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National Rivers Authority
South West Region

# **ENVIRONMENTAL PROTECTION**

WATER QUALITY INVESTIGATIONS AT NANCEKUKE, CORNWALL

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#### WATER QUALITY INVESTIGATIONS AT NANCEKUKE, CORNWALL

### TECHNICAL REPORT NO. WQP/92/002

#### **SUMMARY**

Further to concern by some members of the public and media following the deaths of sea birds and marine mammals in 1989 and 1990, the National Rivers Authority (NRA) gave an undertaking to monitor surface and groundwaters in the vicinity of the former Chemical Defence Establishment (CDE) Nancekuke site, to determine whether any impact from historic uses could be detected in these waters.

Twenty three locations were identified as sampling points. Samples were collected in September and October 1991. The samples were analysed for a range of chemical and physical determinands, which act as general indicators of pollution.

The water quality characteristics of the surface and groundwaters collected in the vicinity of Nancekuke are consistent with levels expected to be found naturally in such waters in West Cornwall.

For certain samples the analytical results show the presence of concentrations of cadmium, zinc, and other metals consistent with waters within the mineral enriched areas of West Cornwall. The volumes discharged from these locations to tidal waters are small and their combined impact on the surrounding marine environment will be minimal.

The analytical results do not indicate any levels of other substances, which could effect identified water uses in the area.

A trace amount of op' TDE, (a breakdown product of the pesticide DDT) was found in a seepage from a rockface in Gooden Heane Cove. It is possible that illegal tipping outside the boundary of the former CDE site is a source of this material. It is not suspected that the pesticide residues result from the uses of the site at Nancekuke. Samples are to be taken to confirm the continuing presence of this substance.

The presence of trace amounts of dieldrin found in a seepage from an adit in Tobban Horse Bay is suspected to be connected with illegal tipping in the associated mine shafts, which are outside the former CDE site boundary. Staff of the NRA have informed the Cornwall Waste Regulation Authority of these disposal sites and are requiring methods of control and prevention.

The extremely low flows associated with the releases of pesticides will result in minimal impact on the surrounding marine environment.

B L Milford Water Quality Planner January 1992

ENVIRONMENT AGENCY



View of sampling locations D3, D4, D5 and D6 from the sea.





View of location of two adits, D7 and D8, and Sally's Bottom Stream overflowing the cliffs at Sally's Bottom.

# WATER QUALITY INVESTIGATIONS AT NANCEKUKE, CORNWALL

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#### WATER QUALITY INVESTIGATIONS AT NANCEKUKE, CORNWALL

#### 1. INTRODUCTION

During 1989 and 1990, some members of the public and media associated the reported deaths of sea birds, seals and ceteceans such as dolphins and porpoises, around the coast of Cornwall with the previous activities perceived to have taken place at the former Chemical Defence Establishment (CDE) at Nancekuke.

Further to this public concern, the National Rivers Authority (NRA) gave an undertaking to monitor surface and groundwaters in the vicinity of the former CDE Nancekuke site to determine whether any impact from the historic uses could be detected in these waters.

This report identifies the sampling locations and presents the analytical results from the initial survey to characterise water quality in flowing surface waters and groundwater seepages around the site.

### 2. BACKGROUND

Before the Second World War the site occupied by the former CDE Nancekuke, was used as agricultural land, predominantly as rough pasture and grassland. The land was obtained by compulsory purchase by the War Office. The airfield at Nancekuke, near Portreath was commissioned in 1941 and used by the Royal Air Force and the United States Air Forces. The base was placed on a care and maintenance basis in 1945 and held as a surplus inactive station from 1948 to 1950 when it was transferred to the Ministry of Supply.

Resulting from the UK government's research programme to develop a capability to manufacture chemical defence agents in bulk, work commenced at CDE Nancekuke during 1952 to support this programme commissioned by the Ministry of Defence. Following the 1976 Defence Review, there was a decision to close the Establishment and transfer the remaining work to CDE Porton. All work had ceased by 1977 and following a decommissioning period, the Establishment finally closed in 1980. The Ministry of Defence organised the transfer of the site to the Royal Air Force in 1980 and the site is operated today as RAF Portreath.

#### 3. INVESTIGATIONS

During 1990 and 1991 discussions took place between staff of the NRA and CDE Porton concerning the operation of the site of the former CDE Nancekuke.

Site inspections at Nancekuke were undertaken in early 1991 with the cooperation of the station commander. Watercourses and groundwater seepages were identified from these site inspections. Additional inspections were made from a boat moving parallel to the coastline and confirmed by landings when tide and weather permitted.

Carnon Consultancy was engaged by the NRA to undertake a mine search in respect of old workings and adit systems adjacent to the coastline between Portreath and Porthtowan. The presence of a substantial network of drainage adits and the existence of many shafts have been identified, associated with mineral lodes which have been worked close to the surface. These systems provide ample facilities for groundwater to percolate underground and be carried away to the sea over an area of about 1.5 square kilometres, part of this area being included within the boundaries of the former CDE Nancekuke.

The investigation area covered both the former CDE site and the surrounding land from Gooden Heane Cove at Portreath to Porthtowan Beach. The southern boundary being the Redruth Stream, a tributary of the Portreath Stream. The land surrounding the former CDE site is predominantly agricultural with some woodland, and small areas of historic metalliferous mining.

Twenty three locations were identified as sampling points and these points were assigned a prefix 'D' to indicate that access to the site was difficult or a prefix 'E' if access was easy (see Appendix 1). Plans were developed to undertake sample collection approximately ten to twenty days after a period of sustained rainfall. This time delay would allow groundwater to move through the investigation area to the selected sampling points. The majority of sampling points are located outside the former CDE boundary.

The initial survey was planned to characterise the water quality of flowing surface waters, groundwater seepages and mine adit discharges. Samples would be analysed for a range of chemical and physical determinands, which would act as general chemical pollution indicators.

Samples were collected from locations E1, E3, E4, E5, E7, E8 and E9 (see Appendices 1 and 2) on 26 September 1991. There were insufficient flows to collect samples from locations E2 and E6.

Many of the identified sampling locations only have sufficient flowing water for sample collection purposes after periods of sustained rainfall. Rainfall during August 1991 totalled 36 millimetres and September produced only 56 millimetres as recorded at Mawla (NGR SW 7030 4580). Rainfall on 7 October was 22.8 millimetres and by 10 October 39.6 millimetres had been recorded over four days.

NRA staff and a contractor, Chris Harker of Rope Access Technology, St Day, collected samples from the 'D' locations on 25 and 26 October, fifteen days after the period of substantial rainfall, (see photographs in Appendix 2). An additional 19.1 millimetres of rain had fallen since 10 October.

Nevertheless, there was insufficient flow to collect samples from location D14.

Samples were forwarded to the newly opened NRA laboratory at Exeter, where certain analyses were undertaken. Other analyses were undertaken by contracted analytical services. The samples were screened for organochlorine and organophosphorus residues, for metals and for a standard sanitary suite of determinands. Analysis was completed in January 1992. The analytical results for all the above samples have been reviewed and are included in Appendix 3. These results are available to the public through the Water Resources Act register at the NRA's offices at Bodmin and Exeter.

#### 4. CONCLUSIONS

The water quality characteristics of surface and groundwaters collected in the vicinity of the site of the former CDE Nancekuke are consistent with those found naturally in many other waters in West Cornwall.

For certain samples (from locations D3, D4, D6, D7, D8, D9, D10, D11, D12 and D13), the analytical results show the presence of concentrations of cadmium, zinc and other metals consistent with levels expected to be found in waters within the mineral enriched areas of West Cornwall. The volumes discharged (0.2 litres/minute to 180 litres/minute) from these locations to tidal waters are small and their combined impact on the surrounding marine environment will be minimal.

The analytical results do not indicate any levels of other substances which could affect identified water uses in the area.

Two analytical results have indicated the presence of trace amounts of pesticides:

- (a) 21.5 nanograms/litre of op'TDE (a breakdown product of the pesticide DDT) were found in the sample collected from D2, which is from a seepage from the rock face in Gooden Heane Cove.
  - The origin of the trace amounts of this substance is not known.

    It is possible that illegal tipping outside the boundary of
    the former CDE site is a source of this material. It is not
    suspected that the pesticide residues result from the uses of
    the site at Nancekuke. The extremely low flows (0.7 litres/minute)
    from this rock seepage will have minimal impact on the surrounding
    marine environment.
- (b) 41.3 nanograms/litre of dieldrin were found in the sample collected from D9, which is from a seepage from an adit at the back of a sea cave in Tobban Horse Bay.

The origins of the trace amounts of this pesticide could be associated with the illegal tipping of materials in the mine shafts associated with the Lushington Mine draining through the Wheal Tye section to this adit, (see Appendix 2, photographs 32 to 35). These shafts are outside the boundary of the former CDE site.

The extremely low flows from this adit seepage (approximately 20 litres/day) will have minimal impact on the surrounding marine environment.

A site meeting has taken place between staff of the NRA and Cornwall Waste Regulation Authority with an objective to prevent such illegal tipping taking place in future.

#### 5. RECOMMENDATIONS

Following the initial characterisation survey and before further sampling surveys are undertaken, a review of future sampling points and the required chemical and physical determinands will take place to ensure that resources are targeted appropriately to potential impact assessment.

The next survey will include samples of sea water and selected marine biota from key locations to demonstrate any impact from the freshwater inputs to tidal waters identified between Portreath and Porthtowan.

No detailed investigation of the trace amount of op' TDE found in the groundwater seepage at sampling location D2 should take place until its presence is confirmed in the sample collected from the next survey.

The next water quality survey will be commissioned after the next period of sustained rainfall.

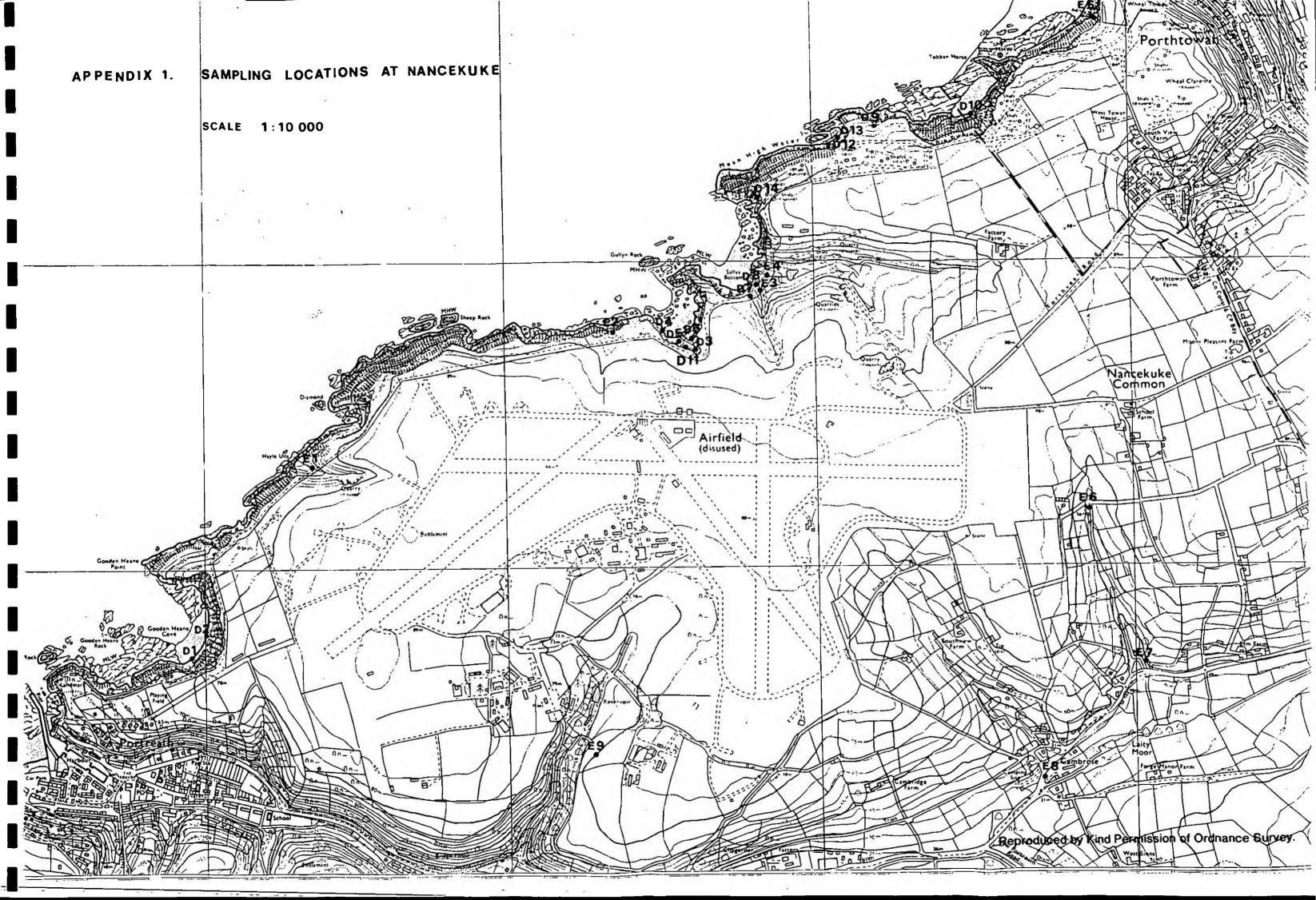
The dieldrin concentrations in the adit seepage from the back of the sea cave in Tobban Horse Bay should be monitored in future surveys.

The Cornwall Waste Regulation Authority will be asked to investigate the feasibility of removing this deposited material from the mine shafts without causing environmental damage. If it is possible to remove this material, then following removal, the shafts should be capped.

### 6 APPENDICES

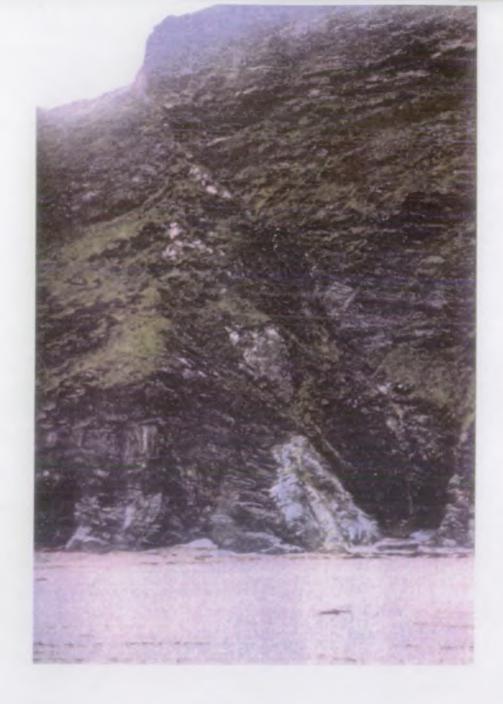
### LIST OF APPENDICES

- 1. Map of Sampling Locations at Nancekuke
- 2. Photographs of sampling locations
- 3. Analytical Results of First Survey



### APPENDIX 2

## PHOTOGRAPHS OF SAMPLING LOCATIONS



P1: Sample Point D1.
General view of D1 showing major cross-course exposed in cliff.
Sample point lower right, at top of sand.
P2: Detail D1.
Samples collected lower centre (sample point ringed).

SAMPLE D1

Location (OS grid ref.): SW 6596 4571

Date and Time of Sample: 25 October, 14:30 - 14:55

Estimated Flow Rate: 1 1/min

Sampling Procedure: Standard, water running down slab collected from gully at base.

Nature of Sampling Point: Water dripping from major quartz filled cross-course several metres wide (trending 140 deg.m, dipping 60 deg. West). Apparent high Fe content cementing beach sand.



P1: Sample Point D1. General view of D1 showing major cross-course exposed in cliff. Sample point lower right, at top of sand. P2: Detail D1. Samples collected lower centre (sample point ringed).

SAMPLE D1

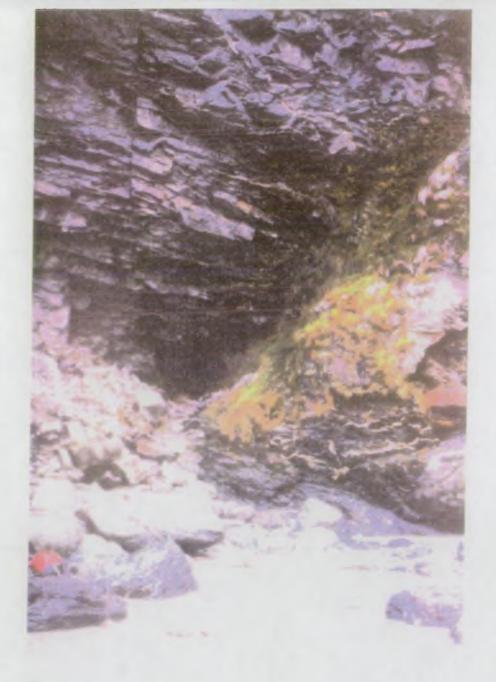
Location (OS grid ref.): SW 6596 4571

Date and Time of Sample: 25 October, 14:30 - 14:55

Estimated Flow Rate: 1 1/min

Standard, water running down slab collected from gully at base. Sampling Procedure:

Nature of Sampling Point: Water dripping from major quartz filled cross-course several metres wide (trending 140 deg.m, dipping 60 deg. West). Apparent high Fe content cementing beach sand.



P3: Sample Point D2.
Samples taken from shallow cave, centre.
P4: Detail D2.

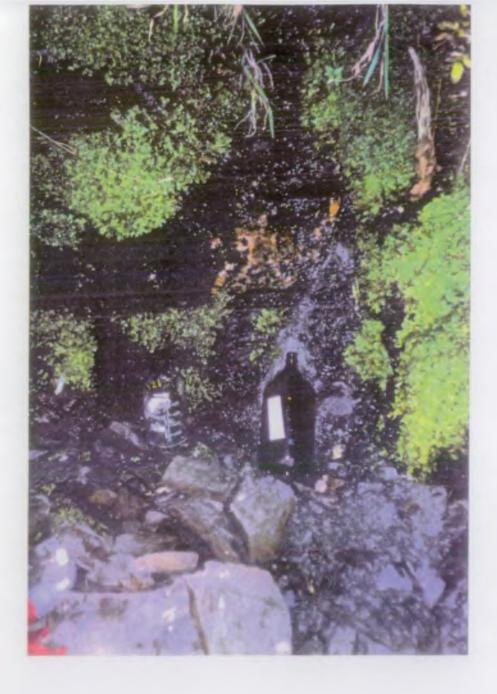
#### SAMPLE D2

Location (OS grid ref.): SW 6602 4584

Date and Time of Sample: 25 October, 14:30 - 14:55

Estimated Flow Rate: 0.7 1/min Sampling Procedure: Standard

Nature of Sampling Point: Sample from shallow cave formed by two faults (085 deg.m dipping 80 deg. south and 045 deg.m dipping 60 deg. north). Generally wet with large number of drips and trickles, sample taken from largest, on joint running 070 deg.m dipping 70 deg. north, with some evidence of mineralisation. (NB: Redruth Sewer Tunnel lies about 150m away in this direction, and the geological section indicates similar features)



P3: Sample Point D2. Samples taken from shallow cave, centre. P4: Detail D2.

### SAMPLE D2

Location (OS grid ref.): SW 6602 4584

Date and Time of Sample: 25 October, 14:30 - 14:55
Estimated Flow Rate: 0.7 1/min
Sampling Procedure: Standard

Nature of Sampling Point: Sample from shallow cave formed by two faults (085 deg.m dipping 80 deg. south and 045 deg.m dipping 60 deg. north). Generally wet with large number of drips and trickles, sample taken from largest, on joint running 070 deg.m dipping 70 deg. north, with some evidence of mineralisation. (NB: Redruth Sewer Tunnel lies about 150m away in this direction, and the geological section indicates similar features)



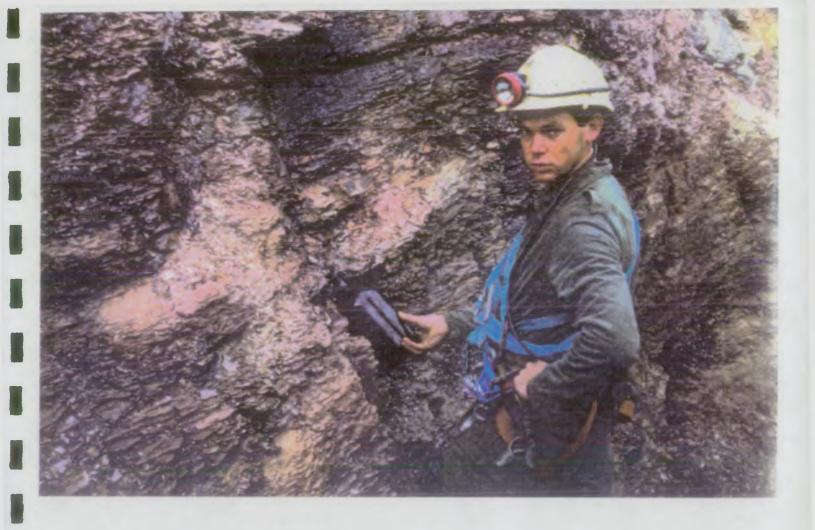
P5: Sampling D3, 10 metres below top of gully. P6: Detail D3.

