ST.AUSTELL RIVER AT PENTEWAN LAB BR.	
P	PIPE SOUTH END OF MFI	
Q	PIPE NORTH END OF MFI	
R	PIPE 10 METRES U/S OF ABOVE	
S	WEST BANK DRAIN D/S OF B&Q	
T	EAST BANK DRAIN D/S OF B&Q	
U	B&Q BRIDGE	
V	WEST BANK PIPE D/S OF PENWINNICK ROAD BRIDGE	
W	EAST BANK PIPE D/S OF PENWINNICK ROAD BRIDGE	
X	WEST BRIDGE	
Y	WEST BANK DRAIN U/S OF WEST BRIDGE	

TABLE 2. ST.AUSTELL RIVER WATER QUALITY INVESTIGATION

MOLINGEY GAUGING STATION (A) R18A007			MENAGWINS STW FE (J) WSTW 1702FE			IRON BRIDGE (M) R18A006		
DATE	DIELDRIN(ng/l)	ALDRIN(ng/l)	DATE	DIELDRIN(ng/l)	ALDRIN(ng/l)	DATE	DIELDRIN(ng/l)	ALDRIN(ng/l)
24/01/94	<3.8	<4.2	16/10/95	5.4	<2.5	24/01/94	<4.0	<4.4
23/02/94	<4.0	<4.5	08/11/95	12.8	<2.7	31/03/94	<3.8	<4.2
31/03/94	<3.8	<4.2	23/11/95	3.4	<2.8	17/05/94	<3.6	<4.0
26/04/94	<3.8	<4.2	28/12/95	2.9	<2.5	25/07/94	<3.3	<3.9
17/05/94	<3.8	<4.2	16/01/96	<2.5	<2.5	24/09/94	<3.5	<4.2
28/06/94	<3.8	<4.2	05/02/96	6.5	<2.5	23/11/94	<3.5	<4.2
25/07/94	<3.5	<4.2	15/02/96	<2.5	<2.5	12/12/95	<2.5	<2.5
24/08/94	<3.5	<4.2	21/02/96	<2.3	<2.3	04/01/96	<2.5	<2.5
24/09/94	<3.5	<4.2	15/03/96	3.7	<2.5	02/02/96	<2.5	<2.5
31/10/94	131.6	<4.2	25/03/96	<2.7	<2.7	05/02/96	<2.5	<2.5
23/11/94	<3.5	<4.2	02/04/96	5.3	<2.8	07/03/96	<2.5	<2.5
12/12/94	<5.0	<5.0	24/04/96			09/04/96	<2.5	<2.5
14/11/95	<2.5	<2.5	14/05/96			13/05/96	<2.4	<2.4
12/12/95	<2.5	<2.5	22/05/96			22/05/96	<2.5	<2.5
04/01/96	<2.5	<2.5	14/06/96			27/06/96	<2.5	<2.5
02/02/96	<2.4	<2.4				11/07/96	<2.5	<2.5
05/02/96	<2.5	5.6						
07/03/96	<2.5	<2.5						
09/04/96	<2.5	<2.5						

Figure 1. St. Austell River Water Quality Investigation

