# APPENDIX D

## SEDIMENT QUALITY DATA
### (PATTERSON BRITTON)

GHD

# PROPOSED EXTENSION OF SHIPPING CHANNELS, PORT OF NEWCASTLE, SEDIMENT QUALITY DATA

Issue No. 3
MARCH 2003

Patterson Britton
& Partners Pty Ltd
consulting engineers

GHD

# PROPOSED EXTENSION OF SHIPPING CHANNELS, PORT OF NEWCASTLE, SEDIMENT QUALITY DATA

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# 1 INTRODUCTION

The Newcastle Port Corporation (*NPC*) has engaged GHD, Patterson Britton and other subconsultants to prepare an EIS for the dredging of the South Arm of the Hunter River. The scope of work includes dredging for the Austeel project and the dredging and remediation of contaminated river sediments adjacent to the former BHP Steelworks site (*refer* **Figure 1.1**).

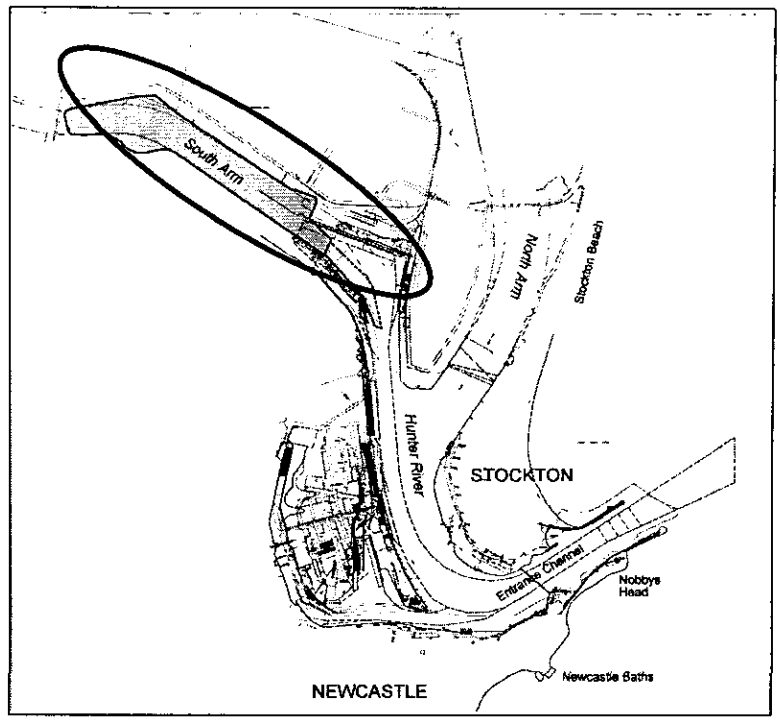
The physical and geochemical characteristics of the materials to be removed as part of the proposed dredging of the South Arm are varied. Available geotechnical data indicates the following materials are encountered within the South Arm with increasing depth:

- fine grained marine silts/clays;
- sand, some with higher fines content;
- stiff clay; and,
- rock, grading from soft to hard.

The fine grained marine silts/clays are generally contaminated with heavy metals, PAHs and TPHs. The highest concentration of contaminants are located in the area immediately adjacent to the former BHP Steelworks Site.

This report provides an overview of existing sediment quality data and includes details of the recent investigations undertaken as part of the South Arm Dredging EIS.

**FIGURE 1.1**




PROPOSED SWING BASIN

TOURLE STREET BRIDGE

SOUTH ARM HUNTER RIVER

N

Scale

100 0 100 200 300 400 500

Metres

PROPOSED DREDGE FOOTPRINT

MPT STAGE 2/K7 AREA

MPT STAGE 1 AREA

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**STUDY AREA**

# 2 EXISTING DATA

## 2.1 PHYSICAL PROPERTIES OF SEDIMENTS

The sediments in the proposed South Arm dredging area, generally comprise very soft to soft silty clays overlying sand or stiff clay.

Downstream of the proposed swing basin, soft clay typically overlies stiff clay. The thickness of the soft clay layer varies from 3 m to 5 m. From the Tourle Street Bridge to the proposed swing basin, a 0.5 m to 2 m layer of soft clay typically overlies fine to medium grained silty sand.

A localised ridge of rock has been identified just downstream of the proposed swing basin. The rock is a soft weathered to hard sandstone. The upper surface of the sandstone strata is located from approximately 5 m below Chart Datum.

## 2.2 CHEMICAL PROPERTIES OF SEDIMENT

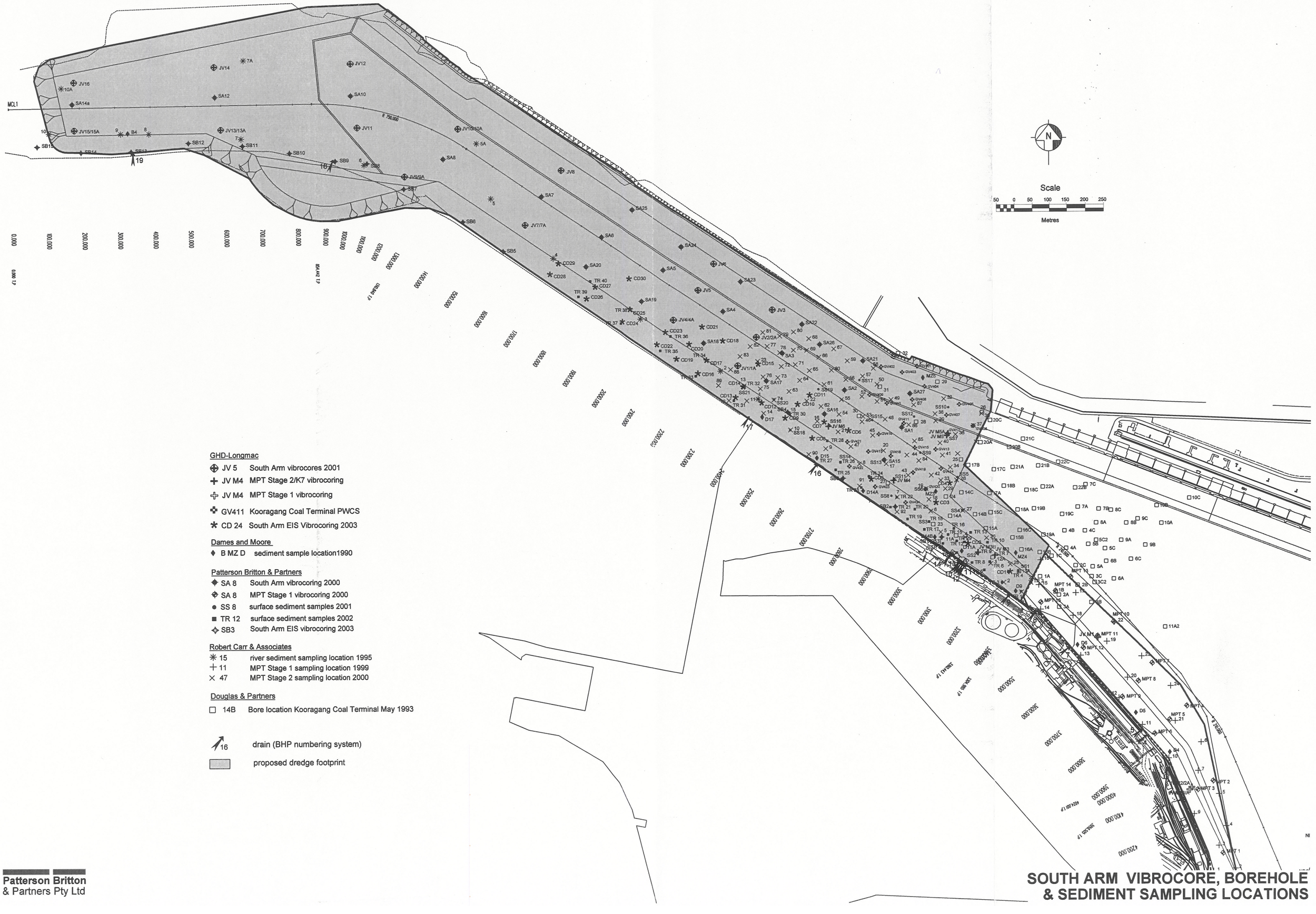
### 2.2.1 Database of Sediment quality information

The following list of testing and monitoring work has been undertaken in the South Arm of the Hunter River:

- Dames & Moore 1990 sediment sampling;
- Douglas & Partners 1993 Kooragang Coal Terminal Sampling;
- Robert Carr & Associates 1995 River and Shoreline sediment sampling;
- GHD-Longmac 1996 KCT Stage 3 Expansion vibrocoring
- Robert Carr & Associates 1999 MPT Stage 1 sampling;
- Robert Carr & Associates 2000 MPT Stage 2 sampling;
- Patterson Britton & Partners 2000 South Arm vibrocoring;
- Patterson Britton & Partners 2000 MPT Stage 1 vibrocoring;
- Patterson Britton & Partners 2001 surface sampling adjacent to former BHP site;
- GHD-Longmac 2001 MPT Stage 1 vibrocoring;
- GHD-Longmac 2001 MPT Stage 2/K7 vibrocoring;
- GHD-Longmac 2001 South Arm vibrocoring;
- Patterson Britton & Partners 2002 surface sampling adjacent to former BHP site;
- GHD-Longmac 2002 Dec/Jan vibrocoring adjacent to former BHP site; and,
- Patterson Britton & Partners 2003 vibrocoring along southern bank of the South Arm of the Hunter River from the former BHP steelworks site to Tourle Street Bridge.

All available sediment quality data from these investigations has been compiled in a database (*refer* **Attachment 1**). The location of all sediment sampling sites corresponding to the compiled data presented in **Attachment 1** is shown in **Figure 2.1**.

FIGURE 2.1




GHD-Longmac

- JV 5 South Arm vibrocores 2001
- JV M4 MPT Stage 2/K7 vibrocoring
- JV M4 MPT Stage 1 vibrocoring
- GV411 Kooragang Coal Terminal PWCS
- CD 24 South Arm EIS Vibrocoring 2003

Dames and Moore

- B MZ D sediment sample location1990

Patterson Britton & Partners

- SA 8 South Arm vibrocoring 2000
- SA 8 MPT Stage 1 vibrocoring 2000
- SS 8 surface sediment samples 2001
- TR 12 surface sediment samples 2002
- SB3 South Arm EIS vibrocoring 2003

Robert Carr & Associates

- 15 river sediment sampling location 1995
- 11 MPT Stage 1 sampling location 1999
- 47 MPT Stage 2 sampling location 2000

Douglas & Partners

- 14B Bore location Kooragang Coal Terminal May 1993

16 drain (BHP numbering system)

proposed dredge footprint

Patterson Britton & Partners Pty Ltd

# SOUTH ARM VIBROCORE, BOREHOLE & SEDIMENT SAMPLING LOCATIONS

### 2.2.2 Sediment Quality Investigations undertaken for EIS

Many of the investigations listed in **Section 2.2.1** have been undertaken specifically for the South Arm Dredging EIS. A list of these investigations is provided in **Table 2.1** together with a brief description of the testing and analysis undertaken for each sampling exercise.

## Table 2.1 Investigations undertaken for the South Arm Dredging EIS

| Sampling Exercise | Testing & Analysis | Purpose |
|---|---|---|
| Patterson Britton & Partners 2000, *South Arm vibrocoring* | Chemical analysis of sediment samples | Broad sampling to assess contamination levels of sediment throughout the South Arm of the Hunter River |
| GHD-Longmac 2001, *South Arm vibrocoring* | Chemical analysis of sediment samples from cores together with toxicity testing by CSIRO of selected samples. CSIRO toxicity testing documented in report titled *"Chemical and Ecotoxicological Testing of Dredged Sediment from Newcastle Harbour: South Arm Master Plan Dredge Area" (CSIRO June, 2001)* | Assessment of sediment contamination levels and toxicity within the South Arm Dredging EIS study area with a view to establish contamination levels acceptable for sea disposal |
| GHD-Longmac 2001, *MPT Stage 2/K7 vibrocoring* | Chemical analysis of sediment samples from cores together with toxicity testing by CSIRO of selected samples. CSIRO toxicity testing documented in report titled *"Chemical and Ecotoxicological Testing of Dredged Sediment from Newcastle Harbour: MPT Stage 2/K7 Area" (CSIRO, June 2001)* | Assessment of sediment contamination levels and toxicity within the MPT Stage 2/K7 Area with a view to establish contamination levels acceptable for sea disposal |
| Patterson Britton & Partners 2001, *Surface sampling adjacent to BHP former site* | Chemical and toxicity testing of sediment by CSIRO. CSIRO toxicity testing documented in report titled *"Relationship Between Chemical Contaminants and Ecotoxicological Effects for Dredged Newcastle Harbour Sediments" (CSIRO, October 2001)* | Collection of samples for toxicity testing to more accurately identify the toxicity causing contaminants and determine the levels of contaminants which could be tolerated by organisms, thereby deeming the sediments suitable for unconfined sea disposal |
| Patterson Britton & Partners 2002, *Surface sampling adjacent to BHP former site* | Chemical and toxicity testing of sediment by CSIRO. CSIRO toxicity testing documented in report titled *"Relationship Between PAHs and Ecotoxicological Effects on Algae, Amphipods and Bivalves for Newcastle Harbour Sediments" (CSIRO, Draft December 2002)* | Algae, amphipod and bivalve toxicity testing of ten samples to better confirm the relationship between total PAH concentrations in the sediments and toxicity. This sampling and testing exercise was based on the recommendations from a "scientific group" meeting held on 12.04.02 including representatives from EPA, CSIRO, EA, NPC, GHD & PBP. |
| GHD-Longmac Dec 02/Jan 03, *Vibrocoring adjacent to BHP former site* | Physical and chemical testing of sediment | Sampling and testing to refine the spatial extent and volume of material previously identified as potentially unsuitable for unconfined sea disposal.<br>This sampling and testing exercise was based on the recommendations from a "scientific group" meeting held on 02.12.02 including representatives from EPA, CSIRO, EA, NPC, GHD & PBP. |
| Patterson Britton & Partners & GHD-Longmac January 2003, *Bulk sampling of sediments adjacent the former BHP steelworks site* | Various testing including: chemical; physical; odour; dewatering; return water quality; and, toxicity testing. | Bulk sampling for bench testing of proposed removal and treatment processes for contaminated sediments (in particular odour and return water quality) |
| Patterson Britton & Partners January 2003, Vibrocoring along southern bank of South Arm of Hunter River | Physical and chemical testing of sediment | Broad sampling to assess contamination levels of sediment along southern bank of the South Arm of the Hunter River |

### 2.2.3 Contaminants of Concern

Review of the existing sediment quality data indicates the soft silty clays found in the Hunter River South Arm contain varying levels of contaminants. In general, the depth of sediment contamination ceases between the silty clays and the underlying estuarine sands. Contaminants recorded in the soft silty clays include PAHs, TPHs and metals (*cadmium, chromium, copper, lead, mercury, nickel, and zinc*). Contamination levels generally increase towards the southern foreshore of the Hunter River South Arm adjacent to the former BHP Steelworks site. A summary of contamination levels throughout the South Arm Dredging EIS study area is provided in **Section 4**.

# 3 SEDIMENT TOXICITY INVESTIGATIONS

## 3.1 GENERAL

Beneficial reuse of material has been adopted as one of the principles of the South Arm dredging project. Materials that cannot be beneficially reused consist of the soft silty clays and stiff clays. As discussed in **Section 2.2.3**, much of the soft silty clays contain elevated levels of PAHs, TPHs and heavy metals. It is proposed to dispose of these soft silty clays at sea or remediate them on land depending on the level of contamination and specifically the toxicity of the sediments.

A preliminary assessment of sediment quality data for the South Arm of the Hunter River, undertaken by Patterson Britton, indicated that the mean concentration of several contaminants (*PAHs and metals*) within the soft silty clay layer triggered the need for sediment toxicity testing in accordance with the *National Ocean Disposal Guidelines for Dredged Material* (2002).

Accordingly, CSIRO was engaged by Patterson Britton to undertake the toxicity testing of sediments from the South Arm of the Hunter River. The initial investigations indicated the sediments from the South Arm from the Tourle Street Bridge downstream to the former BHP Steelworks site were not acutely toxic to the test organisms. However significant toxicity to test organisms was observed in sediments adjacent to the former BHP Steelworks Site. Further toxicity investigations were therefore undertaken by CSIRO in order to more accurately identify the toxicity-causing contaminants and to determine the levels of contaminants which could be tolerated by organisms, thereby deeming the sediments suitable for unconfined sea disposal.

The testing undertaken by CSIRO included:

- chemical analysis;
- acid volatile sulfide (*AVS*) and simultaneously-extracted metals (*SEM*);
- porewater extractions and analyses;
- elutriate tests;
- whole sediment toxicity testing using bioassays with benthic microalgae, burrowing amphipods and bivalves.

The chronology and rationale for each CSIRO investigation is outlined below.

## 3.2 CHRONOLOGY OF INVESTIGATIONS

The mean concentration of several contaminants (*PAHs and metals*) within the soft silty clay layer of the South Arm triggered the need for toxicity testing. Sampling and toxicity testing of sediment from the South Arm within the original South Arm Dredging EIS study area was undertaken in May 2001. Additional sampling and toxicity testing of sediment within the MPT Stage 1 area and within the MPT Stage 2/K7 area was also undertaken at this time.

As shown on **Figure 1.1**, the MPT Stage 2/K7 area now forms part of the South Arm Dredging EIS footprint. However, Newcastle Port Corporation has already gained approval for the capital

dredging from the MPT Stage 1 area and its disposal at sea. The MPT Stage 1 area is therefore not included in the South Arm dredging EIS footprint but has been included in the discussion of sediment toxicity in this report as it forms part of the sequence of toxicity testing.

The results of these three sediment toxicity investigations are reported in the following documents:

- *Chemical and Ecotoxicological Testing of Dredged Sediment from Newcastle Harbour: South Arm Master Plan Dredge Area (CSIRO, June 2001);*
- *Ecotoxicological Testing of Dredged Sediment from Newcastle Harbour: MPT Stage 1 Capital Dredging (CSIRO, June 2001); and,*
- *Chemical and Ecotoxicological Testing of Dredged Sediment from Newcastle Harbour: MPT Stage 2/K7 Area (CSIRO, June 2001).*

These initial CSIRO toxicity investigations demonstrated that the contaminants of concern in the South Arm of the Hunter River were most likely to be PAHs. Concentrations of PAHs were high in some of the sediments, and toxicity of the sediments correlated reasonably well with total PAH concentrations. A description of the main findings of each investigation is provided in **Section 3.3**.

Following review of the findings of these initial CSIRO toxicity investigations, a series of further tests was required to more accurately identify the toxicity-causing contaminants and determine the levels of contaminants which could be tolerated by organisms, thereby deeming the sediments suitable for unconfined sea disposal. It was envisaged that the results of the additional toxicity tests would refine the spatial extent and volume of material previously identified as potentially unsuitable for unconfined sea disposal. Accordingly, CSIRO was engaged in August 2001 to undertake an additional sediment toxicity investigation.

The results of the additional sediment toxicity investigation undertaken by CSIRO are reported in the following document:

- *Relationship Between Chemical Contaminants and Ecotoxicological Effects for Dredged Newcastle Harbour Sediments (CSIRO, October 2001).*

Following presentation to the NSW Premiers Department of a discussion paper on the results of all four CSIRO sediment toxicity investigations, it was decided that a meeting of key scientific representatives should be held to determine if any further investigations into the toxicity of the South Arm sediments should be undertaken in order to better confirm the relationship between total PAH concentrations in the sediments and toxicity and to further define the extent of material considered suitable for unconfined sea disposal.

A "scientific group" meeting was held on 12.04.02 and included representatives from NSW Environment Protection Authority (*EPA*), Environment Australia (*EA*), Newcastle Ports Corporation (*NPC*), CSIRO, Patterson Britton and Partners (*PBP*) and GHD. The outcome of the meeting was that ten sediment samples should be tested using algae, amphipods and bivalves as test species to better confirm the relationship between total PAH concentrations in the sediments and toxicity. The minutes of this meeting are provided in **Attachment 2**. The intended outcome of the work was to provide a relationship between contaminant concentrations and toxicity that

may be used directly to screen sediments as low or high risk, thus confirming their suitability for unconfined sea disposal in accordance with the *National Ocean Disposal Guidelines for Dredged Material* (2002).

The results of this sediment toxicity investigation undertaken by CSIRO are reported in the following document:

- *Relationship Between PAHs and Ecotoxicological Effects on Algae, Amphipods and Bivalves for Newcastle Harbour Sediments (CSIRO, December 2002).*

Following completion of this investigation by CSIRO, a further "scientific group" meeting was held on 02.12.02 to discuss the findings of the investigation and to decide on the extent of the sampling required to better define the extent of contamination. The outcome of this meeting was that Patterson Britton would nominate vibrocoring locations to better define the extent of PAH and TPH contamination. The proposed locations were forwarded to the scientific group for comment and were subsequently agreed. An agreement was also reached at the meeting as to the most appropriate method of assessing the sediment quality data in order to delineate sediment suitable for unconfined sea disposal from the more highly contaminated sediment that must be remediated onshore (*refer* **Section 4**). The minutes of this meeting are provided in **Attachment 2**.

## 3.3 MAJOR FINDINGS OF EACH TOXICITY INVESTIGATION

**Chemical and Ecotoxicological testing of Dredged Sediment from Newcastle Harbour: South Arm Master Plan Dredge Area**
**S.L Simpson, C.K. King, M.S. Adams and J.L. Stauber (June, 2001)**
**CSIRO Centre for Advanced Analytical Chemistry. Report No: ET/IR400R**

Analysis

- chemical analysis (*metals, PAHs, TOC, tributyltin, radionuclides and OC pesticides*)
- acid volatile sulfide (*AVS*) and simultaneously-extracted metals (*SEM*)
- elutriate tests (*dissolved metals, PAHs and OC pesticides*)
- whole sediment toxicity testing using bioassays with benthic microalgae and burrowing amphipods (*seven samples*)

Study Findings

- The excess of acid-volatile sulfide (*AVS*) over simultaneously extractable metals (*SEM*) suggested that there would be little release of metals into pore waters and consequently no toxicity to marine organisms due to metals
- toxicity tests confirmed there was no relationship between the sediment metal concentrations (*particularly lead & zinc*), and toxicity
- Elutriate tests indicated that, upon resuspension of sediments in sea water, metal release was not significant
- TBT, radionuclides & OC pesticides were below guideline levels or below detection indicating that these contaminants were not likely to contribute to toxic effects
- concentration of OC pesticides and PAHS were below detection in the elutriate waters

- The whole sediments tested under oxic conditions were not toxic to the burrowing amphipod *Corophium* sp., nor were they acutely toxic to local species of the benthic alga *Entomoneis* cf *punctulata* after a 3-h exposure. In two of the whole sediments tested, acute toxicity (*28% and 27% inhibition*) was observed to the benthic alga after a 24-h exposure
- the results suggest that any impact on marine biota from these contaminants during dredging and ocean disposal of these sediments would be low

**Ecotoxicological Testing of Dredged Sediment from Newcastle Harbour: MPT Stage 1 Capital Dredging**
**S.L Simpson, C.K. King, M.S. Adams and J.L. Stauber (June, 2001)**
**CSIRO Centre for Advanced Analytical Chemistry. Report No: ET/IR399**

Analysis
- chemical analysis (*metals & PAHs*)
- acid volatile sulfide (*AVS*) and simultaneously-extracted metals (*SEM*)
- whole sediment toxicity testing using bioassays with benthic microalgae and burrowing amphipods (*two samples*)

Study Findings
- The excess of acid-volatile sulfide (*AVS*) over simultaneously-extracted metals (*SEM*) suggested that there would be little release of metals into pore waters and consequently no toxicity due to metals to marine organisms
- The whole sediments tested under oxic conditions were not acutely toxic to local species of the benthic alga *Entomoneis* cf *punctulata* or the burrowing amphipod *Corophium* sp.