SAMPLE D3

Location (OS grid ref.): SW 6763 4672 Date and Time of Sample: 26 October, 10:05 - 10:30

Estimated Flow Rate: 0.5 1/min Sampling Procedure: Standard

Nature of Sampling Point: Water issuing from band of harder shale outcropping in gully formed by heavily altered soft shale associated with two parallel cross-courses (trending about 150 deg.m dipping 60 deg. west). In total probably 3 - 4 1/min issues from various fissures but the sample was taken from the largest flow point, about 10m down the gully, an open joint trending due south and dipping 70 deg. east.



P5: Sampling D3, 10 metres below top of gully. P6: Detail D3.

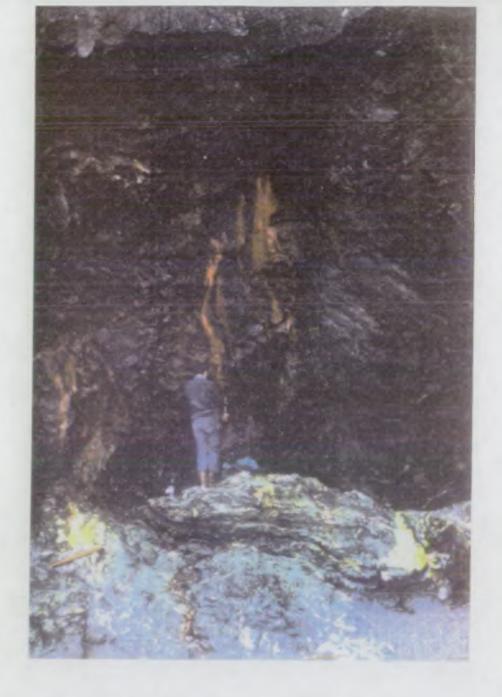
SAMPLE D3

Location (OS grid ref.): SW 6763 4672

Date and Time of Sample: 26 October, 10:05 - 10:30

Estimated Flow Rate: 0.5 1/min Sampling Procedure: Standard

Nature of Sampling Point: Water issuing from band of harder shale outcropping in gully formed by heavily altered soft shale associated with two parallel cross-courses (trending about 150 deg.m dipping 60 deg. west). In total probably 3 - 4 1/min issues from various fissures but the sample was taken from the largest flow point, about 10m down the gully, an open joint trending due south and dipping 70 deg. east.



P7: Sampling D4. West end of Gullyn Cove beach. P8: Detail D4.

SAMPLE D4

Location (OS grid ref.): SW 6753 4677

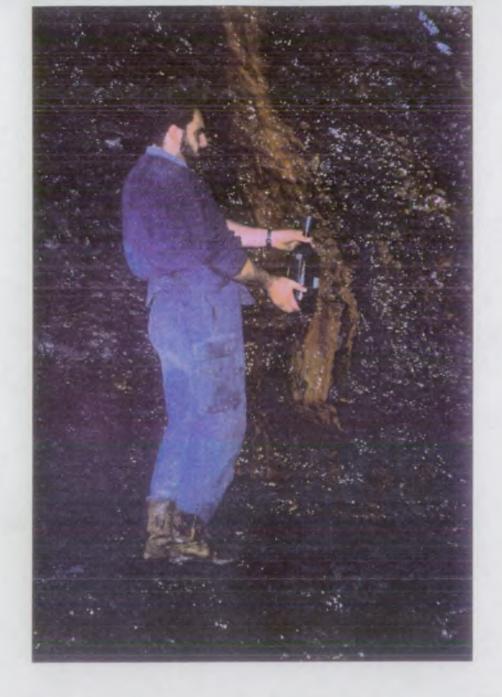
Date and Time of Sample: 26 October, 12:30 - 13:30

Estimated Flow Rate: 0.2 1/min
Sampling Procedure: Standard

Sampling Procedure: Standard, drips collected in s/s and

plastic funnels.

Nature of Sampling Point: Water dripping from vertical fault trending due south, outcropping in cliff at west end of beach. Evidence of mineralisation and considerable Fe staining.



P7: Sampling D4. West end of Gullyn Cove beach. P8: Detail D4.

SAMPLE D4

Location (OS grid ref.): SW 6753 4677

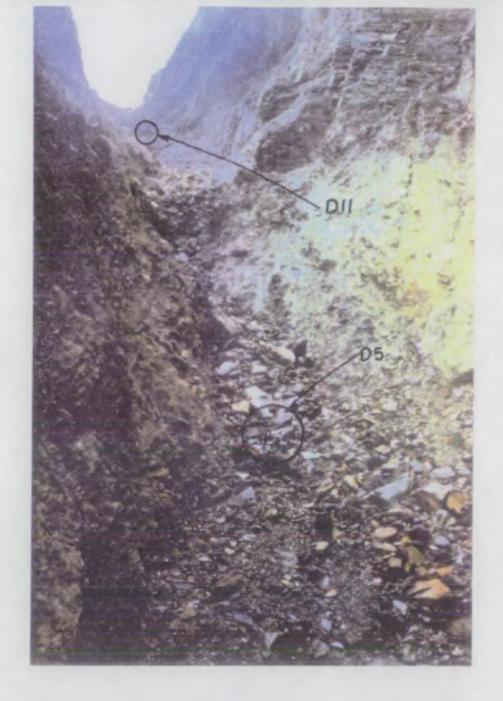
Date and Time of Sample: 26 October, 12:30 - 13:30

Estimated Flow Rate: 0.2 1/min

Sampling Procedure: Standard, drips collected Sampling Procedure: Standard, drips collected in s/s and

plastic funnels.

Nature of Sampling Point: Water dripping from vertical fault trending due south, outcropping in cliff at west end of beach. Evidence of mineralisation and considerable Fe staining.



P9: Sample Point D5, near bottom of gully. Sample point lower centre, ringed. Approximate position of D11 also shown. P10: Detail D5.

SAMPLE D5

Location (OS grid ref.): SW 6763 4675

Date and Time of Sample: 26 October, 12:45 - 13:05

Estimated Flow Rate: 3 1/min (total in gully about 10 1/min)

Sampling Procedure: Standard, but winchesters filled from 1 litre pyrex bottles.

Nature of Sampling point: Flow at base of same gully as D3 and D11, sampled at convenient point about 5m above beach. Flow much dispersed amongst rocks so difficult to estimate.



P9: Sample Point D5, near bottom of gully.
Sample point lower centre, ringed. Approximate position of D11 also shown.
P10: Detail D5.

SAMPLE D5

Location (OS grid ref.): SW 6763 4675

Date and Time of Sample: 26 October, 12:45 - 13:05

Estimated Flow Rate: 3 1/min (total in gully about 10 1/min)
Sampling Procedure: Standard, but winchesters filled from
1 litre pyrex bottles.
Nature of Sampling point: Flow at base of same gully as D3 and

Nature of Sampling point: Flow at base of same gully as D3 and D11, sampled at convenient point about 5m above beach. Flow much dispersed amongst rocks so difficult to estimate.



P11: Sampling D6, adit at Gullyn Cove.

Location (OS grid ref.): SW 6760 4678

Date and Time of Sample: 26 October, 12:00 - 12:05

Estimated Flow Rate: 18 1/min

Sampling Procedure: Standard

Nature of Sampling Point: Flow from adit driven on mineralised

fault, trending 130 deg.m dipping 45 deg. west.



Entrance to Sally's Bottom adit top left.

P13: Sample point D7 (ringed), south branch of adit.

P14: Sampling D8, east branch of adit.

P15: Hauling D8 samples back to cliff top, Sally's Bottom.

SAMPLE D7

Location (OS grid ref.): SW 6780 4692

Date and Time of Sample: 24 October, 10:00 - 10:20

Estimated Flow Rate: 20 1/min

Sampling Procedure: Standard, but winchesters filled from

1 litre pyrex bottles.

Nature of Sampling point: Flow from southward branch of Sally's

Bottom adit.

SAMPLE D8

Location (OS grid ref.): SW 6780 4692

Date and Time of Sample: 24 October, 10:00 - 10:20

Estimated Flow Rate: 60 1/min (in 2 parts)
Sampling Procedure: Standard, but winchest

Sampling Procedure: Standard, but winchesters filled from 1 litre pyrex bottle with s/s funnel. Nature of Sampling point: Flow from eastward (main) branch of

Sally's Bottom adit.



Entrance to Sally's Bottom adit top left.

P13: Sample point D7 (ringed), south branch of adit.

P14: Sampling D8, east branch of adit.

P15: Hauling D8 samples back to cliff top, Sally's Bottom.

#### SAMPLE D7

Location (OS grid ref.): SW 6780 4692

Date and Time of Sample: 24 October, 10:00 - 10:20

Estimated Flow Rate: 20 1/min

Sampling Procedure: Standard, but winchesters filled from

1 litre pyrex bottles.

Nature of Sampling point: Flow from southward branch of Sally's Bottom adit.

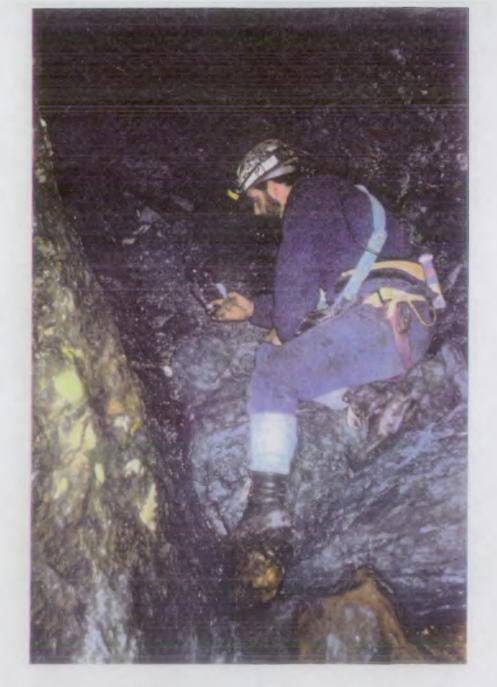
### SAMPLE D8

Location (OS grid ref.): SW 6780 4692

Date and Time of Sample: 24 October, 10:00 - 10:20
Estimated Flow Rate: 60 1/min (in 2 parts)
Sampling Procedure: Standard but winchesters

Sampling Procedure: Standard, but winchesters filled from 1 litre pyrex bottle with s/s funnel.

Nature of Sampling point: Flow from eastward (main) branch of Sally's Bottom adit.



Entrance to Sally's Bottom adit top left.

P13: Sample point D7 (ringed), south branch of adit.

P14: Sampling D8, east branch of adit.

P15: Hauling D8 samples back to cliff top, Sally's Bottom.

#### SAMPLE D7

Location (OS grid ref.): SW 6780 4692

Date and Time of Sample: 24 October, 10:00 - 10:20 Estimated Flow Rate: 20 1/min

Sampling Procedure: Standard, but winchesters filled from

1 litre pyrex bottles.

Nature of Sampling point: Flow from southward branch of Sally's Bottom adit.

### SAMPLE D8

Location (OS grid ref.): SW 6780 4692

Date and Time of Sample: 24 October, 10:00 - 10:20

Estimated Flow Rate: 60 1/min (in 2 parts)

Standard, but winchesters filled from Sampling Procedure: 1 litre pyrex bottle with s/s funnel.

Nature of Sampling point: Flow from eastward (main) branch of Sally's Bottom adit.



Entrance to Sally's Bottom adit top left.

P13: Sample point D7 (ringed), south branch of adit.

P14: Sampling D8, east branch of adit.

P15: Hauling D8 samples back to cliff top, Sally's Bottom.

SAMPLE D7

Location (OS grid ref.): SW 6780 4692

Date and Time of Sample: 24 October, 10:00 - 10:20 Estimated Flow Rate: 20 1/min

Estimated Flow Rate:

Standard, but winchesters filled from Sampling Procedure:

1 litre pyrex bottles.

Nature of Sampling point: Flow from southward branch of Sally's Bottom adit.

SAMPLE D8

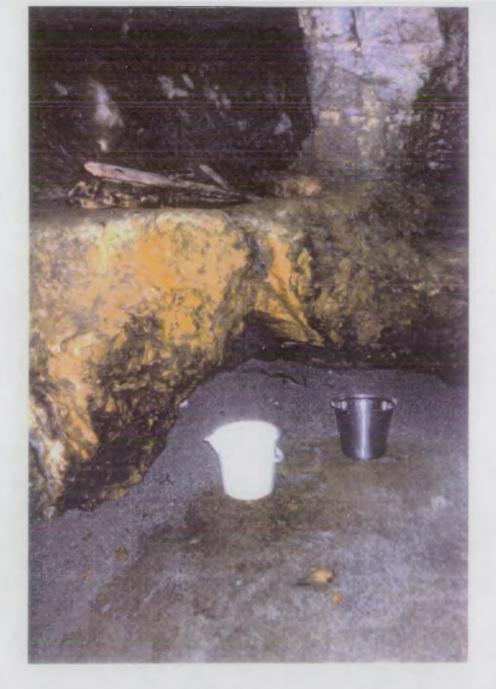
Location (OS grid ref.): SW 6780 4692

Date and Time of Sample: 24 October, 10:00 - 10:20

Estimated Flow Rate: 60 1/min (in 2 parts)

Standard, but winchesters filled from Sampling Procedure: 1 litre pyrex bottle with s/s funnel.

Nature of Sampling point: Flow from eastward (main) branch of Sally's Bottom adit.



P16: Sample Point D9, Wheal Tye adit, back of Seal Hole cave. Collecting drips in buckets over 24 hour period.

Location (OS grid ref.): SW 6820 4746

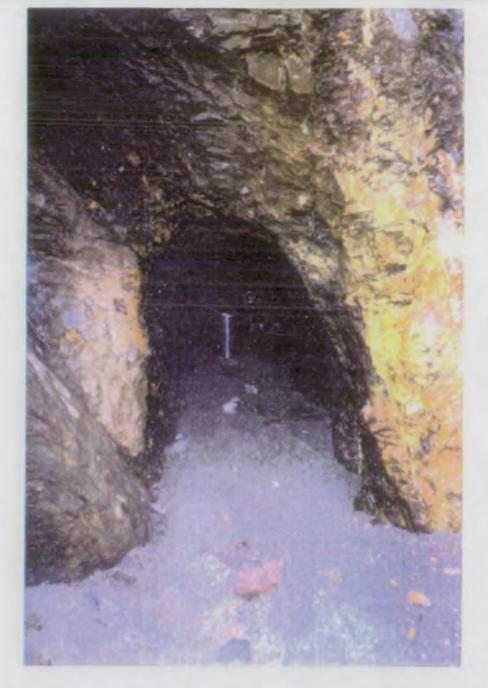
Date and Time of Sample: 24 October 13:30 - 25 October 13:30

Estimated Flow Rate: Over 20 litres in 24 hours

Sampling Procedure: Buckets (s/s and plastic) placed under drips for 24 hours. Plastic bucket overflowed but s/s contained only about 5 litres, so winchesters had to be filled from plastic bucket.

Nature of Sampling point: Water dripping from Wheal Tye adit at

back of Seal Hole sea cave.



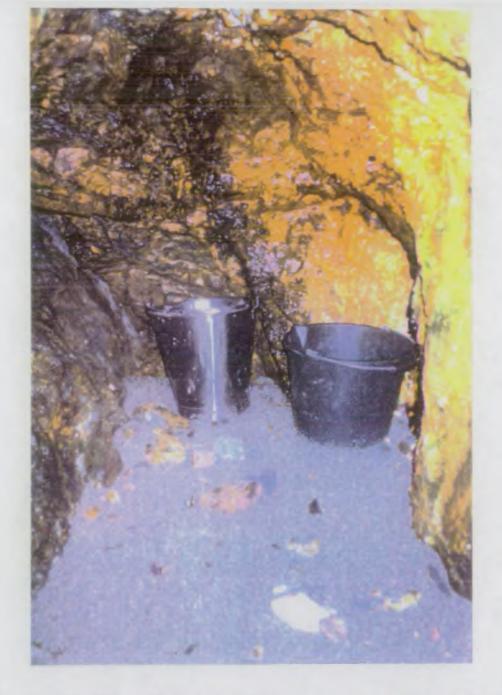
P17: Sample Point D10, old trial workings on cross-course at back of beach. Collecting drips in buckets over 24 hour period. P18: Detail D10.

Location (OS grid ref.): SW 6850 4748

Date and Time of Sample: 24 October 14:00 - 25 October 14:00
Estimated Flow Rate: 6 litres in 24 hours
Sampling Procedure: Buckets (s/s and plastic) placed under drips for 24 hours. Only 2 litres in pyrex and 4 litres in

plastic was collected.

Nature of Sampling Point: Water collected from drips in shallow trial adit at back of beach on junction between major crosscourse (trending 160 deg.m dipping 80 deg. west) and mineralised fault (trending 180 deg.m dipping 55 deg. west). The cross-course of blocky quartz is about 2m wide with a 0.4m band of clay infill and probably represents an impermeable lateral barrier, whilst still allowing longitudinal water movement. The water collected comes from the east of this cross-course, and is associated with the mineralised fault, which exhibits rich visible traces of Cu, As, Zn and Pb minerals.



P17: Sample Point D10, old trial workings on cross-course at back of beach. Collecting drips in buckets over 24 hour period. P18: Detail D10.

Location (OS grid ref.): SW 6850 4748

Date and Time of Sample: 24 October 14:00 - 25 October 14:00

Estimated Flow Rate: 6 litres in 24 hours
Sampling Procedure: Buckets (s/s and plastic) placed under drips for 24 hours. Only 2 litres in pyrex and 4 litres in

plastic was collected.

Nature of Sampling Point: Water collected from drips in shallow trial adit at back of beach on junction between major crosscourse (trending 160 deg.m dipping 80 deg. west) and mineralised fault (trending 180 deg.m dipping 55 deg. west). The crosscourse of blocky quartz is about 2m wide with a 0.4m band of clay infill and probably represents an impermeable lateral barrier, whilst still allowing longitudinal water movement. The water collected comes from the east of this cross-course, and is associated with the mineralised fault, which exhibits rich visible traces of Cu, As, Zn and Pb minerals.



P19: Access to D11, abseiling down gully. P20: Entrance to D11 adit in side of gully. See photo P9 for approximate position of D11 in relation to D5. P21 & P22: Bringing samples out from D11.

SAMPLE D11

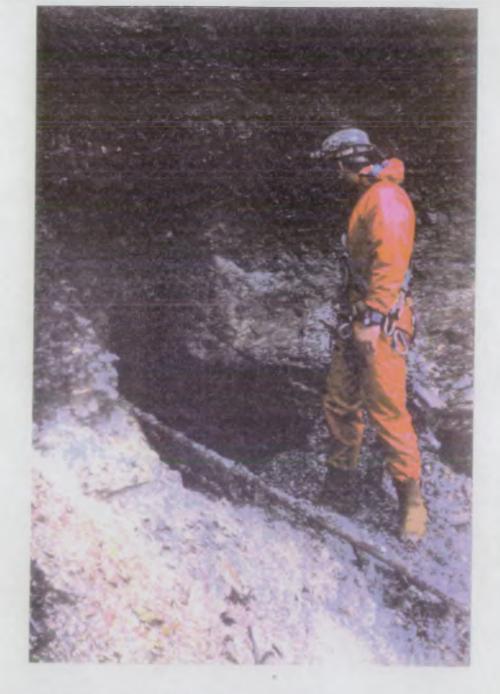
Location (OS grid ref.): SW 6761 4673

Date and Time of Sample: 26 October, 10:55 - 11:15

Estimated Flow Rate: about 0.1 - 0.2 1/min

Sampling Procedure: Bottles filled about 2cm beneath surface of 1m deep pool.

Nature of Sampling Point: Water dripping from roof at end of trial adit (about 10m long) into large pool. Adit driven on mineralised joint trending due south dipping 70 deg. east about 40m down same gully as D3 and D5.



P19: Access to D11, abseiling down gully.
P20: Entrance to D11 adit in side of gully. See photo P9 for approximate position of D11 in relation to D5.
P21 & P22: Bringing samples out from D11.

SAMPLE D11

Location (OS grid ref.): SW 6761 4673

Date and Time of Sample: 26 October, 10:55 - 11:15

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P19: Access to D11, abseiling down gully.
P20: Entrance to D11 adit in side of gully. See photo P9 for approximate position of D11 in relation to D5.
P21 & P22: Bringing samples out from D11.

### SAMPLE D11

Location (OS grid ref.): SW 6761 4673

Date and Time of Sample: 26 October, 10:55 - 11:15 Estimated Flow Rate: about 0.1 - 0.2 1/min

Sampling Procedure: Bottles filled about 2cm beneath

surface of 1m deep pool.

Nature of Sampling Point: Water dripping from roof at end of trial adit (about 10m long) into large pool. Adit driven on mineralised joint trending due south dipping 70 deg. east about 40m down same gully as D3 and D5.



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P20: Entrance to D11 adit in side of gully. See photo P9 for approximate position of D11 in relation to D5.
P21 & P22: Bringing samples out from D11.

