

**ENVIRONMENTAL DEPARTMENT
CORNWALL AREA**



NRA

FINAL DRAFT REPORT

**PORTH STREAM EC SURFACE
WATER ABSTRACTION FAILURE
1993**

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PORTH STREAM EC SURFACE WATER ABSTRACTION DIRECTIVE FAILURE

1. INTRODUCTION

1.1. Background

The Porth Stream at R25A025 failed for colour in 1993. R25A025 is the abstraction point for Rialton Mill water treatment works (WTW). The locations of monitoring sites and summary of water quality data are shown in figure 1.

1.2. Water quality data

The Porth Stream at R25A025 exceeded the colour standard (twenty filtered hazen) three times in 1993. The Porth Stream at R25A031 and R25A030 exceeded the standard on three and five occasions respectively. However, these samples were taken on different dates from R25A025. Because R25A030 had colour failures in 1993 the investigation concentrated upstream of this point.

Data from both 1993 and 1994 indicated that all failures were associated with rainfall either on the day of sampling or in the previous two days. Failures occurred any time during the year and were not linked with high chlorophyll concentrations in Porth Reservoir. Therefore, algal blooms are unlikely to contribute to failure.

The Indian Queens bypass construction work was not isolated in the investigation because of the number of failures in the catchment before earthmoving began in the summer of 1993.

1.3. Objective

To determine the cause of EC surface water abstraction directive failure in the Porth Stream at R25A025.

2. METHODS

- * Catchment inspection of Porth Stream upstream of R25A025 to identify pollution sources.
- * Chemical survey of catchment during wet and dry weather to quantify pollution sources.

3. RESULTS

A summary of the two chemical spot surveys and details of the 1993 failures are contained in figure 1 and table 1.

4. CONCLUSIONS

The spate survey conducted on the 28th March 1995 showed that the colour failures in the Porth Stream are caused by natural runoff in the catchment and not from point sources(see table 1).