**Chemical and Ecotoxicological testing of Dredged Sediment from Newcastle Harbour: MPT Stage 2/K7 Area**
**S.L Simpson, C.K. King, M.S. Adams, J.L. Stauber and G.E. Batley (June, 2001)**
**CSIRO Centre for Advanced Analytical Chemistry. Report No: ET/IR401R**

Analysis
- chemical analysis (*metals, PAHs, TOC, tributyltin, radionuclides and OC pesticides*)
- acid volatile sulfide (*AVS*) and simultaneously-extracted metals (*SEM*)
- elutriate tests (*dissolved metals, PAHs and OC pesticides*)
- whole sediment toxicity testing using bioassays with benthic microalgae and burrowing amphipods (*four samples*)

Study Findings
- The excess of acid-volatile sulfide (*AVS*) over simultaneously extractable metals (*SEM*) suggested that there would be little release of metals into pore waters and consequently no toxicity to marine organisms due to metals
- toxicity tests confirmed there was no relationship between the sediment metal concentrations (*particularly lead & zinc*), and toxicity
- Elutriate tests indicated that, upon resuspension of sediments in sea water, metal release was not significant

- OC pesticides were below detection indicating that these contaminants were not likely to contribute to toxic effects
- PAH concentrations were elevated in most samples with some samples releasing measurable concentrations of PAH to the elutriate waters
- total PAHs appeared to offer the best relationship with the observed toxicity
- The results of the whole sediment toxicity tests suggested that there may be significant impacts on marine biota from contaminants released during ocean disposal of sediment from location JVM 3B (*refer* **Figure 2.1**). Less toxicity was observed for the other three sediments tested, however for two of these sediments significant toxicity to algae and/or amphipods was observed
- further studies are required to identify and quantify the concentrations of the contaminants which are the principle cause of the observed toxicity

**Relationship Between Chemical Contaminants and Ecotoxicological Effects for Dredged Newcastle Harbour Sediments**
**S.L Simpson, C.K. King, M.S. Adams, J.L. Stauber and G.E. Batley (October, 2001)**
**CSIRO Centre for Advanced Analytical Chemistry. Report No: ET/IR435R**

Analysis

- Porewater extractions and analyses of ammonia and sulfide
- chemical analysis (*PAHs and TOC*)
- elutriate tests (*PAHs*)
- whole sediment toxicity testing using bioassays with benthic microalgae and burrowing amphipods (*eleven samples plus five dilution series samples*)

Study Findings

- Sediments where the concentration of total PAHs (*in any single measurement*) are greater than 200 mg/kg (*normalised to 1% TOC*) should not be considered for unconfined sea disposal (*potentially toxic*)
- Sediments with total PAH concentrations (*normalised to 1% TOC*) less than 100 mg/kg are considered suitable for unconfined sea disposal (*not toxic*)
- Sediments with intermediate PAH concentrations (*100 to 200 mg/kg, normalised to 1% TOC*) may be suitable for unconfined sea disposal if the average concentration of total PAHs (*following mixing with sediments of lower total PAH concentrations*) is less than 100 mg/kg (*normalised to 1% TOC*)
- Some consideration should be given to not disposing at sea any sediments located within a predetermined area surrounding the position of the JVM 3B sample due to both the very high PAH concentrations and the possibility of some uncharacterised toxicants at this site

**Relationship Between PAHs and Ecotoxicological Effects on Algae, Amphipods and Bivalves for Newcastle Harbour Sediments**
**S.L Simpson, C.K. King, and M.S. Adams, (October, 2002)**
**CSIRO Centre for Advanced Analytical Chemistry. Report No: ET/IR541**

Analysis

- chemical analysis (*PAHs, BTEXs, TPH, TOC, total cyanide, semi-volatile organics screen*)

- whole sediment toxicity testing using bioassays with benthic microalgae, burrowing amphipods and bivalves (*ten samples*)

Study Findings

- This study and previous studies (Simpson et al., 2001 a-d) have indicated that sulfide, ammonia, cyanide, heavy metals, organochlorine (*OC*) pesticides, benzene, toluene, ethylbenzene and xylene (*BTEXs*) are not contributing to the toxicity of the Hunter River sediments
- Polycyclic aromatic hydrocarbons (*PAHs*), total petroleum hydrocarbons (*TPH*) and other non-characterised hydrocarbon residues in the sediments may be contributing to the toxicity observed in bioassays
- Although PAHs and TPH are considered to be the likely cause of toxicity in the Hunter River sediments, the correlation between the bioassay responses and PAH and TPH concentrations was poor, and effects could be modified by the physical properties of the sediments
- The lowest total PAH concentration for which any toxicity (*response <80% of control*) was observed in two or more bioassays was 75 mg/kg. No toxicity was consistently observed for any bioassay with a total PAH concentrations less than 75 mg/kg
- There was a strong relationship between total PAH and TPH concentrations in the sediments ($r=0.98$, $p<0.01$ ). The lowest TPH concentration for which toxicity was observed in both algae and either amphipod or bivalve bioassays was 450 mg/kg
- Because the bioassays were all acute toxicity tests, it cannot be definitively discounted that chronic effects do not occur at lower PAH or TPH concentrations. If chronic effects were considered likely at the ocean disposal site, sediments with total PAH concentrations greater than 15 mg/kg should be considered unsuitable for ocean disposal
- Bioaccumulation of PAHs may be expected to occur for any organisms which inhabit the dredge spoil, and this may be estimated based on equilibrium partitioning approaches. However the absence of suitable relationships between contaminant bioaccumulation and effects to organisms currently limits the use of this information. No firm guidance is currently available on how to regulate sediment contaminants for ecosystem protection based on bioaccumulation data. Photo-induced toxicity of bioaccumulated PAHs should be considered as unlikely due to low light intensities expected at sea disposal sites
- Although fish are unlikely to have sufficient time in the dredge spoil to reach equilibrium tissue PAH concentrations, worse-case calculations indicate that ocean disposal of sediments with a total PAH concentration of less than 6 mg/kg would provide minimal risk to human health
- Based on the available data, for the protection of ecosystem and human health it is recommended that sediments with total PAH concentrations greater 15 mg/kg (normalised to 1% TOC) should be considered unsuitable for ocean disposal. Even though the human health risks from fish consumption are considered minimal, it is recommended that fishing be restricted during the disposal period to eliminate all risk to human health through the ingestion of contaminated fish

# 4 SEDIMENT CLASSIFICATION

## 4.1 DELINEATION OF SEDIMENT - OFFSHORE DISPOSAL VERSUS LAND TREATMENT

### 4.1.1 Additional Vibrocoring Exercises to Confirm Extent of Contamination

In accordance with the agreement reached at the second "scientific group" meeting on 02.12.02, a vibrocoring exercise was undertaken to confirm the extent of PAH and TPH contamination. Vibrocores were recovered from thirty locations by GHD-Longmac in December 2002 and January 2003. The vibrocore locations were selected to supplement existing sediment quality data in particular in the upstream portion of the site (*north western section adjacent to Former BHP Steelworks site*) where limited data with depth existed. The locations of the vibrocores, core logs and results of geochemical analysis are provided in **Attachment 3**.

In addition, a further vibrocoring exercise was undertaken in January 2003 to specifically investigate contamination along the southern bank of the South Arm extending from the Former BHP Steelworks site to the Tourle Street Bridge. The most downstream sites from this vibrocoring exercise were also used to confirm the extent of PAH and TPH contamination. The locations of the vibrocores and results of geochemical analysis are provided in **Attachment 3**.

The sediment quality data from the additional vibrocoring exercises was incorporated into the database of sediment quality data for the South Arm and used to delineate the sediment suitable for unconfined sea disposal from that sediment which must be remediated on land.

### 4.1.2 Method of Delineation of Sediment for Disposal at Sea and Disposal to Land

The main findings of the series of CSIRO investigations together with advice provided by key agencies at the "scientific group" meetings, has been used as the basis to delineate the sediment adjacent to the Former BHP Steelworks Site that is suitable for offshore disposal from that which must be remediated on land.

The steps taken to draw the line delineating the sediments were as follows:

- where sediment quality data exists with depth (*ie core samples*), the mean[1] concentration of total PAH contamination at each location was calculated;
- a 75 mg/kg total PAH concentration (*normalised to 1% TOC*) contour line was drawn by linear interpolation using the mean concentration of total PAH at each sample

[1] At sampling locations where contamination data with depth exists, generally 2 to 4 samples have been taken within the soft silty clay layer. As the number of samples at each location is small and the variance in total PAH concentration is generally large, the 95% UCL of the mean calculated for each sampling location was significantly higher than the mean concentration at each location. It was therefore considered appropriate to simply calculate the mean concentration of the sediment at a location rather than the 95% UCL of the mean.

location (*75 mg/kg was adopted as the CSIRO investigations showed that no toxicity was consistently observed for any biassay with a total PAH concentration less than 75 mg/kg*);

- the 95% Upper Confidence Limit[2] (*UCL*) of the mean total PAH concentration for all the sediment outside (*towards the northern bank of the river*) the 75 mg/kg total PAH (*normalised to 1% TOC*) contour line was calculated;
- the 95% UCL of the mean total PAH concentration for all the sediment outside the 75 mg/kg total PAH (*normalised to 1% TOC*) contour line was then compared to a total PAH concentration of 15 mg/kg (*normalised to 1% TOC*) (*15 mg/kg was adopted as CSIRO had recommended that, based on the available data for the protection of ecosystem and human health, sediment with total PAH concentrations exceeding 15 mg/kg (normalised to 1% TOC) should be considered unsuitable for ocean disposal*).

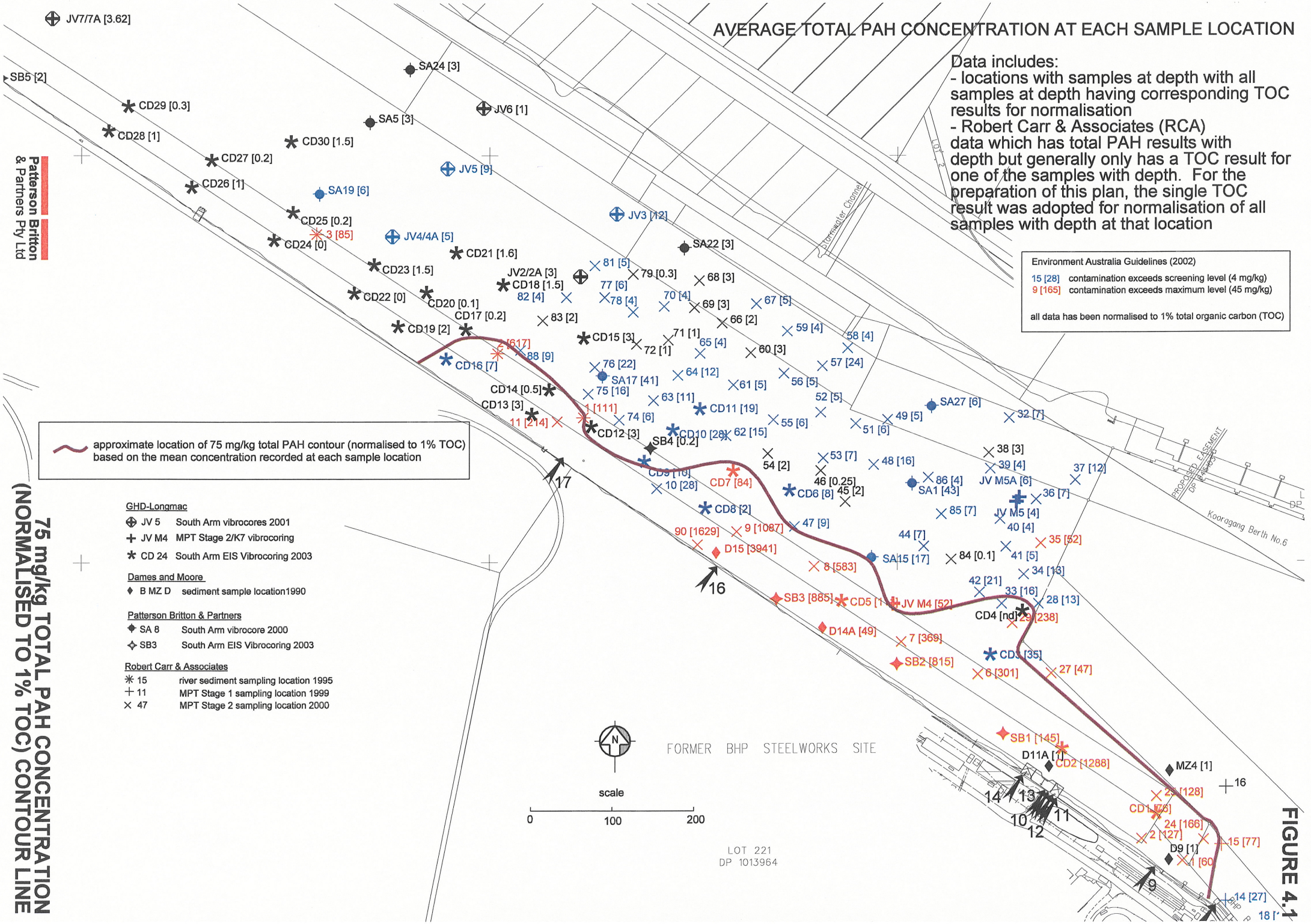
The location of the 75 mg/kg total PAH concentration (*normalised to 1% TOC*) contour line is shown in **Figure 4.1**. Although not shown on **Figure 4.1**, total PAH concentrations in surface samples were also considered when drawing the line. One sample, Robert Carr & Associates river sediment sampling location 3 (*refer* **Figure 4.1**), was not considered when drawing the line as it was regarded as an isolated high concentration of total PAH and was only marginally above the 75 mg/kg value. However, the data was included when calculating the mean level of contamination outside the contour line.

Although TPHs and other non-characterised hydrocarbon residues in the sediment may be contributing to the toxicity of the sediments, it was considered appropriate to use total PAH data only to delineate the sediment suitable for offshore disposal from sediment which must be remediated on land because:

- following extensive testing for a broad range of contaminants including a semi-volatile organics screen, PAHs and TPH are considered to be the likely cause of toxicity in the South Arm sediments;
- testing of the South Arm sediments has shown that there is a strong relationship between total PAH and TPH concentrations in the sediments; and,
- in Australia and overseas, significantly more research has been undertaken into the development of acute and chronic toxicity guideline values for PAHs (no Australian guidelines exist for TPH).

The 95% UCL of the mean total PAH concentration for all the sediment outside the 75 mg/kg total PAH (*normalised to 1% TOC*) contour line was calculated to be 12.9 mg/kg. This concentration is below the 15 mg/kg total PAH concentration (*normalised to 1% TOC*) recommended by CSIRO and therefore the sediment outside the contour line is considered suitable for unconfined sea disposal. Further discussion of the soft silty clay classification is provided in **Section 4.2.1**.

[2] The upper confidence limit is the upper bound estimate of the mean contaminant concentration of a sampling area. For example, if the 95% UCL is stated, it implies that there is a 95% probability that the mean contaminant concentration within the sampling area will not exceed the value determined by this method


AVERAGE TOTAL PAH CONCENTRATION AT EACH SAMPLE LOCATION
Data includes:
- locations with samples at depth with all samples at depth having corresponding TOC results for normalisation
- Robert Carr & Associates (RCA) data which has total PAH results with depth but generally only has a TOC result for one of the samples with depth. For the preparation of this plan, the single TOC result was adopted for normalisation of all samples with depth at that location
Environment Australia Guidelines (2002)
15 [28] contamination exceeds screening level (4 mg/kg)
9 [165] contamination exceeds maximum level (45 mg/kg)
all data has been normalised to 1% total organic carbon (TOC)
approximate location of 75 mg/kg total PAH contour (normalised to 1% TOC) based on the mean concentration recorded at each sample location
GHD-Longmac
JV 5 South Arm vibrocores 2001
JV M4 MPT Stage 2/K7 vibrocoring
CD 24 South Arm EIS Vibrocoring 2003
Dames and Moore
B MZ D sediment sample location1990
Patterson Britton & Partners
SA 8 South Arm vibrocore 2000
SB3 South Arm EIS Vibrocoring 2003
Robert Carr & Associates
15 river sediment sampling location 1995
11 MPT Stage 1 sampling location 1999
47 MPT Stage 2 sampling location 2000
75 mg/kg TOTAL PAH CONCENTRATION (NORMALISED TO 1% TOC) CONTOUR LINE
Patterson Britton & Partners Pty Ltd
FORMER BHP STEELWORKS SITE
scale
0
100
200
LOT 221 DP 1013964
Stormwater Channel
PROPOSED EASEMENT DP 1143605
Kooragang Berth No.6
FIGURE 4.1

## 4.2 CHEMICAL DESCRIPTION OF MATERIAL

### 4.2.1 Soft Silty Clay

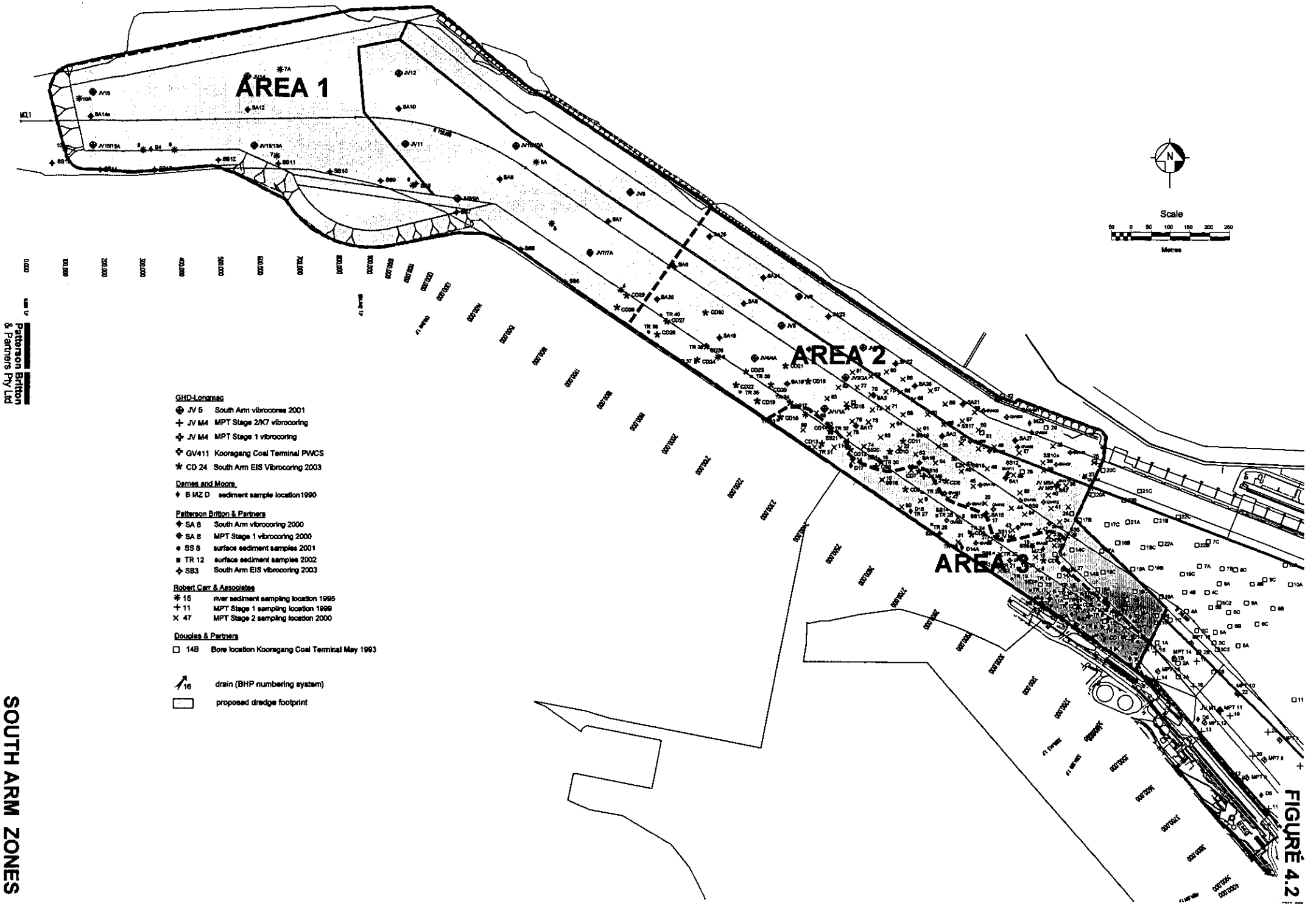
As discussed in **Section 2.1**, an extensive database of sediment quality data has been compiled. All available data have been pooled and used to characterise the soft silty clay. The data have been divided into 3 areas as follows (*the boundary between Area 1 and Area 2 was selected at a point approximately halfway along the proposed dredge footprint*) (*refer* **Figure 4.2**):

- Area 1 – Upstream of Former BHP Steelworks Site to Tourle Street Bridge – Proposed Offshore Disposal
- Area 2 - Adjacent to Former BHP Steelworks Site – Proposed Offshore Disposal (*outside 75 mg/kg total PAH concentration contour line*)
- Area 3 - Adjacent to Former BHP Steelworks Site – Proposed Land Disposal (*inside 75 mg/kg total PAH concentration contour line*)

The distribution (*normal or lognormal*) of the pooled contamination data was determined and then the appropriate method of calculating the mean and 95% UCL of the mean applied to each of the areas 1 to 3 (*refer* **Table 4.1**). Statistical tests show the data generally approximates a lognormal distribution.

The mean concentration of contaminants for each nominated area presented in **Table 4.1** has been compared to sediment quality guidelines provided in the document "*ANZECC & ARMCANZ Australian and New Zealand Guidelines for Fresh and Marine Water Quality: Sediment Quality Guidelines*" (October 2000) and the Environment Australia "*National Ocean Disposal Guidelines for Dredged Material*" (2002).