SAMPLE D11

Location (OS grid ref.): SW 6761 4673

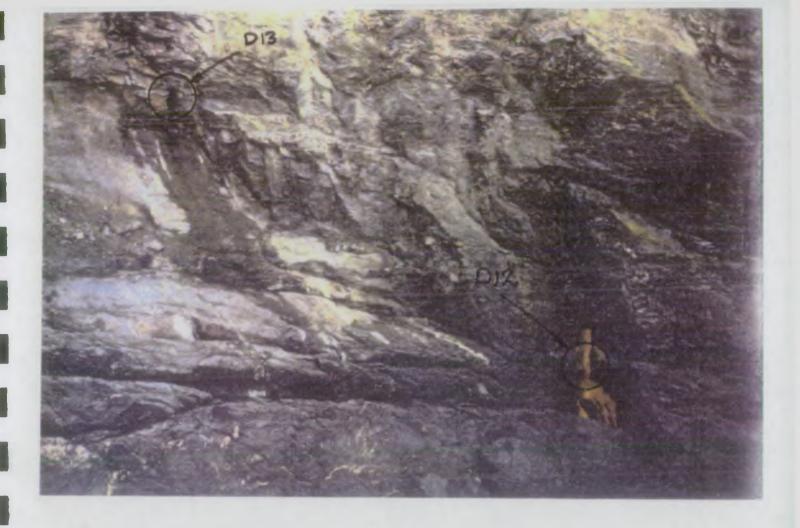
Date and Time of Sample: 26 October, 10:55 - 11:15

Estimated Flow Rate: about 0.1 - 0.2 1/min

Sampling Procedure: Bottles filled about 2cm beneath

surface of 1m deep pool.

Nature of Sampling Point: Water dripping from roof at end of trial adit (about 10m long) into large pool. Adit driven on mineralised joint trending due south dipping 70 deg. east about 40m down same gully as D3 and D5.



P23: Showing relative positions of D12 and D13, ringed. D12 is main adit, lower right, and D13 is older higher adit. upper left. P24: Sampling from D12.

SAMPLE D12

Location (OS grid ref.): SW 6805 4738

Date and Time of Sample: 25 October, 10:15 - 10:40

Estimated Flow Rate: 150 - 180 1/min Sampling Procedure: Standard

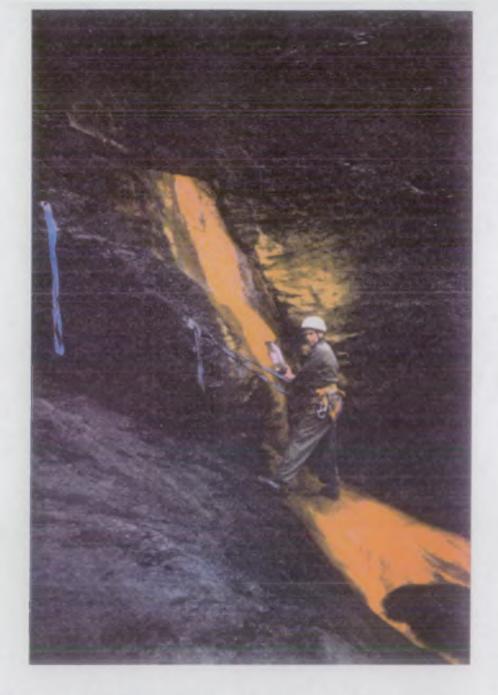
Nature of Sampling Point: Flow issuing about 3m above MHWS from the main adit of Lushington mine (Wheal Sterran section) which runs over 300m roughly south, encountering several Cu lodes which are notable for their high sulphide content.

SAMPLE D13

Location (OS grid ref.): SW 6807 4737

Date and Time of Sample: 25 October, 11:05 - 12:15

Estimated Flow Rate: 0.2 1/min
Sampling Procedure: Drips collected by funnel. Only 2 litres in pyrex bottles and 2 litres in plastic bottles collected.



P23: Showing relative positions of D12 and D13, ringed. D12 is main adit, lower right, and D13 is older higher adit, upper left. P24: Sampling from D12.

SAMPLE D12

Location (OS grid ref.): SW 6805 4738

Date and Time of Sample: 25 October, 10:15 - 10:40

Estimated Flow Rate: 150 - 180 1/min

Sampling Procedure: Standard

Nature of Sampling Point: Flow issuing about 3m above MHWS from the main adit of Lushington mine (Wheal Sterran section) which runs over 300m roughly south, encountering several Cu lodes which are notable for their high sulphide content.

#### SAMPLE D13

Location (OS grid ref.): SW 6807 4737

Date and Time of Sample: 25 October, 11:05 - 12:15

Estimated Flow Rate: 0.2 1/min
Sampling Procedure: Drips collected by funnel. Only 2 litres in pyrex bottles and 2 litres in plastic bottles collected.



P25: General position of D13 (ringed) in relation to other workings.

P26: Access to D13 adit.

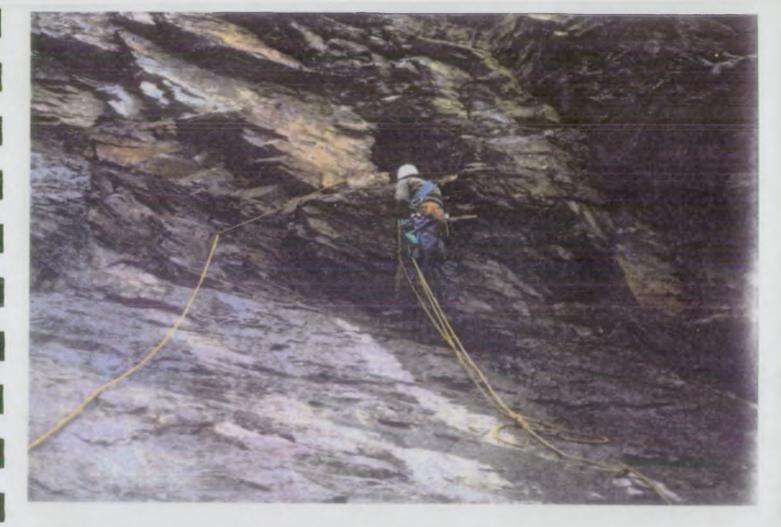
P27: Sampling D13.

#### SAMPLE D13

Location (OS grid ref.): SW 6807 4737

Date and Time of Sample: 25 October, 11:05 - 12:15

Estimated Flow Rate: 0.2 1/min
Sampling Procedure: Drips collected by funnel. Only 2 litres in pyrex bottles and 2 litres in plastic bottles collected.



P25: General position of D13 (ringed) in relation to other workings.

P26: Access to D13 adit.

P27: Sampling D13.

#### SAMPLE D13

Location (OS grid ref.): SW 6807 4737

Date and Time of Sample: 25 October, 11:05 - 12:15

Estimated Flow Rate: 0.2 1/min
Sampling Procedure: Drips collected by funnel. Only 2 litres in pyrex bottles and 2 litres in plastic bottles collected.



P25: General position of D13 (ringed) in relation to other workings.

P26: Access to D13 adit.

P27: Sampling D13.

#### SAMPLE D13

Location (OS grid ref.): SW 6807 4737

Date and Time of Sample: 25 October, 11:05 - 12:15
Estimated Flow Rate: 0.2 1/min
Sampling Procedure: Drips collected by funnel. Only 2
litres in pyrex bottles and 2 litres in plastic bottles

collected.



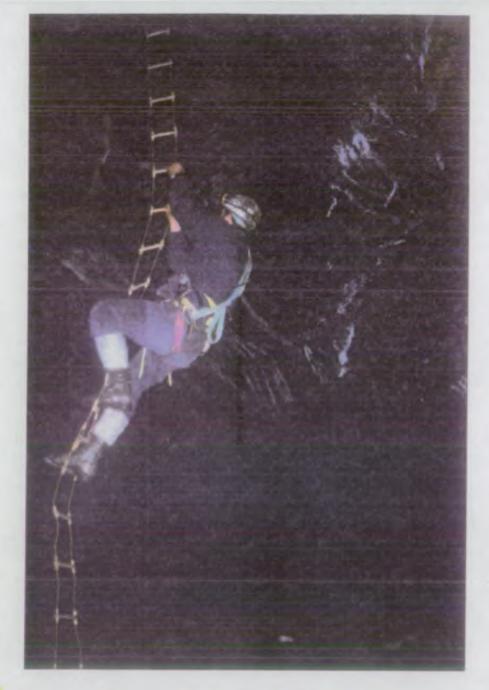
P28 & 29: Access to D14 sea cave from old workings.
P30: Detail of D14, adit at back of sea cave, showing insignificant flow.

#### SAMPLE D14

Location (OS grid ref.): SW 6782 4722

Date and Time of Sample: 24 October, 11:00
Estimated Flow Rate: Insignificant Flow
Sampling Procedure: NO SAMPLES TAKEN

Nature of Sampling point: Wheal West adit is driven about 100m east on a Cu lode and starts at the back of a sea cave about 3m above MHWS. A small trickle was visible from its entrance but it was not possible to obtain any sample (it is known to flow in very wet conditions). Access was from old workings in the roof of the sea cave about 15m above the beach.



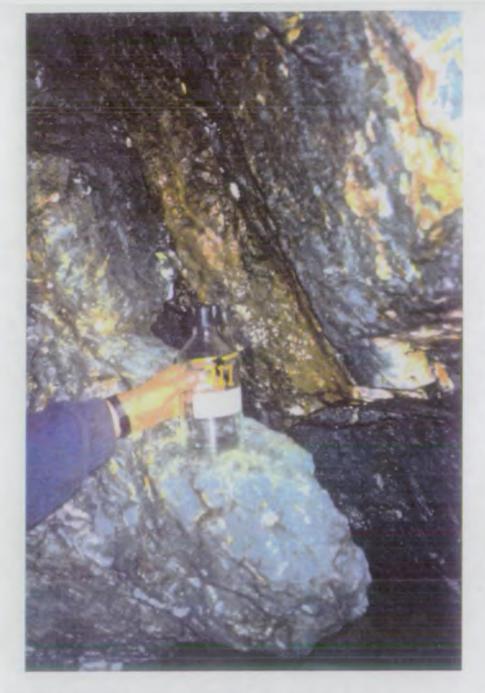
P28 & 29: Access to D14 sea cave from old workings.
P30: Detail of D14, adit at back of sea cave, showing insignificant flow.

#### SAMPLE D14

Location (OS grid ref.): SW 6782 4722

Date and Time of Sample: 24 October, 11:00
Estimated Flow Rate: Insignificant Flow
Sampling Procedure: NO SAMPLES TAKEN

Nature of Sampling point: Wheal West adit is driven about 100m east on a Cu lode and starts at the back of a sea cave about 3m above MHWS. A small trickle was visible from its entrance but it was not possible to obtain any sample (it is known to flow in very wet conditions). Access was from old workings in the roof of the sea cave about 15m above the beach.



P28 & 29: Access to D14 sea cave from old workings.

P30: Detail of D14, adit at back of sea cave, showing insignificant flow.

#### SAMPLE D14

Location (OS grid ref.): SW 6782 4722

Date and Time of Sample: 24 October, 11:00
Estimated Flow Rate: Insignificant Flow
Sampling Procedure: NO SAMPLES TAKEN

Nature of Sampling point: Wheal West adit is driven about 100m east on a Cu lode and starts at the back of a sea cave about 3m above MHWS. A small trickle was visible from its entrance but it was not possible to obtain any sample (it is known to flow in very wet conditions). Access was from old workings in the roof of the sea cave about 15m above the beach.



P32 - P35: Show very recent and continuing dumping in open shafts of the Wheal Tye section of Lushington Mine. These shafts, at approximately SW 683 473, connect directly to adit D9, and indirectly to adit D12.



P32 - P35: Show very recent and continuing dumping in open shafts of the Wheal Tye section of Lushington Mine. These shafts, at approximately SW 683 473, connect directly to adit D9, and indirectly to adit D12.



P32 - P35: Show very recent and continuing dumping in open shafts of the Wheal Tye section of Lushington Mine. These shafts, at approximately SW 683 473, connect directly to adit D9, and indirectly to adit D12.



P32 - P35: Show very recent and continuing dumping in open shafts of the Wheal Tye section of Lushington Mine. These shafts, at approximately SW 683 473, connect directly to adit D9, and indirectly to adit D12.



El Hayle Ulla Stream discharging to sea. Sampling location at boundary fence, Nancekuke (SW 6637 4633).







E3 Tributary of Sally's Bottom Stream flowing north at boundary fence, Nancekuke. Sampling location at SW 6783 4690.

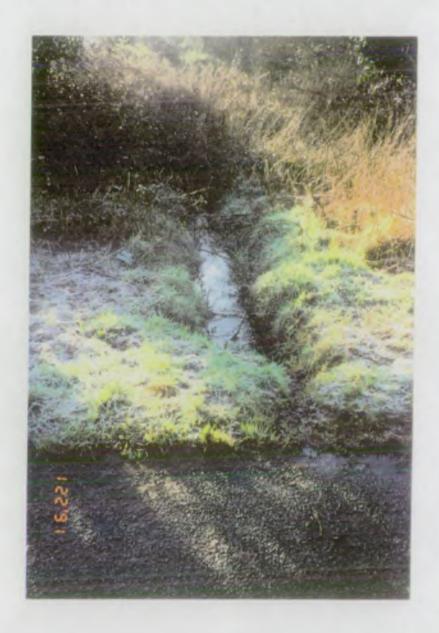


E4 Sally's Bottom Stream flowing west at boundary fence, Nancekuke. Sampling location at SW 6786 4696.

E5 Adit discharge at Porthtowan (SW 6888 4682).



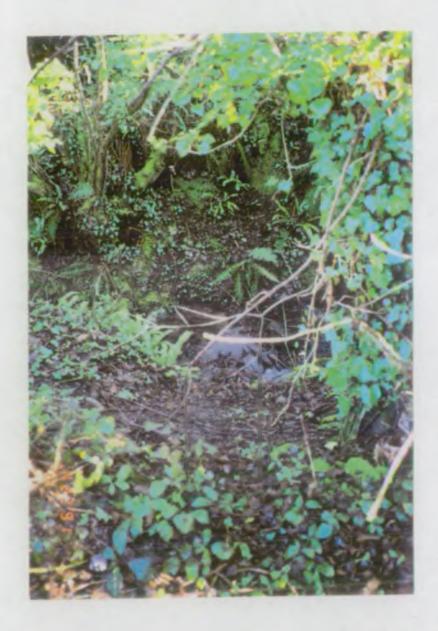




E6 Tributary of Redruth Stream flowing south from Nancekuke Common. Sampled at road culvert (SW 6885 4619).



E7 Tributary of Portreath Stream sampled north of the Cambrose/Laity Moor road at SW 6904 4567.



E8 Tributary of Portreath Stream sampled east of the Cambrose/Laity Moor road at SW 6879 4529.

#### APPENDIX 3

ANALYTICAL RESULTS OF FIRST SURVEY

3rd Dec 1991

#### Sample Analysis Report

sampling Point : NANCEKUKE/D1

Date/Time Taken : 25-OCT-91 14:30

GOODEN HEANE COVE IRON STAINED SEEPAGE APPROX 2 METRES ABOVE TOP OF BEACH

Address : GOODEN HEANE COVE

Laboratory Reference : E21932

TOP OF BEACH

Sampler's Comments:
PRESENT WEATHER - DRY, OVERCAST

RECIPITATION - NIL FLOW - 1 LT/MIN COND 648 pH 7.6

Det.	Code Description	Result
61 62 68 76 81 72 105 106 108 111 116 119 135 172	CONDUCTIVITY AT 20C TURBIDITY TEMPERATURE OXYGEN DISSOLVED & SATURATION OXYGEN DISSOLVED BOD ATU MERCURY CADMIUM DISSOLVED CADMIUM AMMONIA EXPRESSED AS NITROGEN NITROGEN TOTAL OXIDISED EXPRESSED AS NITROGEN NITRITE AMMONIA NON-IONISED SUSPENDED SOLIDS 105C CHLORIDE ION ORTHO-PHOSPHATE	8.0000 pH \$38.0000 Microsiemens/cm < 1.0000 Turbidity FTU 11.3000 Celsius 73.0000 % 7.9700 mg/l < 1.0000 mg/l < 0.0200 ug/l < 0.2000 ug/l < 0.2000 ug/l < 0.0200 mg/l N 7.9000 mg/l N < 0.0100 mg/l 0.0004 mg/l 147.0000 mg/l 0.0500 mg/l
182 213 RESUL 215 231 233 243 RESUL 245 255 ACTUA 257 281 ACTUA 283 326 328 350		2.7000 mg/l No Result  0.0030 mg/l <0.0010 mg/l <0.0010 mg/l No Result  0.0060 mg/l No Result  0.0030 mg/l No Result  0.0210 mg/l <0.0300 mg/l <0.0300 mg/l <0.0010 mg/l
_		Conta

SW4001E V6.2.2

# MENSAR V2.0 NRA Exeter Regional Laboratory

Exeter Regional Laboratory

3rd Dec 1991

## Sample Analysis Report

Sampling Point: NANCEKUKE/D1 Date/Time Taken: 25-OCT-91 14:30

Det.	Code	Description	Result	
373	CHROMIUM DI	SSOLVED	< 0.0010 mg/l	
375	CHROMIUM		< 0.0010 mg/l	
401	MANGANESE I	DISSOLVED	0.0020 mg/l	
403	Manganese		0.0020 mg/l	
	COBALT DISS	SOLVED	< 0.0010 mg/l	
	COBALT		< 0.0010 mg/l	
	NICKEL DISS	SOLVED	0.0020 mg/l	
429	NICKEL		0.0020 mg/l	
3082	HEXACHLORO-	BENZENE TOTAL	< 3.5000 ng/l	
3083	HEXACHLORO-	BUTADIENE TOTAL	<pre>&lt; 3.0000 ng/l</pre>	-
3106	ANALYSIS BY	MASS-SPEC	Report Filed Misc	
	ALDRIN		< 3.5000 ng/l	
3294	DDE-(PP')		< 3.5000 ng/l	
	DDE-(OP')		< 8.0000 ng/l	
3296	DDT (OP')		< 6.0000 ng/l	
	DDT (PP')		< 3.0000 ng/l	
3301	DIELDRIN		< 3.5000 ng/l	
3306	ENDRIN		< 4.0000 ng/l	
3310	HCH ALPHA		< 4.0000 ng/l	
3311	HCH BETA		< 12.0000 ng/l	
3312	HCH DELTA		< 4.0000 ng/l	
331	3 HCH GAMMA		< 3.0000 ng/l	
	9 TDE (OP')		< 5.0000 ng/l	
333	O TDE (PP')		< 3.0000 ng/l	
735	4 ARSENIC D	ISSOLVED ppb	0.4000 ug/l	
735	6 ARSENIC TO	OTAL AND	0.5000 ug/l	

<sup>\*\*</sup> Indicates that Laboratory Determination Method is NAMAS Accredited.

W4001E V6.2.2

# MENSAR V2.0 NRA Exeter Regional Laboratory

# Exeter Regional Laboratory 3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/D2

Date/Time Taken: 25-OCT-91 14:30

GOODEN HEANE COVE FAST FLOWING DISCHARGE FROM FISSURE IN CLIFF APPROX 5 MET RES ABOVE BEACH

Address : GOODEN HEAVE COVE,

Laboratory Reference : E21933

CLIFF FISSURE

Sampler's Comments:

PRESENT WEATHER - DRY, OVERCAST

PRECIPITATION - NIL FLOW - 0.75 LT/MIN COND 514 pH 6.28

Det.	Code Description	Result
61 62 68 76 81 85 105 106 108 111 116	CONDUCTIVITY AT 20C TURBIDITY TEMPERATURE OXYGEN DISSOLVED % SATURATION OXYGEN DISSOLVED BOD ATU MERCURY CADMIUM DISSOLVED CADMIUM AMMONIA EXPRESSED AS NITROGEN NITROGEN NITROGEN NITROGEN	6.9000 pH  506.0000 Microsiemens/cm  < 1.0000 Turbidity FTU  12.3000 Celsius  70.0000 %  7.4700 mg/l  < 1.0000 mg/l  0.0200 ug/l  0.8000 ug/l  0.9000 ug/l  < 0.0200 mg/l N  5.2000 mg/l N  0.0100 mg/l  0.0000 mg/l
135 172 180	AMMONIA NON-IONISED SUSPENDED SOLIDS 105C CHLORIDE ION ORTHO-PHOSPHATE	2.3000 mg/l 109.0000 mg/l 0.0400 mg/l
215 231 233 243	SILICATE REACTIVE DISSOLVED COPPER DISSOLVED COPPER BERYLLIUM DISSOLVED BERYLLIUM ZINC DISSOLVED	5.8000 mg/l 0.0100 mg/l 0.0110 mg/l 0.0010 mg/l < 0.0010 mg/l No Result
245 255 ACTUA	T = .97 ZINC BARIUM DISSOLVED L RESULT = .051	0.8800 mg/l No Result
257 281 ACTUA	BARIUM BORON DISSOLVED L RESULT = .046	0.0090 mg/l No Result
285	BORON ALUMINIUM DISSOLVED ALUMINIUM LEAD DISSOLVED	0.0250 mg/l < 0.0300 mg/l < 0.0300 mg/l 0.0020 mg/l
328 350 352	LEAD VANADIUM DISSOLVED VANADIUM	0.0060 mg/l < 0.0010 mg/l < 0.0010 mg/l
358 360 373	ANTIMONY DISSOLVED ANTIMONY CHROMIUM DISSOLVED	< 0.0010 mg/l < 0.0010 mg/l < 0.0010 mg/l Contd

SW4001E V6.2.2

# NRA Exeter Regional Laboratory

3rd Dec 1991

## Sample Analysis Report

Sampl	ing Point	NANCEKUKE/D2	¥	Date/Time Taken : 25-OCT-91 14:30
Det.	Code	Description		Result
375	CHROMIUM			< 0.0010 mg/l
	MANGANESE	DISSOLVED		No Result
RESUL	T = .18			
	MANGANESE			0.1600 mg/l
	COBALT DI	SSOLVED		0.0110 mg/l
	COBALT			0.0110 mg/l
427	NICKEL DI	SSOLVED		No Result
RESUL	T = .017			0.0160 ===/1
	NICKEL	O NEWS BOOK!		0.0160 mg/l < 3.5000 ng/l
		O-BENZENE TOTAL		< 3.0000 ng/1
		O-BUTADIENE TOTAL BY MASS-SPEC		Report Filed Misc
	ANALISIS	BI FIA33-SPEC		< 3.5000 ng/1
	DDE-(PP')			< 3.5000 ng/l
	DDE-(OP')			< 8.0000 ng/l
	DDT (OP')			< 6.0000 ng/l
3297	DDT (PP')			< 3.0000 ng/l
	DIELDRIN			< 3.5000 ng/l
3306	5 ENDRIN			< 4.0000 ng/l
3310	HCH ALPHA			< 4.0000 ng/l
	HCH BETA			< 12.0000 ng/1
3312	2 HCH DELTA			< 4.0000 ng/l
331	3 HCH GAMM			
	9 TDE (OP'			<pre>&lt; 3.0000 ng/1 21.5000 ng/1</pre>
333	O TDE (PP'	<b>′</b>		< 3.0000 ng/l
735	4 ARSENIC	DISSOLVED ppb		0.3000 ug/1
735	6 ARSENIC	TOTAL ppb		0.3000 ug/1

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.