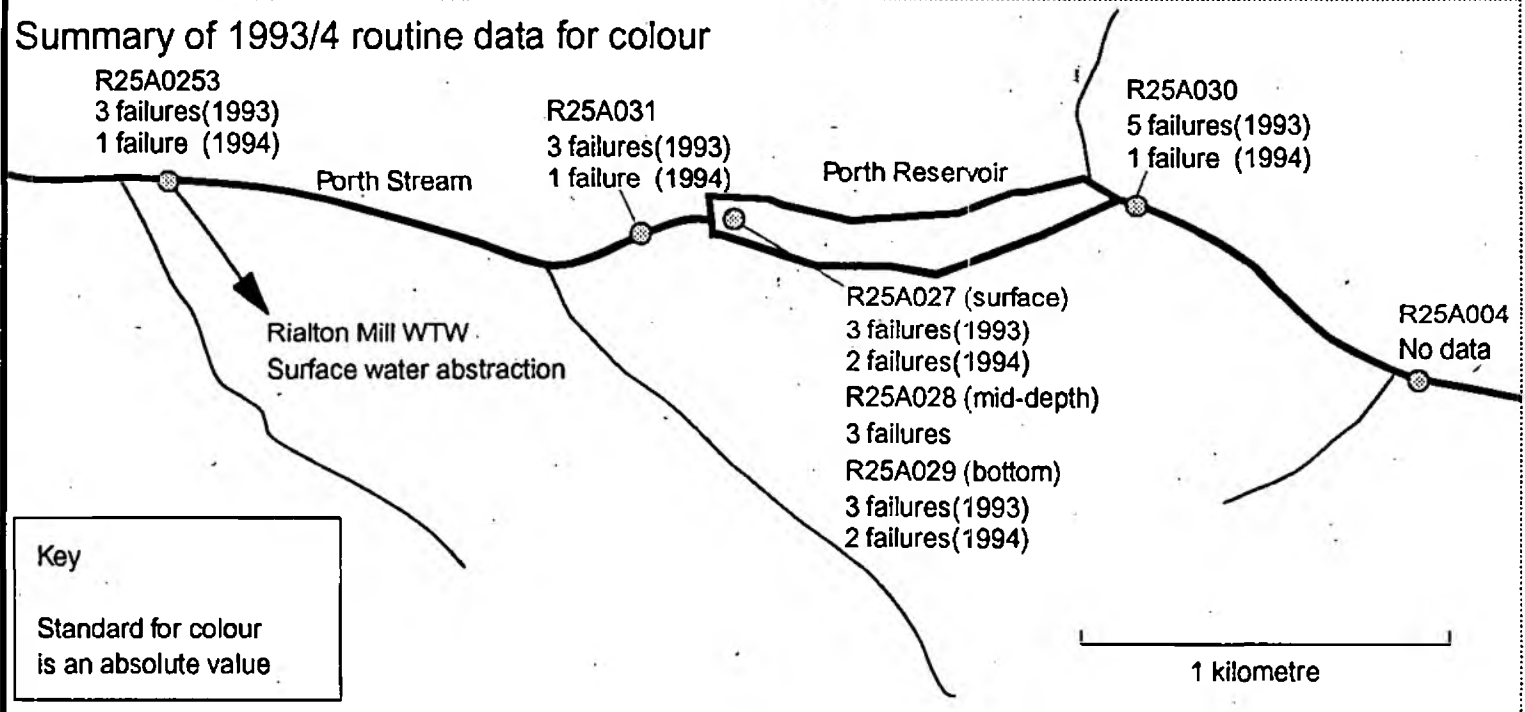
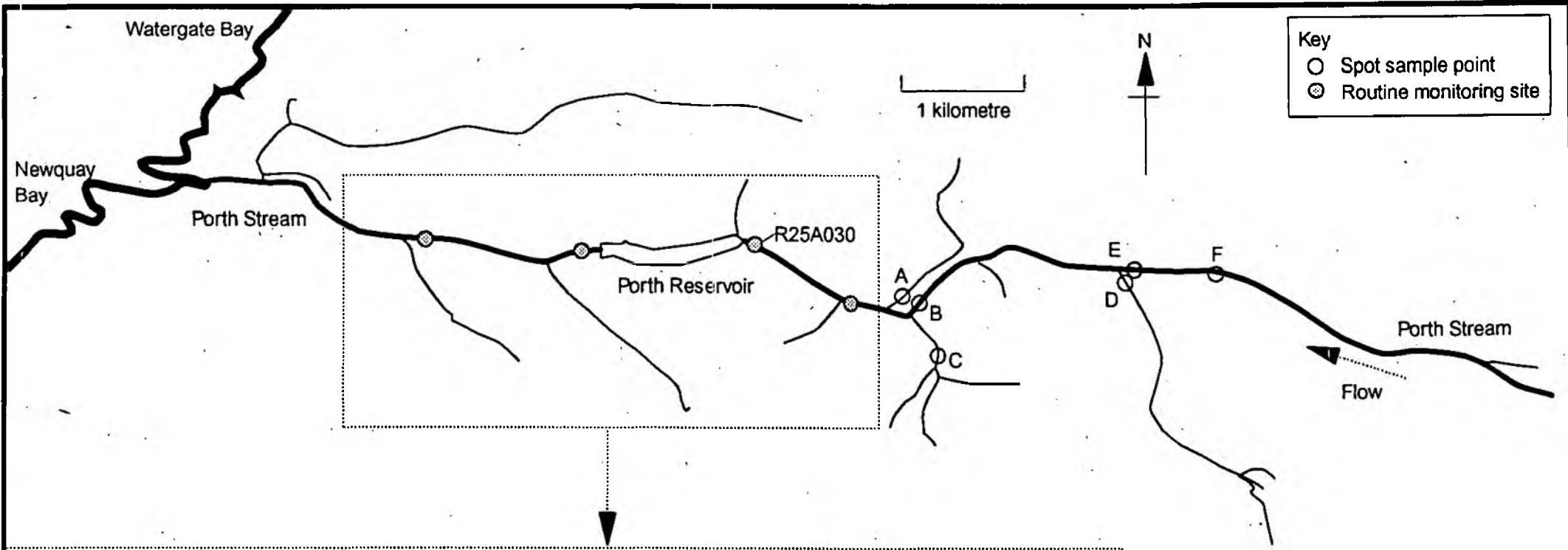


In normal flow conditions the colour levels are well within the required standard(see table 1).

5. ACTIONS

In the view of the fact that the non compliance with the Surface Water Abstraction Directive at R25A025 in 1993 has been caused naturally the only viable action is to apply to Head Office for a waiver at this site for colour.

Fig 1. Porth Stream catchment showing sampling sites



Key
Standard for colour
is an absolute value

TABLE 1. PORTH STREAM CATCHMENT SURVEY RESULTS (NORMAL & SPATE CONDITIONS)

SPATE 28/03/95

	R25A004	A	B	C	D	E	F
Ammonia (mg/l)	0.74	0.11	1.4	0.13	1.6	1.3	1.2
Colour (filtered Hazen)	33	24	38	30	37	40	38
Turbidity (FTU)	232	23	145	19	77	50	30
BOD (mg/l)	6.8	1.8	7.8	1.9	8	3.8	3.5

NORMAL FLOW 31/03/95

	R25A004	A	B	C	D	#E	F
Ammonia (mg/l)	<0.03	<0.03	0.04	0.05	0.09	0.04	<0.03
Colour (filtered Hazen)	8	7	8	7	7	10	10
Turbidity (FTU)	2	3	1	4	2	17	2
BOD (mg/l)	1.1	<1.0	1.1	<1.0	1.1	<1.0	<1.0

SITE E AFFECTED BY EARTHMOVING UPSTREAM