Guideline values for organics are normalised to 1% total organic carbon (*TOC*). Therefore, if the sediment TOC content is not 1%, the measured dry weight concentration of each organic contaminant must be normalised to 1% TOC before comparing it to the guideline values. For example, if the TOC of the sediment is 0.5%, then each measured organic contaminant concentration must be doubled before comparison to the guideline values. It is recommended that a minimum TOC value of 0.2 % and a maximum TOC value of 10% be adopted for normalisation calculations (*Environment Australia 2002*). All organic data presented in **Table 4.1** has been normalised to 1% TOC.




SOUTH ARM ZONES

FIGURE 4.2

## Table 4.1 Mean concentration of contaminants in the soft silty clay

| Contaminant | AREA 1 Tourle St to BHP – Offshore Disposal | | AREA 2 Adjacent to BHP –Offshore Disposal | | AREA 3 Adjacent to BHP –Land Treatment | | Environment Australia Screening Level (mg/kg) | Environment Australia Maximum Level (mg/kg) |
|---|---|---|---|---|---|---|---|---|
| | Mean (mg/kg) | 95% UCL (mg/kg) | Mean (mg/kg) | 95% UCL (mg/kg) | Mean (mg/kg) | 95% UCL (mg/kg) | | |
| ***Metals & Metalloids*** | | | | | | | | |
| Arsenic | 6 | 7 | 10 | 11 | 11 | 13 | 20 | 70 |
| Cadmium | 0.6 | 0.8 | 0.9 | 1.0 | 2.6 | 5.7 | 1.5 | 10 |
| Chromium | 32 | 38 | 39 | 41 | 59 | 70 | 80 | 370 |
| Copper | 24 | 29 | 38 | 40 | 60 | 76 | 65 | 270 |
| Nickel | 27 | 32 | 34 | 36 | 30 | 36 | 21 | 52 |
| Lead | 61 | 80 | 113 | 131 | 226 | 283 | 50 | 220 |
| Zinc | 432 | 781 | 654 | 757 | 1176 | 1459 | 200 | 410 |
| Mercury | 0.16 | 0.23 | 0.27 | 0.32 | 0.81 | 1.05 | 0.15 | 1 |
| Silver | below laboratory detection | | | | | | 1.0 | 3.7 |
| ***Organics*** | | | | | | | | |
| Total PCBS | below laboratory detection | | | | | | 23 µg/kg | |
| Pesticides | below laboratory detection | | | | | | 0.02-2 µg/kg | 1-46 µg/kg |
| Polynuclear Aromatic Hydrocarbons | | | | | | | | |
| Naphthalene | 0.4 | 0.7 | 4.0 | 5.5 | 539 | 1707 | 0.16 | 2.1 |
| Acenaphthylene | 0.05 | 0.07 | 0.13 | 0.16 | 9 | 20 | 0.044 | 0.64 |
| Acenaphthene | 0.06 | 0.09 | 0.27 | 0.36 | 31 | 79 | 0.016 | 0.50 |
| Fluorene | 0.06 | 0.08 | 0.20 | 0.25 | 24 | 62 | 0.019 | 0.54 |
| Phenanthrene | 0.17 | 0.26 | 0.6 | 0.8 | 71 | 196 | 0.24 | 1.5 |
| Anthracene | 0.08 | 0.12 | 0.28 | 0.35 | 20 | 49 | 0.085 | 1.1 |
| Fluoranthene | 0.40 | 0.68 | 0.98 | 1.22 | 80 | 216 | 0.6 | 5.1 |
| Pyrene | 0.40 | 0.69 | 0.95 | 1.18 | 61 | 158 | 0.665 | 2.6 |
| Benzo(a)anthracene | 0.17 | 0.27 | 0.41 | 0.50 | 16 | 37 | 0.261 | 1.6 |
| Chrysene | 0.15 | 0.23 | 0.35 | 0.42 | 12 | 26 | 0.384 | 2.8 |
| Benzo(a)pyrene | 0.23 | 0.38 | 0.58 | 0.71 | 19 | 44 | 0.430 | 1.6 |
| Dibenz(ah)anthracene | 0.02 | 0.03 | 0.10 | 0.11 | 0.98 | 1.68 | 0.066 | 0.26 |
| Total PAHs | 4.8 | 12.3 | 10.4 | 12.9 | 2028 | 6932 | 4 | 45 |

*Note: all values for organic contaminants are normalised to 1% total organic carbon*
*Environment Australia(2002) screening and maximum levels are the same as ANZECC/ARMCANZ (2000) ISQG Low and ISQG High guideline levels.*

Results in **Table 4.1** show that although the mean concentrations of total PAH in Area 1 and Area 2 exceed the Environment Australia screening level, the soft silty clays from these areas are considered suitable for unconfined sea disposal based on the outcomes of the series of sediment toxicity investigations, ie the 95% UCL of the mean total PAH concentration is less than 15 mg/kg (*normalised to 1 % TOC*). These sediments also contain elevated levels of nickel, lead, zinc and mercury. However, the toxicity investigations undertaken by CSIRO have shown that these contaminants are not bioavailable and are consequently not toxic to marine organisms.

The mean concentration of total PAHs, nickel, lead, zinc and mercury in Area 3 (*inside 75 mg/kg total PAH concentration contour line adjacent to the former BHP Steelworks Site*), exceed the Environment Australia Maximum Level. These sediments are considered unsuitable for unconfined sea disposal and will require land disposal.

### 4.2.2 Sand

In general, the depth of sediment contamination ceases between the silty clays and the underlying estuarine sands. Sampling of the estuarine sands underlying the soft silty clays has been undertaken during several investigations. Sediment quality data for key contaminants within the estuarine sands has been compiled (*refer* **Attachment 4**). The results show contamination generally below laboratory detection limits and the ANZECC Screening Levels.

### 4.2.3 Stiff clay

No anthropogenic contamination of the stiff clay strata is expected.

### 4.2.4 Rock

The type of rock found within the dredge area is a soft weathered to hard sandstone. This material would not be contaminated.

# 5 ACID SULFATE SOILS

## 5.1 GENERAL

Acid Sulfate Soil is the common name given to sediment and soil containing iron sulfide. The exposure of iron sulfides to air will result in oxidation and the generation of sulfuric acid. Acid leachate can strip metals such as aluminium and iron from the soil matrix and release them into water bodies. Toxic concentrations of these metals will affect water quality and adversely effect aquatic organisms (*disease or death*) that inhabit the water body.

Acid sulfate soils were formed during the last sea level rise and required the presence of :- iron rich fluvial sediments; sulfate from seawater; sulfate reducing bacteria; and, a plentiful supply of organic matter. These soils exist and are extensively developed around the Australian coastline (*low lying parts of coastal floodplains, rivers and creeks*) but have only recently come to prominence.

When saturated mud, gravel or sand containing iron sulfides are disturbed by excavation, dredging or dewatering and exposed to air, the generated acid leaches from the soil (ASSMAC, 1998). Acid leachate can cause severe environmental degradation and/or contamination. In discussion of acid sulfate soils the following definitions are important (ASSMAC, 1998):

**Acid Sulfate Soils** include actual acid sulfate soils and potential acid sulfate soils. Actual and potential acid sulfate soils are often found in the same soil profile, with actual acid sulfate soils generally overlying potential acid sulfate soil horizons.

**Actual Acid Sulfate Soils** are soils containing highly acidic soil horizons or layers resulting from the aeration of soil materials that are rich in sulfides, primarily iron sulfide. This oxidation produces hydrogen ions in excess of the sediments capacity to neutralise the acidity of the soil. These soils can usually be identified by the presence of pale yellow mottles and coatings of jarosite.

**Potential Acid Sulfate Soils** are soils which contain iron sulfide material which have not been exposed to air and oxidised. However they pose a considerable environmental risk when disturbed, as they will become severely acidic when exposed to air and oxidised.

Exposure of acid sulfate soils to the atmosphere *(lowering of the watertable or disturbance through dredging/excavation)* has the potential to produce acid generating conditions that may adversely effect the local environment.

## 5.2 CHARACTERISTICS OF THE SITE

### 5.2.1 General

During the last few years there has been a significant amount of research undertaken by scientists and agencies specialising in acid sulfate soils. This recent information has resulted in an improved understanding and appreciation of the issues in terms of field

investigation procedures, analytical tests, management procedures, monitoring and contingency procedures.

The NSW Government established the Acid Sulfate Soils Management Advisory Committee (*ASSMAC*) in 1994 to coordinate a whole-of-government approach to managing the problems associated with acid sulfate soils. In 1998 the ASSMAC published the Acid Sulfate Soils Manual *(ASSM)*. The manual is the first of its kind in Australia, providing a compendium of the latest technology and best practice including sections on assessment, management, drainage, strategic planning and laboratory analysis.

The assessment of acid sulfate soils risk within the South Arm of the Hunter River has been undertaken, where practicable, in accordance with the guidelines set out in the Acid Sulfate Soils Manual, 1998.

### 5.2.2 DLWC ASS Soils Maps

In 1995, the Department of Land and Water Conservation (*DLWC*) published Acid Sulfate Soils Risk Maps for NSW coastal areas. The risk maps identify three risk classes (*high, low and zero*) based on the probability of acid sulfate soils being present. Within each risk class, the depth to acid sulfate material, landform and environmental risk are documented. A summary of this assessment is contained in **Table 5.1** below.

### Table 5.1 Summary of DLWC ASS Maps Environmental Assessment

| MAP CLASS DESCRIPTION | DEPTH TO ACID SULFATE MATERIAL | ENVIRONMENTAL RISK |
|---|---|---|
| **HIGH PROBABILITY**<br>High probability of occurrence of acid sulfate soil materials within the soil profile<br><br>Acid sulfate soil materials are widespread or sporadic and may be buried by alluvium or windblown sediments | Bottom sediments | Severe environmental risk if bottom sediments are disturbed by activities such as dredging |
| | At or near the ground surface | Severe environmental risk if acid sulfate soil materials are disturbed by activities such as shallow drainage, excavation or clearing |
| | Within 1 metre of the ground surface | Severe environmental risk if acid sulfate soil materials are disturbed by activities such as shallow drainage, excavation or clearing |
| | Between 1 and 3 metres below the ground surface | Environmental risk if acid sulfate soil materials are disturbed by activities such as deep excavation for pipelines, dams or deep drains |
| | Greater than 3 metres below the ground surface | Environmental risk if acid sulfate soil materials are disturbed by activities such as deep excavation, - eg large structure foundations or deep dams |
| **LOW PROBABILITY**<br>Low probability of occurrence of acid sulfate soil materials within the soil profile<br><br>Acid sulfate soil materials, if present, are sporadic and may be buried by alluvium or windblown sediments | Bottom sediments | The majority of these landforms are not expected to contain acid sulfate soils materials. Therefore, land management is generally not affected by acid sulfate soils<br><br>However, highly localised occurrences may be found, especially near boundaries with environments with a high probability of occurrence. Disturbance of these soils will result in an environmental risk that will vary with elevation and depth of disturbance |
| | At or near the ground surface | |
| | Within 1 metre of the ground surface | |
| | Between 1 and 3 metres below the ground surface | |
| | Greater than 3 metres below the ground surface | |
| **NO KNOWN OCCURENCE**<br>Acid sulfate soils are not known or expected to occur in these environments | No known occurrences of acid sulfate soil materials | Land management activities not likely to be affected by acid sulfate soil materials |

Acid Sulfate Soils Risk mapping for the South Arm of the Hunter River is covered by the following 1:25,000 DLWC map sheet:

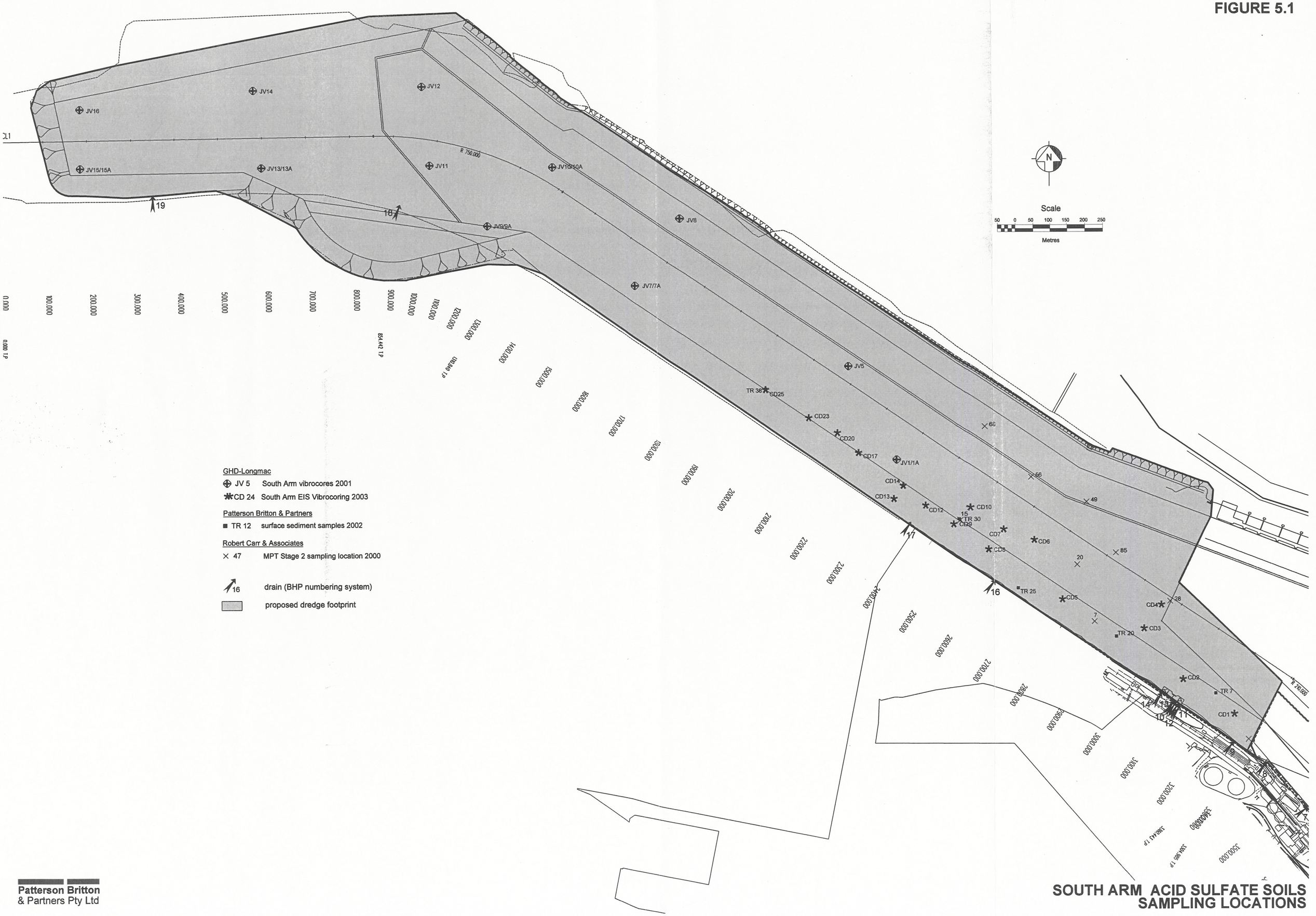
- 9232-11-S Newcastle

The Acid Sulfate Soils Risk mapping shows the probability of the occurrence of acid sulfate soils materials in the soil profile within the South Arm of the Hunter River. The environmental risk, if bottom sediments of the South Arm of the Hunter River are disturbed by activities such as dredging, is considered by the mapping to be severe. However, it is important to note that the DLWC Acid Sulfate Soils Risk mapping does not describe the actual severity of acid sulfate soils in a particular area, rather it provides a first indication that acid sulfate soils could be present (*ASSMAC, 1998*).

### 5.2.3 Investigations and Studies

A number of investigations have been completed by various groups involved in the South Arm dredging project to identify the extent and risk of acid generating material that may be contained in the soft sediment to be removed by dredging and placed on land. A summary of all testing is provided in **Table 5.2** and the location of sampling sites is shown on **Figure 5.1.** It should be noted that, as the ASS sampling and testing has been undertaken by a variety of different consultants and laboratories, a range of different parameters are reported in **Table 5.2**.

FIGURE 5.1




GHD-Longmac

- JV 5 South Arm vibrocores 2001
- CD 24 South Arm EIS Vibrocoring 2003

Patterson Britton & Partners

- TR 12 surface sediment samples 2002

Robert Carr & Associates

- 47 MPT Stage 2 sampling location 2000

- 16 drain (BHP numbering system)
- proposed dredge footprint

Patterson Britton & Partners Pty Ltd

# SOUTH ARM ACID SULFATE SOILS SAMPLING LOCATIONS

## Table 5.2 Summary of Results of ASS testing

| Sample | pH (1:5 water) | pH in KCL | pH in $H_2O_2$ | TAA mol H+/t | TPA mol H+/t | TSA mol H+/t | % $S_{KCL}$ | % $S_P$ | % $S_{POS}$ | % $S_{TPA}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| TR20 | | 6.94 | 3.42 | <2 | 82 | 82 | 0.12 | 0.57 | 0.45 | 0.13 |
| TR7 | | 7.38 | 7.08 | <2 | <2 | <2 | 0.07 | 0.2 | 0.13 | <0.01 |
| TR25 | | 7.48 | 6.86 | <2 | <2 | <2 | 0.08 | 0.23 | 0.15 | <0.01 |
| TR30 | | 7.36 | 7.27 | <2 | <2 | <2 | 0.06 | 0.21 | 0.15 | <0.01 |
| TR38 | | 7.21 | 6.66 | <2 | <2 | <2 | 0.08 | 0.18 | 0.1 | <0.01 |
| CD1 | | | | <5 | <5 | <5 | <0.01 | <0.01 | <0.01 | |
| CD2 | | | | <5 | <5 | <5 | <0.01 | 0.02 | 0.02 | |
| CD3 | | | | <5 | <5 | <5 | 0.07 | 0.46 | 0.39 | |
| CD4 | | | | <5 | <5 | <5 | 0.11 | 0.39 | 0.28 | |
| CD5 | | | | <5 | <5 | <5 | 0.02 | 0.15 | 0.13 | |
| CD6 | | | | <5 | <5 | <5 | 0.05 | 0.28 | 0.23 | |
| CD7 | | | | <5 | <5 | <5 | 0.04 | 0.36 | 0.32 | |
| CD8 | | | | <5 | <5 | <5 | <0.01 | 0.02 | 0.02 | |
| CD9 | | | | <5 | <5 | <5 | 0.06 | 0.28 | 0.22 | |
| CD12 | | | | <5 | <5 | <5 | <0.01 | <0.01 | <0.01 | |
| CD13 | | | | <5 | <5 | <5 | 0.05 | 0.27 | 0.22 | |
| CD14 | | | | <5 | <5 | <5 | 0.07 | 0.49 | 0.42 | |
| CD17 | | | | <5 | <5 | <5 | <0.01 | 0.01 | 0.01 | |
| CD20 | - | - | - | <5 | <5 | <5 | <0.01 | <0.01 | <0.01 | - |
| CD23 | - | - | - | <5 | 110 | 110 | 0.11 | 0.58 | 0.47 | - |
| CD23 Duplicate | - | - | - | <5 | 100 | 100 | 0.1 | 0.55 | 0.45 | - |
| CD25 | - | - | - | <5 | <5 | <5 | 0.09 | 0.36 | 0.27 | - |
| JV1/1A | - | 8.4 | 4.9 | <5 | <5 | <5 | 0.01 | 0.01 | <0.01 | - |
| JV4/4A | - | 8.6 | 4.6 | <5 | <5 | <5 | 0.02 | 0.07 | 0.05 | - |
| JV5 | - | 7.9 | 5.3 | - | - | - | - | - | - | - |
| JV7/7A | - | 7.8 | 4.4 | <5 | <5 | <5 | 0.05 | 0.23 | 0.18 | - |
| JV11 | - | 8.2 | 5.6 | - | - | - | - | - | - | - |
| JV11 | - | 8.4 | 5.8 | - | - | - | - | - | - | - |
| JV12 | - | 8.7 | 5.1 | <5 | 10 | 10 | 0.01 | 0.35 | 0.34 | - |
| JV12 | - | 8.1 | 5.2 | - | - | - | - | - | - | - |
| JV13/13A | - | 8.4 | 5.4 | - | - | - | - | - | - | - |
| JV13/13A | - | 8 | 5.4 | - | - | - | - | - | - | - |
| JV14 | - | 8.1 | 5.5 | - | - | - | - | - | - | - |
| JV15/15A | - | 8.5 | 5.9 | - | - | - | - | - | - | - |
| JV15/15A | - | 8.4 | 5.6 | - | - | - | - | - | - | - |
| RCA 1-1 | 8.54 | - | - | - | - | - | - | - | 0.387 | - |
| RCA 6-1 | 8.29 | - | - | - | - | - | - | - | 0.189 | - |
| RCA 12-1 | 8.34 | - | - | - | - | - | - | - | 0.162 | - |
| RCA 14-1 | 8.54 | - | - | - | - | - | - | - | 0.25 | - |
| RCA 20-1 | 8.5 | - | - | - | - | - | - | - | 0.189 | - |
| RCA1-2 | 8.43 | | | | | | | | 0.432 | |
| RCA 5.2 | 8.88 | | | | | | | | 0.282 | |
| RCA 7-2 | 8.25 | | | | | | | | 0.408 | |
| RCA 15-2 | 8.12 | | | | | | | | 1.346 | |
| RCA 20-2 | 8.37 | - | - | - | - | - | - | - | 0.423 | - |
| RCA 28-2 | 8.28 | - | - | - | - | - | - | - | 0.214 | - |
| RCA 49-2 | 8.15 | - | - | - | - | - | - | - | 0.417 | - |
| RCA 56-2 | 8.12 | - | - | - | - | - | - | - | 0.351 | - |
| RCA 68-2 | 8.09 | - | - | - | - | - | - | - | 0.375 | - |
| RCA 85-2 | 8.11 | - | - | - | - | - | - | - | 0.549 | - |

*Notes*
pH in KCL – pH in potassium chloride
pH in $H_2O_2$ . pH following oxidation
TAA – total actual acidity
TPA – total potential acidity
% $S_{pos}$ - peroxide oxidisable (unoxidised) Sulfur (S)

samples taken from sediment to be dredged and treated on land

## 5.3 ACID SULFATE SOILS CLASSIFICATION SYSTEM

The Acid Sulfate Soil Manual *(ASSMAC, 1998)* defines the so-called "action criteria" which trigger the need to prepare an Acid Sulfate Soils Management Plan (*ASSMP*).