SW4001E V6.2.2

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

### Sample Analysis Report

Sampling Point : NANCEKUKE/D3

Date/Time Taken : 26-OCT-91 10:00

SEEPAGE APPROX 15 METRES BELOW CLIFF-TOP PATH

Address : GRANDWATER SEEPAGE 3M BELOW

Laboratory Reference : E21984

GALLEY

Sampler's Comments:

COND=353 PH=5.55 COND:US/CM

L		
Det.	Code Description	Result
61	рН	6.2000 pH
<sup>-</sup> 62	CONDUCTIVITY AT 20C	365.0000 Microsiemens/cm
_ 68	TURBIDITY	2.0000 Turbidity FTU
	TEMPERATURE	11.5000 Celsius
	OXYGEN DISSOLVED % SATURATION	74.0000 %
	OXYGEN DISSOLVED	8.0400 mg/l
	BOD ATU	< 1.0000 mg/l
	MERCURY	< 0.0200 ug/l
106	CADMIUM DISSOLVED	No Result
	LT=2.0	<b>A</b>
108	CADMIUM	1.8000 ug/l
<b>-</b> 111	AMMONIA EXPRESSED AS NITROGEN	< 0.0200 mg/1 N
116	NITROGEN TOTAL OXIDISED EXPRESSED	AS 3.6400 mg/l N
	NITROGEN	
	NITRITE	< 0.0100 mg/l
119	AMMONIA NON-IONISED	0.0000 mg/l
	SUSPENDED SOLIDS 105C	< 2.0000 mg/l
1/2	CHLORIDE ION	72.8000 mg/l
		< 0.0100 ma/1
182		5.0000 mg/l
	COPPER DISSOLVED	0.0060 mg/l
	COPPER	0.0060  mg/l
231	BERYLLIUM DISSOLVED	< 0.0010 mg/l
233	BERYLLIUM	< 0.0010 mg/l
243	ZINC DISSOLVED	No Result
	T=.100	0.0020/1
	ZINC BARIUM DISSOLVED	0.0870 mg/l
	T=.016	No Result
	BARIUM	0 0000 mg/l
	BORON DISSOLVED	0.0080 mg/l 0.0320 mg/l
	BORON	0.0320 mg/l
	ALUMINIUM DISSOLVED	< 0.0300 mg/l
297	ALUMINIUM	< 0.0300 mg/l
	LEAD DISSOLVED	0.0020 mg/l
328	LEAD	0.0030 mg/l
350	VANADIUM DISSOLVED	< 0.0010 mg/l
352	VANADIUM	< 0.0010 mg/1
358	ANTIMONY DISSOLVED	< 0.0010 mg/l
360	ANTIMONY	< 0.0010 mg/l
373	CHROMIUM DISSOLVED	< 0.0010  mg/l
		Contd

3rd Dec 1991

#### Sample Analysis Report

Date/Time Taken : 26-OCT-91 10:00 Sampling Point : NANCEKUKE/D3 Det. Code Description Result \_ 375 CHROMIUM 401 MANGANESE DISSOLVED < 0.0010 mg/lNo Result RESULT = 0.28403 MANGANESE 423 COBALT DISSOLVED 425 COBALT 427 NICKEL DISSOLVED 0.2600 mg/l0.0010 mg/l0.0010 mg/lNo Result RESULT=0.007  $0.0060 \, \text{mg/l}$ 429 NICKEL < 3.5000 ng/1 < 3.0000 ng/1 3082 HEXACHLORO-BENZENE TOTAL 3083 HEXACHLORO-BUTADIENE TOTAL 3106 ANALYSIS BY MASS-SPEC Report Filed Misc 3276 ALDRIN 3294 DDE-(PP') 3295 DDE-(OP') .96 DDT (OP') 3297 DDT (PP') < 3.5000 ng/l< 3.5000 ng/l< 8.0000 ng/l < 6.0000 ng/1
< 6.0000 ng/1
< 3.0000 ng/1
< 3.5000 ng/1
< 4.0000 ng/1
< 12.0000 ng/1</pre> 3301 DIELDRIN 3306 ENDRIN 3310 HCH ALPHA 3311 HCH BETA < 4.0000 ng/l3312 HCH DELTA 3313 HCH GAMMA < 3.0000 ng/l3329 TDE (OP') No Result ANALYTICAL PROBLEM 3330 TDE (PP') < 3.0000 ng/l < 0.1000 ug/l 7354 ARSENIC DISSOLVED ppb 7356 ARSENIC TOTAL ppb < 0.1000 ug/l

<sup>&#</sup>x27;+' Indicates that Laboratory Determination Method is NAMAS Accredited.

\$w4001E V6.2.2

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

### Sample Analysis Report

Sampling Point : NANCEKUKE/D4

Date/Time Taken : 26-OCT-91 13:30

GULLYN ROCK COVE SEEPAGE AT BASE OF CLIFF

Address : GULLYN COVE IVAR SEEPAGE AT

Laboratory Reference : E21986

BASE OF CLIFF

Sampler's Comments : COND=344 PH= 6.10

Det.	Code Description	Result
61	рН	6.2000 pH
	CONDUCTIVITY AT 20C	376.0000 Microsiemens/cm
	TURBIDITY	2.0000 Turbidity FTU
	TEMPERATURE	12.1000 Celsius
81	OXYGEN DISSOLVED % SATURATION	74.0000 %
82	OXYGEN DISSOLVED	7.9300 mg/l
25	BOD ATU	< 1.0000 mg/l
,5	MERCURY	< 0.0200 ug/1
106	CADMIUM DISSOLVED	( 0. 2000 ng/1
	CADMIUM	/ 0 2000 va/1
	AMMONIA EXPRESSED AS NITROGEN	< 0.0200 mg/1 N
116	NITROGEN TOTAL OXIDISED EXPRESSED AS	< 0.1000 mg/l N
110	NITROGEN TOTAL OXIDISED EXPRESSED AS	10.1000 mg/x R
110	NITROGEN NITRITE	< 0.0100 mg/l
110	MANONIS NON-IONICED	< 0.0100 mg/l
125	AMMONIA NON-IONISED SUSPENDED SOLIDS 105C	0.0000 mg/l
		3.7000 mg/l
	CHLORIDE ION ORTHO-PHOSPHATE	91.8000 mg/l
180	ORTHO-PHOSPHATE	< 0.0100 mg/l
182	SILICATE REACTIVE DISSOLVED	8.1000 mq/1
213	COPPER DISSOLVED	0.0010 mg/l
	COPPER	0.0010 mg/1
231	BERYLLIUM DISSOLVED	0.0010 mg/l
233	BERYLLIUM	0.0010 mg/l
243	ZINC DISSOLVED	1.2000 mg/l
	ZINC	1.2000 mg/l
	BARIUM DISSOLVED	No Result
	T=0.024	NO NEBULE
	BARIUM	0.0190  mg/l
	BORON DISSOLVED	No Result
	T=0.022	NO NEBBLE
	BORON	0.0200 mg/l
	ALUMINIUM DISSOLVED	< 0.0300 mg/l
287	ALUMINIUM	0.0500 mg/l
207	LEAD DISSOLVED	< 0.0010 mg/l
2	LEAD DISSOLVED	< 0.0010 mg/1
350	VANADIUM DISSOLVED	< 0.0010 mg/1
352		< 0.0010 mg/1
352 ■ 358	VANADIUM ANTIMONY DISSOLVED	< 0.0010 mg/1
	ANTIMONY DISSOLVED	< 0.0010 mg/1
360	ANTIMONY	< 0.0010 mg/l
373	CHROMIUM DISSOLVED	< 0.0010 mg/l
375	CHROMIUM	< 0.0010 mg/1
		Contd

3rd Dec 1991

## Sample Analysis Report

Sampling	Point:	NANCEKUKE/D4
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Date/Time Taken : 26-OCT-91 13:30

Det.	Code	Description	Result	
		E DISSOLVED	1.0000 mg/l	
403	MANGANES	3	1.0000 mg/l	
	COBALT D	ISSOLVED	0.0320 mg/l	
425	COBALT		0.0320 mg/l	
427	NICKEL D	ISSOLVED	No Result	
	T=0.031			
	NICKEL		0.0270 mg/l	
		RO-BENZENE TOTAL	< 3.5000 ng/l	
		RO-BUTADIENE TOTAL	< 3.0000 ng/l	
		BY MASS-SPEC	Report Filed Misc	
	ALDRIN		< 3.5000 ng/l	
	DDE-(PP'		< 3.5000 ng/l	
	DDE-(OP'		< 8.0000 ng/l	
	DDT (OP'		< 6.0000 ng/l	
	DDT (PP'	)	< 3.0000 ng/l	
	DIELDRIN		< 3.5000 ng/1	
	ENDRIN		< 4.0000 ng/l	
	HCH ALPH		< 4.0000 ng/l	
	HCH BETA		< 12.0000 ng/1	
	HCH DELT		< 4.0000 ng/l	
	HCH GAMM		< 3.0000 ng/l	
3329	TDE (OP'	)	< 5.0000 ng/l	
3330	TDE (PP'	)	< 3.0000 ng/l	
		DISSOLVED ppb	0.6000 ug/1	
	ARSENIC		0.8000 ug/l	

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.

SW4001E V6.2.2

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/D5

Date/Time Taken : 26-OCT-91 13:00

GULLYN ROCK COVE STREAM AT BASE OF GULLEY

Address : GULLYN COVE - STREAM AT BASE O Laboratory Reference : E21988

F GULLEY

Sampler's Comments: COND=420 PH=4.44

Det	Det.	Code Description	Result
82 OXYGEN DISSOLVED 7.9300 mg/1 75 BOD ATU 0.0000 mg/1 106 CADMIUM DISSOLVED NO RESULT RESULT=7 108 CADMIUM 0XISSOLVED 0.6000 ug/1 111 AMMONIA EXPRESSED AS NITROGEN 0.6000 ug/1 111 AMMONIA EXPRESSED AS NITROGEN 0.0000 mg/1 N 116 NITROGEN TOTAL OXIDISED EXPRESSED AS 3.7000 mg/1 N 1170 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 110 ORTHO-PHOSPHATE 0.0000 mg/1 110 ORTHO-PHOSPHATE 0.0000 mg/1 111 E2 SILICATE REACTIVE DISSOLVED 0.0000 mg/1 112 COPPER DISSOLVED 0.0000 mg/1 113 COPPER DISSOLVED 0.0000 mg/1 114 ESULT=0.011 0.0000 mg/1 115 COPPER 0.0010 mg/1 116 DERYLLIUM DISSOLVED 0.0010 mg/1 117 CHORDED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ESULT=0.009 0.0000 mg/1 119 AMMONIA DISSOLVED 0.0000 mg/1 110 ORTHORY 0.0000 mg/1			- 4000
82 OXYGEN DISSOLVED 7.9300 mg/1 75 BOD ATU 0.0000 mg/1 106 CADMIUM DISSOLVED NO RESULT RESULT=7 108 CADMIUM 0XISSOLVED 0.6000 ug/1 111 AMMONIA EXPRESSED AS NITROGEN 0.6000 ug/1 111 AMMONIA EXPRESSED AS NITROGEN 0.0000 mg/1 N 116 NITROGEN TOTAL OXIDISED EXPRESSED AS 3.7000 mg/1 N 1170 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 110 ORTHO-PHOSPHATE 0.0000 mg/1 110 ORTHO-PHOSPHATE 0.0000 mg/1 111 E2 SILICATE REACTIVE DISSOLVED 0.0000 mg/1 112 COPPER DISSOLVED 0.0000 mg/1 113 COPPER DISSOLVED 0.0000 mg/1 114 ESULT=0.011 0.0000 mg/1 115 COPPER 0.0010 mg/1 116 DERYLLIUM DISSOLVED 0.0010 mg/1 117 CHORDED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ESULT=0.009 0.0000 mg/1 119 AMMONIA DISSOLVED 0.0000 mg/1 110 ORTHORY 0.0000 mg/1	61	ph and an area	5.4000 pH
82 OXYGEN DISSOLVED 7.9300 mg/1 75 BOD ATU 0.0000 mg/1 106 CADMIUM DISSOLVED NO RESULT RESULT=7 108 CADMIUM 0XISSOLVED 0.6000 ug/1 111 AMMONIA EXPRESSED AS NITROGEN 0.6000 ug/1 111 AMMONIA EXPRESSED AS NITROGEN 0.0000 mg/1 N 116 NITROGEN TOTAL OXIDISED EXPRESSED AS 3.7000 mg/1 N 1170 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 110 ORTHO-PHOSPHATE 0.0000 mg/1 110 ORTHO-PHOSPHATE 0.0000 mg/1 111 E2 SILICATE REACTIVE DISSOLVED 0.0000 mg/1 112 COPPER DISSOLVED 0.0000 mg/1 113 COPPER DISSOLVED 0.0000 mg/1 114 ESULT=0.011 0.0000 mg/1 115 COPPER 0.0010 mg/1 116 DERYLLIUM DISSOLVED 0.0010 mg/1 117 CHORDED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ESULT=0.009 0.0000 mg/1 119 AMMONIA DISSOLVED 0.0000 mg/1 110 ORTHORY 0.0000 mg/1	62	CONDUCTIVITY AT 20C	437.0000 Microsiemens/cm
82 OXYGEN DISSOLVED 7.9300 mg/1 75 BOD ATU 0.0000 mg/1 106 CADMIUM DISSOLVED NO RESULT RESULT=7 108 CADMIUM 0XISSOLVED 0.6000 ug/1 111 AMMONIA EXPRESSED AS NITROGEN 0.6000 ug/1 111 AMMONIA EXPRESSED AS NITROGEN 0.0000 mg/1 N 116 NITROGEN TOTAL OXIDISED EXPRESSED AS 3.7000 mg/1 N 1170 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 110 ORTHO-PHOSPHATE 0.0000 mg/1 110 ORTHO-PHOSPHATE 0.0000 mg/1 111 E2 SILICATE REACTIVE DISSOLVED 0.0000 mg/1 112 COPPER DISSOLVED 0.0000 mg/1 113 COPPER DISSOLVED 0.0000 mg/1 114 ESULT=0.011 0.0000 mg/1 115 COPPER 0.0010 mg/1 116 DERYLLIUM DISSOLVED 0.0010 mg/1 117 CHORDED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ESULT=0.009 0.0000 mg/1 119 AMMONIA DISSOLVED 0.0000 mg/1 110 ORTHORY 0.0000 mg/1	98	TURBIDITY	< 1.0000 Turbidity FTU
82 OXYGEN DISSOLVED 7.9300 mg/1 75 BOD ATU 0.0000 mg/1 106 CADMIUM DISSOLVED NO RESULT RESULT=7 108 CADMIUM 0XISSOLVED 0.6000 ug/1 111 AMMONIA EXPRESSED AS NITROGEN 0.6000 ug/1 111 AMMONIA EXPRESSED AS NITROGEN 0.0000 mg/1 N 116 NITROGEN TOTAL OXIDISED EXPRESSED AS 3.7000 mg/1 N 1170 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 119 AMMONIA NON-IONISED 0.0000 mg/1 110 ORTHO-PHOSPHATE 0.0000 mg/1 110 ORTHO-PHOSPHATE 0.0000 mg/1 111 E2 SILICATE REACTIVE DISSOLVED 0.0000 mg/1 112 COPPER DISSOLVED 0.0000 mg/1 113 COPPER DISSOLVED 0.0000 mg/1 114 ESULT=0.011 0.0000 mg/1 115 COPPER 0.0010 mg/1 116 DERYLLIUM DISSOLVED 0.0010 mg/1 117 CHORDED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ERYLLIUM DISSOLVED 0.0000 mg/1 118 ESULT=0.009 0.0000 mg/1 119 AMMONIA DISSOLVED 0.0000 mg/1 110 ORTHORY 0.0000 mg/1	76	TEMPERATURE	11.5000 Celsius
106 CADMIUM DISSOLVED	81	OXYGEN DISSOLVED * SATURATION	73.0000 %
106 CADMIUM DISSOLVED	82	OXYGEN DISSOLVED	7.9300 mg/l
106 CADMIUM DISSOLVED	-5	BOD ATU	< 1.0000 mg/l
RESULT=.7  108 CADMIUM 111 AMMONIA EXPRESSED AS NITROGEN 116 NITROGEN TOTAL OXIDISED EXPRESSED AS 1.7000 mg/l N NITROGEN 118 NITRITE 119 AMMONIA NON-IONISED 1.35 SUSPENDED SOLIDS 105C 2.0000 mg/l 1.72 CHLORIDE ION 1.80 ORTHO-PHOSPHATE 2.13 COPPER DISSOLVED 2.13 COPPER DISSOLVED 2.13 COPPER DISSOLVED 2.14 ESULT=0.011 2.15 COPPER 2.11 DISSOLVED 2.12 DISSOLVED 2.13 DORON 2.14 DISSOLVED 2.15 DORON 2.	-03	MERCORI	0.0200 49/1
108   CADMIUM			No Result
116			
116	108	CADMIUM	0.6000 ug/l
116	111	AMMONIA EXPRESSED AS NITROGEN	< 0.0200 mg/l N
NITROGEN   118 NITRITE	116	NITROGEN TOTAL OXIDISED EXPRESSED	AS 3.7000 mg/l N
118 NITRITE	_	NITROGEN	•
135   SUSPENDED   SOLIDS   105C     2.0000 mg/l   172   CHLORIDE   ION   94.3000 mg/l   180   ORTHO-PHOSPHATE       ( 0.0100 mg/l	118	NITRITE	< 0.0100 mg/l
172 CHLORIDE ION	119	AMMONIA NON-IONISED	0.0000 mg/l
172 CHLORIDE ION	135	SUSPENDED SOLIDS 105C	< 2.0000 mg/1
182   SILICATE REACTIVE DISSOLVED	<b>E</b> 172	CHIORIDE ION	94.3000 ma/1
182   SILICATE REACTIVE DISSOLVED	180	ORTHO-PHOSPHATE	< 0.0100 mg/l
215   COPPER			
215   COPPER	182	SILICATE REACTIVE DISSOLVED	74.8000 mg/1
215   COPPER   0.0100 mg/l   231   BERYLLIUM DISSOLVED	213	COPPER DISSOLVED	No Result
231 BERYLLIUM DISSOLVED			
233   BERYLLIUM	215	COPPER	0.0100 mg/l
233   BERYLLIUM	<b>231</b>	BERYLLIUM DISSOLVED	< 0.0010  mg/l
245 ZINC   0.2400 mg/l   No Result     SOLVED     No Result     SOLVED     SOLVED   SOLVED   SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED	233	BERYLLIUM	< 0.0010 mg/l
245 ZINC   0.2400 mg/l   No Result     SOLVED     No Result     SOLVED     SOLVED   SOLVED   SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED   SOLVED     SOLVED     SOLVED     SOLVED     SOLVED     SOLVED	243	ZINC DISSOLVED	0.2400  mg/1
255 BARIUM DISSOLVED	_ 245	ZINC	0.2400 mg/l
## Page 12	255	BARIUM DISSOLVED	
257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED 27 ALUMINIUM 28 LEAD DISSOLVED 328 LEAD 350 VANADIUM DISSOLVED 352 VANADIUM 358 ANTIMONY DISSOLVED 360 ANTIMONY 373 CHROMIUM DISSOLVED 374 COntd	RESUL:	T=0.009	
281 BORON DISSOLVED 0.0310 mg/l 283 BORON 0.0310 mg/l 285 ALUMINIUM DISSOLVED 0.1500 mg/l -97 ALUMINIUM 0.1500 mg/l -6 LEAD DISSOLVED 0.0010 mg/l 328 LEAD 0.0010 mg/l 350 VANADIUM DISSOLVED 0.0010 mg/l 352 VANADIUM 0.0010 mg/l 358 ANTIMONY DISSOLVED 0.0010 mg/l 360 ANTIMONY 0.0010 mg/l 373 CHROMIUM DISSOLVED 0.0010 mg/l Contd			0.0060 mg/l
283 BORON 285 ALUMINIUM DISSOLVED  297 ALUMINIUM 201500 mg/l			0.0310 mg/l
285 ALUMINIUM DISSOLVED  297 ALUMINIUM  20	283	BORON	0.0310 mg/l
ALUMINIUM	285		0.1500 mg/1
LEAD DISSOLVED	297		0.1500 mg/1
328	.6		< 0.000 mg/1
350 VANADIUM DISSOLVED			2 0 0010 mg/1
352 VANADIUM			0.0010 mg/1 0.0010/1
358 ANTIMONY DISSOLVED < 0.0010 mg/l 360 ANTIMONY < 0.0010 mg/l 373 CHROMIUM DISSOLVED < 0.0010 mg/l Contd	7262		0.0010 mg/1
360 ANTIMONY < 0.0010 mg/l 373 CHROMIUM DISSOLVED < 0.0010 mg/l Contd	350		0.0010 mg/1
373 CHROMIUM DISSOLVED < 0.0010 mg/l Contd	320		0.0010 mg/1
Contd			C U.UUID mg/1
Contd	3/3	CHROMIUM DISSOLVED	
			Contd
	-		

SW4UUIE V6.2.2

3313 HCH GAMMA

3329 TDE (OP') 3330 TDE (PP')

7354 ARSENIC DISSOLVED ppb 7356 ARSENIC TOTAL ppb

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

Date/Time Taken: 26-OCT-91 13:00

< 5.0000 ng/l< 3.0000 ng/1 < 0.1000 ug/1

 $< 0.1000 \, \text{ug/l}$ 

#### Sample Analysis Report

Sampling Point : NANCEKUKE/D5 Det. Code Description Result \_\_\_\_\_\_ 375 CHROMIUM 401 MANGANESE DISSOLVED < 0.0010 mg/lNo Result RESULT=.033 403 MANGANESE
423 COBALT DISSOLVED
425 COBALT
427 NICKEL DISSOLVED
429 NICKEL
3082 HEXACHLORO-BENZENE TOTAL 0.0320 mg/l< 0.0320 mg/1
< 0.0010 mg/1
< 0.0090 mg/1
 0.0090 mg/1
< 3.5000 ng/1
< 3.0000 ng/1</pre> 3083 HEXACHLORO-BUTADIENE TOTAL 3106 ANALYSIS BY MASS-SPEC Report Filed Misc 3276 ALDRIN < 3.5000 ng/l< 3.5000 ng/l 3306 ENDRIN 3310 HCH ALPHA 3311 HCH BETA 3312 HCH DELTA

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.

SW4UUIE VO.Z.Z

#### MENSAR V2.0 NRA Exeter Regional Laboratory

Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/D6

Date/Time Taken : 26-OCT-91 00:00

GULLYN ROCK COVE SEEPAGE FROM ADIT APPROX 3 METRES ABOVE TOP OF BEACH

Address : GULLYN COVE - ADIT 3M ABOVE

Laboratory Reference : E21987

BEACH

COND=308 PH=5.46

B		
Det.	Code Description	Result
61	рН	5.8000 pH
	CONDUCTIVITY AT 20C	320.0000 Microsiemens/cm
	TURBIDITY	< 1.0000 Turbidity FTU
<b>■</b> 76	TEMPERATURE	12.6000 Celsius
81	OYVCEN DISSOLVED & SATURATION	67.0000 \$
<b>₽</b> 85	OXYGEN DISSOLVED % SATURATION OXYGEN DISSOLVED	7.1000 mg/l
<u>~ -</u>	BOD ATU	< 1.0000 mg/l
, E	MERCURY	< 0.0200 ug/1
	CADMIUM DISSOLVED	No Result
	T=1.2	NO VERRIT
		(1 1000 mg/1
1110	CADMIUM	[1.1000 ug/l
■ 115	AMMONIA EXPRESSED AS NITROGEN	<'0.0200 mg/l N
110	NITROGEN TOTAL OXIDISED EXPRESSED AS	< 0.1000 mg/l N
1110	NITROGEN	4 0 0100 == 43
	NITRITE	< 0.0100 mg/l
<del>-</del> 119	AMMONIA NON-IONISED	0.0000 mg/l
135	SUSPENDED SOLIDS 105C CHLORIDE ION ORTHO-PHOSPHATE	< 2.0000 mg/l
172	CHLORIDE ION	69.1000 mg/l
180	ORTHO-PHOSPHATE	< 0.0100 mg/l
182	SILICATE REACTIVE DISSOLVED	7.1000 mg/l
<b>2</b> 13	COPPER DISSOLVED	No Result
RESU	LT=0.088	
215	COPPER	0.0850 mg/l
231	REPVILIUM DISSOLVED	< 0.0010 mg/l
233	BERYLLIUM	< 0.0010 mg/1
243	BERYLLIUM ZINC DISSOLVED	1.1000 mg/l
245	ZINC	1.1000 mg/l
255	BARIUM DISSOLVED	No Result
RESU	BARIUM DISSOLVED LT=0.012	NO NESUIC
257	BARIUM	0.0080 mg/l
	BORON DISSOLVED	No Result
RESU	LT=0.018	NO NESULE
283	BORON	0.0160 mg/l
295	ALUMINIUM DISSOLVED	0.0500 mg/l
		0.0500 mg/1
326	LEAD DISSOLVED	0.0600 mg/l
328		0.0020 mg/l
350		0.0030 mg/l
352	VANADIUM VANADIUM	< 0.0010 mg/1
358		< 0.0010 mg/1
360		< 0.0010 mg/1
373		< 0.0010 mg/1
<b>3</b> /3	CHROMIUM DISSOLVED	< 0.0010 mg/l
<b>#</b>	्रें	Contd

SW4001E V6.2.2

Sampling Point : NANCEKUKE/D6

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

Date/Time Taken : 26-OCT-91 00:00

#### Sample Analysis Report

\_\_\_\_\_\_ Result Det. Code Description 375 CHROMIUM < 0.0010 mg/1401 MANGANESE DISSOLVED  $0.3700 \, mg/1$ 0.3700 mg/l403 MANGANESE 423 COBALT DISSOLVED
425 COBALT
427 NICKEL DISSOLVED
429 NICKEL
3082 HEXACHLORO-BENZENE TOTAL 0.0190 mg/l $0.0190 \, mg/l$  $0.0370 \, \text{mg/l}$ 0.0370 mg/l < 3.5000 ng/l < 3.0000 ng/l3083 HEXACHLORO-BUTADIENE TOTAL 3106 ANALYSIS BY MASS-SPEC 3276 ALDRIN 3294 DDE-(PP') 3295 DDE-(OP') 3296 DDT (OP') 3297 DDT (PP') Report Filed Misc < 3.5000 ng/l < 3.5000 ng/l < 8.0000 ng/l < 6.0000 ng/l < 3.0000 ng/1
< 3.5000 ng/1
< 4.0000 ng/1
< 4.0000 ng/1
< 12.0000 ng/1</pre> 01 DIELDRIN 3306 ENDRIN 3310 HCH ALPHA 3311 HCH BETA < 4.0000 ng/l3312 HCH DELTA < 3.0000 ng/l 3313 HCH GAMMA 3329 TDE (OP')
ANALYTICAL PROBLEM No Result 3330 TDE (PP')
7354 ARSENIC DISSOLVED ppb < 3.0000 ng/1 $0.1000 \, \text{ug/l}$ 7356 ARSENIC TOTAL ppb 0.2000 ug/1

<sup>\*\*</sup> Indicates that Laboratory Determination Method is NAMAS Accredited.

6th Jan 1992

# Automatic Sample Analysis Report Production Date/Time Report Last Run : 02-JAN-92 23:59

Sampling Point : NANCEKUKE/D7

Date/Time Taken : 24-OCT-91 10:20

Sally'S Bottom Stream In South Fork Of Adit Discharging Approx 3 Metres Abo Ve Top Of Beach

Address : SALLY'S BOTTOM STM IN

Laboratory Reference : E21564

SOUTH FORK OF ADIT

Sampler's Comments : WEATHER DRY/OVERCAST

FLOW 0.3 L/SEC COND US/CM

COND 350 pH 6.31

61 Ph 62 Conductivity At 20c 366 Microsiemens Turbidity 6 Turbidity FT  /o Temperature 12.2 Celsius 81 Oxygen Dissolved & Saturation 69 & 82 Oxygen Dissolved 7.38 mg/l 85 Bod Atu < 1 mg/l 105 Mercury < 0.02 ug/l	
106 Cadmium Dissolved < 0.2 ug/l 108 Cadmium < 0.2 ug/l 111 Ammonia Expressed As Nitrogen < 0.02 mg/l N 116 Nitrogen Total Oxidised Expres < 0.1 mg/l N 118 Nitrite 0.01 mg/l 119 Ammonia Non-Ionised 0 mg/l	
135   Suspended Solids 105c   2 mg/l     172   Chloride Ion   91 mg/l     180   Ortho-Phosphate   0.04 mg/l     182   Silicate Reactive Dissolved   7.4 mg/l     213   Copper Dissolved   0.001 mg/l     215   Copper   0.058 mg/l     231   Beryllium Dissolved   0.001 mg/l     231   Beryllium Dissolved   0.001 mg/l     232   Beryllium   0.001 mg/l     245   Zinc   1.9 mg/l     245   Zinc   0.018 mg/l     257   Barium Dissolved   0.018 mg/l     257   Barium Dissolved   No Result     281   Boron Dissolved   0.018 mg/l     282   Aluminium Dissolved   0.03 mg/l     283   Boron   0.018 mg/l     285   Aluminium Dissolved   0.03 mg/l     287   Aluminium   0.003 mg/l     287   Aluminium   0.003 mg/l     287   Aluminium   0.001 mg/l     287   Contd   0.001 mg/l     288   Contd   0.001 mg/l     289   Contd   0.001 mg/l     280   Contd   0.001 mg/l     281   Contd   0.001 mg/l     282   Contd   0.001 mg/l     283   Contd   0.001 mg/l     284   Contd   0.001 mg/l     285   Contd   0.001 mg/l     286   Contd   0.001 mg/l     287   Contd   0.001 mg/l     288   Contd   0.001 mg/l     289   Contd   0.001 mg/l     280   Contd   0.001 mg/l     280   Contd   0.001 mg/l     281   Contd   0.001 mg/l     282   Contd   0.001 mg/l     283   Contd   0.001 mg/l     284   0.001 mg/l     285   0.001 mg/l     286   0.001 mg/l     287   0.001 mg/l     288   0.001 mg/l     289   0.001 mg/l     280   0.001 mg/l	

6th Jan 1992

Automatic Sample Analysis Report Production Date/Time Report Last Run: 02-JAN-92 23:59

Sampling Point: NANCEKUKE/D7 Date/Time Taken: 24-OCT-91 10:20

Description Result Det. Code 0.04 mg/l
0.001 mg/l
0.001 mg/l
0.001 mg/l
0.001 mg/l
0.001 mg/l
0.001 mg/l
1.1 mg/l
1.1 mg/l 328 Lead
350 Vanadium Dissolved
352 Vanadium
358 Antimony Dissolved
360 Antimony
373 Chromium Dissolved
375 Chromium < < < < 401 Manganese Dissolved 403 Manganese 1.1 No Result 423 Cobalt Dissolved No Result

0.011 mg/l

0.019 mg/l

0.02 mg/l

< 3.5 ng/l

< 3 ng/l

Report Filed Misc

< 3.5 ng/l

< 3.5 ng/l

< 3.5 ng/l

< 3.5 ng/l

< 3.7 ng/l

< 3.7 ng/l

< 3.8 ng/l

< 3.9 ng/l

< 3.9 ng/l

< 3.9 ng/l 425 Cobalt 427 Nickel Dissolved 429 Nickel 2 Hexachloro-Benzene Total 3083 Hexachloro-Butadiene Total 3106 Analysis By Mass-Spec
3276 Aldrin
3294 Dde-(Pp')
3295 Dde-(Op')
3296 Ddt (Op')
3297 Ddt (Pp')
3301 Dieldrin 33.544 ng/l ng/l ng/l 444124 3306 Endrin 3310 Hch Alpha 3311 Hch Beta ng/l ng/l **«** < 4 < 3 < 5 < 3 0.6 3312 Hch Delta nq/l 3313 Hch Gamma
3329 Tde (Op')
3330 Tde (Pp')
7354 Arsenic Dissolved Ppb ng/l ng/l ng/l ug/l 7356 Arsenic Total Ppb uq/l

<sup>\*&#</sup>x27; Indicates that Laboratory Determination Method is NAMAS Accredited.

6th Jan 1992

# Automatic Sample Analysis Report Production Date/Time Report Last Run : 02-JAN-92 23:59

Sampling Point : NANCEKUKE/D8

Date/Time Taken : 24-OCT-91 10:20

Sally'S Bottom Stream In North Fork Of Adit Discharging Approx 3 Metres Above Top Of Beach

ddress : SALLY'S BOTTOM STM

Laboratory Reference : B21565

IN NORTH OF ADIT

Eampler's Comments :
COND - uS/CM WEATHER DRY/OVERCAST
FLOW 1 L/SEC COND 402 pH 6.34

Det.	Code Desci	ription	Resul	<u>t</u>	
61	Ph			6.8	рн
62	Conductivity At	20c		422	Microsiemens
£ Q	Turbidity			2	Turbidity FT
	Temperature			12.5	Celsius
81	Oxygen Dissolved	% Saturation		68	•
82	Oxygen Dissolved			7.22	mg/1
<b>85</b>	Bod Atu		<	1	mg/1
105	Mercury		<b>`</b>	0.02	ug/1
106	Cadmium Dissolve	1	No R	esult	- J. –
108	Cadmium	_		2.5	ug/1
111	Ammonia Expresse	d As Nitrogen	<	0.02	mg/l N
116	Nitrogen Total O			3.8	mg/l N
118	Nitrite	•	<	0.01	mg/l
<b>119</b>	Ammonia Non-Ioni:	sed		0	mg/l
135	Suspended Solids	105c	<	2	mg/l
<b>—</b> 172	Chloride Ion			83	mg/l
180	Ortho-Phosphate			0.03	mg/l
182	Silicate Reactive	e Dissolved		5.4	mg/l
<b>■</b> 213	Copper Dissolved			0.008	mg/l
215	Copper			0.008	mg/l
<b>231</b>	Beryllium Dissol	ved	<	0.001	mg/l
233	Beryllium		<	0.001	mg/l
3	Zinc Dissolved			力.6	mg/l
1.5	Zinc			7.7	mg/l
255	Barium Dissolved			0.01	mg/l
<b>257</b>	Barium			0.01	mg/l
281	Boron Dissolved			0.019	mg/l
<b>283</b>	Boron	_		0.019	mg/l
285	Aluminium Dissol	ved	<	0.03	mg/l
<b>- 287</b>	Aluminium		<	0.03	mg/1
_326	Lead Dissolved			0.049	mg/l
	Lead			0.06	mg/l
<b>Tontd</b>					

#### MENSAR V2.0 NRA Exeter Regional Laboratory

6th Jan 1992\_

Automatic Sample Analysis Report Production Date/Time Report Last Run : 02-JAN-92 23:59

Sampling Point : NANCEKUKE/D8

Date/Time Taken : 24-OCT-91 10:20

Det.	Code	<u>Description</u>	Resu	<u>lt</u>	**	
350	Vanadium	Dissolved	<	0.001	mg/l	
352	Vanadium		<	0.001	mg/l	
358	Antimony	Dissolved	<	0.001	mg/l	
360	Antimony	- 1	<	0.001	mg/l	
373	Chromium	Dissolved	<	0.001	mg/l	
375	Chromium		<	0.001	mg/l	
401	Manganese	Dissolved		0.27	mg/l	
403	Manganese	<b>!</b>		0.29	mg/l	
423	Cobalt Di			0.009	mg/l	
425	Cobalt			0.009	mg/l	
	Nickel Di	ssolved	No	Result	•	
	Nickel			0.008	mg/l	
२०८२	Hexachlor	ro-Benzene Total	<	3.5	ng/l	
		ro-Butadiene Total	<	3	ng/l	
3106	Analysis	By Mass-Spec	Rep	ort Filed	Misc	
3276	Aldrin		<b>&lt;</b> -	3.5	ng/l	
3294	Dde-(Pp')		<	3.5	ng/l	
3295	Dde-(Op')		<	8	ng/l	
3296	Ddt (Op')		<	6	ng/l	
3297			<	3	ng/l	
3301			<	3.5	ng/l	
	Endrin		<	4	ng/l	
	Hch Alpha	1	<	4	ng/l	
	Hch Beta		<	12	ng/l	
	Hch Delta		<	4	ng/l	
	Hch Gamma		<	3	ng/l	
3329	Tde (Op'	)	<	5	ng/l	
3330	Tde (Pp'	)	<	3	ng/l	
7354	Arsenic P	Dissolved Ppb		0.1	ug/1	
7350	Arsenic !	Total Ppb		0.4	ug/l	

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.

MAUNTE AD. T. S

#### Mendar\_v2.u NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

ampling Point : NANCEKUKE/D9

Date/Time Taken : 25-OCT-91 13:00

TOBBAN HORSEBAY SEEPAGE FROM ADIT APPROX 1 METRE ABOVE CAVE BOTTOM APPROX 1 00 METRES INTO CAVE

Address : TOBBAN HORSES BAY

SEA CAVE ADIT

Laboratory Reference : E21930

Sampler's Comments:
COMPOSITE SAMPLE TAKEN OVER 24HR PERIOD

OND 557 pH 3.73

et.	Code Description	Result
85 105 106 108 111 116 118 119 135 172	CONDUCTIVITY AT 20C TURBIDITY TEMPERATURE OXYGEN DISSOLVED & SATURATION OXYGEN DISSOLVED BOD ATU MERCURY CADMIUM DISSOLVED CADMIUM AMMONIA EXPRESSED AS NITROGEN NITROGEN TOTAL OXIDISED EXPRESSED NITROGEN NITRITE AMMONIA NON-IONISED SUSPENDED SOLIDS 105C CHLORIDE ION ORTHO-PHOSPHATE	4.0000 pH  544.0000 Microsiemens/cm  < 1.0000 Turbidity FTU  11.6000 Celsius  68.0000 %  7.3700 mg/l  < 1.0000 mg/l  0.1300 ug/l  2.8000 ug/l  2.9000 ug/l  < 0.0200 mg/l N  < 0.1000 mg/l N  < 0.0100 mg/l N  < 0.0000 mg/l  1.00000 mg/l  0.0000 mg/l  142.0000 mg/l  0.00200 mg/l  0.00200 mg/l
182 213 215 231 233 243	SILICATE REACTIVE DISSOLVED COPPER DISSOLVED COPPER BERYLLIUM DISSOLVED BERYLLIUM ZINC DISSOLVED	9.3000 mg/l 0.2900 mg/l 0.3000 mg/l 0.0010 mg/l 0.0010 mg/l No Result
245 255 ACTUA 257 281	T = 3.8 ZINC BARIUM DISSOLVED L RESULT = .031 BARIUM BORON DISSOLVED	3.7000 mg/l No Result  0.0140 mg/l No Result
283 <b>2</b> 85	L RESULT = .031 BORON ALUMINIUM DISSOLVED T = 1.5 ALUMINIUM LEAD DISSOLVED	0.0260 mg/l No Result [1.4000 mg/l 0.0340 mg/l
328 350 352 358 360	LEAD VANADIUM DISSOLVED VANADIUM ANTIMONY DISSOLVED ANTIMONY	0.0340 mg/1 0.0340 mg/1 < 0.0010 mg/1 < 0.0010 mg/1 < 0.0010 mg/1 Contd

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point: NANCEKUKE/D9 Date/Time Taken: 25-OCT-91 13:00

Det.	Code	Description	Result	
373	CHROMIUN	4 DISSOLVED	< 0.0010 mg/l	
	CHROMIUN		< 0.0010  mg/l	
		SE DISSOLVED	No Result	
	T = .8			
	MANGANE S		0.7400  mg/l	
	COBALT I	DISSOLVED	0.0430 mg/l	
	COBALT		0.0450 mg/l	
	NICKEL I	DISSOLVED	No Result	
	T = .04			
	NICKEL		0.0390 mg/l	
		DRO-BENZENE TOTAL	< 3.5000 ng/l	
		DRO-BUTADIENE TOTAL	< 3.0000 ng/l	
		S BY MASS-SPEC	Report Filed Misc	
	ALDRIN		< 3.5000 ng/1	
	DDE-(PP		< 3.5000 ng/1	
	DDE-(OP		< 8.0000 ng/1	
	DDT (OP		< 6.0000 ng/l	
	DIELDRI		< 3.0000 ng/1	
	ENDRIN	•	M1.3000 ng/1	
	HCH ALPI	JA .	< 4.0000 ng/l < 4.0000 ng/l	
	HCH BETA		< 12.0000 ng/1	
			_	
	HCH DELT		< 4.0000 ng/1	
	HCH GAM		< 3.0000 ng/1	
	TDE (OP		< 5.0000 ng/l	
3330	TDE (PP	Tracorimo	< 3.0000 ng/l	
		DISSOLVED ppb	0.2000 ug/1	
/356	AKSENIC	TOTAL ppb	0.2000 ug/l	

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.