These criteria define oxidisable sulfur levels, on the basis of a soils texture and mineralogy, above which soils require the preparation of a management plan. The criteria are summarised in **Table 5.3**. Generally, for environmental purposes, the highest result by either the "sulfur trail" or the "acid trail" should be used as the action criteria unless mitigating factors are established *(ie. the quantity, fineness and reactivity of natural neutralising material such as shell).*

### TABLE 5.3 Action Criteria Based on ASS Soil Analysis for Three Texture Categories

| Type of Material | | Action Criteria 1-1000 tonnes disturbed | | Action Criteria if more than 1000 tonnes disturbed | |
|---|---|---|---|---|---|
| Texture range McDonald et al (1990) | Approx. clay content (5<0.002 mm) | Sulfur Trail % S oxidisable (oven-dry basis) eg $S_{TOS}$ or $S_{POS}$ | Acid Trail mol $H^+$/tonne (oven-dry basis) eg, TPA or TSA | Sulfur Trail % S oxidisable (oven-dry basis) eg $S_{TOS}$ or $S_{POS}$ | Acid Trail mol $H^+$/tonne (oven-dry basis) eg, TPA or TSA |
| **Coarse Texture** Sands to loamy sands | ≤5 | 0.03 | 18 | 0.03 | 18 |
| **Medium Texture** Sandy loams to light clays | 5 – 40 | 0.06 | 36 | 0.03 | 18 |
| **Fine Texture** Medium to heavy clays and silty clays | ≥40 | 0.1 | 62 | 0.03 | 18 |

## 5.4 EXTENT OF ACID SULFATE SOILS

The results of the acid sulfate soils testing indicated that the sediments of the South Arm of the Hunter River would be classified as potential acid sulfate soils. The sulfur trail action criteria for projects where more than 1000 tonnes of material is being disturbed is exceeded at most sampling sites. However, the TPA analysis results indicate that sufficient insitu neutralising capacity is generally present to buffer any acid generation. Nevertheless, the so-called "action criteria" has been triggered and there is a need to prepare an ASSMP.

The majority of the sediment to be disturbed is proposed to be disposed of offshore in a sub-aqueous environment. This material therefore poses no acid sulfate risk. A portion of sediment is proposed for treatment on land. One sample from the sediment proposed for treatment on land showed a significant drop in pH upon oxidation and both the acidity and sulfur results were elevated. This sample is TR 20 and it is located approximately 50 m from the southern bank of the river adjacent to the former BHP steelworks site .

## 5.5 ACID SULFATE SOILS MANAGEMENT STRATEGY

The ASS results for the sediment proposed for treatment on land indicate that the majority of the sediment has sufficient insitu neutralising capacity to alleviate any acid sulfate risk. However as one sample (*TR20*) from this area showed significant acid sulfate risk, it is recommended that prior to undertaking any dredging, further testing be completed in the vicinity of the sample to confirm the spatial extent of the potential acid sulfate soils.

Based on the results of the additional investigation to define the extent of the potential acid sulfate soils around TR20, an ASSMP would be prepared. The ASSMP would include a preferred management strategy to remove, handle and dispose of the material proposed for treatment on land. The preferred management strategy would include the following activities:

- removal of sediment from the removal area utilising the specialist plant and equipment described within the project proposal;
- initial treatment of material loaded into barges through the addition of a prescribed initial amount of lime and transportation to the onshore disposal facility;
- close monitoring of the material for oxidisation prior to unloading of the barges and unloading of the trucks at the onshore disposal site; and,
- the neutralisation of sediment product following placement within the onshore temporary treatment facility through the further addition of lime, as required, in prescribed amounts;
- the implementation of contingency measures such as addition of lime as required should monitoring indicators exceed acceptable levels.

# 6 REFERENCES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CSIRO Centre for Advanced Analytical Chemistry. Report No: ET/IR541

# ATTACHMENT 1

## SEDIMENT QUALITY DATABASE

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz(a)anthracene | Chrysene | Benzo(b)&(k)fluoranthene | Benzo(a)pyrene | Indeno(1,2,3-cd)pyrene | Dibenz(a,h)anthracene | Benzo(g,h,i)perylene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 20AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 20BB | – | DJ/1993 | 1 | 0.05 | 0.25 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 |
| 20BM | – | DJ/1993 | 7.1 | 0.6 | 0.25 | 0.05 | 0.2 | 0.6 | 0.2 | 1.1 | 1 | 0.4 | 0.6 | – | 0.6 | – | – | 0.05 |
| 20BT | – | DJ/1993 | 5 | 1 | 0.25 | 0.4 | 0.05 | 0.2 | 0.05 | 0.05 | 0.05 | 1 | 0.4 | – | 0.6 | – | – | 0.05 |
| 20CS | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 21AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 21AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 21AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 21BB | – | DJ/1993 | 5.05 | 0.5 | 0.25 | 0.1 | 0.3 | 1 | 0.3 | 0.8 | 0.5 | 0.3 | 0.3 | – | 0.3 | – | – | 0.05 |
| 21BM | – | DJ/1993 | 3.7 | 0.2 | 0.25 | 0.05 | 0.05 | 0.2 | 0.05 | 0.4 | 0.6 | 0.2 | 0.4 | – | 0.4 | – | – | 0.05 |
| 21BT | – | DJ/1993 | 2.2 | 0.2 | 0.25 | 0.05 | 0.05 | 0.2 | 0.05 | 0.05 | 0.2 | 0.2 | 0.2 | – | 0.2 | – | – | 0.05 |
| 21CS | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22BB | – | DJ/1993 | 45.75 | 3.5 | 0.25 | 6.5 | 0.5 | 5.5 | 1.5 | 6.5 | 11 | 3 | 1.5 | – | 0.5 | – | – | 1 |
| 22BM | – | DJ/1993 | 50.25 | 2 | 0.25 | 4.5 | 0.5 | 4 | 1.5 | 7.5 | 16 | 4 | 1.5 | – | 0.5 | – | – | 1.5 |
| 22BS | – | DJ/1993 | 7.7 | 0.4 | 0.25 | 0.2 | 0.2 | 0.9 | 0.3 | 1 | 1.9 | 0.8 | 0.3 | – | 0.4 | – | – | 0.05 |
| 22BT | – | DJ/1993 | 18.85 | 1.5 | 0.25 | 1 | 0.1 | 1.5 | 0.5 | 2 | 4.5 | 1 | 1 | – | 0.5 | – | – | 1 |
| 22CB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22CM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22CT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 23M | – | DJ/1993 | 6.65 | 0.7 | 0.25 | 0.6 | 0.05 | 0.6 | 2.3 | 0.5 | 0.6 | 0.3 | 0.1 | – | 0.1 | – | – | 0.1 |
| 23T | – | DJ/1993 | 1494.1 | 809 | 17 | 214 | 41 | 114 | 31 | 102 | 84 | 18 | 16 | – | 4.2 | – | – | 3.9 |
| 24B | – | DJ/1993 | 133.95 | 8.9 | 0.25 | 7.9 | 1.2 | 7.4 | 5.2 | 14 | 39 | 8.6 | 5.3 | – | 2.7 | – | – | 3.7 |
| 24M | – | DJ/1993 | 491.5 | 29 | 9.2 | 35 | 5.8 | 32 | 20 | 95 | 124 | 27 | 22 | – | 7.5 | – | – | 8.8 |
| 24T | – | DJ/1993 | 242.8 | 17 | 2.1 | 19 | 1.8 | 20 | 7.6 | 35 | 41 | 11 | 8.8 | – | 4.4 | – | – | 5.3 |
| 25B | – | DJ/1993 | 5.55 | 1 | 0.25 | 0.6 | 0.1 | 0.6 | 0.2 | 0.6 | 1.1 | 0.3 | 0.2 | – | 0.1 | – | – | 0.1 |
| 25M | – | DJ/1993 | 1.6 | 0.4 | 0.25 | 0.2 | 0.1 | 0.1 | 0.05 | 0.05 | 0.1 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 |
| 25T | – | DJ/1993 | 1.9 | 0.05 | 0.25 | 0.05 | 0.05 | 0.1 | 0.05 | 0.05 | 0.4 | 0.2 | 0.1 | – | 0.1 | – | – | 0.1 |
| 26TS | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 27B | – | DJ/1993 | 2409.1 | 882 | 50 | 442 | 54 | 215 | 50 | 198 | 256 | 51 | 42 | – | 11 | – | – | 22 |
| 27M | – | DJ/1993 | 121.85 | 18 | 0.25 | 27 | 4.2 | 11 | 3 | 12 | 17 | 4.7 | 3.4 | – | 1.7 | – | – | 3.6 |
| 27T | – | DJ/1993 | 26.55 | 1.9 | 0.25 | 1.5 | 0.2 | 1.5 | 0.7 | 3.3 | 4.5 | 1.9 | 1.3 | – | 0.8 | – | – | 1.4 |
| 28B | – | DJ/1993 | 15.85 | 1.8 | 0.25 | 2 | 0.1 | 1.5 | 0.7 | 2.2 | 3 | 0.8 | 0.6 | – | 0.3 | – | – | 0.3 |
| 28M | – | DJ/1993 | 180.55 | 30 | 0.25 | 44 | 6.1 | 24 | 6.7 | 23 | 20 | 6 | 4.2 | – | 1.4 | – | – | 2 |
| 28T | – | DJ/1993 | 5.95 | 0.05 | 0.25 | 0.05 | 0.05 | 0.3 | 0.2 | 0.05 | 1.3 | 0.5 | 0.4 | – | 0.4 | – | – | 0.3 |
| 29B | – | DJ/1993 | 46.85 | 2 | 0.25 | 2.4 | 0.21 | 2 | 1.1 | 2.7 | 17 | 3.4 | 0.9 | – | 1.2 | – | – | 1.6 |
| 29M | – | DJ/1993 | 68.85 | 1.9 | 0.25 | 4.5 | 0.4 | 3 | 2 | 9.9 | 22 | 4.6 | 1.6 | – | 1.7 | – | – | 2.1 |
| 29S | – | DJ/1993 | 2.35 | 0.4 | 0.25 | 0.05 | 0.05 | 0.1 | 0.1 | 0.05 | 0.5 | 0.05 | 0.1 | – | 0.1 | – | – | 0.1 |
| 29T | – | DJ/1993 | 8.45 | 0.3 | 0.25 | 0.7 | 0.1 | 0.7 | 0.4 | 1.8 | 1.6 | 0.4 | 0.3 | – | 0.2 | – | – | 0.2 |
| 2AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2BT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2CB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2CM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2CT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 30B | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 30M | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 30S | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 30T | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 31B | – | DJ/1993 | 23.35 | 1.5 | 0.25 | 3.6 | 0.8 | 2.1 | 1.1 | 4.4 | 4.5 | 1.5 | 0.9 | – | 0.3 | – | – | 0.3 |
| 31M | – | DJ/1993 | 30.05 | 2.9 | 0.25 | 1.4 | 0.1 | 1.2 | 0.8 | 5.2 | 6 | 2.4 | 1.2 | – | 0.8 | – | – | 1 |
| 31T | – | DJ/1993 | 10.6 | 0.05 | 0.25 | 0.05 | 0.05 | 0.1 | 0.1 | 0.05 | 0.5 | 0.2 | 0.2 | – | 0.01 | – | – | 0.1 |
| 32T | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 3AB | – | DJ/1993 | 466.05 | 220 | 0.25 | 67 | 6.4 | 46 | 13 | 34 | 40 | 6.7 | 6 | – | 6.1 | – | – | 0.6 |
| 3AM | – | DJ/1993 | 22.65 | 5.3 | 0.25 | 1 | 1 | 3.7 | 1 | 2.9 | 4.2 | 0.8 | 0.8 | – | 0.6 | – | – | 0.05 |
| 3AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 3BB | – | DJ/1993 | 2.6 | 0.2 | 0.25 | 0.05 | 0.05 | 0.05 | 0.05 | 1.2 | 0.05 | 0.05 | 0.05 | – | 0.1 | – | – | 0.05 |
| 3BM | – | DJ/1993 | 8.85 | 1 | 0.25 | 0.5 | 0.2 | 0.8 | 0.3 | 0.05 | 2.4 | 0.8 | 0.7 | – | 0.9 | – | – | 0.05 |
| 3BT | – | DJ/1993 | 11.25 | 0.05 | 0.25 | 0.05 | 0.1 | 0.4 | 0.2 | 0.25 | 4.2 | 0.9 | 0.9 | – | 1.3 | – | – | 0.05 |
| 3CB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 3CT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4BB | – | DJ/1993 | 370.85 | 72 | 0.25 | 34 | 7.9 | 62 | 17 | 48 | 68 | 11 | 7.4 | – | 8.7 | – | – | 0.9 |
| 4BM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4BT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4CB | – | DJ/1993 | 1.8 | 0.05 | 0.25 | 0.05 | 0.05 | 0.2 | 0.05 | 0.05 | 0.7 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 |
| 4CM | – | DJ/1993 | 20.15 | 3.2 | 0.25 | 1.2 | 0.8 | 2.9 | 0.8 | 3.4 | 4.2 | 0.8 | 0.7 | – | 0.7 | – | – | 0.05 |
| 4CT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5BB | – | DJ/1993 | 9 | 0.8 | 0.25 | 0.8 | 0.3 | 0.2 | 0.5 | 2 | 2.5 | 0.3 | 0.5 | – | 0.3 | – | – | 0.05 |
| 5BM | – | DJ/1993 | 72.15 | 10.1 | 0.25 | 1.7 | 2.2 | 6.4 | 3 | 14.8 | 12.7 | 2.8 | 3.4 | – | 3 | – | – | 1.3 |
| 5BT | – | DJ/1993 | 12.4 | 0.7 | 0.25 | 0.7 | 0.05 | 0.05 | 0.05 | 2 | 2 | 1.1 | 1.3 | – | 1.3 | – | – | 0.4 |
| 5CB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5CM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5CS | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5CT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6BB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6BM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6BT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6CB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6CM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6CT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7AB | – | DJ/1993 | 8.2 | 2 | 0.25 | 0.7 | 0.2 | 1 | 0.3 | 1.3 | 1.3 | 0.3 | 0.3 | – | 0.3 | – | – | 0.05 |
| 7AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7AT | – | DJ/1993 | 12.35 | 1.3 | 0.25 | 0.8 | 0.4 | 1.3 | 0.4 | 1.7 | 2.5 | 0.6 | 0.8 | – | 1 | – | – | 0.05 |
| 7BB | – | DJ/1993 | 18.55 | 1 | 0.25 | 0.7 | 0.5 | 1.9 | 0.7 | 3.5 | 5.6 | 0.9 | 0.9 | – | 0.9 | – | – | 0.05 |
| 7BM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7BT | – | DJ/1993 | 18.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7CB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7CM | – | DJ/1993 | 11.05 | 0.8 | 0.25 | 0.3 | 0.2 | 0.6 | 0.3 | 1.6 | 1.4 | 0.6 | 0.8 | – | 1.1 | – | – | 0.2 |
| 8AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 8AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 8AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 8BB | – | DJ/1993 | 8.25 | 0.5 | 0.25 | 0.2 | 0.2 | 0.6 | 0.2 | 1.2 | 4 | 0.3 | 0.3 | – | 0.2 | – | – | 0.05 |
| 8BM | – | DJ/1993 | 13.4 | 0.9 | 0.25 | 0.05 | 0.05 | 0.05 | 0.05 | 7.2 | 0.4 | 0.5 | 3.4 | – | 0.05 | – | – | 0.05 |
| 8BT | – | DJ/1993 | 8.55 | 2.1 | 0.25 | 0.05 | 0.05 | 0.05 | 0.05 | 1.1 | 3.1 | 0.3 | 0.4 | – | 0.4 | – | – | 0.05 |
| 8CB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |

| SAMPLE NAME | Silver | Arsenic | Cadmium | Chromium | Copper | Nickel | Lead | Zinc | Manganese | Mercury | Cyanide | *Total Organic Carbon | Total PCBs | DDD | DDE | TOTAL DDT | DIELDRIN | CHLORODANE | LINDANE | ENDRIN | RADIONUCLIDES #2 | TRIBUTYLTIN | Phenol | Benzene | Toluene | Ethylbenzene | Xylene | TPH C6-C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 | TPH C10-C36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20AM | – | 2.5 | 0.14 | 44 | 44 | 28 | 280 | 2100 | – | 0.29 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 20AT | – | 2.5 | 0.6 | 40 | 34 | 39 | 100 | 780 | – | 0.13 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 20BB | – | 2.5 | 0.05 | 27 | 24 | 29 | 12 | 160 | – | 0.05 | – | 2.5 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 20BM | – | 2.5 | 0.3 | 35 | 37 | 39 | 59 | 500 | – | 0.13 | – | 2.7 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 20BT | – | 2.5 | 1 | 37 | 33 | 30 | 110 | 560 | – | 0.19 | – | 2.6 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 20CS | – | 2.5 | 0.05 | 36 | 30 | 33 | 68 | 540 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 21AB | – | 2.5 | 0.3 | 7 | 2.5 | 2.5 | 5 | 24 | – | 0.09 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 21AM | – | 2.5 | 1.4 | 41 | 45 | 31 | 230 | 1900 | – | 0.31 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 21AT | – | 2.5 | 1 | 40 | 36 | 31 | 140 | 760 | – | 0.26 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 21BB | – | 2.5 | 0.7 | 37 | 35 | 33 | 130 | 970 | – | 0.18 | – | 3.0 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 21BM | – | 2.5 | 1.2 | 37 | 39 | 28 | 220 | 1100 | – | 0.35 | – | 2.4 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 21BT | – | 2.5 | 0.5 | 34 | 30 | 33 | 62 | 320 | – | 0.11 | – | 2.8 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 21CS | – | 2.5 | 0.05 | 7 | 11 | 2.5 | 20 | 96 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22AB | – | 2.5 | 0.3 | 34 | 27 | 22 | 110 | 930 | – | 0.11 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22AM | – | 12 | 2.3 | 45 | 52 | 24 | 500 | 3100 | – | 0.29 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22AT | – | 2.5 | 0.8 | 34 | 31 | 31 | 98 | 600 | – | 0.14 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22BB | – | 2.5 | 1 | 38 | 36 | 28 | 180 | 1300 | – | 0.25 | – | 2.8 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 22BM | – | 10 | 1.6 | 42 | 46 | 27 | 360 | 2500 | – | 0.38 | – | 3.8 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.3 | – | – | – | – | – | – | – | – | – | – | – | – |
| 22BS | – | 2.5 | 0.1 | 9 | 2.5 | 2.5 | 23 | 160 | – | 0.025 | – | 1.1 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 22BT | – | 2.5 | 0.5 | 19 | 19 | 13 | 79 | 540 | – | 0.17 | – | 1.5 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 22CB | – | 2.5 | 0.05 | 11 | 2.5 | 2.5 | 5 | 2.5 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22CM | – | 2.5 | 0.05 | 10 | 2.5 | 2.5 | 5 | 13 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22CT | – | 2.5 | 0.05 | 7 | 2.5 | 2.5 | 5 | 9 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 23M | 0.5 | 2.5 | 0.05 | 12 | 10 | 11 | 5 | 25 | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 23T | 0.5 | 11 | 1.7 | 62 | 45 | 16 | 220 | 2100 | – | 0.83 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 24B | 0.5 | 6 | 0.7 | 24 | 31 | 21 | 130 | 1300 | – | 0.35 | – | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 24M | 0.5 | 15 | 3.6 | 38 | 73 | 20 | 560 | 5800 | – | 0.99 | – | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 24T | 0.5 | 8 | 2.1 | 42 | 42 | 26 | 160 | 910 | – | 1.9 | – | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 25B | – | 9 | 1.7 | 45 | 42 | 29 | 17 | 1500 | – | 0.23 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 25M | – | 6 | 0.05 | 37 | 37 | 37 | 29 | 300 | – | 0.12 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 25T | – | 2.5 | 0.3 | 30 | 29 | 30 | 39 | 220 | – | 0.38 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 26TS | – | 2.5 | 0.05 | 2.5 | 2.5 | 2.5 | 5 | 2.5 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 27B | 0.5 | 2.5 | 0.1 | 19 | 13 | 11 | 38 | 220 | – | 0.13 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 27M | 0.5 | 13 | 1.8 | 55 | 120 | 26 | 370 | 2000 | – | 1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 27T | 0.5 | 5 | 0.6 | 43 | 38 | 40 | 74 | 370 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 28B | 0.5 | 10 | 0.9 | 32 | 23 | 23 | 90 | 750 | – | 0.09 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 28M | 0.5 | 15 | 2.2 | 59 | 54 | 24 | 480 | 4000 | – | 0.46 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 28T | 0.5 | 5 | 0.05 | 35 | 27 | 34 | 45 | 270 | – | 0.17 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 29B | 0.5 | 10 | 1.2 | 39 | 37 | 23 | 240 | 1900 | – | 0.43 | – | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 29M | 0.5 | 10 | 0.8 | 31 | 28 | 24 | 140 | 1000 | – | 0.18 | – | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 29S | 0.5 | 2.5 | 0.1 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | – | 0.025 | – | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 29T | 0.5 | 2.5 | 0.2 | 7 | 6 | 6 | 24 | 180 | – | 0.025 | – | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 2AB | – | 11 | 1.5 | 57 | 45 | 31 | 430 | 2600 | – | 0.36 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2AM | – | 10 | 0.8 | 68 | 38 | 33 | 290 | 1800 | – | 0.27 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2AT | – | 2.5 | 0.6 | 38 | 29 | 24 | 200 | 1000 | – | 0.22 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2BT | – | 13 | 3 | 39 | 51 | 28 | 420 | 3800 | – | 0.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2CB | – | 2.5 | 0.8 | 46 | 44 | 33 | 330 | 1900 | – | 0.26 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2CM | – | 11 | 1.1 | 44 | 42 | 34 | 270 | 1400 | – | 0.42 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2CT | – | 2.5 | 1.3 | 51 | 37 | 35 | 160 | 740 | – | 0.24 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 30B | 0.5 | 10 | 2.2 | 33 | 54 | 24 | 330 | 2200 | – | 0.64 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 30M | 0.5 | 9 | 1.1 | 32 | 33 | 22 | 250 | 1000 | – | 0.76 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 30S | 0.5 | 6 | 0.4 | 18 | 13 | 12 | 85 | 620 | – | 0.17 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 30T | 0.5 | 2.5 | 0.38 | 33 | 28 | 35 | 40 | 220 | – | 0.07 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 31B | 0.5 | 9 | 0.6 | 24 | 21 | 20 | 76 | 620 | – | 0.34 | – | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 31M | 0.5 | 14 | 3.7 | 42 | 58 | 28 | 360 | 5900 | – | 0.94 | – | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 31T | 0.5 | 2.5 | 0.6 | 21 | 17 | 23 | 35 | 210 | – | 0.15 | – | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 32T | 0.5 | 2.5 | 0.1 | 2.5 | 2.5 | 2.5 | 2.5 | 10 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 3AB | – | 2.5 | 2.2 | 21 | 30 | 15 | 110 | 500 | – | 0.33 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 3AM | – | 2.5 | 0.3 | 32 | 28 | 31 | 52 | 510 | – | 0.17 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 3AT | – | 10 | 1.8 | 42 | 37 | 28 | 270 | 1700 | – | 0.29 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 3BB | – | 2.5 | 0.5 | 38 | 31 | 31 | 78 | 370 | – | 0.2 | – | 2.0 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 3BM | – | 2.5 | 0.5 | 41 | 32 | 34 | 84 | 400 | – | 0.24 | – | 2.5 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 3BT | – | 2.5 | 0.4 | 36 | 28 | 29 | 68 | 310 | – | 0.2 | – | 2.0 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 3CB | – | 2.5 | 1.8 | 40 | 34 | 25 | 190 | 800 | – | 0.33 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 3CT | – | 2.5 | 0.1 | 37 | 30 | 42 | 29 | 160 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4AB | – | 2.5 | 1.4 | 66 | 36 | 32 | 240 | 2000 | – | 0.28 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4AM | – | 2.5 | 0.6 | 37 | 34 | 34 | 130 | 940 | – | 0.14 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4AT | – | 2.5 | 1 | 39 | 43 | 38 | 190 | 1500 | – | 0.28 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4BB | – | 2.5 | 0.1 | 26 | 24 | 24 | 49 | 420 | – | 0.22 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4BM | – | 10 | 1 | 42 | 35 | 26 | 240 | 1700 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4BT | – | 12 | 1.5 | 45 | 48 | 32 | 310 | 2400 | – | 0.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4CB | – | 2.5 | 0.05 | 31 | 28 | 36 | 17 | 190 | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4CM | – | 2.5 | 0.4 | 34 | 27 | 34 | 64 | 500 | – | 0.09 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4CT | – | 2.5 | 1 | 40 | 39 | 33 | 200 | 1500 | – | 0.24 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5AB | – | 2.5 | 0.5 | 25 | 26 | 21 | 120 | 860 | – | 0.24 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5AT | – | 2.5 | 0.6 | 29 | 26 | 24 | 120 | 600 | – | 0.26 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5BB | – | 2.5 | 0.5 | 39 | 25 | 29 | 84 | 680 | – | 0.11 | – | 2.5 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 5BM | – | 12 | 1.6 | 58 | 55 | 30 | 490 | 2800 | – | 0.42 | – | 4.7 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 5BT | – | 2.5 | 1.1 | 44 | 33 | 32 | 160 | 730 | – | 0.19 | – | 2.5 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 5CB | – | 2.5 | 0.8 | 48 | 45 | 40 | 240 | 1600 | – | 0.36 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5CM | – | 10 | 1.8 | 37 | 44 | 28 | 300 | 2400 | – | 0.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5CS | – | 2.5 | 0.05 | 5 | 2.5 | 2.5 | 5 | 27 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5CT | – | 2.5 | 0.4 | 32 | 27 | 34 | 51 | 290 | – | 0.16 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6AB | – | 2.5 | 1 | 32 | 36 | 29 | 110 | 510 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6AM | – | 2.5 | 1.9 | 41 | 37 | 29 | 210 | 860 | – | 0.26 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6AT | – | 2.5 | 0.6 | 37 | 34 | 36 | 68 | 340 | – | 0.14 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6BB | – | 2.5 | 0.8 | 38 | 38 | 32 | 180 | 1200 | – | 0.46 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6BM | – | 2.5 | 1.1 | 39 | 37 | 33 | 210 | 1600 | – | 0.31 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6BT | – | 2.5 | 1.1 | 40 | 34 | 28 | 130 | 640 | – | 0.23 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6CB | – | 2.5 | 0.8 | 37 | 36 | 30 | 130 | 610 | – | 0.36 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6CM | – | 10 | 1.8 | 40 | 33 | 26 | 270 | 890 | – | 0.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6CT | – | 2.5 | 0.5 | 39 | 32 | 34 | 73 | 380 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7AB | – | 2.5 | 0.5 | 37 | 25 | 28 | 82 | 750 | – | 0.18 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7AM | – | 10 | 0.8 | 46 | 34 | 30 | 180 | 1400 | – | 0.22 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7AT | – | 10 | 1.3 | 41 | 43 | 34 | 230 | 1700 | – | 0.49 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7BB | – | 2.5 | 0.4 | 35 | 23 | 22 | 97 | 780 | – | 0.11 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7BM | – | 12 | 1.6 | 45 | 42 | 25 | 370 | 2400 | – | 0.41 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7BT | – | 2.5 | 1.1 | 39 | 43 | 34 | 170 | 1300 | – | 0.44 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7CB | – | 13 | 1.1 | 44 | 41 | 25 | 300 | 2300 | – | 0.32 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7CM | – | 2.5 | 0.5 | 24 | 22 | 16 | 86 | 570 | – | 0.22 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 8AB | – | 10 | 0.9 | 42 | 39 | 35 | 220 | 1500 | – | 0.24 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 8AM | – | 11 | 0.8 | 45 | 50 | 35 | 200 | 1500 | – | 0.24 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 8AT | – | 11 | 1 | 42 | 47 | 34 | 220 | 1600 | – | 0.29 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 8BB | – | 2.5 | 2.1 | 54 | 34 | 24 | 250 | 1800 | – | 0.36 | – | 2.8 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 8BM | – | 14 | 2.4 | 49 | 53 | 26 | 510 | 3300 | – | 0.78 | – | 4.3 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 8BT | – | 2.5 | 0.7 | 35 | 34 | 38 | 110 | 850 | – | 0.31 | – | 1.8 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 8CB | – | 2.5 | 0.4 | 44 | 33 | 33 | 140 | 1200 | – | 0.17 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz a anthracene | Chrysene | Benzo(b)&(k)fluoranthene | Benzo a pyrene | Indeno(1,2,3-cd)fluoranthene | Dibenz.a.h anthracene | Benzo(ghi)perylene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8CM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 8CT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9BB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9BM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9BT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9CT | – | DJ/1993 | 1 | 0.05 | 0.25 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 |
| X11A | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| X11B | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV401 | 0-0.5 | GHD/1996 | 64 | 2.9 | 2.2 | 0.7 | 0.9 | 3.4 | 1.9 | 6.8 | 9.5 | 2 | 3.1 | 11.7 | 8 | 4.3 | 0.9 | 5.5 |
| GV402 | 0-0.5 | GHD/1996 | 17 | 6.2 | 0.25 | 0.25 | 0.25 | 0.9 | 0.5 | 2.5 | 2.1 | 0.6 | 0.7 | 1 | 0.9 | 0.5 | 0.25 | 0.7 |
| GV402 | 1.5-2 | GHD/1996 | 2 | 0.7 | 0.25 | 0.6 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV402 | 3.5-4 | GHD/1996 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.8 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV403 | 0-0.5 | GHD/1996 | 0 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV403 | 1.5-2 | GHD/1996 | 13 | 3.4 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 2.4 | 2.1 | 0.6 | 0.7 | 0.9 | 0.8 | 0.5 | 0.25 | 0.7 |
| GV403 | 3-3.5 | GHD/1996 | 38 | 1.5 | 1 | 3 | 2.1 | 5.8 | 2.2 | 7.2 | 5.7 | 1.3 | 1.8 | 2.5 | 1.7 | 0.8 | 0.25 | 1.2 |
| GV404 | 0-0.5 | GHD/1996 | 0 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV404 | 1.5-2 | GHD/1996 | 5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.8 | 0.5 | 1.6 | 1.3 | 0.5 | 0.25 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV404 | 3.5-4 | GHD/1996 | 22 | 3.7 | 0.5 | 1.1 | 0.6 | 2 | 0.7 | 3.8 | 3 | 0.9 | 1.1 | 1.8 | 1.3 | 0.7 | 0.25 | 1 |
| GV405 | 0-0.5 | GHD/1996 | 0 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV405 | 1.5-2 | GHD/1996 | 35 | 4.4 | 0.5 | 2.1 | 0.7 | 3.4 | 1.1 | 7.4 | 5.8 | 1.2 | 1.6 | 2.7 | 1.7 | 0.8 | 0.25 | 1.1 |
| GV406 | 0-0.5 | GHD/1996 | 6 | 0.9 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1.2 | 1.3 | 0.5 | 0.5 | 0.9 | 0.8 | 0.25 | 0.25 | 0.25 |
| GV406 | 1.5-2 | GHD/1996 | 43 | 7.7 | 1.2 | 1.4 | 1.2 | 4.9 | 1.6 | 7.2 | 5.7 | 1.7 | 2.2 | 3.3 | 2.1 | 1 | 0.25 | 1.3 |
| GV406 | 3.5-4 | GHD/1996 | 4 | 0.6 | 0.5 | 0.5 | 0.25 | 0.7 | 0.25 | 1.3 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV407 | 0-0.5 | GHD/1996 | 4 | 0.8 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.7 | 1.5 | 0.25 | 0.25 | 0.8 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV407 | 1.5-2 | GHD/1996 | 0 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV407 | 2.5-3 | GHD/1996 | 0 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV408 | 0-1.5 | GHD/1996 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.7 | 0.7 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV408 | 3-3.5 | GHD/1996 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.6 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV408 | 5-5.5 | GHD/1996 | 25 | 12 | 0.5 | 0.5 | 0.6 | 2.2 | 0.7 | 2.7 | 2.2 | 0.6 | 0.7 | 0.8 | 0.7 | 0.25 | 0.25 | 0.5 |
| GV409 | 0-0.5 | GHD/1996 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV409 | 1.5-2 | GHD/1996 | 0 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV409 | 3.5-4 | GHD/1996 | 1 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV410 | 0-0.5 | GHD/1996 | 4 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1.1 | 1 | 0.25 | 0.25 | 0.6 | 0.25 | 0.25 | 0.25 | 0.6 |
| GV410 | 1.5-2 | GHD/1996 | 13 | 3 | 0.25 | 0.25 | 0.25 | 0.9 | 0.25 | 2.5 | 2 | 0.7 | 0.7 | 0.9 | 0.9 | 0.5 | 0.25 | 0.7 |
| GV410 | 3.5-4 | GHD/1996 | 0 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV411 | 0-0.5 | GHD/1996 | 2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.7 | 0.8 | 0.25 | 0.25 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV411 | 1.5-2 | GHD/1996 | 4 | 0.8 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 1.4 | 1.1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV411 | 3.5-4 | GHD/1996 | 51 | 7.2 | 0.8 | 3 | 1.6 | 5.7 | 1.8 | 8.3 | 6.7 | 1.9 | 3 | 4.3 | 2.9 | 1.6 | 0.25 | 2.1 |
| GV412 | 0-0.5 | GHD/1996 | 0 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV412 | 1.5-2 | GHD/1996 | 21 | 14 | 0.25 | 2.8 | 0.7 | 1.3 | 0.5 | 1 | 0.8 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV412 | 3.5-4 | GHD/1996 | 31 | 11 | 0.25 | 3.1 | 1.5 | 4.8 | 1.3 | 4 | 3 | 0.7 | 0.7 | 0.7 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV413 | 0-0.5 | GHD/1996 | 13 | 2.4 | 0.25 | 0.25 | 0.25 | 0.8 | 0.25 | 1.7 | 1.9 | 0.7 | 0.8 | 1.9 | 1.1 | 0.6 | 0.25 | 0.8 |
| GV413 | 1.5-2 | GHD/1996 | 165 | 15 | 0.9 | 35 | 13 | 35 | 7.6 | 21 | 17 | 3 | 4.9 | 5.6 | 3.7 | 1.6 | 0.25 | 2 |
| GV413 | 3.5-4 | GHD/1996 | 69 | 45 | 0.25 | 4.8 | 1.7 | 3.9 | 1.5 | 4.2 | 3.5 | 1.1 | 1.1 | 1.2 | 0.9 | 0.25 | 0.25 | 0.5 |
| GV414 | 0-0.5 | GHD/1996 | 46 | 5.6 | 0.7 | 0.6 | 0.5 | 2.3 | 0.9 | 5.3 | 6.1 | 2.4 | 3.2 | 7.3 | 4.5 | 2.5 | 0.6 | 3.3 |
| GV414 | 1.5-2 | GHD/1996 | 6 | 2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1.3 | 1.4 | 0.25 | 0.25 | 0.7 | 0.5 | 0.25 | 0.25 | 0.25 |
| GV415 | 0-3 | GHD/1996 | 2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.6 | 0.6 | 0.25 | 0.25 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV415 | 4-5 | GHD/1996 | 10 | 1 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 1.6 | 2.3 | 0.5 | 0.6 | 1 | 0.8 | 0.5 | 0.25 | 0.6 |
| GV416 | 0-0.5 | GHD/1996 | 10 | 0.9 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 1.7 | 1.4 | 0.7 | 0.8 | 1.2 | 1 | 0.6 | 0.25 | 0.9 |
| GV416 | 1.5-2 | GHD/1996 | 3 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.8 | 0.9 | 0.25 | 0.25 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV416 | 3.5-4 | GHD/1996 | 3 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1.1 | 1 | 0.25 | 0.25 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV417 | 0-1.5 | GHD/1996 | 50 | 3.8 | 0.25 | 0.25 | 0.25 | 2 | 0.9 | 9.2 | 7.7 | 2.5 | 3.9 | 7.7 | 4.9 | 2.7 | 0.7 | 3.5 |
| GV417 | 3-4 | GHD/1996 | 45 | 13 | 0.8 | 0.7 | 0.7 | 3.7 | 1.2 | 6.1 | 5.5 | 1.6 | 2.2 | 4 | 2.5 | 1.5 | 0.25 | 1.4 |
| GV418 | 0-0.5 | GHD/1996 | 46 | 6.2 | 0.7 | 0.6 | 0.5 | 2.2 | 0.7 | 4.7 | 5.8 | 2.1 | 3.1 | 7.5 | 4.7 | 2.6 | 0.6 | 3.5 |
| GV418 | 1.5-2 | GHD/1996 | 26 | 5.5 | 0.5 | 0.25 | 0.25 | 1.4 | 0.7 | 4.4 | 4 | 1.1 | 1.5 | 3 | 1.8 | 0.8 | 0.25 | 1.1 |
| GV419 | 0-0.5 | GHD/1996 | 21 | 3.8 | 0.25 | 0.25 | 0.25 | 1.1 | 0.25 | 2.5 | 3.1 | 1.1 | 1.6 | 3.5 | 2 | 1.2 | 0.25 | 1.5 |
| GV419 | 1.5-2 | GHD/1996 | 34 | 6.4 | 0.6 | 0.5 | 0.5 | 2.1 | 0.7 | 3.7 | 4.7 | 1.3 | 2.1 | 4.6 | 2.8 | 1.6 | 0.25 | 2.1 |
| GV419 | 3.5-4 | GHD/1996 | 25 | 4.5 | 0.25 | 0.5 | 0.25 | 1.7 | 0.7 | 4.4 | 3.6 | 1 | 1.5 | 2.8 | 1.7 | 0.9 | 0.25 | 1.3 |
| GV420 | 0-0.5 | GHD/1996 | 66 | 11 | 1 | 1 | 0.8 | 3.4 | 1.3 | 6.7 | 8.3 | 2.9 | 4.3 | 10 | 6.2 | 3.4 | 0.8 | 4.6 |
| GV420 | 2.5-3 | GHD/1996 | 65 | 34 | 0.8 | 1.1 | 0.9 | 4.2 | 1.5 | 6.2 | 5 | 1.5 | 1.9 | 3.1 | 2 | 1 | 0.25 | 1.4 |
| GV420 | 4-5 | GHD/1996 | 24 | 13 | 0.25 | 1 | 0.5 | 1.7 | 0.5 | 2.2 | 2 | 0.5 | 0.5 | 0.8 | 0.6 | 0.25 | 0.25 | 0.5 |
| GV421 | 0-0.5 | GHD/1996 | 3 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.8 | 0.9 | 0.25 | 0.25 | 0.8 | 0.25 | 0.25 | 0.25 | 0.5 |
| GV421 | 1.5-2 | GHD/1996 | 18 | 0.8 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 2.6 | 3.2 | 1.1 | 1.3 | 3.2 | 2 | 1.2 | 0.25 | 1.7 |
| GV421 | 3.5-4 | GHD/1996 | 17 | 1.6 | 0.25 | 0.25 | 0.25 | 1.1 | 0.5 | 3.4 | 2.9 | 1 | 1 | 2.3 | 1.4 | 0.9 | 0.25 | 1.2 |
| GV422 | 0-0.5 | GHD/1996 | 59 | 3.5 | 1 | 9.8 | 4.1 | 10 | 2.7 | 8.7 | 7.1 | 1.6 | 2.4 | 3.3 | 2.3 | 1.2 | 0.25 | 1.6 |
| GV422 | 1.5-2 | GHD/1996 | 45 | 2.4 | 1.2 | 3.3 | 2.4 | 6.7 | 2.4 | 7.1 | 6.9 | 1.4 | 2.3 | 3.3 | 2.3 | 1.2 | 0.25 | 1.6 |
| GV423 | 0-2.5 | GHD/1996 | 271 | 7 | 15 | 41 | 30 | 67 | 17 | 32 | 24 | 5.2 | 8.2 | 9.5 | 6.8 | 3.2 | 0.6 | 4.1 |
| GV423 | 2.5-3 | GHD/1996 | 445 | 2.3 | 11 | 46 | 55 | 31 | 3.7 | 37 | 110 | 18 | 32 | 36.2 | 28 | 14 | 2.5 | 18 |
| GV424 | 0-2 | GHD/1996 | 142 | 3.1 | 1.4 | 32 | 8.6 | 24 | 4.4 | 18 | 14 | 4.3 | 6.4 | 7.7 | 6.5 | 3.6 | 0.7 | 4.7 |
| GV425 | 0-0.5 | GHD/1996 | 2 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.5 | 0.6 | 0.25 | 0.25 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 |
| GV426 | 0-0.5 | GHD/1996 | 3 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.8 | 0.9 | 0.25 | 0.25 | 0.6 | 0.25 | 0.25 | 0.25 | 0.5 |
| GV427 | 0-1.5 | GHD/1996 | 19 | 2.8 | 0.25 | 0.25 | 0.25 | 1.1 | 0.25 | 2.5 | 2.9 | 0.9 | 1.4 | 2.2 | 1.8 | 1.1 | 0.25 | 1.4 |
| GV428 | 0-0.5 | GHD/1996 | 32 | 4.7 | 0.5 | 0.25 | 0.25 | 1.6 | 0.6 | 4 | 4.4 | 1.7 | 2.5 | 3.7 | 3.2 | 1.7 | 0.25 | 2.4 |
| JV M3 | 0-0.2 | GHD/2001 | 763 | 410 | 43 | 11 | 21 | 49 | 16 | 49 | 39 | 21 | 26 | 31.00 | 21 | 12.00 | 2.8 | 11.00 |
| JV M3A | 0-0.2 | GHD/2001 | 712 | 360 | 34 | 12 | 18 | 42 | 14 | 53 | 42 | 22 | 29 | 33.00 | 23 | 14.00 | 3.2 | 13.00 |
| JV M5 | 0-1.1 | GHD/2001 | 12 | 2.1 | 0.11 | 2.9 | 1.2 | 1.7 | 0.4 | 1.1 | 0.99 | 0.29 | 0.4 | 0.40 | 0.26 | 0.18 | 0.05 | 0.18 |
| JV M5 | 1.1-2.2 | GHD/2001 | 48 | 18 | 0.42 | 6.2 | 2.6 | 5.1 | 1.6 | 4.8 | 3.7 | 1 | 1.5 | 1.40 | 0.8 | 0.52 | 0.1 | 0.56 |
| JVM3B | 0-1.2 | GHD/2001 | 3971 | 1300 | 120 | 70 | 140 | 680 | 160 | 430 | 350 | 110 | 120 | 280.00 | 90 | 53.00 | 15 | 53.00 |
| JVM4 | 0.8-1.5 | GHD/2001 | 1018 | 900 | 2.3 | 9.2 | 6.6 | 20 | 7.1 | 18 | 14 | 5.5 | 7.5 | 16.00 | 4.9 | 3.10 | 0.84 | 3.00 |
| JVM4 | 0-0.8 | GHD/2001 | 247 | 190 | 0.97 | 2.7 | 1.9 | 6.5 | 2.2 | 7.4 | 7.1 | 2.9 | 4.2 | 0.10 | 3.3 | <0.1 | 0.66 | <0.1 |
| JVM4 | 1.5-3 | GHD/2001 | 2 | 1.9 | 0.05 | 0.05 | 0.05 | 0.12 | 0.1 | 0.12 | 0.12 | 0.05 | 0.05 | 12.00 | 0.05 | 2.50 | 0.05 | 2.30 |
| JVM4A | 0-0.8 | GHD/2001 | 72 | 29 | 0.74 | 0.84 | 0.88 | 3.1 | 1.3 | 5.1 | 5.7 | 2.4 | 3.4 | 11.00 | 3.2 | 2.40 | 0.7 | 2.40 |
| JVM5A | 0-2 | GHD/2001 | 10 | 3.2 | 0.12 | 0.12 | 0.16 | 0.44 | 0.16 | 0.75 | 0.87 | 0.32 | 0.51 | 1.60 | 0.44 | 0.40 | 0.05 | 0.40 |
| JVM5A | 2-4 | GHD/2001 | 35 | 11 | 0.43 | 3.2 | 1.6 | 3.7 | 1.2 | 3.9 | 3.2 | 0.96 | 1.4 | 2.80 | 0.78 | 0.57 | 0.14 | 0.53 |
| JVM6 | 0-0.6 | GHD/2001 | 2 | 0.83 | 0.05 | 0.05 | 0.05 | 0.17 | 0.05 | 0.19 | 0.19 | 0.11 | 0.14 | 0.39 | 0.11 | <0.1 | 0.05 | <0.1 |
| JV1 | 0-1.5 | GHD/2001 | 27 | 2 | 0.44 | 0.22 | 0.25 | 0.96 | 0.52 | 4.8 | 4.7 | 1.5 | 2.1 | 3.40 | 2.4 | 1.60 | 0.39 | 1.60 |
| JV2 | 3-4.4 | GHD/2001 | 15 | 4 | 0.26 | 0.41 | 0.41 | 1 | 0.48 | 2 | 2.1 | 0.63 | 0.89 | 0.56 | 0.75 | 0.26 | 0.15 | 0.26 |
| JV2 | 0-1.5 | GHD/2001 | 4 | 0.65 | 0.05 | 0.05 | 0.05 | 0.22 | 0.05 | 0.56 | 0.56 | 0.3 | 0.47 | 1.20 | 0.35 | 0.53 | 0.05 | 0.53 |
| JV2 | 1.5-3 | GHD/2001 | 9 | 1.3 | 0.11 | 0.11 | 0.15 | 0.5 | 0.19 | 1.2 | 1.4 | 0.5 | 0.8 | 1.20 | 0.69 | 0.52 | 0.15 | 0.52 |
| JV3 | 0-1.5 | GHD/2001 | 13 | 1.5 | 0.16 | 0.11 | 0.13 | 0.58 | 0.24 | 1.6 | 1.8 | 0.58 | 0.52 | 0.25 | 1.2 | 0.25 | 0.25 | 0.25 |
| JV3 | 1.5-3 | GHD/2001 | 78 | 21 | 1.8 | 2.2 | 3.4 | 9.6 | 3.8 | 11 | 8.8 | 3.2 | 2.8 | 5 | 3.2 | 1.8 | 0.25 | 1.6 |
| JV4 | 0-1.5 | GHD/2001 | 8 | 1.5 | 0.05 | 0.05 | 0.05 | 0.41 | 0.14 | 0.87 | 1.1 | 0.5 | 0.78 | 1.10 | 0.64 | 0.46 | 0.14 | 0.46 |
| JV4 | 1.5-3 | GHD/2001 | 16 | 2.5 | 0.41 | 0.28 | 0.32 | 0.97 | 0.57 | 2.8 | 2.4 | 0.89 | 1.3 | 1.50 | 0.85 | 0.65 | 0.16 | 0.61 |
| JV4 | 3-4.6 | GHD/2001 | 56 | 40 | 0.41 | 0.41 | 0.75 | 2.3 | 0.78 | 2.9 | 2.5 | 0.92 | 1.4 | 1.30 | 0.82 | 0.51 | 0.14 | 0.51 |
| JV5 | 3-4.5 | GHD/2001 | 54 | 28 | 0.5 | 0.7 | 0.9 | 3.2 | 1.2 | 5 | 4.2 | 2 | 1.6 | 0.25 | 2 | 0.25 | 0.25 | 0.25 |
| JV5 | 0-1.5 | GHD/2001 | 13 | 1.2 | 0.11 | 0.11 | 0.12 | 0.5 | 0.19 | 1.3 | 1.6 | 0.84 | 0.6 | 0.25 | 1.2 | 0.25 | 0.12 | 0.25 |
| JV5 | 1.5-3 | GHD/2001 | 19 | 6.4 | 0.3 | 0.32 | 0.43 | 1.3 | 0.54 | 2.5 | 0.12 | 0.68 | 0.61 | 3 | 1.2 | 1.4 | 0.11 | 1.2 |
| JV6 | 0-1.45 | GHD/2001 | 3 | 0.32 | 0.025 | 0.025 | 0.025 | 0.16 | 0.06 | 0.42 | 0.44 | 0.19 | 0.13 | 0.25 | 0.29 | 0.25 | 0.025 | 0.25 |
| JV6 | 1.45-2.4 | GHD/2001 | 0 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.25 | 0.025 | 0.25 | 0.025 | 0.25 |
| JV7 | 2-4 | GHD/2001 | 12 | 1.7 | 0.15 | 0.22 | 0.22 | 0.8 | 0.33 | 1.9 | 1.7 | 0.62 | 0.98 | 1.20 | 0.73 | 0.55 | 0.15 | 0.55 |
| JV7 | 0-2 | GHD/2001 | 10 | 1.6 | 0.05 | 0.16 | 0.12 | 0.51 | 0.2 | 1.1 | 1.2 | 0.67 | 1 | 1.30 | 0.75 | 0.58 | 0.16 | 0.58 |
| JV M1 | 0.8-2.1 | GHD/2001 | 14 | 6.8 | 0.13 | 0.44 | 0.31 | 0.89 | 0.31 | 1.1 | 1.1 | 0.49 | 0.75 | – | 0.4 | – | – | 0.05 |