#### 3rd Dec 1991

#### Sample Analysis Report

ampling Point : NANCEKUKE/D10

Date/Time Taken : 25-OCT-91 14:00

TOBBAN HORSE BAY SEEPAGE FROM CRUMBLY ROCK IN CROSS COURSE BESIDE SMALL SCA LE WORKINGS

Address : TOBBAN HORSE BEACH

Laboratory Reference : E21931

ampler's Comments:
COMPOSITE SAMPLE COLLECTED OVER 24HR PERIOD
PRESENT WEATHER - DRY, OVERCAST PRECIPITATION - NIL
COND 1011 ph 3.7

et.	Code	Description	Result	
76 81 105 106 ESUL: 108 111	OXYGEN DISS BOD ATU MERCURY CADMIUM DIS T = 10.9 CADMIUM AMMONIA EXP	OLVED % SATURATION OLVED  SOLVED  RESSED AS NITROGEN TAL OXIDISED EXPRESSED	1.0000 11.2000 78.0000 8.5200 1.0000 0.0600 No Result 9.6000 <0.0200 5.7000 0.0000 2.3000	Microsiemens/cm Turbidity FTU Celsius  mg/l mg/l ug/l ug/l ng/l N mg/l N mg/l N mg/l mg/l mg/l
182 213	SILICATE RE COPPER DISS	EACTIVE DISSOLVED	[231.0000 0.0400 13.7000 No Result	mg/l mg/l
215 231 233 243 ESUL	T = .84 COPPER BERYLLIUM I BERYLLIUM ZINC DISSOI T = 3.6 ZINC		0.8300 < 0.0010 < 0.0010 No Result	mg/l mg/l
255 CTUA 257 281 ACTUA '3	BARIUM DISS L RESULT = . BARIUM BORON DISSO L RESULT = . BORON	029 DLVED 057	No Result 0.0170 No Result 0.0500	mg/l mg/l
RESUL 287 326 328 350 352	ALUMINIUM D T = 3.8 ALUMINIUM LEAD DISSON LEAD VANADIUM D VANADIUM ANTIMONY D	LVED	No Result  3.4000 1.1000 1.1000 < 0.0010 < 0.0010 < 0.0010	mg/l mg/l mg/l mg/l mg/l
				Contd

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

Date/Time Taken: 25-OCT-91 14:00

#### Sample Analysis Report

Sampling Point : NANCEKUKE/D10 Result Det. Code Description 360 ANTIMONY 373 CHROMIUM DISSOLVED 375 CHROMIUM 401 MANGANESE DISSOLVED < 0.0010 mg/l< 0.0010 mg/1< 0.0010 mg/lNo Result RESULT = .5 $0.4700 \, \text{mg/l}$ 403 MANGANESE 423 COBALT DISSOLVED 425 COBALT 427 NICKEL DISSOLVED 0.0980 mg/l0.0980 mg/lNo Result RESULT = .07 429 NICKEL 3082 HEXACHLORO-BENZENE TOTAL 0.0680 mg/l< 3.5000 ng/l < 3.0000 ng/l 3083 HEXACHLORO-BUTADIENE TOTAL 3106 ANALYSIS BY MASS-SPEC Report Filed < 3.5000 ng/l < 3.5000 ng/l < 8.0000 ng/l 3276 ALDRIN '94 DDE-(PP')
3295 DDE-(OP')
3296 DDT (OP')
3297 DDT (PP') < 6.0000 ng/l< 3.0000 ng/l < 3.5000 ng/l < 4.0000 ng/l 3301 DIELDRIN 3306 ENDRIN 3310 HCH ALPHA < 4.0000 ng/l 3311 HCH BETA < 12.0000 ng/l3312 HCH DELTA 3313 HCH GAMMA 3329 TDE (OP')
3330 TDE (PP')
7354 ARSENIC DISSOLVED ppb
7356 ARSENIC TOTAL ppb  $0.2000 \, \text{ug/1}$ 

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.

#### 3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/D11

Date/Time Taken: 26-OCT-91 10:45

ADIT APPROX 10 FEET BELOW SEEPAGE BELOW CLIFF-TOP PATH

Address : ADIT 10M BELOW D3

Laboratory Reference : E21985

Sampler's Comments:
SAMPLE TAKEN FROM POOL IN ADIT DUE TO LACK OF FLOW

Det.	Code Description	Result
61	Ha	6.3000 pH
62	CONDUCTIVITY AT 20C TURBIDITY TEMPERATURE OXYGEN DISSOLVED % SATURATION OXYGEN DISSOLVED	367.0000 Microsiemens/cm
68	TURBIDITY	3.0000 Turbidity FTU
76	TEMPERATURE	12.0000 Celsius
<b>81</b>	OXYGEN DISSOLVED & SATURATION	65.0000 %
82	OXYGEN DISSOLVED	6.9800 mg/l
<b>- 85</b>	BOD ATU	< 1.0000 mg/l
	MERCURY	< 0.0200 ug/1
.6	CADMIUM DISSOLVED	No Result
	T=6.6 CADMIUM	6.4000 ug/l
	AMMONIA EXPRESSED AS NITROGEN	< 0.0200 mg/l N
	NITROGEN TOTAL OXIDISED EXPRESSED	AS 3.3600 mg/1 N
	NITROGEN TOTAL CATOTSED EXPRESSED	and 313000 mg/ I M
118	NITRITE	< 0.0100 mg/l
<b>1</b> 119	AMMONIA NON-IONISED	0.0000 mg/l
135	AMMONIA NON-IONISED SUSPENDED SOLIDS 105C	36.0000 mg/l
172	CHLORIDE ION	76.6000 mg/l
_ 180	ORTHO-PHOSPHATE	< 0.0100 mg/1
	SILICATE REACTIVE DISSOLVED	5.5000 mg/l
213	COPPER DISSOLVED	0.0520 mg/l
	COPPER	0.0680 mg/l
231	BERYLLIUM DISSOLVED	< 0.0010 mg/1
233	BERYLLIUM	< 0.0010 mg/l
243	ZINC DISSOLVED	, 2.7000 mg/l
245	ZINC BARIUM DISSOLVED	22.7000 mg/l
255	BARIUM DISSOLVED	No Result
	T=0.062	
	BARIUM	0.0130 mg/l
281	BORON DISSOLVED	No Result
	JT=0.037	
283	BORON	0.0330 mg/l
283	ALUMINIUM DISSOLVED	< 0.0300 mg/l
326	ALCHINION	0.4100 mg/l
	LEAD DISSOLVED LEAD	0.0080 mg/l
350	VANADIUM DISSOLVED	0.1000 mg/l
352	VANADIUM DISSOLVED	< 0.0010 mg/l
358	ANTIMONY DISSOLVED	0.0030 mg/l < 0.0010 mg/l
360	ANTIMONY	< 0.0010 mg/1
373	CHROMIUM DISSOLVED	< 0.0010 mg/l
375	CHROMIUM	0.0010 mg/1
		Contd
		contu

## MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/D11 Date/Time Taken: 26-OCT-91 10:45

Det. Code   Description   Result			
403 MANGANESE 423 COBALT DISSOLVED 425 COBALT 426 NICKEL DISSOLVED 427 NICKEL DISSOLVED 429 NICKEL 3082 HEXACHLORO-BENZENE TOTAL 3083 HEXACHLORO-BUTADIENE TOTAL 3106 ANALYSIS BY MASS-SPEC 3276 ALDRIN 3294 DDE-(PP') 3295 DDE-(OP') 3295 DDE-(OP') 3296 DDT (OP') 3297 DDT (PP') 3297 DDT (PP') 301 DIELDRIN 302 ENDRIN 303 ENDRIN 304 ENDRIN 305 ENDRIN 306 ENDRIN 307 DISSOLVED 308 ENDRIN 309 DOT (PP') 310 DISSOLVED 311 HCH BETA 311 HCH BETA 312 HCH GAMMA 3329 TDE (OP') 3330 TDE (PP') 3340 TDE (PP') 3350 TDE (PP') 3350 TDE (PP') 3350 TDE (PP') 3360 TDE (PP') 3360 TDE (PP') 3370 TDE (PP')	Det.	Code Description	Result
423   COBALT DISSOLVED   0.0090 mg/l   425   COBALT   0.0110 mg/l   427   NICKEL DISSOLVED   0.0150 mg/l   429   NICKEL   0.0200 mg/l   43000 mg/l   430000 mg/l   4300000 mg/l   430000 mg/l	401	MANGANESE DISSOLVED	0.2400 mg/l
423   COBALT DISSOLVED   0.0090 mg/l   425   COBALT   0.0110 mg/l   427   NICKEL DISSOLVED   0.0150 mg/l   429   NICKEL   0.0200 mg/l   43000 mg/l   430000 mg/l	403	MANGANESE	0.2700 mg/l
427       NICKEL DISSOLVED       0.0150 mg/l         429       NICKEL       0.0150 mg/l         3082       HEXACHLORO-BENZENE TOTAL       < 3.5000 ng/l	423	COBALT DISSOLVED	0.0090 mg/l
429       NICKEL       0.0150 mg/l         3082       HEXACHLORO-BENZENE TOTAL       < 3.5000 ng/l	425	COBALT	
3082 HEXACHLORO-BENZENE TOTAL 3083 HEXACHLORO-BUTADIENE TOTAL 3106 ANALYSIS BY MASS-SPEC 3276 ALDRIN 3294 DDE-(PP') 3295 DDE-(OP') 3295 DDE-(OP') 3296 DDT (OP') 3297 DDT (PP') 3301 DIELDRIN 306 ENDRIN 306 ENDRIN 310 HCH ALPHA 311 HCH BETA 311 HCH BETA 312 HCH DELTA 3313 HCH GAMMA 3329 TDE (OP') 3330 TDE (PP') 3330 TDE (PP') 3330 TDE (PP') 3330 TDE (PP') 3354 ARSENIC DISSOLVED ppb  30000 ng/1	427	NICKEL DISSOLVED	0.0150 mg/l
3083   HEXACHLORO-BUTADIENE TOTAL	429	NICKEL	
3106 ANALYSIS BY MASS-SPEC 3276 ALDRIN 3294 DDE-(PP') 3295 DDE-(OP') 3296 DDT (OP') 3297 DDT (PP') 301 DIELDRIN 306 ENDRIN 301 HCH ALPHA 311 HCH BETA 311 HCH BETA 311 HCH BETA 312 HCH DELTA 3313 HCH GAMMA 3329 TDE (OP') 3330 TDE (PP') 3330 TDE (PP') 3330 TDE (PP') 3354 ARSENIC DISSOLVED ppb  Report Filed Misc 3.5000 ng/1 4.0000 ng/1	3082	HEXACHLORO-BENZENE TOTAL	
3276 ALDRIN 3294 DDE-(PP') 3295 DDE-(OP') 3296 DDT (OP') 3297 DDT (PP') 3301 DIELDRIN 306 ENDRIN 306 ENDRIN 3310 HCH ALPHA 3311 HCH BETA 3312 HCH DELTA 3312 HCH GAMMA 3329 TDE (OP') 3330 TDE (PP') 3330 TDE (PP') 3330 TDE (PP') 3354 ARSENIC DISSOLVED ppb	3083	HEXACHLORO-BUTADIENE TOTAL	
3294 DDE-(PP') 3295 DDE-(OP') 3296 DDT (OP') 3297 DDT (PP') 3301 DIELDRIN 306 ENDRIN 3310 HCH ALPHA 3311 HCH BETA 3312 HCH DELTA 3313 HCH GAMMA 3329 TDE (OP')  3330 TDE (PP')  3330 TDE (PP')  335000 ng/l  3300 TDE (PP')  330000 ng/l  3310 TDE (PP')  330000 ng/l  3300 TDE (PP')  330000 ng/l  3300 TDE (PP')  330000 ng/l  330000 ng/l	3106	ANALYSIS BY MASS-SPEC	
3295 DDE-(OP')       < 8.0000 ng/l	3276	ALDRIN	
3296 DDT (OP')       < 6.0000 ng/l			
3297 DDT (PP')	3295	DDE-(OP')	< 8.0000 ng/l
"301 DIELDRIN"       < 3.5000 ng/l			
306 ENDRIN	<b>3</b> 297	DDT (PP')	< 3.0000 ng/l
3310 HCH ALPHA			< 3.5000 ng/l
3311 HCH BETA			
3312 HCH DELTA			
3313 HCH GAMMA			
3329 TDE (OP') < 5.0000 ng/1 3330 TDE (PP') < 3.0000 ng/1 7354 ARSENIC DISSOLVED ppb			
3330 TDE (PP') < 3.0000 ng/l 7354 ARSENIC DISSOLVED ppb			
7354 ARSENIC DISSOLVED ppb 0.2000 ug/l	3329	TDE (OP')	< 5.0000 ng/l
7354 ARSENIC DISSOLVED ppb 0.2000 ug/l	3330	TDE (PP')	< 3.0000 ng/l
	7354	ARSENIC DISSOLVED ppb	0.2000 ug/l
7356 ARSENIC TOTAL ppb 0.2000 ug/1			0.2000 ug/1

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.

6W4001E V6.Z.Z

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/D12

Date/Time Taken: 25-OCT-91 10:00

#### ADIT 5 METRES ABOVE HIGH WATER MARK

Address : ADIT 5M ABOVE HW MARK

Laboratory Reference : E21928

mampler's Comments: TOND us/CM PRESENT WEATHER - DRY, OVERCAST PRECIPITATION - NIL COND 829 pH 3.39

Det.	Code Description	Result
61	рн	, 3.4000 pH
	CONDUCTIVITY AT 20C	B34.0000 Microsiemens/c
	TURBIDITY	58.0000 Turbidity FTU
<b>₽</b> 76	TEMPERATURE	11.2000 Celsius
	OXYGEN DISSOLVED & SATURATION	77.0000 <b>%</b>
	OXIGEN DISSOLVED & SATURATION OXYGEN DISSOLVED	
0 <i>Z</i>	BOD ATU	8.4200 mg/l
l^3e	POD ATU	1.9000 mg/l
. 66	MERCURY	0.0200 ug/1
	CADMIUM DISSOLVED	No Result
	= 15.2	la
108	CADMIUM	14.0000 ug/1
111	AMMONIA EXPRESSED AS NITROGEN	0.1000 mg/1 N
116	NITROGEN TOTAL OXIDISED EXPRESSED AS	< 0.1000 mg/l N
	NITROGEN	
	NITRITE	0.0300 mg/l
119	AMMONIA NON-IONISED	0.0000 mg/l
135	SUSPENDED SOLIDS 105C	15.0000 mg/l
£172	CHLORIDE ION	124.0000 mg/l
	ORTHO-PHOSPHATE	0.0200 mg/l
	SILICATE REACTIVE DISSOLVED	
_ 717	CODDED DICCOLUDA	19.2000 mg/l
PRCUT	COPPER DISSULVED	No Result
E SOL	COPPER DISSOLVED C = 0.82	Í "
413	COPPER	<b>0.7800 mg/l</b>
231	BERYLLIUM DISSOLVED	0.0020 mg/l
233	BERYLLIUM	0.0020 mg/l
243	ZINC DISSOLVED	No Result
	r = 7.2	
	ZINC	6.5000 mg/l
255	BARIUM DISSOLVED	No Result
ACTUA	RESULT = .024	
257	BARIUM	0.0130  mg/l
281	BORON DISSOLVED	No Result
ACTUA	RESULT = .030	***************************************
283	BORON	0.0270 mg/l
<b>5</b>	ALUMINIUM DISSOLVED	
	ALUMINIUM	10.1000 mg/l
	LEAD DISSOLVED	17.0000 mg/1
	1 = .39	No Result
	LEAD	0.0360 (3
		0.0360 mg/l
	VANADIUM DISSOLVED	< 0.0010 mg/l
_	VANADIUM	< 0.0010 mg/l
	ANTIMONY DISSOLVED	< 0.0010 mg/l
360	ANTIMONY	< 0.0010 mg/1
		Contd.

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/D12		: NANCEKUKE/D12	Date/Time Taken : 25-OCT-91 10:00	
Det.	Code	Description	Result	
373	CHROMIUM	DISSOLVED	No Result	
RESUI	T = .002			
375	CHROMIUM		9.0010 mg/l	
401	MANGANESI	E DISSOLVED	2.4000 mg/l	
403	MANGANESI	E	<b>2.4</b> 000 mg/l	
	COBALT D	I S <b>SOLVE</b> D	0.1110 mg/l	
	COBALT		0.1110 mg/l	
427	NICKEL D	ISSOLVED	No Result	
RESU	LT = .072		<b>*</b> -	
	NICKEL		0.0670 mg/l	
		RO-BENZENE TOTAL	< 3.5000 ng/l	
		RO-BUTADIENE TOTAL	< 3.0000 ng/l	
		BY MASS-SPEC	Report Filed Misc	
	5 ALDRIN		< 3.5000 ng/l	
329	DDE-(PP'	)	< 3.5000 ng/l	
	5 DDE-(OP'		< 8.0000 ng/l	
	5 DDT (OP'		< 6.0000 ng/1	
	7 DDT (PP'		< 3.0000 ng/1	
	l DIELDRIN		< 3.5000 ng/l	
	6 ENDRIN		< 4.0000 ng/l	
	O HCH ALPH		< 4.0000 ng/l	
331	1 HCH BETA	, ,	< 12.0000 ng/1	
331	2 HCH DELT		< 4.0000 ng/l	
	3 HCH GAM		< 3.0000 ng/l	
	9 TDE (OP		< 5.0000 ng/l	
333	O TDE (PP	' j	< 3.0000 ng/l	
735	4 ARSENIC	DISSOLVED ppb	1.3000 ug/1	
	6 ARSENIC		9.6000 ug/l	
		••	,	

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/D13

Date/Time Taken: 25-OCT-91 11:15

SMALL ADIT TO EAST OF D12 APPROX 15 METRES ABOVE HIGH WATER MARK

Address: SMALL ADIT EAST OF D12 Laboratory Reference: E21929

Sampler's Comments :

LIMITED VOL FROM FLOW PRECIPITATION - NIL

Det.	Code Description	Result
61	рн	. 4.4000 pH
	CONDUCTIVITY AT 20C	934.0000 Microsiemens/cm
	TURBIDITY	3.0000 Turbidity FTU
	TEMPERATURE	No Result
	OXYGEN DISSOLVED & SATURATION	No Result
	OXYGEN DISSOLVED	No Result
85	BOD ATU	< 1.0000 mg/l
105	MERCURY	(1.0000 mg/1
	CADMIUM DISSOLVED	No Result
	T = 23.5	NO RESULL
	CADMIUM	22 2000 110/1
111	PANANTA EADDECCED SC NIMBOCEN	22.3000 ug/1
<b>3116</b>	AMMONIA EXPRESSED AS NITROGEN NITROGEN TOTAL OXIDISED EXPRESSED AS	0.0300 mg/1 N
110		1.6000 mg/l N
<b>6</b>	NITROGEN	4 0 0100 (1
	NITRITE	< 0.0100 mg/l
	AMMONIA NON-IONISED	No Result
135	SUSPENDED SOLIDS 105C	
172	CHLORIDE ION ORTHO-PHOSPHATE	249.0000 mg/l
180	ORTHO-PHOSPHATE	< 0.0100 mg/l
182	SILICATE REACTIVE DISSOLVED	9.9000 mg/l
<b>2</b> 13	COPPER DISSOLVED	No Result
RESUL	T = .68	NO REBUIL
	COPPER	<b>0.6500 mg/l</b>
-231	BERYLLIUM DISSOLVED	
233	BERYLLIUM	< 0.0010 mg/1
243	ZINC DISSOLVED	< 0.0010 mg/l
PPCIII	T = 6.0	No Result
	ZINC	£ 3000 /1
	BARIUM DISSOLVED	5.7000 mg/l
PCD119	L RESULT = .049	No Result
257	BARIUM	0.000
		0.0100 mg/l
201	BORON DISSOLVED	No Result
	L RESULT = .063	
	BORON	0.0510 mg/l
285	ALUMINIUM DISSOLVED	\$.5000 mg/l
	ALUMINIUM	7.0000 mg/l
320	LEAD DISSOLVED	No Result
	T = .09	
328	LEAD	0.0860 mg/l
<b>-</b> 350	VANADIUM DISSOLVED	< 0.0010 mg/l
	VANADIUM	< 0.0010 mg/l
358	ANTIMONY DISSOLVED	< 0.0010  mg/l
<b>360</b>	ANTIMONY	< 0.0010  mg/l
373	CHROMIUM DISSOLVED	< 0.0010 mg/l
		Contd
		33

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/D13		1 NANCERURE/DI3	Date/Time Taken: 25-OCT-91 11:15	
Det.	Code		Result	
	CHROMIUM		< 0.0010 mg/1	
	MANGANESE		8.8000 mg/l	
403	MANGANESE		1.8000 mg/l	
423	COBALT DIS	SSOLVED	0.0610 mg/l	
	COBALT		0.0620 mg/l	
	NICKEL DI	SSOLVED	No Result	
	T = .046		2 2472 /2	
	NICKEL		0.0450 mg/l	
		O-BENZENE TOTAL	< 3.5000 ng/l	
		O-BUTADIENE TOTAL	< 3.0000 ng/l	
		BY MASS-SPEC	Report Filed	
_	ALDRIN		< 3.5000 ng/l	
3294	DDE-(PP')		< 3.5000 ng/l	
3295	DDE-(OP')		< 8.0000 ng/l	
3296	DDT (OP')		< 6.0000 ng/l	
37	DDT (PP')		< 3.0000 ng/l	
	DIELDRIN		< 3.5000 ng/l	
	ENDRIN		< 4.0000 ng/l	
	HCH ALPHA	<b>Å</b>	< 4.0000 ng/l	
	HCH BETA		< 12.0000 ng/l	
	HCH DELTA		< 4.0000 ng/l	
3313	B HCH GAMMA	<b>.</b>	< 3.0000 ng/1	
332 ANAL	9 TDE (OP'	) Driem	No Result	
	O TDE (PP'		< 3.0000 ng/l	
735		DISSOLVED ppb	1 3.000 ng/ 4	

<sup>\*\*</sup> Indicates that Laboratory Determination Method is NAMAS Accredited.

# MENSAR V2.0 NRA Exeter Regional Laboratory

# Sample Analysis Report 3rd Dec 1991

Sampling Point : NANCEKUKE/El

Date/Time Taken : 26-SEP-91 11:00

ddre	ss:	Laboratory Reference : E16134
Det.	Code Description	Result
61	рН	. 7.4300 pH
62	CONDUCTIVITY AT 20C	566.8000 Microsiemens/cm
<b>68</b>	TURBIDITY	1.4300 Turbidity FTU
68 76	TEMPERATURE	12.9000 Celsius
81	OXYGEN DISSOLVED % SATURATION	81.7000 %
82	OXYGEN DISSOLVED	8.6000 mg/l
85 105	BOD ATU	< 1.0000 mg/l
<b>1</b> 05	MERCURY	< 0.0200 ug/l
	CADMIUM DISSOLVED	0.9000 ug/l
	CADMIUM	0.8000 ug/l
	AMMONIA EXPRESSED AS NITROGEN	0.0060 mg/l N
5		5.1020 mg/l N
-	NITROGEN	
118 119	NITRITE	0.0030 mg/l
<b>-</b> 119	AMMONIA NON-IONISED	0.0000 mg/l
135	SUSPENDED SOLIDS 105C	4.2000 mg/l
172	CHLORIDE ION ORTHO-PHOSPHATE SILICATE REACTIVE DISSOLVED	130.8520 mg/l
180	ORTHO-PHOSPHATE	< 0.0100 mg/1
182	SILICATE REACTIVE DISSOLVED	6.4830 mg/l
_213	COPPER DISSOLVED	0.0020 mg/l
215	COPPER	0.0020 mg/l
	BERYLLIUM DISSOLVED	No Result
	ING POT, INSUFFICIENT SAMPLE FOR FULL ANALYS	
233	BERYLLIUM	0.0010 mg/l
243	ZINC DISSOLVED	44
	ZINC	0.1440 mg/l
	BARIUM DISSOLVED	No Result
	ING POT, INSUFFICIENT SAMPLE FOR FULL ANALYS	
257	BARIUM	0.0110 mg/l
281	BORON DISSOLVED	No Result
	ING POT, INSUFFICIENT SAMPLE FOR FULL ANALYS	
283	BORON	0.0350 mg/l
285	ALUMINIUM DISSOLVED	< 0.0300 mg/l
<b>287</b>	ALUMINIUM	0.0300 mg/l
~6	LEAD DISSOLVED	< 0.0010  mg/l
.8	LEAD	< 0.0010 mg/l
<b>350</b>	VANADIUM DISSOLVED	No Result
LEAK	ING POT, INSUFFICIENT SAMPLE FOR FULL ANALYS	SIS
352	VANADIUM	< 0.0010  mg/l
_ 358	ANTIMONY DISSOLVED	No Result
	ING POT, INSUFFICIENT SAMPLE FOR FULL ANALYS	
360	ANTIMONY	< 0.0010  mg/l
<b>3</b> 73		0.0010 mg/l
<b>375</b>	CHROMIUM	0.0020 mg/l
	4	Contd
		3333444

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

Date/Time Taken : 26-SEP-91 11:00

#### Sample Analysis Report

Sampling Point : NANCEKUKE/E1 Det. Code Description Result 401 MANGANESE DISSOLVED 403 MANGANESE 423 COBALT DISSOLVED < 0.0010 mg/1 $0.0070 \, \text{mg/l}$ No Result LEAKING POT, INSUFFICIENT SAMPLE FOR FULL ANALYSIS
425 COBALT
427 NICKEL DISSOLVED
429 NICKEL
559 TDE (PP')
573 TDE (OP')
3082 HEXACHLORO-BENZENE TOTAL < 0.0010 mg/l0.0020 mg/l 0.0030 mg/l < 0.0030 ug/l < 0.0050 ug/l < 3.5000 ng/l < 3.0000 ng/l < 3.5000 ng/l < 3.5000 ng/l 3083 HEXACHLORO-BUTADIENE TOTAL 3276 ALDRIN 3294 DDE-(PP') 3294 DDE-(PP')
3295 DDE-(OP')
3296 DDT (OP')
3301 DIELDRIN
3306 ENDRIN
3310 HCH ALPHA < 8.0000 ng/l < 6.0000 ng/l< 3.0000 ng/1
< 3.5000 ng/1
< 4.0000 ng/1
< 4.0000 ng/1
< 12.0000 ng/1</pre> 3311 HCH BETA 3312 HCH DELTA 3313 HCH GAMMA < 4.0000 ng/l < 3.0000 ng/l

<sup>\*\*</sup> Indicates that Laboratory Determination Method is NAMAS Accredited.

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/E3

401 MANGANESE DISSOLVED

403 MANGANESE

Date/Time Taken: 26-SEP-91 12:30

0.0020 mg/l 0.0070 mg/l

Contd...

Addre	ess :	Laboratory Reference : E16136
Det.	Code Description	
61		
62	CONDUCTIVITY AT 20C	382.2000 Microsiemens/cm
68	TURBIDITY	1.4300 Turbidity FTU 12.4000 Celsius
76	TEMPERATURE	12.4000 Celsius
81	TEMPERATURE OXYGEN DISSOLVED % SATURATION OXYGEN DISSOLVED	84.5000 \$
82	OXYGEN DISSOLVED	9.0000 mg/l
85	OXYGEN DISSOLVED BOD ATU	< 1.0000  mg/l
105	MERCURY	< 0.0200 ug/l
106	CADMIUM DISSOLVED	0.5000 ug/l
108	CADMIUM	0.4000 ug/l
111	AMMONIA EXPRESSED AS NITROGEN	0.0010 mg/l N
	CADMIUM DISSOLVED CADMIUM AMMONIA EXPRESSED AS NITROGEN NITROGEN TOTAL OXIDISED EXPRESSED AS NITROGEN	4.4360 mg/l N
	NITRITE	< 0.0100 mg/l
119	AMMONIA NON-IONISED	0.0000 mg/l
135	SUSPENDED SOLIDS 105C	13.0000 mg/l
172	CHLORIDE ION	69.0860 mg/l
180	ORTHO-PHOSPHATE	< 0.0100  mg/l
182	SILICATE REACTIVE DISSOLVED	4.4430 mg/l
213	COPPER DISSOLVED	0.0020 mg/l
215	COPPER	0.0030 mg/l
231	BERYLLIUM DISSOLVED	< 0.0010 mg/l
233	BERYLLIUM	< 0.0010 mg/1
243		0.0690 mg/l
	ZINC	0.0660 mg/l
255	BARIUM DISSOLVED	
	BARIUM	0.0080  mg/l
281	BORON DISSOLVED	A. A. I. A.
	BORON	0.0240 mg/l
285	ALUMINIUM DISSOLVED	< 0.0300  mg/l
	ALUMINIUM	0.0300 mg/l
326	LEAD DISSOLVED	< 0.0010 mg/l
328	LEAD	< 0.0010 mg/l
350		< 0.0010 mg/l
352		< 0.0010 mg/l
8	ANTIMONY DISSOLVED	< 0.0010 mg/l
360	ANTIMONY	< 0.0010 mg/l
373		< 0.0010 mg/l
375		0.0010 mg/l
401	MANGANESE DISSOLVED	0 0020 ma/1

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/E3

Date/Time Taken : 26-SEP-91 12:30

Det.	Code	Description	Result	
423	COBALT DI	SSOLVED	< 0.0010 mg/l	
425	COBALT		< 0.0010  mg/l	
427	NICKEL DI	SSOLVED	0.0010  mg/l	
429	NICKEL		0.0010  mg/l	
559	TDE (PP')		< 0.0030 ug/l	
573			< 0.0050 ug/l	
		RO-BENZENE TOTAL	< 3.5000 ng/l	
		RO-BUTADIENE TOTAL	< 3.0000 ng/l	
	ALDRIN		< 3.5000 ng/l	
	DDE-(PP'		< 3.5000 ng/l	
	DDE-(OP'		< 8.0000 ng/l	
	DDT (OP'		< 6.0000 ng/l	
	DDT (PP'		< 3.0000 ng/l	
	DIELDRIN		< 3.5000 ng/l	
	ENDRIN		< 4.0000 ng/l	
	HCH ALPHA	<b>A</b>	< 4.0000 ng/l	
	HCH BETA		< 12.0000 ng/l	
	HCH DELTA	A	< 4.0000 ng/l	
	HCH GAMMA		< 3.0000 ng/l	

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.

Address:

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/E4

Date/Time Taken: 26-SEP-91 00:02

Laboratory Reference : E16137

NITROGEN TOTAL OXIDISED EXPRESSED AS NITROGEN 118 NITRITE 119 AMMONIA NON-IONISED 135 SUSPENDED SOLIDS 105C 172 CHLORIDE ION	7.6500 pH 417.6000 Microsiemens/cm 25.0000 Turbidity FTU 12.3000 Celsius 91.8000 % 9.8000 mg/l <1.0000 mg/l <0.0200 ug/l 0.3000 ug/l 0.4000 ug/l <0.0200 mg/l N 6.3080 mg/l N 6.3080 mg/l N <0.0100 mg/l 2.9000 mg/l 70.4890 mg/l <0.0100 mg/l 5.5580 mg/l
TURBIDITY  TEMPERATURE  OXYGEN DISSOLVED & SATURATION  OXYGEN DISSOLVED  BOD ATU  CADMIUM DISSOLVED  CADMIUM DISSOLVED  CADMIUM  THE AMMONIA EXPRESSED AS NITROGEN  NITROGEN TOTAL OXIDISED EXPRESSED AS  NITROGEN  NITRITE  MAMONIA NON-IONISED  SUSPENDED SOLIDS 105C  CHLORIDE ION  ORTHO-PHOSPHATE  EXECUTE REACTIVE DISSOLVED  COPPER DISSOLVED  TO SUSPENDED  TO SOLVED  TO SOLV	417.6000 Microsiemens/cm 25.0000 Turbidity FTU 12.3000 Celsius 91.8000 % 9.8000 mg/l < 1.0000 mg/l < 0.0200 ug/l 0.3000 ug/l 0.4000 ug/l < 0.0200 mg/l N 6.3080 mg/l N < 0.0100 mg/l 2.9000 mg/l 70.4890 mg/l < 0.0100 mg/l 5.5580 mg/l
TURBIDITY  TEMPERATURE  OXYGEN DISSOLVED & SATURATION  OXYGEN DISSOLVED  BOD ATU  CADMIUM DISSOLVED  CADMIUM DISSOLVED  CADMIUM  THE AMMONIA EXPRESSED AS NITROGEN  NITROGEN TOTAL OXIDISED EXPRESSED AS  NITROGEN  NITRITE  MAMONIA NON-IONISED  SUSPENDED SOLIDS 105C  CHLORIDE ION  ORTHO-PHOSPHATE  EXECUTE REACTIVE DISSOLVED  COPPER DISSOLVED  TO SUSPENDED  TO SOLVED  TO SOLV	25.0000 Turbidity FTU 12.3000 Celsius 91.8000 % 9.8000 mg/l < 1.0000 mg/l < 0.0200 ug/l 0.3000 ug/l 0.4000 ug/l < 0.0200 mg/l N 6.3080 mg/l N < 0.0100 mg/l 2.9000 mg/l 70.4890 mg/l < 0.0100 mg/l 5.5580 mg/l
TEMPERATURE OXYGEN DISSOLVED SATURATION OXYGEN DISSOLVED BOD ATU OS MERCURY OS MERCURY OS CADMIUM DISSOLVED  AMMONIA EXPRESSED AS NITROGEN NITROGEN TOTAL OXIDISED EXPRESSED AS NITROGEN OXIGEN SUSPENDED SOLIDS 105C CHLORIDE ION ORTHO-PHOSPHATE SILICATE REACTIVE DISSOLVED COPPER DISSOLVED  TOPPER DISSOLVED  TOPPER DISSOLVED  TOPPER DISSOLVED  TOPPER DISSOLVED  TOPPER DISSOLVED  TOPPER T	12.3000 Celsius 91.8000 % 9.8000 mg/l <1.0000 mg/l <0.0200 ug/l 0.3000 ug/l 0.4000 ug/l <0.0200 mg/l N 6.3080 mg/l N <0.0100 mg/l 0.0002 mg/l 2.9000 mg/l 70.4890 mg/l <0.0100 mg/l 5.5580 mg/l
OXYGEN DISSOLVED BOD ATU OS MERCURY OG CADMIUM DISSOLVED OR CADMIUM OS CADMIU	91.8000 % 9.8000 mg/l <1.0000 mg/l <0.0200 ug/l 0.3000 ug/l 0.4000 ug/l <0.0200 mg/l N 6.3080 mg/l N <0.0100 mg/l 0.0002 mg/l 2.9000 mg/l 70.4890 mg/l <0.0100 mg/l 5.5580 mg/l
OXYGEN DISSOLVED BOD ATU OS MERCURY OG CADMIUM DISSOLVED OR CADMIUM OS CADMIU	9.8000 mg/l <1.0000 mg/l <0.0200 ug/l 0.3000 ug/l 0.4000 ug/l <0.0200 mg/l N 6.3080 mg/l N <0.0100 mg/l 0.0002 mg/l 2.9000 mg/l 70.4890 mg/l <0.0100 mg/l 5.5580 mg/l
BOD ATU  105 MERCURY  106 CADMIUM DISSOLVED  108 CADMIUM  11 AMMONIA EXPRESSED AS NITROGEN  117 NITROGEN TOTAL OXIDISED EXPRESSED AS NITROGEN  118 NITRITE  119 AMMONIA NON-IONISED  135 SUSPENDED SOLIDS 105C  172 CHLORIDE ION  180 ORTHO-PHOSPHATE  182 SILICATE REACTIVE DISSOLVED  213 COPPER DISSOLVED  214 BERYLLIUM DISSOLVED  223 BERYLLIUM  244 ZINC DISSOLVED  255 BARIUM DISSOLVED  257 BARIUM  281 BORON DISSOLVED  283 BORON  285 ALUMINIUM DISSOLVED	<pre>&lt; 1.0000 mg/l &lt; 0.0200 ug/l  0.3000 ug/l  0.4000 ug/l &lt; 0.0200 mg/l N  6.3080 mg/l N &lt; 0.0100 mg/l  0.0002 mg/l  2.9000 mg/l  70.4890 mg/l &lt; 0.0100 mg/l 5.5580 mg/l</pre>
MERCURY  106 CADMIUM DISSOLVED  108 CADMIUM  111 AMMONIA EXPRESSED AS NITROGEN  NITROGEN TOTAL OXIDISED EXPRESSED AS  NITROGEN  118 NITRITE  119 AMMONIA NON-IONISED  135 SUSPENDED SOLIDS 105C  172 CHLORIDE ION  180 ORTHO-PHOSPHATE  182 SILICATE REACTIVE DISSOLVED  213 COPPER DISSOLVED  215 COPPER  231 BERYLLIUM DISSOLVED  233 BERYLLIUM  243 ZINC DISSOLVED  245 ZINC  255 BARIUM DISSOLVED  261 BORON DISSOLVED  281 BORON  283 BORON	<pre>&lt; 0.0200 ug/l   0.3000 ug/l   0.4000 ug/l &lt; 0.0200 mg/l N   6.3080 mg/l N &lt;&lt; 0.0100 mg/l   0.0002 mg/l   2.9000 mg/l   70.4890 mg/l &lt; 0.0100 mg/l   5.5580 mg/l</pre>
106 CADMIUM DISSOLVED 108 CADMIUM 111 AMMONIA EXPRESSED AS NITROGEN     NITROGEN TOTAL OXIDISED EXPRESSED AS NITROGEN 118 NITRITE 119 AMMONIA NON-IONISED 135 SUSPENDED SOLIDS 105C 172 CHLORIDE ION 180 ORTHO-PHOSPHATE 182 SILICATE REACTIVE DISSOLVED 1213 COPPER DISSOLVED 1215 COPPER 1231 BERYLLIUM DISSOLVED 1233 BERYLLIUM 1243 ZINC DISSOLVED 1255 BARIUM DISSOLVED 1257 BARIUM 1261 BORON DISSOLVED 1278 BORON 1281 BORON DISSOLVED 1283 BORON 1285 ALUMINIUM DISSOLVED	0.3000 ug/l 0.4000 ug/l < 0.0200 mg/l N 6.3080 mg/l N < 0.0100 mg/l 0.0002 mg/l 2.9000 mg/l 70.4890 mg/l < 0.0100 mg/l 5.5580 mg/l
108 CADMIUM 11 AMMONIA EXPRESSED AS NITROGEN NITROGEN TOTAL OXIDISED EXPRESSED AS NITROGEN 118 NITRITE 119 AMMONIA NON-IONISED 135 SUSPENDED SOLIDS 105C 172 CHLORIDE ION 180 ORTHO-PHOSPHATE 182 SILICATE REACTIVE DISSOLVED 133 COPPER DISSOLVED 134 BERYLLIUM DISSOLVED 135 BERYLLIUM 146 ZINC DISSOLVED 147 ZINC 148 ZINC 149 ZINC 149 ZINC 150 BARIUM DISSOLVED 151 BORON DISSOLVED 152 BARIUM 153 BORON 154 ZINC 155 BARIUM 155 BORON 155 ALUMINIUM DISSOLVED	0.4000 ug/l < 0.0200 mg/l N 6.3080 mg/l N < 0.0100 mg/l 0.0002 mg/l 2.9000 mg/l 70.4890 mg/l < 0.0100 mg/l 5.5580 mg/l
NITROGEN TOTAL OXIDISED EXPRESSED AS NITROGEN  118 NITRITE 119 AMMONIA NON-IONISED 135 SUSPENDED SOLIDS 105C 172 CHLORIDE ION 180 ORTHO-PHOSPHATE 182 SILICATE REACTIVE DISSOLVED 213 COPPER DISSOLVED 215 COPPER 231 BERYLLIUM DISSOLVED 233 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	6.3080 mg/l N  < 0.0100 mg/l 0.0002 mg/l 2.9000 mg/l 70.4890 mg/l < 0.0100 mg/l 5.5580 mg/l
NITROGEN TOTAL OXIDISED EXPRESSED AS NITROGEN  118 NITRITE 119 AMMONIA NON-IONISED 135 SUSPENDED SOLIDS 105C 172 CHLORIDE ION 180 ORTHO-PHOSPHATE 182 SILICATE REACTIVE DISSOLVED 213 COPPER DISSOLVED 215 COPPER 231 BERYLLIUM DISSOLVED 233 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	6.3080 mg/l N  < 0.0100 mg/l 0.0002 mg/l 2.9000 mg/l 70.4890 mg/l < 0.0100 mg/l 5.5580 mg/l
NITROGEN 118 NITRITE 119 AMMONIA NON-IONISED 135 SUSPENDED SOLIDS 105C 172 CHLORIDE ION 180 ORTHO-PHOSPHATE 182 SILICATE REACTIVE DISSOLVED 213 COPPER DISSOLVED 215 COPPER 231 BERYLLIUM DISSOLVED 233 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	<pre>&lt; 0.0100 mg/l   0.0002 mg/l   2.9000 mg/l   70.4890 mg/l &lt; 0.0100 mg/l   5.5580 mg/l</pre>
118 NITRITE 119 AMMONIA NON-IONISED 135 SUSPENDED SOLIDS 105C 172 CHLORIDE ION 180 ORTHO-PHOSPHATE 182 SILICATE REACTIVE DISSOLVED 213 COPPER DISSOLVED 221 BERYLLIUM DISSOLVED 223 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	0.0002 mg/l 2.9000 mg/l 70.4890 mg/l < 0.0100 mg/l 5.5580 mg/l
172 CHLORIDE ION 180 ORTHO-PHOSPHATE 182 SILICATE REACTIVE DISSOLVED 213 COPPER DISSOLVED 231 BERYLLIUM DISSOLVED 233 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	0.0002 mg/l 2.9000 mg/l 70.4890 mg/l < 0.0100 mg/l 5.5580 mg/l
172 CHLORIDE ION 180 ORTHO-PHOSPHATE 182 SILICATE REACTIVE DISSOLVED 213 COPPER DISSOLVED 231 BERYLLIUM DISSOLVED 233 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	2.9000 mg/l 70.4890 mg/l < 0.0100 mg/l 5.5580 mg/l
172 CHLORIDE ION 180 ORTHO-PHOSPHATE 182 SILICATE REACTIVE DISSOLVED 213 COPPER DISSOLVED 231 BERYLLIUM DISSOLVED 233 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	70.4890 mg/l < 0.0100 mg/l 5.5580 mg/l
180 ORTHO-PHOSPHATE 182 SILICATE REACTIVE DISSOLVED 213 COPPER DISSOLVED 215 COPPER 231 BERYLLIUM DISSOLVED 233 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	< 0.0100 mg/l 5.5580 mg/l
215 COPPER DISSOLVED 231 BERYLLIUM DISSOLVED 233 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	5.5580 mg/l
215 COPPER DISSOLVED 231 BERYLLIUM DISSOLVED 233 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	0 0010 = 2/1
215 COPPER 231 BERYLLIUM DISSOLVED 233 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	0.0010 mg/1
231 BERYLLIUM DISSOLVED 233 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	0.0010 mg/l
233 BERYLLIUM 243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	< 0.0010 mg/1
243 ZINC DISSOLVED 245 ZINC 255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	< 0.0010 mg/1
255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	( 0.0010 mg/1
255 BARIUM DISSOLVED 257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	0.0440 mg/l
257 BARIUM 281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	0.0440 mg/1
281 BORON DISSOLVED 283 BORON 285 ALUMINIUM DISSOLVED	0.0070 mg/l
283 BORON 285 ALUMINIUM DISSOLVED	0.0070 mg/1
285 ALUMINIUM DISSOLVED	0.0210 mg/l
287 ALUMINIUM 326 LEAD DISSOLVED	< 0.0300 mg/l
326 LEAD DISSOLVED	< 0.0300 mg/l
	< 0.0010 mg/l
328 LEAD	< 0.0010 mg/l
350 VANADIUM DISSOLVED	< 0.0010 mg/1
352 VANADIUM	< 0.0010 mg/l
8 ANTIMONY DISSOLVED	< 0.0010 mg/1
360 ANTIMONY	< 0.0010 mg/1
373 CHROMIUM DISSOLVED	< 0.0010 mg/l
375 CHROMIUM	0.0010 mg/1
401 MANGANESE DISSOLVED	0.0140 mg/l
403 MANGANESE	
	0.0190 mg/l