| SAMPLE NAME | Silver | Arsenic | Cadmium | Chromium | Copper | Nickel | Lead | Zinc | Manganese | Mercury | Cyanide | *Total Organic Carbon | Total PCBs | DDD | DDE | TOTAL DDT | DIELDRIN | CHLORODANE | LINDANE | ENDRIN | RADIONUCLIDES #2 | TRIBUTYLTIN | Phenol | Benzene | Toluene | Ethylbenzene | Xylene | TPH C6 C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 | TPH C10-C36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8CM | – | 2.5 | 1.3 | 50 | 38 | 34 | 190 | 1600 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 8CT | – | 2.5 | 0.5 | 21 | 26 | 14 | 82 | 410 | – | 0.09 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9AB | – | 10 | 1.4 | 43 | 48 | 24 | 450 | 2500 | – | 0.45 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9AM | – | 2.5 | 0.5 | 39 | 37 | 39 | 140 | 990 | – | 0.25 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9AT | – | 2.5 | 1.3 | 37 | 43 | 30 | 210 | 1500 | – | 0.71 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9BB | – | 2.5 | 0.5 | 30 | 31 | 25 | 120 | 520 | – | 0.35 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9BM | – | 2.5 | 0.6 | 32 | 30 | 29 | 110 | 470 | – | 0.41 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9BT | – | 2.5 | 0.9 | 36 | 30 | 30 | 110 | 470 | – | 0.17 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9CT | – | 2.5 | 0.05 | 13 | 2.5 | 2.5 | 5 | 17 | – | 0.025 | – | 0.3 | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| X11A | – | 2.5 | 0.05 | 5 | 2.5 | 2.5 | 5 | 2.5 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| X11B | – | 2.5 | 0.05 | 8 | 7 | 6 | 5 | 9 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV401 | – | – | 1.5 | – | – | – | 230 | 1510 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV402 | – | – | 0.5 | – | – | – | 47 | 340 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV402 | – | – | 2 | – | – | – | 250 | 1950 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV402 | – | – | 2.5 | – | – | – | 510 | 3100 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV403 | – | – | 0.5 | – | – | – | 62 | 420 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV403 | – | – | 0.5 | – | – | – | 60 | 390 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV403 | – | – | 2 | – | – | – | 230 | 1450 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV404 | – | – | 1 | – | – | – | 83 | 550 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV404 | – | – | 1.5 | – | – | – | 220 | 1690 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV404 | – | – | 2.5 | – | – | – | 330 | 2250 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV405 | – | – | 1 | – | – | – | 130 | 750 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV405 | – | – | 2 | – | – | – | 220 | 1460 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV406 | – | – | 1 | – | – | – | 140 | 850 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV406 | – | – | 2 | – | – | – | 300 | 2150 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV406 | – | – | 1.5 | – | – | – | 150 | 1300 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV407 | – | – | 1.5 | – | – | – | 200 | 1620 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV407 | – | – | 0.5 | – | – | – | 86 | 630 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV407 | – | – | 0.5 | – | – | – | 29 | 280 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV408 | – | – | 1 | – | – | – | 110 | 680 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV408 | – | – | 2 | – | – | – | 380 | 2750 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV408 | – | – | 2 | – | – | – | 240 | 1760 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV409 | – | – | 1 | – | – | – | 160 | 680 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV409 | – | – | 1.5 | – | – | – | 230 | 1890 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV409 | – | – | 2 | – | – | – | 390 | 2250 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV410 | – | – | 0.5 | – | – | – | 50 | 260 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV410 | – | – | 0.5 | – | – | – | 35 | 340 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV410 | – | – | 2.5 | – | – | – | 440 | 3150 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV411 | – | – | 1 | – | – | – | 130 | 580 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV411 | – | – | 0.5 | – | – | – | 35 | 200 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV411 | – | – | 2 | – | – | – | 300 | 1590 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV412 | – | – | 1 | – | – | – | 170 | 850 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV412 | – | – | 1.5 | – | – | – | 160 | 1280 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV412 | – | – | 2.5 | – | – | – | 540 | 3320 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV413 | – | – | 1 | – | – | – | 120 | 710 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV413 | – | – | 2 | – | – | – | 440 | 2660 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV413 | – | – | 2 | – | – | – | 320 | 200 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV414 | – | – | 1.5 | – | – | – | 100 | 440 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV414 | – | – | 2 | – | – | – | 240 | 1300 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV415 | – | – | 1.5 | – | – | – | 130 | 540 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV415 | – | – | 1 | – | – | – | 110 | 480 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV416 | – | – | 1 | – | – | – | 72 | 340 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV416 | – | – | 2.5 | – | – | – | 440 | 1750 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV416 | – | – | 1 | – | – | – | 200 | 520 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV417 | – | – | 1 | – | – | – | 140 | 590 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV417 | – | – | 2 | – | – | – | 350 | 1660 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV418 | – | – | 2 | – | – | – | 160 | 660 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV418 | – | – | 1.5 | – | – | – | 270 | 1090 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV419 | – | – | 2 | – | – | – | 130 | 540 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV419 | – | – | 1.5 | – | – | – | 290 | 1210 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV419 | – | – | 3 | – | – | – | 610 | 2110 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV420 | – | – | 2.5 | – | – | – | 200 | 840 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV420 | – | – | 2 | – | – | – | 310 | 1930 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV420 | – | – | 1 | – | – | – | 120 | 710 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV421 | – | – | 2.5 | – | – | – | 260 | 1000 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV421 | – | – | 2 | – | – | – | 330 | 1160 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV421 | – | – | 2 | – | – | – | 560 | 1590 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV422 | – | – | 4 | – | – | – | 440 | 2750 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV422 | – | – | 1 | – | – | – | 140 | 590 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV423 | – | – | 2 | – | – | – | 91 | 230 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV423 | – | – | 2.5 | – | – | – | 310 | 1250 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV424 | – | – | 3 | – | – | – | 770 | 2690 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV425 | – | – | 1 | – | – | – | 81 | 510 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV426 | – | – | 1.5 | – | – | – | 150 | 640 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV427 | – | – | 1.5 | – | – | – | 140 | 580 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| GV428 | – | – | 1 | – | – | – | 85 | 400 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV M3 | 0.5 | 7 | 1.5 | 47 | 42 | 15 | 115 | 531 | 546 | 0.20 | – | 51.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV M3A | 0.5 | 8.5 | 1.5 | 30 | 35 | 8 | 70 | 345 | 463 | 0.18 | – | 45.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV M5 | 0.5 | 10.4 | 1.5 | 39 | 46 | 30 | 166 | 1180 | 692 | 0.09 | – | 3.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV M5 | 0.5 | 13.7 | 1.5 | 38 | 43 | 21 | 259 | 1602 | 574 | 0.16 | – | 10.7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JVM3B | 0.5 | 7.2 | 1.5 | 19 | 23 | 16 | 25 | 135 | 478 | 0.40 | – | 26.0 | – | 5.000 | 5 | 5 | 5 | 5 | 5 | 5 | – | 1 | – | – | – | – | – | – | – | – | – | – |
| JVM4 | 0.5 | 11.6 | 4.6 | 49 | 78 | 27 | 725 | 5040 | 625 | 0.41 | – | 7.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JVM4 | 0.5 | 17.3 | 1.5 | 53 | 62 | 37 | 334 | 1990 | 652 | 0.80 | – | 5.9 | – | 5.000 | 5 | 5 | 5 | 5 | 5 | 5 | 1.26 | 1 | – | – | – | – | – | – | – | – | – | – |
| JVM4 | 0.5 | – | 1.5 | 2 | 2 | 2 | 5 | 31 | 18 | – | – | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JVM4A | 0.5 | 11.8 | 1.5 | 52 | 62 | 35 | 307 | 1600 | 558 | 0.32 | – | 5.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JVM5A | 0.5 | 8.4 | 1.5 | 40 | 44 | 39 | 126 | 840 | 665 | 0.18 | – | 2.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JVM5A | 0.5 | 11.6 | 1.5 | 41 | 41 | 43 | 200 | 1340 | 632 | 0.15 | – | 4.5 | – | 5.000 | 5 | 5 | 5 | 5 | 5 | 5 | – | – | – | – | – | – | – | – | – | – | – | – |
| JVM6 | 0.5 | 5.4 | 1.5 | 14 | 9 | 12 | 11 | 100 | 155 | 0.03 | – | 0.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV1 | 0.5 | 6.8 | 1.5 | 15 | 11 | 2 | 32 | 223 | 153 | 0.18 | – | 5.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV2 | 0.5 | 9.8 | 1.5 | 41 | 50 | 24 | 176 | 1190 | 816 | 0.35 | – | 3.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV2 | 0.5 | 3 | 1.5 | 42 | 43 | 26 | 100 | 546 | 671 | 0.10 | – | 2.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV2 | 0.5 | 8.4 | 1.5 | 42 | 51 | 24 | 145 | 696 | 1000 | 0.15 | – | 3.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV3 | – | 11 | 1.2 | 56 | 58 | 55 | 240 | 1600 | – | 0.68 | – | 2.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV3 | – | 12 | 1 | 37 | 36 | 30 | 230 | 1300 | – | 0.25 | – | 4.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV4 | 0.5 | 11.6 | 1.5 | 45 | 47 | 26 | 127 | 616 | 481 | 0.21 | – | 3.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV4 | 0.5 | 8.6 | 1.5 | 40 | 52 | 24 | 191 | 1250 | 700 | 0.32 | – | 3.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV4 | 0.5 | 9.5 | 1.5 | 38 | 43 | 16 | 163 | 1170 | 547 | 0.23 | – | 6.7 | – | 5.000 | 5 | 5 | 5 | 5 | 5 | 5 | 1.1 | 1 | – | – | – | – | – | – | – | – | – | – |
| JV5 | – | 13 | 0.25 | 45 | 37 | 39 | 74 | 670 | – | 0.72 | – | 3.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV5 | – | 8 | 0.6 | 42 | 43 | 44 | 110 | 770 | – | 0.03 | – | 2.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV5 | – | 6 | 0.25 | 35 | 28 | 39 | 49 | 390 | – | 0.71 | – | 3.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV6 | – | 2.5 | 0.25 | 44 | 33 | 45 | 28 | 290 | – | 0.03 | – | 2.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV6 | – | 2.5 | 0.25 | 3 | 3 | 3 | 3 | 3 | – | 0.03 | – | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV7 | 0.5 | 7.7 | 1.5 | 44 | 65 | 24 | 247 | 1140 | 930 | 0.57 | – | 3.3 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV7 | 0.5 | 11.5 | 1.5 | 40 | 43 | 24 | 96 | 566 | 565 | 0.21 | – | 3.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV M1 | 0.5 | – | 1.5 | 37 | 42 | 27 | 100 | 484 | 633 | – | – | 4.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz a anthracene | Chrysene | Benzo(b)&(k)fluoranthen | Benzo a pyrene | Indeno(1,2,3-cd)pyrene | Dibenz a,h anthracene | Benzo(ghi)perylene | Silver | Arsenic | Cadmium | Chromium | Copper | Nickel | Lead | Zinc | Manganese | Mercury | Cyanide | *Total Organic Carbon | Total PCBs | DDD | DDE | TOTAL DDT | DIELDRIN | CHLORODANE | LINDANE | ENDRIN | RADIONUCLIDES #2 | TRIBUTYLTIN | Phenol | Benzene | Toluene | Ethylbenzene | Xylene | TPH C6-C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 | TPH C10-C36 |
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| JV M1 | 2.2-3.3 | GHD/2001 | 0 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 | 0.5 | – | 1.5 | 2 | 2 | 2 | 5 | 7 | 11 | – | – | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV M1A | 0.8-2.1 | GHD/2001 | 8 | 3.7 | 0.05 | 0.23 | 0.18 | 0.5 | 0.18 | 0.63 | 0.68 | 0.32 | 0.45 | – | 0.27 | – | – | 0.05 | 0.5 | – | 1.5 | 41 | 47 | 34 | 104 | 481 | 706 | – | – | 3.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV M2 | 0-0.85 | GHD/2001 | 11 | 2.4 | 0.05 | 0.22 | 0.13 | 0.57 | 0.22 | 1.2 | 1.4 | 0.7 | 1.1 | – | 0.61 | – | – | 0.13 | 0.5 | – | 1.5 | 41 | 57 | 28 | 180 | 857 | 725 | – | – | 4.0 | – | – | – | – | – | – | – | – | – | – | JV 11 | 0-1.5 | GHD/200 | 0.025 | 0.4 | – | – | – | – | – |
| JV10 | 0-1.6 | GHD/2001 | 11 | 0.97 | 0.1 | 0.05 | 0.1 | 0.75 | 0.47 | 2.2 | 1.9 | 0.82 | 1.1 | – | 0.65 | – | – | 0.1 | 0.5 | 6.1 | 1.5 | 5 | 6 | 2 | 30 | 207 | 107 | 0.09 | – | 2.0 | – | – | – | – | – | – | – | – | – | – | JV 11 | 1.5-3 | GHD/200 | 0.025 | – | – | – | – | – | – |
| JV10 | 1.6-3.1 | GHD/2001 | 28 | 1.7 | 0.37 | 0.17 | 0.34 | 2.6 | 1.3 | 5.4 | 4.6 | 1.9 | 2.7 | – | 1.8 | – | – | 0.34 | 0.5 | 8.2 | 1.5 | 27 | 33 | 20 | 105 | 656 | 529 | 0.51 | – | 4.0 | – | 5.000 | 5 | 5 | 5 | 5 | 5 | 5 | 1000 | 1 | JV 11 | 3-4.5 | GHD/200 | 0.025 | – | – | – | – | – | – |
| JV10 | 3.1-4.6 | GHD/2001 | 4 | 0.54 | 0.05 | 0.19 | 0.13 | 0.35 | 0.16 | 0.58 | 0.48 | 0.22 | 0.29 | – | 0.19 | – | – | 0.05 | 0.5 | 7.2 | 1.5 | 30 | 41 | 30 | 97 | 890 | 810 | 0.26 | – | 2.8 | – | – | – | – | – | – | – | – | – | – | JV 12 | 2-2.8 | GHD/200 | 0.025 | – | – | – | – | – | – |
| JV11 | 0-1.5 | GHD/2001 | 0 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 2.5 | 0.25 | 5 | 3 | 6 | 3 | 15 | – | 0.03 | – | 0.4 | – | – | – | – | – | – | – | – | – | – | JV 12 | 3.4-5.2 | GHD/200 | 0.025 | – | – | – | – | – | – |
| JV11 | 1.5-3 | GHD/2001 | 0 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 2.5 | 0.25 | 5 | 3 | 5 | 3 | 11 | – | 0.03 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | JV 14 | 2-3 | GHD/200 | 0.025 | – | – | – | – | – | – |
| JV11 | 3-4.5 | GHD/2001 | 0 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 2.5 | 0.25 | 6 | 3 | 6 | 3 | 11 | – | 0.03 | – | 0.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV11C | 0-1.5 | GHD/2001 | 0 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 2.5 | 0.25 | 6 | 3 | 7 | 3 | 17 | – | 0.03 | – | 0.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV12 | 0-2 | GHD/2001 | 0 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 5 | 0.25 | 20 | 12 | 22 | 6 | 41 | – | 0.03 | – | 1.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV12 | 3.4-5.2 | GHD/2001 | 0 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 2.5 | 0.25 | 3 | 3 | 3 | 3 | 3 | – | 0.03 | – | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV12 | 2-2.8 | GHD/2001 | 0 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 2.5 | 0.25 | 9 | 3 | 9 | 3 | 16 | – | 0.03 | – | 0.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV13 | 1-3 | GHD/2001 | 0 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 | 0.5 | 1.4 | 1.5 | 2 | 2 | 2 | 5 | 2 | 7 | 0.01 | – | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV13 | 0-0.3 | GHD/2001 | 3 | 0.45 | 0.05 | 0.05 | 0.05 | 0.17 | 0.05 | 0.39 | 0.39 | 0.28 | 0.42 | – | 0.28 | – | – | 0.05 | 0.5 | 4.3 | 1.5 | 11 | 16 | 8 | 38 | 274 | 125 | 0.14 | – | 1.1 | – | 5.000 | 5 | 5 | 5 | 5 | 5 | 5 | – | 1 | – | – | – | – | – | – | – | – | – | – |