Sampling Point : NANCEKUKE/E4

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

Date/Time Taken: 26-SEP-91 00:02

#### Sample Analysis Report

Det. Code Description Result 423 COBALT DISSOLVED 425 COBALT < 0.0010 mg/l< 0.0010 mg/l427 NICKEL DISSOLVED
429 NICKEL
559 TDE (PP')
573 TDE (OP')
3082 HEXACHLORO-BENZENE TOTAL 0.0010 mg/1 0.0020 mg/1 < 0.0030 ug/1 < 0.0050 ug/1 < 3.5000 ng/1 < 3.0000 ng/1
< 3.5000 ng/1
< 3.5000 ng/1
< 3.5000 ng/1
< 8.0000 ng/1 3083 HEXACHLORO-BUTADIENE TOTAL 3276 ALDRIN 3294 DDE-(PP') 3295 DDE-(OP') 3296 DDT (OP') 3297 DDT (PP') < 8.0000 ng/1
< 6.0000 ng/1
< 3.0000 ng/1
< 3.5000 ng/1
< 4.0000 ng/1
< 4.0000 ng/1
< 12.0000 ng/1</pre> 3301 DIELDRIN 3306 ENDRIN 10 HCH ALPHA 3311 HCH BETA < 4.0000 ng/l3312 HCH DELTA < 3.0000 ng/l3313 HCH GAMMA

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.

TUL T R DOMILLUIS

EXETER OFFICE - EAST DIVISION

SW3023A V6.2.0

#### MENSAR V2.0 NRA Exeter Regional Laboratory

6th Jan 1992

Automatic Sample Analysis Report Production Date/Time Report Last Run : 02-JAN-92 23:59

Sampling Point : NANCEKUKE/E5

Date/Time Taken : 24-OCT-91 13:45

Nancekuke E5

Address : ADIT - PORTHTOWAN BEACH

Laboratory Reference : E21566

Sampler's Comments:
WEATHER DRY/OVERCAST FLOW 1 L/MIN
COND 492 pH 6.59 COND uS/CM

Det.	Code	<u>Description</u>	Resu	<u>lt</u>			
61	Ph			6.9	PH		
62	Conductiv	ity At 20c		519	Microsiem	ens	
68	Turbidity			2	Turbidity		
76	Temperatu	re		13.4	Celsius		
	Oxygen Di	ssolved % Saturation		85	8		
82	Oxygen Di	ssolved		8.85	mg/l		
85	Bod Atu		<	1	mg/l		
105	Mercury		<	0.02	ug/l		
106	Cadmium D	issolved		<b>7.1</b>	ug/l		
108	Cadmium			17.6	ug/l		
111		xpressed As Nitrogen	<	0.02	mg/l N		
116		Total Oxidised Expres		3.8	mg/l N		
118	Nitrite		<	0.01	mg/l		
119		on-Ionised		0	mg/l		
135		Solids 105c		7.4	mg/l		
172	Chloride			96	mg/l		
180	Ortho-Pho			0.03	mg/l		
182		Reactive Dissolved		7	mg/l		
213	Copper Di	ssolved		,0.62	mg/l		
215	Copper			0.66	mg/l		
231		Dissolved	<	0.001	mg/l		
	Beryllium			0.001	mg/l		
243	Zinc Diss	olved		2.3	mg/l		
745	Zinc			2.3	mg/l		
5	Barium Di	ssolved	No	Result	-		
257	Barium			0.019	mg/l		
281	Boron Dis	solved	No :	Result	1		
283	Boron			0.024	mg/l		
285		Dissolved	<	0.03	mg/l		
287	Aluminium			0.18	mg/l		
326	Lead Diss	olved		0.19	mg/l		
	Lead			0.244	mg/l		
	Vanadium	Dissolved	<	0.001	mg/l		
352	Vanadium		<	0.001	mg/l		

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#### MENSAR V2.0 NRA Exeter Regional Laboratory

6th Jan 1992

# Automatic Sample Analysis Report Production Date/Time Report Last Run: 02-JAN-92 23:59

Sampling Point : NANCEKUKE/E5

Date/Time Taken : 24-OCT-91 13:45

Det.	<u>Code</u> <u>Description</u>	Result	
358	Antimony Dissolved	< 0.001 mg/l	
360	Antimony	< 0.001 mg/l	
373	Chromium Dissolved	< 0.001 mg/l	
375	Chromium	< 0.001 mg/l	
	Manganese Dissolved	0.24 mg/l	
403	Manganese	0.24 mg/1	
423	Cobalt Dissolved	$0.046  ext{mg/l}$	
	Cobalt	$0.047  ext{mg/l}$	
	Nickel Dissolved	No Result	
	Nickel	$0.064  ext{mg/l}$	
	Hexachloro-Benzene Total	< 3.5 ng/l	
	Hexachloro-Butadiene Total	< 3 ng/1	
	Analysis By Mass-Spec	Report Filed Misc	
	Aldrin	< 3.5 ng/l	
	Dde-(Pp')	< 3.5 ng/l	
	Dde-(Op')	< 8 ng/l	
3296	Ddt (Op')	< 6 ng/l	
	Ddt (Pp')	< 3 ng/l	
	Dieldrin	< 3.5 ng/l	
	Endrin	< 4 ng/l	
3310	Hch Alpha	< 4 ng/l	
	. Hch Beta	< 12 ng/l	
3312	Hch Delta	< 4 ng/l	
3313	Hch Gamma	< 3 ng/l	
3329	Tde (Op')	< 5 ng/l	
3330	Tde (Pp')	< 3 : ng/l	
7354	Arsenic Dissolved Ppb	< 0.1 ug/l	
	Arsenic Total Ppb	No Result	

<sup>\*\*</sup> Indicates that Laboratory Determination Method is NAMAS Accredited.

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/E7

Date/Time Taken: 26-SEP-91 10:00

	ess :		Laboratory Reference : E16140
Det.	Code	Description	Result
			7.6700 pH 510.0000 Microsiemens/cm
52	PH CONDUCTIVI	TY AT 20C	\$10.0000 Microsiemens/cm
68	TURBIDITY		36.0000 Turbidity FTU
76	TEMPERATUR	RE SSOLVED & SATURATION SSOLVED	36.0000 Turbidity FTU 11.3000 Celsius
<b>B1</b>	OXYGEN DIS	SSOLVED & SATURATION	89.7000
82	OXYGEN DIS	SSOLVED	9.8000 mg/l
_85	BOD ATU		3.3000 mg/l < 0.0200 ug/l
05	MERCURY CADMIUM DI		
<b>0</b> 6	CADMIUM DI	SSOLVED	0.8000 ug/l
108	CADMIUM		0.9000 ug/l
<b>—</b> 111	AMMONIA EX	PRESSED AS NITROGEN	0.0050 mg/l N
	NITROGEN	PRESSED AS NITROGEN TOTAL OXIDISED EXPRESSED AS	-
_118	NITRITE		< 0.0100 mg/1
119	AMMONIA NO	N-IONISED SOLIDS 105C	. 0.0000 mg/l
135	SUSPENDED	SOLIDS 105C	138.0000 mg/l
172	CHLORIDE 1	ION	66.3840 mg/l
<b>■</b> 180	ORTHO-PHOS	SPHATE	0.0060 mg/l 4.8840 mg/l
82	SILICATE F	REACTIVE DISSOLVED	4.8840 mg/l
213	COPPER DIS	REACTIVE DISSOLVED	0.0020 mg/l
-215	COPPER BERYLLIUM		Λ ΛΛ2Λ =c/1
<b>D</b> 31	BERYLLTIM	DISSOLVED	0.0030 mg/l < 0.0010 mg/l
533	BERYLLIUM	210002120	< 0.0010 mg/1
243	ZINC DISSO	מעעזמ	0.2300 mg/l
1045	ZINC	,D120	0.2430 mg/l
<b>5</b> 55	ZINC BARIUM DIS	SOLVED	0.2430 mg/1
257	BARIUM	,502,425	0.0070 mg/l
	BORON DISS	KOLVED	0.00/0 mg/1
<b>E</b> 83	BORON	,02120	0.0200 mg/l
285	BORON ALUMINIUM	DISSOLVED	< 0.0300 mg/l
287	ALUMINIUM	210002120	0.0600 mg/l
	LEAD DISSO	משעזמ	< 0.0010 mg/l
<b>3</b> 28	LEAD	,2,2,5	0.0140 mg/l
350		OI SSOLVED	<pre>0.0140 mg/1 </pre>
-852			< 0.0010 mg/l < 0.0010 mg/l
8		DISSOLVED	< 0.0010 mg/1 < 0.0010 mg/1
360			< 0.0010 mg/1 < 0.0010 mg/1
373		DISSOLVED	< 0.0010 mg/1 < 0.0010 mg/1
<b>5</b> 75		,10001100	0.0020 mg/l
01		DISSOLVED	0.0110 mg/l
403			0.0390 mg/l
_			Contd
			conta

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#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/E7 Date/Time Taken: 26-SEP-91 10:00 Det. Code Description Result 423 COBALT DISSOLVED
425 COBALT
427 NICKEL DISSOLVED
429 NICKEL
559 TDE (PP')
573 TDE (OP')
3082 HEXACHLORO-BENZENE TOTAL < 0.0010 mg/l < 0.0010 mg/l 0.0040 mg/l 0.0050 mg/l < 0.0030 ug/l < 0.0050 ug/l < 3.5000 ng/l
< 3.5000 ng/l
< 3.5000 ng/l
< 3.5000 ng/l</pre> 3083 HEXACHLORO-BUTADIENE TOTAL 3276 ALDRIN 3294 DDE-(PP') < 3.5000 ng/l
< 8.0000 ng/l
< 6.0000 ng/l
< 3.5000 ng/l
< 4.0000 ng/l
< 3.0000 ng/l
</pre> 3295 DDE-(OP') 3296 DDT (OP')
3296 DDT (PP')
3297 DDT (PP')
3301 DIELDRIN
3306 ENDRIN
110 HCH ALPHA
3311 HCH BETA 3312 HCH DELTA 3313 HCH GAMMA < 3.0000 ng/l

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

Contd...

#### Sample Analysis Report

Sampling Point : NANCEKUKE/E8

Date/Time Taken: 26-SEP-91 09:20

Addre	ess :			Laboratory	Ref	erence : E16141
Det.	Code	Description		Resul		
61	рн			6.9	UUU	рн
<b>462</b>	CONDUCTIVII	Y AT 20C COLVED % SATURATION COLVED		344.6	000	Microsiemens/cm
68	TURBIDITY			0.9	600	Turbidity FTU Celsius
76	TEMPERATURE			12.3	000	Celaina
81	OXYGEN DISS	SOLVED & SATURATION		86.2	000	<del>*</del> 43
82	OXYGEN DISS	SOLVED		9.2 < 1.0 < 0.0 2.2 2.2	000	mg/1
<b>2</b> 5	BOD ATU			< 1.0	200	mg/1
TAD	MERCURY			7 0.0	200	ug/1
- 200	CADMIUM DIS	SOLVED		1.2	000	ug/1
-111	CADMIUM	DECCED AC NIMBOURN		0.1	970	ma/l N
.6	NITROGEN TO	PRESSED AS NITROGEN PTAL OXIDISED EXPRESSED	AS	4.2	770	mg/1 N mg/1 N
	NITROGEN					4.
	NITRITE			< 0.0 0.0 < 2.0	100	mg/l
119	AMMONIA NON	I-IONISED		0.0	003	mg/l
	SUSPENDED S			< 2.0	000	mg/1
172	CHLORIDE IC	ON		54.0		
180	ORTHO-PHOSE	PHATE		0.0	430	mg/1
182	SILICATE RE	AACTIVE DISSOLVED		0.0 6.2 0.0	300	mg/1
213	COPPER DISS	SOLVED		0.0	USU	mg/1
215	COPPER			0.0	080	mg/l
<b>2</b> 31	BERYLLIUM D	DISSOLVED		< 0.0	010	mg/l
233	BERYLLIUM					mg/l
_243	ZINC DISSOI	VED				<b></b>
245	ZINC			1:1	1600	mg/l
<b>2</b> 55	BARIUM DISS	SOLVED				<b>-</b>
	BARIUM			0.0	080	mg/l
281 283	BORON DISSO	DLVED				
283	BORON			0.0	320	mq/l
285	ALUMINIUM D	DISSOLVED		< 0.0	300	mg/l
287	ALUMINIUM			0.0	400	mg/l
	LEAD DISSOI	VED		0.0	030	mg/l
<b>328</b>	LEAD			0.0	130	mg/l
	VANADIUM DI	SSOLVED		< 0.0	010	mg/l
	VANADIUM			< 0.0	010	mg/l
8.	ANTIMONY DI	SSOLVED		< 0.0	010	mg/l
360	ANTIMONY			< 0.0	010	mq/l
<b>373</b>	CHROMIUM DI	SSOLVED		< 0.0	010	mq/l
375	CHROMIUM			< 0.0	010	mg/l
401	MANGANESE I	DISSOLVED		0.0	620	mg/l
_403	Manganese			0.0	680	mg/l
						Contd

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## NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/E8

Date/Time Taken : 26-SEP-91 09:20

Det.	Code	Description	Result
423	COBALT D	SSOLVED	0.0030 mg/l
425			0.0030 mg/l
	NICKEL D	SSOLVED	0.0130  mg/l
429			0.0140 mg/l
<b>559</b>	TDE (PP'		< 0.0030 ug/l
573			< 0.0050 ug/l
		RO-BENZENE TOTAL	< 3.5000 ng/l
3083	HEXACHLO	RO-BUTADIENE TOTAL	< 3.0000 ng/l
	ALDRIN		< 3.5000 ng/l
3294	DDE-(PP'		< 3.5000 ng/l
	DDE-(OP'		< 8.0000 ng/l
	DDT (OP'		< 6.0000 ng/l
	DDT (PP'		< 3.0000 ng/l
3301	DIELDRIN		< 3.5000 ng/l
<b>~~306</b>	ENDRIN		< 4.0000 ng/l
	HCH ALPHI	4	< 4.0000 ng/l
	HCH BETA		< 12.0000 ng/l
3312	HCH DELTA	A	< 4.0000 ng/l
3313	HCH GAMM	A	< 3.0000 ng/l

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.

#### MENSAR V2.0 NRA Exeter Regional Laboratory

3rd Dec 1991

Contd...

#### Sample Analysis Report

ampling Point : NANCEKUKE/E9

Date/Time Taken : 26-SEP-91 13:45

ddres	s:	Laboratory Reference : E16142
et.	Code Description	
161	ВH	7.4100 pH
62	CONDUCTIVITY AT 20C TURBIDITY	<b>544.8000 Microsiemens/cm</b>
68	TURBIDITY	0.6600 Turbidity FTU
76	TEMPERATURE OXYGEN DISSOLVED % SATURATION OXYGEN DISSOLVED	14.4000 Celsius
81	OXYGEN DISSOLVED % SATURATION	78.6000 %
82	OXYGEN DISSOLVED	8.0000 mg/l
85	BOD ATU	< 1.0000 mg/l
105	MERCURY	< 0.0200 ug/l
106	CADMIUM DISSOLVED	< 0.2000 ug/l
108	CADMIUM	< 0.2000 ug/l
111	AMMONIA EXPRESSED AS NITROGEN	0.0040 mg/l N
6	NITROGEN TOTAL OXIDISED EXPRESSED AS	6.6820 mg/l N
	NITROGEN	
	NITRITE	< 0.0100 mg/1
119	AMMONIA NON-IONISED	0.0000 mg/l
135	SUSPENDED SOLIDS 105C	< 2.0000 mg/l
172	CHLORIDE ION	82.6830 mg/l
180	ORTHO-PHOSPHATE	< 0.0100 mg/l
182	SILICATE REACTIVE DISSOLVED	4.8380 mg/l
213	COPPER DISSOLVED	0.0020 mg/l
	***************************************	
215	COPPER	0.0040  mg/l
231	BERYLLIUM DISSOLVED	< 0.0010 mg/l
233	BERYLLIUM DISSOLVED BERYLLIUM	< 0.0010  mg/l
293	ZINC DISSOLVED	0.0100  mg/l
245	ZINC BARIUM DISSOLVED	0.0120 mg/l
255	BARIUM DISSOLVED	•
<b>257</b> .	BARIUM	0.0070  mg/l
281	BORON DISSOLVED	•
283	BORON	0.0350  mg/l
285 .	BORON DISSOLVED BORON ALUMINIUM DISSOLVED	< 0.0300 mg/l
281 .	ALUMINIUM	0.0800  mg/l
β26	LEAD DISSOLVED	< 0.0010 mg/l
	LEAD	0.0010 mg/l
	VANADIUM DISSOLVED	< 0.0010 mg/l
352	VANADIUM	< 0.0010 mg/l
	ANTIMONY DISSOLVED	< 0.0010  mg/l
00d	ANTIMONY	< 0.0010 mg/l
373	CHROMIUM DISSOLVED	0.0010 mg/l
β <b>75</b> (	CHROMIUM	0.0020 mg/l
101	MANGANESE DISSOLVED	0.0190 mg/l
	MANGANESE	0.0330 mg/l
		Contd

QUIDATE AALES

### NRA Exeter Regional Laboratory

3rd Dec 1991

#### Sample Analysis Report

Sampling Point : NANCEKUKE/E9

Date/Time Taken : 26-SEP-91 13:45

Det.	Code	Description	Result	
423	COBALT D	ISSOLVED	< 0.0010 mg/l	
425	COBALT		< 0.0010 mg/l	
	NICKEL D	ISSOLVED	< 0.0010 mg/l	
	NICKEL		< 0.0010  mg/l	
559	TDE (PP'	)	< 0.0030 ug/l	
	TDE (OP'		< 0.0050 ug/l	
		RO-BENZENE TOTAL	< 3.5000 ng/l	
3083	HEXACHLO	RO-BUTADIENE TOTAL	< 3.0000 ng/l	
3276	ALDRIN		< 3.5000 ng/l	
3294	DDE-(PP'	)	< 3.5000 ng/l	
	DDE-(OP'		< 8.0000 ng/l	
	DDT (OP'		< 6.0000 ng/l	
	DDT (PP'		< 3.0000 ng/l	
	DIELDRIN		< 3.5000 ng/l	
3306	ENDRIN	3.5	< 4.0000 ng/l	
`10	HCH ALPH	A	< 4.0000 ng/l	
11 كار	HCH BETA		< 12.0000 ng/l	
3312	HCH DELT	Ά	< 4.0000 ng/l	
	HCH GAMM		< 3.0000 ng/l	

<sup>&#</sup>x27;\*' Indicates that Laboratory Determination Method is NAMAS Accredited.