| JV14 | 2-3 | GHD/2001 | 0 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 2.5 | 0.25 | 3 | 3 | 3 | 3 | 3 | – | 0.03 | – | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV14 | 0-1 | GHD/2001 | 2 | 0.025 | 0.025 | 0.025 | 0.025 | 0.13 | 0.05 | 0.31 | 0.3 | 0.13 | 0.1 | – | 0.17 | – | – | 0.025 | – | 5 | 0.25 | 25 | 21 | 22 | 37 | 270 | – | 0.03 | – | 1.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV14 | 1-1.8 | GHD/2001 | 0 | 0.14 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.06 | 0.05 | 0.025 | 0.025 | – | 0.05 | – | – | 0.025 | – | 2.5 | 0.25 | 9 | 5 | 10 | 3 | 17 | – | 0.03 | – | 0.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV15 | 1.5-3 | GHD/2001 | 0 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 | 0.5 | 2.1 | 1.5 | 2 | 2 | 2 | 5 | 4 | 21 | 0.13 | – | 0.3 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV15 d | 0-1.5 | GHD/2001 | 0 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 | 0.5 | 3.4 | 1.5 | 2 | 5 | 2 | 5 | 10 | 110 | 0.03 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV16 | 0-1.4 | GHD/2001 | 17 | 3.8 | 0.25 | 0.25 | 0.25 | 1 | 0.6 | 2.2 | 2.8 | 0.9 | 0.7 | – | 1.4 | – | – | 0.025 | – | 10 | 0.8 | 47 | 40 | 40 | 140 | 1500 | – | 0.42 | – | 3.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV16 | 1.5-2.8 | GHD/2001 | 7 | 1.1 | 0.1 | 0.18 | 0.24 | 0.71 | 0.28 | 1.1 | 0.94 | 0.35 | 0.27 | – | 0.38 | – | – | 0.025 | – | 9 | 0.25 | 51 | 36 | 45 | 76 | 670 | – | 0.03 | – | 2.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV16 | 2.8-4 | GHD/2001 | 120 | 37 | 2 | 6.6 | 6.2 | 11 | 5.8 | 16 | 12 | 5 | 3.6 | – | 5.2 | – | – | 0.025 | – | 13 | 1.2 | 78 | 58 | 43 | 320 | 2800 | – | 0.34 | – | 4.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV16A | 0-1.4 | GHD/2001 | 4 | 0.23 | 0.07 | 0.025 | 0.025 | 0.27 | 0.16 | 0.85 | 0.81 | 0.31 | 0.25 | – | 0.38 | – | – | 0.025 | – | 5 | 0.25 | 55 | 39 | 61 | 37 | 360 | – | 0.03 | – | 2.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV8 | 0-1.1 | GHD/2001 | 3 | 0.47 | 0.025 | 0.05 | 0.05 | 0.18 | 0.06 | 0.44 | 0.45 | 0.18 | 0.13 | – | 0.23 | – | – | 0.025 | – | 6 | 0.25 | 43 | 35 | 48 | 34 | 310 | – | 0.10 | – | 2.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV8 | 1.5-2.7 | GHD/2001 | 0 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 2.5 | 0.25 | 3 | 3 | 3 | 3 | 6 | – | 0.03 | – | 0.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV9 | 2-2.3 | GHD/2001 | 5 | 0.92 | 0.05 | 0.05 | 0.05 | 0.25 | 0.05 | 0.54 | 0.63 | 0.38 | 0.54 | – | 0.38 | – | – | 0.05 | 0.5 | 2.8 | 1.5 | 23 | 29 | 7 | 62 | 422 | 201 | 0.01 | – | 1.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JV9 | 0-2 | GHD/2001 | 0 | 0.12 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 | 0.5 | 10.6 | 1.5 | 2 | 2 | 2 | 5 | 6 | 60 | 0.28 | – | 0.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JVM2B/C | 0-0.6 | GHD/2001 | 14 | 4.1 | 0.21 | 0.3 | 0.34 | 0.94 | 0.39 | 1.6 | 1.5 | 0.56 | 0.77 | – | 0.52 | – | – | 0.13 | 0.5 | – | 1.5 | 43 | 44 | 39 | 72 | 502 | 596 | – | – | 2.7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| JVM3B | 0-1.2 | GHD/2001 | 3971 | 1300 | 120 | 70 | 140 | 680 | 160 | 430 | 350 | 110 | 120 | – | 90 | – | – | 15 | 0.5 | 7.2 | 1.5 | 19 | 23 | 16 | 25 | 135 | 478 | 0.40 | – | 26.0 | – | 5.000 | 5 | 5 | 5 | 5 | 5 | 5 | – | 1 | – | – | – | – | – | – | – | – | – | – |
| SA1 | 1000-1550 | PB/2000 | 27.7 | 17 | 0.2 | 0.3 | 0.4 | 1.4 | 0.5 | 1.9 | 1.7 | 0.7 | 0.5 | 1.2 | 0.8 | 0.7 | 0.025 | 0.5 | – | 4.8 | 0.3 | 51 | 39 | 56 | 41 | 330 | – | 0.24 | – | 3.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA1 | 1550-2100 | PB/2000 | 231 | 81 | 2.3 | 12 | 7.6 | 24 | 8.4 | 27 | 22 | 7.7 | 5.8 | 12 | 9.3 | 6.9 | 0.7 | 4.7 | – | 19 | 2.8 | 65 | 58 | 30 | 590 | 3300 | – | 3.11 | – | 7.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA1 | 350-1000 | PB/2000 | 37.3 | 8 | 0.5 | 0.3 | 0.5 | 1.8 | 0.8 | 3.5 | 4.4 | 1.8 | 1.2 | 5.2 | 3.7 | 3.2 | 0.3 | 2.1 | – | 6.6 | 1 | 50 | 41 | 45 | 160 | 920 | – | 1.45 | – | 3.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA1 | 50-350 | PB/2000 | 12.3 | 4.6 | 0.1 | 0.3 | 0.2 | 0.8 | 0.3 | 1.1 | 1.1 | 0.6 | 0.4 | 0.9 | 0.7 | 0.6 | 0.1 | 0.5 | – | 5.2 | 0.6 | 32 | 26 | 30 | 61 | 310 | – | 0.11 | – | 3.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA1 | bulked | PB/2000 | 1210 | 842 | 8.6 | 77 | 39 | 81 | 22 | 43 | 34 | 11 | 8.8 | 16 | 11 | 6.7 | 0.8 | 4.4 | – | 13 | 2.2 | 64 | 47 | 28 | 440 | 2500 | – | 0.48 | – | 7.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA15 | 0-250 | PB/2000 | 69 | 39 | 0.6 | 2.1 | 1.3 | 3.8 | 1.3 | 4.1 | 3.9 | 1.9 | 1.2 | 3.4 | 2.6 | 2.2 | 0.2 | 1.4 | – | 6.6 | 0.4 | 40 | 34 | 38 | 69 | 350 | – | 0.13 | – | 3.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA15 | 1250-1750 | PB/2000 | 47.2 | 10 | 0.3 | 0.6 | 0.6 | 2 | 0.8 | 3.9 | 5.5 | 2.6 | 2.2 | 6.8 | 4.5 | 4.3 | 0.5 | 2.7 | – | 9 | 2.4 | 74 | 61 | 55 | 210 | 940 | – | 0.24 | – | 4.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA15 | 250-750 | PB/2000 | 79.9 | 38 | 0.9 | 2.2 | 1.7 | 5 | 1.6 | 5.7 | 5.6 | 2.5 | 2.1 | 5.2 | 3.8 | 3.2 | 0.3 | 2.1 | – | 5 | 0.3 | 52 | 38 | 59 | 39 | 240 | – | 0.18 | – | 3.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA15 | 750-1250 | PB/2000 | 71.6 | 21 | 0.6 | 1 | 1 | 3.3 | 1.3 | 5.4 | 7.2 | 3.6 | 2.8 | 9 | 6.3 | 5.3 | 0.6 | 3.3 | – | 9.2 | 2.6 | 57 | 46 | 41 | 200 | 710 | – | 0.1 | – | 4.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA15 | bulked | PB/2000 | 75 | 21 | 0.7 | 1 | 1.1 | 4 | 1.6 | 7.5 | 8.9 | 3.4 | 3 | 8.4 | 5.6 | 5.1 | 0.5 | 3.3 | – | 12 | 1.8 | 52 | 66 | 33 | 370 | 1400 | – | 1.1 | – | 4.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA17 | 1500-2250 | PB/2000 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 5 | 0.05 | 12 | 5.4 | 12 | 3.4 | 22 | – | – | – | 0.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA17 | 200-410 | PB/2000 | 199 | 9.6 | 0.7 | 7 | 3.6 | 17 | 6.2 | 34 | 31 | 13 | 10 | 25 | 18 | 13 | 1.3 | 10 | – | 4.8 | 0.5 | 27 | 18 | 19 | 75 | 390 | – | – | – | 1.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA17 | 410-1250 | PB/2000 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 4.8 | 0.05 | 11 | 4.8 | 12 | 3.2 | 25 | – | – | – | 0.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA19 | 1300-2000 | PB/2000 | 3.5 | 0.36 | 0.025 | 0.025 | 0.025 | 0.15 | 0.06 | 0.49 | 0.61 | 0.19 | 0.16 | 0.6 | 0.39 | 0.31 | 0.025 | 0.23 | – | 5 | 0.2 | 29 | 23 | 31 | 22 | 130 | – | – | – | 3.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA19 | 2000-2800 | PB/2000 | 24.2 | 3.8 | 0.38 | 0.24 | 0.34 | 1.3 | 0.7 | 3.1 | 3.7 | 0.9 | 1 | 3.2 | 2.2 | 1.8 | 0.17 | 1.4 | – | 4.6 | 0.4 | 37 | 35 | 40 | 60 | 470 | – | – | – | 3.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA19 | 240-800 | PB/2000 | 13.9 | 2.4 | 0.08 | 0.16 | 0.16 | 0.7 | 0.19 | 1.2 | 1.4 | 0.9 | 1 | 2.2 | 1.4 | 1 | 0.25 | 0.9 | – | 5.6 | 0.5 | 41 | 31 | 40 | 48 | 260 | – | – | – | 4.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA19 | 800-1300 | PB/2000 | 45.6 | 5.4 | 0.29 | 0.45 | 0.42 | 1.7 | 0.64 | 4.1 | 5 | 2.9 | 2.5 | 8.4 | 5.4 | 4.6 | 0.6 | 3.2 | – | 6.8 | 1.4 | 41 | 26 | 32 | 170 | 650 | – | – | – | 4.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA22 | 2000-3000 | PB/2000 | 6.5 | 2.9 | 0.08 | 0.09 | 0.11 | 0.31 | 0.13 | 0.67 | 0.63 | 0.23 | 0.19 | 0.4 | 0.29 | 0.25 | 0.025 | 0.19 | – | 15 | 1 | 47 | 43 | 36 | 210 | 1900 | – | 0.23 | – | 3.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA22 | 300-800 | PB/2000 | 3.37 | 0.6 | 0.025 | 0.05 | 0.025 | 0.17 | 0.06 | 0.4 | 0.42 | 0.2 | 0.21 | 0.5 | 0.35 | 0.21 | 0.025 | 0.21 | – | 3.6 | 0.3 | 43 | 32 | 48 | 25 | 160 | – | 0.15 | – | 3.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA22 | 800-1300 | PB/2000 | 9.98 | 0.93 | 0.09 | 0.09 | 0.08 | 0.36 | 0.13 | 1.1 | 1.2 | 0.7 | 0.6 | 1.8 | 1.3 | 0.8 | 0.1 | 0.7 | – | 7.2 | 0.9 | 40 | 31 | 37 | 110 | 540 | – | 0.21 | – | 3.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA22A | 1300-2000 | PB/2000 | 10.5 | 1.5 | 0.12 | 0.1 | 0.11 | 0.43 | 0.17 | 1.1 | 1.4 | 0.6 | 0.5 | 1.6 | 1.1 | 1 | 0.1 | 0.7 | – | 6 | 0.6 | 36 | 33 | 34 | 95 | 560 | – | 0.2 | – | 2.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA22B | 1300-2000 | PB/2000 | 11.5 | 1 | 0.13 | 0.11 | 0.11 | 0.46 | 0.16 | 1.3 | 1.5 | 0.81 | 0.55 | 2 | 1.3 | 1.2 | 0.13 | 0.81 | – | 4 | 0.3 | 27 | 21 | 25 | 56 | 320 | – | 0.21 | – | 2.7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA24 | 0-280 | PB/2000 | 2.66 | 1.1 | 0.025 | 0.08 | 0.06 | 0.16 | 0.05 | 0.24 | 0.22 | 0.1 | 0.08 | 0.2 | 0.13 | 0.11 | 0.025 | 0.09 | – | 3.2 | 0.2 | 34 | 26 | 38 | 19 | 110 | – | 0.025 | – | 2.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA24 | 1300-1800 | PB/2000 | 7.2 | 0.8 | 0.09 | 0.07 | 0.08 | 0.3 | 0.14 | 1.1 | 1.1 | 0.41 | 0.28 | 1.2 | 0.6 | 0.6 | 0.07 | 0.46 | – | 9.4 | 0.5 | 48 | 51 | 43 | 120 | 600 | – | 0.45 | – | 3.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA24 | 1800-2800 | PB/2000 | 4.48 | 0.6 | 0.07 | 0.025 | 0.07 | 0.25 | 0.12 | 0.7 | 0.6 | 0.24 | 0.21 | 0.6 | 0.43 | 0.33 | 0.025 | 0.25 | – | 7.4 | 0.5 | 42 | 34 | 42 | 66 | 560 | – | 0.39 | – | 2.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA24 | 280-800 | PB/2000 | 10.3 | 1.3 | 0.08 | 0.11 | 0.1 | 0.48 | 0.15 | 1.1 | 1.2 | 0.6 | 0.54 | 1.8 | 1.1 | 0.9 | 0.12 | 0.71 | – | 8.6 | 1.2 | 46 | 35 | 42 | 120 | 600 | – | 0.28 | – | 2.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA24 | 800-1300 | PB/2000 | 16 | 1.5 | 0.15 | 0.14 | 0.15 | 0.8 | 0.25 | 1.8 | 2 | 1 | 0.8 | 2.8 | 1.7 | 1.5 | 0.18 | 1.2 | – | 8.4 | 0.8 | 43 | 43 | 38 | 140 | 790 | – | 0.31 | – | 3.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA27 | 0-250 | PB/2000 | 7.19 | 2.6 | 0.07 | 0.19 | 0.13 | 0.44 | 0.15 | 0.7 | 0.7 | 0.29 | 0.24 | 0.7 | 0.47 | 0.31 | 0.025 | 0.25 | – | 4.8 | 0.3 | 32 | 27 | 32 | 39 | 240 | – | 0.025 | – | 2.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA27 | 1250-1750 | PB/2000 | 42.9 | 11 | 0.7 | 0.39 | 0.75 | 2 | 1.3 | 5.9 | 5.4 | 1.9 | 1.7 | 4.6 | 3.1 | 2.4 | 0.26 | 1.6 | – | 10 | 1.4 | 48 | 45 | 34 | 290 | 2000 | – | 1.67 | – | 3.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA27 | 250-750 | PB/2000 | 23.3 | 2.6 | 0.19 | 0.21 | 0.19 | 0.89 | 0.35 | 2.3 | 2.5 | 1.8 | 1.2 | 4.2 | 2.6 | 2.4 | 0.28 | 1.6 | – | 9 | 1.4 | 47 | 36 | 37 | 180 | 700 | – | 0.35 | – | 3.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA27 | 750-1250 | PB/2000 | 9.25 | 1.3 | 0.15 | 0.09 | 0.1 | 0.43 | 0.18 | 0.9 | 1.2 | 0.51 | 0.38 | 1.6 | 1 | 0.8 | 0.11 | 0.6 | – | 6.4 | 0.6 | 54 | 42 | 52 | 98 | 680 | – | 0.85 | – | 2.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA27 | bulked | PB/2000 | 16.9 | 4.1 | 0.18 | 2.3 | 0.7 | 1.3 | 0.5 | 2.2 | 1.9 | 0.7 | 0.37 | 1 | 0.7 | 0.52 | 0.06 | 0.38 | – | 5.6 | 0.4 | 34 | 28 | 34 | 62 | 430 | – | 0.41 | – | 2.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA5 | 0-550 | PB/2000 | 3.16 | 0.6 | 0.025 | 0.06 | 0.025 | 0.15 | 0.15 | 0.3 | 0.3 | 0.2 | 0.1 | 0.8 | 0.2 | 0.2 | 0.025 | 0.1 | – | 3.8 | 0.3 | 30 | 25 | 33 | 31 | 220 | – | 0.08 | – | 2.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA5 | 1000-1500 | PB/2000 | 10.6 | 0.7 | 0.1 | 0.07 | 0.07 | 0.3 | 0.1 | 1 | 1.2 | 0.9 | 0.3 | 3.6 | 1 | 0.8 | 0.07 | 0.5 | – | 6 | 0.6 | 39 | 32 | 37 | 95 | 490 | – | 0.19 | – | 3.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA5 | 550-1000 | PB/2000 | 17.7 | 2.3 | 0.1 | 0.2 | 0.1 | 0.8 | 0.3 | 1.7 | 2.1 | 1.2 | 1 | 3 | 2 | 1.7 | 0.2 | 1.1 | – | 6 | 1 | 39 | 30 | 36 | 91 | 420 | – | 0.19 | – | 3.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA5 | bulked | PB/2000 | 4.46 | 0.3 | 0.06 | 0.025 | 0.025 | 0.1 | 0.1 | 0.7 | 0.025 | 0.4 | 0.2 | 1.6 | 0.4 | 0.4 | 0.025 | 0.2 | – | 4.2 | 0.3 | 45 | 38 | 55 | 45 | 350 | – | 0.1 | – | 2.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS1 | surface | PBP 2001 | 135.8 | 65.00 | 1.50 | 5.20 | 2.90 | 9.00 | 3.60 | 12.00 | 9.90 | 3.60 | 4.60 | 6.50 | 4.80 | 3.50 | 0.68 | 3.00 | – | – | – | – | – | – | – | – | – | – | – | 4.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS10 | surface | PBP 2001 | 6.8 | 2.50 | 0.05 | 0.17 | 0.13 | 0.39 | 0.17 | 0.69 | 0.65 | 0.35 | 0.48 | 0.56 | 0.35 | 0.22 | 0.05 | 0.17 | – | – | – | – | – | – | – | – | – | – | – | 2.3 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS11 | surface | PBP 2001 | 103.9 | 65.00 | 1.00 | 3.00 | 1.70 | 4.80 | 2.00 | 5.60 | 5.10 | 2.30 | 2.70 | 4.10 | 2.70 | 1.90 | 0.41 | 1.60 | – | – | – | – | – | – | – | – | – | – | – | 5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS12 | surface | PBP 2001 | 5.7 | 1.70 | 0.05 | 0.12 | 0.05 | 0.43 | 0.16 | 0.75 | 0.67 | 0.35 | 0.43 | 0.47 | 0.24 | 0.20 | 0.05 | 0.16 | – | – | – | – | – | – | – | – | – | – | – | 1.7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS13 | surface | PBP 2001 | 23.9 | 14.00 | 0.23 | 0.75 | 0.40 | 1.20 | 0.46 | 1.40 | 1.30 | 0.63 | 0.92 | 1.00 | 0.69 | 0.46 | 0.11 | 0.34 | – | – | – | – | – | – | – | – | – | – | – | 3.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS14 | surface | PBP 2001 | 547.3 | 210.00 | 6.10 | 36.00 | 18.00 | 44.00 | 14.00 | 51.00 | 49.00 | 15.00 | 20.00 | 33.00 | 23.00 | 14.00 | 3.20 | 11.00 | – | – | – | – | – | – | – | – | – | – | – | 18 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS15 | surface | PBP 2001 | 6.2 | 3.40 | 0.05 | 0.22 | 0.11 | 0.32 | 0.11 | 0.38 | 0.38 | 0.22 | 0.27 | 0.32 | 0.22 | 0.16 | 0.05 | 0.11 | – | – | – | – | – | – | – | – | – | – | – | 2.7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS16 | surface | PBP 2001 | 33.2 | 9.60 | 0.39 | 0.69 | 0.45 | 1.40 | 0.81 | 3.50 | 3.60 | 1.80 | 2.30 | 3.40 | 2.30 | 1.50 | 0.33 | 1.10 | – | – | – | – | – | – | – | – | – | – | – | 3.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS17 | surface | PBP 2001 | 3.1 | 1.70 | 0.05 | 0.12 | 0.05 | 0.24 | 0.05 | 0.28 | 0.28 | 0.16 | 0.20 | 0.05 | 0.12 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | 2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS18 | surface | PBP 2001 | 306.8 | 76.00 | 4.90 | 11.00 | 6.00 | 19.00 | 6.90 | 34.00 | 32.00 | 15.00 | 18.00 | 32.00 | 22.00 | 15.00 | 4.00 | 11.00 | – | – | – | – | – | – | – | – | – | – | – | 9.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS19 | surface | PBP 2001 | 11.6 | 5.90 | 0.15 | 0.34 | 0.20 | 0.54 | 0.24 | 0.78 | 0.73 | 0.39 | 0.59 | 0.73 | 0.44 | 0.29 | 0.05 | 0.24 | – | – | – | – | – | – | – | – | – | – | – | 2.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS2 | surface | PBP 2001 | 2695.0 | 790.00 | 33.00 | 98.00 | 35.00 | 190.00 | 85.00 | 440.00 | 370.00 | 120.00 | 150.00 | 160.00 | 110.00 | 59.00 | 12.00 | 43.00 | – | – | – | – | – | – | – | – | – | – | – | 25 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS20 | surface | PBP 2001 | 65.2 | 11.00 | 0.53 | 1.40 | 0.89 | 4.20 | 1.70 | 9.10 | 8.60 | 4.20 | 5.70 | 7.20 | 4.50 | 3.00 | 0.89 | 2.30 | – | – | – | – | – | – | – | – | – | – | – | 9.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS21 | surface | PBP 2001 | 287.1 | 19.00 | 4.10 | 2.30 | 3.40 | 27.00 | 11.00 | 55.00 | 51.00 | 19.00 | 24.00 | 29.00 | 20.00 | 11.00 | 2.80 | 8.50 | – | – | – | – | – | – | – | – | – | – | – | 13 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS3 | surface | PBP 2001 | 3448.0 | 1300.00 | 39.00 | 100.00 | 64.00 | 270.00 | 200.00 | 430.00 | 350.00 | 130.00 | 170.00 | 170.00 | 110.00 | 61.00 | 12.00 | 42.00 | – | – | – | – | – | – | – | – | – | – | – | 21 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS4 | surface | PBP 2001 | 15.9 | 9.30 | 0.24 | 0.47 | 0.29 | 0.82 | 0.41 | 0.88 | 0.82 | 0.41 | 0.53 | 0.65 | 0.41 | 0.29 | 0.12 | 0.24 | – | – | – | – | – | – | – | – | – | – | – | 2.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS5 | surface | PBP 2001 | 16.9 | 9.50 | 0.22 | 0.44 | 0.28 | 0.78 | 0.28 | 0.89 | 0.83 | 0.50 | 0.72 | 0.95 | 0.61 | 0.44 | 0.17 | 0.33 | – | – | – | – | – | – | – | – | – | – | – | 3.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS6 | surface | PBP 2001 | 114.1 | 59.00 | 1.70 | 2.90 | 2.10 | 7.00 | 2.70 | 8.50 | 7.80 | 3.10 | 4.10 | 5.80 | 4.00 | 2.70 | 0.60 | 2.10 | – | – | – | – | – | – | – | – | – | – | – | 4.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS7 | surface | PBP 2001 | 7.5 | 3.40 | 0.05 | 0.21 | 0.13 | 0.42 | 0.17 | 0.67 | 0.63 | 0.34 | 0.42 | 0.46 | 0.29 | 0.21 | 0.05 | 0.17 | – | – | – | – | – | – | – | – | – | – | – | 2.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS8 | surface | PBP 2001 | 170.6 | 97.00 | 1.90 | 6.70 | 3.80 | 9.70 | 3.80 | 11.00 | 9.80 | 3.90 | 4.80 | 6.80 | 4.60 | 3.40 | 0.75 | 2.60 | – | – | – | – | – | – | – | – | – | – | – | 6.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SS9 | surface | PBP 2001 | 5.5 | 2.90 | 0.05 | 0.16 | 0.11 | 0.32 | 0.11 | 0.37 | 0.37 | 0.21 | 0.27 | 0.32 | 0.16 | 0.11 | 0.05 | 0.11 | – | – | – | – | – | – | – | – | – | – | – | 2.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 1 | 0-100 | PB/2000 | 6.37 | 2.7 | 0.06 | 0.15 | 0.09 | 0.32 | 0.1 | 0.4 | 0.36 | 0.2 | 0.14 | – | 0.27 | – | – | 0.17 | – | 9 | 0.6 | 37 | 37 | 33 | 42 | 260 | – | 0.025 | – | 3.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 1 | 100-500 | PB/2000 | 3.915 | 1.1 | 0.025 | 0.09 | 0.07 | 0.24 | 0.07 | 0.33 | 0.29 | 0.17 | 0.12 | – | 0.24 | – | – | 0.12 | – | 5.4 | 0.2 | 31 | 28 | 33 | 25 | 150 | – | 0.025 | – | 3.4 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |
| 1 | 500-1000 | PB/2000 | 9.81 | 2.2 | 0.11 | 0.13 | 0.11 | 0.42 | 0.15 | 1 | 1.1 | 0.58 | 0.36 | – | 0.66 | – | – | 0.53 | – | 7.6 | 0.8 | 38 | 32 | 32 | 80 | 360 | – | 0.27 | – | 3.5 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |
| 3 | 1000-2000 | PB/2000 | 21.72 | 6.6 | 0.21 | 0.36 | 0.28 | 1.1 | 0.32 | 1.7 | 1.9 | 1.1 | 0.81 | – | 1.4 | – | – | 1.1 | – | 12 | 1.2 | 55 | 45 | 42 | 130 | 590 | – | 0.26 | – | 3.4 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |
| 3 | 2300-2570 | PB/2000 | 0.425 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 7.8 | 0.05 | 19 | 13 | 35 | 12 | 60 | – | 0.025 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 3 | 70-1000 | PB/2000 | 15.37 | 6.3 | 0.16 | 0.38 | 0.26 | 1 | 0.28 | 1.2 | 1.2 | 0.58 | 0.37 | – | 0.64 | – | – | 0.59 | – | 7.2 | 0.3 | 39 | 33 | 36 | 42 | 220 | – | 0.025 | – | 3.2 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |
| 5 | 0-120 | PB/2000 | 6.17 | 2.9 | 0.06 | 0.19 | 0.12 | 0.33 | 0.11 | 0.34 | 0.3 | 0.15 | 0.11 | – | 0.24 | – | – | 0.12 | – | 9.4 | 0.2 | 41 | 39 | 41 | 29 | 180 | – | 0.025 | – | 3.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5 | 120-580 | PB/2000 | 11.53 | 6 | 0.11 | 0.3 | 0.19 | 0.52 | 0.17 | 0.61 | 0.54 | 0.29 | 0.2 | – | 0.49 | – | – | 0.23 | – | 9 | 0.2 | 36 | 34 | 31 | 44 | 260 | – | 0.11 | – | 3.5 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |
| 7 | 0-300 | PB/2000 | 4.045 | 1.4 | 0.025 | 0.11 | 0.07 | 0.23 | 0.09 | 0.28 | 0.25 | 0.14 | 0.11 | – | 0.23 | – | – | 0.13 | – | 4.2 | 0.2 | 39 | 150 | 41 | 25 | 150 | – | 0.27 | – | 2.3 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |
| 7 | 300-600 | PB/2000 | 24.8 | 4.4 | 0.28 | 0.23 | 0.24 | 0.91 | 0.34 | 2 | 2.3 | 1.3 | 1.1 | – | 2.3 | – | – | 1.7 | – | 9 | 1.8 | 41 | 32 | 28 | 180 | 680 | – | 0.43 | – | 3.1 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |
| 7 | 600-950 | PB/2000 | 0.52 | 0.12 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 0.7 | 0.05 | 3.6 | 9.8 | 1.2 | 3.4 | 22 | – | 0.025 | – | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 8 | 1060-1270 | PB/2000 | 0.64 | 0.08 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.08 | 0.07 | 0.025 | 0.025 | – | 0.06 | – | – | 0.025 | – | 1.8 | 0.05 | 8.2 | 8.2 | 15 | 12 | 75 | – | 0.22 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 8 | 40-1060 | PB/2000 | 24.1 | 9.6 | 0.4 | 0.5 | 0.4 | 1.4 | 0.5 | 1.7 | 1.9 | 0.9 | 0.7 | – | 1.4 | – | – | 0.1 | – | 6.6 | 0.4 | 41 | 35 | 41 | 53 | 270 | – | 0.025 | – | 2.9 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |
| 11 | 0-100 | PB/2000 | 13.825 | 7.5 | 0.4 | 0.4 | 0.3 | 0.7 | 0.2 | 0.08 | 0.7 | 0.3 | 0.3 | – | 0.4 | – | – | 0.025 | – | 8.4 | 0.3 | 35 | 36 | 34 | 42 | 230 | – | 0.15 | – | 3.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 11 | 1000-1670 | PB/2000 | 27.9 | 8.6 | 0.3 | 0.7 | 0.5 | 1.8 | 0.6 | 2.4 | 2.6 | 1.4 | 0.9 | – | 1.9 | – | – | 0.1 | – | 8.6 | 0.9 | 42 | 35 | 35 | 99 | 410 | – | 0.3 | – | 3.4 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |
| 14 | 1850-2240 | PB/2000 | 10.05 | 2.4 | 0.1 | 0.3 | 0.2 | 0.7 | 0.3 | 1.3 | 1.6 | 0.5 | 0.4 | – | 0.6 | – | – | 0.05 | – | 1.4 | 0.05 | 2 | 0.9 | 16 | 3.8 | 20 | – | 0.025 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 14 | 200-900 | PB/2000 | 22.75 | 13 | 0.2 | 0.7 | 0.4 | 1.2 | 0.4 | 1.3 | 1.2 | 0.5 | 0.4 | – | 0.7 | – | – | 0.05 | – | 8.6 | 0.3 | 38 | 33 | 35 | 59 | 290 | – | 0.13 | – | 3.1 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |
| 14 | 900-1850 | PB/2000 | 33.3 | 16 | 0.3 | 1 | 0.6 | 2 | 0.7 | 2.2 | 2.3 | 1 | 0.7 | – | 1.4 | – | – | 0.1 | – | 11 | 0.9 | 47 | 40 | 38 | 120 | 490 | – | 0.27 | – | 3.7 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |
| 11A | 100-1000 | PB/2000 | 17.8 | 6.9 | 0.2 | 0.5 | 0.3 | 1.1 | 0.3 | 1.4 | 1.4 | 0.7 | 0.5 | – | 1 | – | – | 0.1 | – | 7 | 0.5 | 40 | 34 | 37 | 66 | 330 | – | 0.24 | – | 3.2 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenapthylene | Acenapthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz a anthracene | Chrysene | Benzo(b)&(k)fluoranthene | Benzo a pyrene | Indeno(1,2,3-cd)fluoranthene | Dibenz a,h anthracene | Benzo(ghi)perylene | Silver | Arsenic | Cadmium | Chromium | Copper | Nickel | Lead | Zinc | Manganese | Mercury | Cyanide | *Total Organic Carbon | Total PCBs | DDD | DDE | TOTAL DDT | DIELDRIN | CHLORODANE | LINDANE | ENDRIN | RADIONUCLIDES #2 | TRIBUTYLTIN | Phenol | Benzene | Toluene | Ethylbenzene | Xylene | TPH C6-C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 | TPH C10-C36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11B | 100-1000 | PB/2000 | 23.8 | 11 | 0.2 | 0.6 | 0.4 | 1.3 | 0.4 | 1.7 | 1.7 | 0.9 | 0.6 | – | 1.1 | – | – | 0.1 | – | 7.4 | 0.5 | 39 | 37 | 36 | 76 | 370 | – | 0.28 | – | 3.1 | 0.0025 | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – |
| SA10 | bulked | PB/2000 | 0.465 | 0.12 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.06 | 0.06 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 3.8 | 0.05 | 17 | 11 | 16 | 12 | 79 | – | 0.025 | – | 0.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA12 | 20-360 | PB/2000 | 2.065 | 0.46 | 0.025 | 0.025 | 0.025 | 0.13 | 0.025 | 0.23 | 0.22 | 0.12 | 0.08 | – | 0.16 | – | – | 0.025 | – | 3 | 0.2 | 20 | 17 | 25 | 21 | 140 | – | 0.09 | – | 1.7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA12 | 500-870 | PB/2000 | 0.61 | 0.07 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.1 | 0.09 | 0.025 | 0.025 | – | 0.025 | – | – | 0.025 | – | 4.2 | 0.2 | 40 | 32 | 44 | 23 | 170 | – | 0.16 | – | 3.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA14a | bulked' | PB/2000 | 0.7 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.08 | 0.07 | 0.06 | 0.025 | – | 0.08 | – | – | 0.025 | – | 2.8 | 0.05 | 4 | 2.6 | 5.4 | 19 | 130 | – | 0.025 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA7 | 1000-1500 | PB/2000 | 1.57 | 0.18 | 0.025 | 0.11 | 0.025 | 0.11 | 0.025 | 0.3 | 0.3 | 0.14 | 0.11 | – | 0.22 | – | – | 0.025 | – | 4 | 0.2 | 25 | 20 | 26 | 20 | 150 | – | 0.025 | – | 2.7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA7 | 1500-2000 | PB/2000 | 2.576 | 0.28 | 0.025 | 0.181 | 0.025 | 0.18 | 0.08 | 0.55 | 0.49 | 0.21 | 0.17 | – | 0.36 | – | – | 0.025 | – | 1.6 | 0.05 | 34 | 27 | 43 | 8.4 | 69 | – | 0.025 | – | 2.3 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA7 | 30-500 | PB/2000 | 4.63 | 1.3 | 0.05 | 0.29 | 0.08 | 0.29 | 0.09 | 0.6 | 0.6 | 0.38 | 0.3 | – | 0.59 | – | – | 0.06 | – | 5.4 | 0.5 | 42 | 31 | 44 | 42 | 260 | – | 0.025 | – | 3.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA7 | 500-1000 | PB/2000 | 8.5 | 1.1 | 0.08 | 0.5 | 0.1 | 0.5 | 0.17 | 1.4 | 1.5 | 1 | 0.7 | – | 1.3 | – | – | 0.15 | – | 8 | 1.2 | 48 | 35 | 41 | 130 | 610 | – | 0.17 | – | 2.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA8 | 0-270 | PB/2000 | 4 | 0.7 | 0.025 | 0.09 | 0.07 | 0.31 | 0.08 | 0.58 | 0.58 | 0.24 | 0.17 | – | 0.27 | – | – | 0.025 | – | 2.4 | 0.05 | 6 | 5.2 | 5.6 | 18 | 140 | – | 0.08 | – | 0.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA8 | 270-510 | PB/2000 | 28.88 | 4.7 | 0.6 | 0.6 | 0.6 | 1.9 | 0.8 | 3.2 | 3.8 | 1.4 | 1.1 | – | 2.5 | – | – | 0.18 | – | 5.4 | 0.5 | 30 | 19 | 20 | 120 | 950 | – | 0.73 | – | 2.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| SA8 | 510-950 | PB/2000 | 2.86 | 0.29 | 0.025 | 0.06 | 0.07 | 0.21 | 0.07 | 0.38 | 0.42 | 0.16 | 0.11 | – | 0.27 | – | – | 0.025 | – | 4.6 | 0.2 | 41 | 34 | 47 | 30 | 200 | – | 0.19 | – | 3.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 24A2 | 0-500 | RCA /2000 | 320 | 120 | 4.4 | 4.8 | 5.8 | 10 | 5 | 41 | 44 | 12 | 8.4 | 24 | 18 | 16 | 1.4 | 10 | 2.5 | – | – | – | – | – | – | – | – | – | – | 3.6 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 1160 |
| 24B2 | 500-1000 | RCA /2000 | 860 | 330 | 11 | 35 | 21 | 54 | 24 | 110 | 94 | 30 | 23 | 44 | 34 | 29 | 2.6 | 17 | 2.5 | 17 | 2 | 53 | 53 | 34 | 220 | 1200 | – | 0.81 | 1.2 | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 3840 |
| 25A2 | 0-500 | RCA /2000 | 450 | 220 | 5.2 | 12 | 9.6 | 28 | 9 | 37 | 35 | 13 | 9.4 | 25 | 19 | 17 | 1.6 | 10 | 2.5 | 9 | 0.7 | 28 | 25 | 16 | 63 | 310 | – | 0.14 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 1100 |
| 25B2 | 500-1000 | RCA /2000 | 2600 | 1400 | 22 | 150 | 50 | 130 | 95 | 230 | 180 | 57 | 40 | 90 | 70 | 65 | 6.6 | 37 | 2.5 | 12 | 0.8 | 40 | 43 | 27 | 80 | 420 | – | 0.11 | – | 21.6 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5920 |
| 25C2 | 1000-2000 | RCA /2000 | 800 | 480 | 7.2 | 30 | 16 | 32 | 19 | 55 | 44 | 17 | 14 | 28 | 22 | 20 | 1.8 | 12 | 2.5 | 16 | 1.2 | 51 | 47 | 33 | 130 | 690 | – | 0.14 | – | 12.8 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 1700 |
| 26B2 | 500-1000 | RCA /2000 | 370 | 260 | 3.8 | 9.6 | 7.4 | 16 | 5.4 | 16 | 15 | 5.6 | 4 | 10 | 7.8 | 6.6 | 0.6 | 4 | 2.5 | 13 | 0.8 | 56 | 47 | 49 | 94 | 390 | – | 0.16 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 640 |
| 27A2 | 0-500 | RCA /2000 | 160 | 80 | 3 | 4.6 | 3.6 | 10 | 3.6 | 11 | 10 | 4.4 | 3 | 8 | 6 | 5.8 | 0.5 | 3.6 | 2.5 | 18 | 0.7 | 59 | 51 | 52 | 98 | 680 | – | 0.025 | – | 2.9 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 320 |
| 27B2 | 500-1000 | RCA /2000 | 39 | 23 | 0.6 | 1.2 | 0.9 | 2.4 | 0.7 | 2.4 | 2 | 1.2 | 0.5 | 2 | 1.2 | 1.2 | 0.25 | 0.7 | 2.5 | 12 | 0.25 | 49 | 40 | 48 | 40 | 220 | – | 0.025 | – |  | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 27C2 | 1000-2000 | RCA /2000 | 390 | 240 | 5.8 | 9.8 | 7.6 | 22 | 8.4 | 22 | 20 | 8.2 | 5.4 | 14 | 10 | 9.6 | 1 | 5.8 | 2.5 | 9 | 0.8 | 33 | 30 | 23 | 93 | 500 | – | 0.17 | 3 | 5.5 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 770 |
| 28A2 | 0-500 | RCA /2000 | 28 | 16 | 0.25 | 0.8 | 0.5 | 1.6 | 0.5 | 1.8 | 1.6 | 0.9 | 0.5 | 1 | 0.8 | 0.8 | 0.25 | 0.5 | 2.5 | 14 | 0.6 | 48 | 42 | 40 | 73 | 460 | – | 0.15 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 28B2 | 500-1000 | RCA /2000 | 39 | 24 | 0.25 | 1.2 | 0.8 | 2.2 | 0.7 | 2.2 | 2 | 1 | 0.6 | 2 | 1 | 0.9 | 0.25 | 0.7 | 2.5 | 16 | 0.8 | 62 | 55 | 52 | 110 | 530 | – | 0.19 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 28C2 | 1000-2000 | RCA /2000 | 9.8 | 7 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1 | 1 | 0.25 | 0.25 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 9 | 0.25 | 65 | 53 | 66 | 35 | 230 | – | 0.11 | – | 2.0 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 30A2 | 0-500 | RCA /2000 | 4.2 | 2.4 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 0.7 | 0.7 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 8 | 0.25 | 25 | 25 | 22 | 47 | 300 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 30B2 | 500-1000 | RCA /2000 | 7 | 4 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 1 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 10 | 0.25 | 28 | 27 | 25 | 36 | 250 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 30C2 | 1000-2000 | RCA /2000 | 4.2 | 3 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.6 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 6 | 0.25 | 13 | 12 | 12 | 34 | 220 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 31A2 | 0-500 | RCA /2000 | 6.4 | 3 | 0.25 | 0.5 | 0.25 | 0.7 | 0.25 | 0.1 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 2.5 | 0.25 | 14 | 13 | 14 | 22 | 140 | – | 0.13 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 180 |
| 31B2 | 500-1000 | RCA /2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 2.5 | 0.25 | 2.5 | 2.5 | 2 | 2.5 | 24 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 37A2 | 0-500 | RCA /2000 | 20 | 17 | 0.25 | 1.4 | 1.2 | 2.6 | 1.2 | 3.4 | 3 | 0.9 | 0.9 | 1 | 1 | 0.5 | 0.25 | 0.25 | 2.5 | 10 | 1.2 | 40 | 42 | 27 | 220 | 1400 | – | 0.17 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 300 |
| 37B2 | 500-1000 | RCA /2000 | 35 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2 | 0.25 | 0.7 | 0.25 | 0.5 | 2.5 | 14 | 1.2 | 41 | 36 | 29 | 150 | 1100 | – | 0.48 | – | 2.4 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 460 |
| 1A | – | RCA/1995 | 128 | 22 | 2 | 6 | 3 | 9 | 5 | 14 | 17 | 5 | 5 | – | 9 | – | 1 | – | – | – | 0.5 | 61 | 47 | 21 | 304 | 1490 | – | – | – | 0.8 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 200 |
| 1B | – | RCA/1995 | 9 | 2.6 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 0.7 | 0.25 | 0.25 | 0.25 | – | 0.5 | – | 0.25 | – | – | – | 0.5 | 19 | 8 | 15 | 13 | 82 | – | – | – | 0.2 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 90 |
| 2A | – | RCA/1995 | 279.1 | 6.2 | 3.8 | 1.5 | 3.1 | 22.9 | 19.1 | 57.5 | 46.1 | 20.6 | 15.7 | – | 22.9 | – | 2.6 | – | – | – | 0.5 | 35 | 18 | 24 | 78 | 519 | – | – | 2.2 | 0.2 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 2B | – | RCA/1995 | 5.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | 0.25 | – | – | – | 0.5 | 15 | 5 | 12 | 9 | 49 | – | – | – | 0.2 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 3A | – | RCA/1995 | 41.25 | 12.3 | 0.6 | 0.7 | 0.6 | 2.4 | 1 | 3.8 | 4.1 | 1.5 | 1.5 | – | 2.9 | – | 0.25 | – | – | – | 0.5 | 42 | 22 | 25 | 122 | 772 | – | – | – | 0.3 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 3B | – | RCA/1995 | 11.8 | 2.5 | 0.25 | 0.25 | 0.25 | 0.8 | 0.25 | 1.3 | 1.2 | 0.25 | 0.25 | – | 0.8 | – | 0.25 | – | – | – | 0.5 | 33 | 21 | 29 | 70 | 430 | – | – | – | 0.2 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 5 | – | RCA/1995 | 7.5 | 2.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | – | 0.5 | 8 | 5 | 5 | 32 | 222 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6 | – | RCA/1995 | 37.45 | 4.9 | 0.25 | 0.25 | 0.25 | 1.6 | 0.25 | 3.6 | 3.7 | 2.3 | 2.3 | – | 4 | – | – | 0.6 | – | – | 2 | 116 | 28 | 14 | 139 | 768 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7 | – | RCA/1995 | 8.5 | 0.8 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1.4 | 1.2 | 0.25 | 0.5 | – | 0.6 | – | – | 0.25 | – | – | 0.5 | 10 | 4 | 7 | 20 | 127 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 8 | – | RCA/1995 | 9.8 | 0.9 | 0.25 | 0.25 | 0.25 | 0.8 | 0.25 | 1.7 | 1.3 | 0.6 | 0.5 | – | 0.5 | – | – | 0.25 | – | – | 0.5 | 18 | 10 | 13 | 58 | 486 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9 | – | RCA/1995 | 8.4 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1.5 | 1.2 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | – | 0.5 | 9 | 4 | 7 | 25 | 170 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7AA | – | RCA/1995 | 5.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | – | 0.5 | 43 | 25 | 44 | 42 | 304 | – | – | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7AB | – | RCA/1995 | 5.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | – | 0.5 | 48 | 30 | 48 | 24 | 111 | – | – | – | 0.3 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10A | – | RCA/1995 | 5.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | – | 0.5 | 8 | 3 | 4 | 18 | 117 | – | – | – | 0.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10A | 0-500 | RCA/1999 | 55.85 | 9.6 | 1.2 | 0.8 | 1.4 | 6.4 | 2.4 | 8.4 | 7 | 3.2 | 2.4 | – | 3.6 | – | – | 0.25 | – | 2.5 | 1.4 | 26 | 54 | 29 | 84 | 620 | – | 0.29 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10B | 500-1000 | RCA/1999 | 27.65 | 10 | 0.25 | 0.6 | 0.25 | 1.8 | 0.6 | 2.6 | 2.6 | 1.2 | 0.9 | – | 1.6 | – | – | 0.25 | – | 2.5 | 1.4 | 28 | 56 | 33 | 94 | 400 | – | 0.35 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10C | 1000-2000 | RCA/1999 | 57.6 | 3.2 | 0.25 | 0.6 | 0.5 | 4.4 | 1.2 | 8.2 | 7.8 | 3.6 | 2.6 | – | 5.6 | – | – | 0.25 | – | 2.5 | 3.4 | 29 | 67 | 37 | 260 | 1500 | – | 0.49 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10D | 2000-3000 | RCA/1999 | 27.5 | 3.2 | 0.25 | 0.25 | 0.25 | 1.4 | 0.5 | 2.8 | 3 | 2 | 1.6 | – | 3 | – | – | 0.25 | – | 2.5 | 1.6 | 26 | 44 | 38 | 100 | 570 | – | 0.44 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10E | 3000-4000 | RCA/1999 | 47.35 | 6.4 | 0.25 | 0.25 | 0.6 | 2.2 | 1.2 | 7 | 6.4 | 3.6 | 2.6 | – | 4 | – | – | 0.25 | – | 2.5 | 2 | 26 | 47 | 33 | 110 | 730 | – | 0.41 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10F | 4000-5000 | RCA/1999 | 36.2 | 4 | 0.25 | 0.25 | 0.25 | 1.6 | 0.8 | 5.2 | 4.8 | 2.6 | 2 | – | 4 | – | – | 0.25 | – | 2.5 | 2.2 | 26 | 66 | 32 | 140 | 930 | – | 0.7 | – | 5.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 11A | 0-500 | RCA/1999 | 10 | 5 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 0.7 | 0.6 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 2.5 | 1.2 | 27 | 42 | 30 | 56 | 450 | – | 0.16 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 11B | 500-1000 | RCA/1999 | 212.2 | 38 | 1.4 | 2.6 | 3.6 | 15 | 5.2 | 26 | 23 | 14 | 8.8 | – | 19 | – | – | 1.6 | – | 2.5 | 2 | 55 | 95 | 32 | 330 | 2200 | – | 2.25 | – | 5.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 11C | 1000-2000 | RCA/1999 | 248.5 | 120 | 2.6 | 5.8 | 6.2 | 18 | 5.8 | 21 | 18 | 7.8 | 5 | – | 10 | – | – | 0.7 | – | 2.5 | 3.8 | 120 | 70 | 40 | 490 | 3600 | – | 2.67 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 12A | 0-500 | RCA/1999 | 23.65 | 4 | 0.25 | 0.25 | 0.6 | 2.8 | 0.9 | 3.6 | 2.6 | 1.6 | 1 | – | 1.6 | – | – | 0.25 | – | 2.5 | 1.2 | 26 | 44 | 34 | 75 | 390 | – | 0.16 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 12B | 500-1000 | RCA/1999 | 22.15 | 6.2 | 0.25 | 0.25 | 0.6 | 3 | 0.8 | 2.6 | 2 | 1 | 0.7 | – | 1 | – | – | 0.25 | – | 2.5 | 0.9 | 22 | 30 | 47 | 53 | 580 | – | 0.19 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 12C | 1000-2000 | RCA/1999 | 19.7 | 8.2 | 0.25 | 0.5 | 0.25 | 1.4 | 0.25 | 1.8 | 1.8 | 0.9 | 0.6 | – | 1 | – | – | 0.25 | – | 2.5 | 0.9 | 2.5 | 38 | 31 | 38 | 190 | – | 0.27 | – | 5.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 12D | 3000 | RCA/1999 | 33.3 | 7 | 0.8 | 0.25 | 1 | 3.8 | 1.2 | 4.6 | 3.6 | 2 | 1.4 | – | 1.8 | – | – | 0.25 | – | 2.5 | 0.7 | 2.5 | 22 | 22 | 42 | 550 | – | 0.18 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 13A | 0-500 | RCA/1999 | 36.5 | 10 | 0.25 | 0.7 | 0.7 | 2 | 1 | 3.6 | 4 | 2.2 | 1.6 | – | 2.8 | – | – | 0.25 | – | 2.5 | 1.8 | 27 | 39 | 30 | 100 | 670 | – | 0.42 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 13B | 500-1000 | RCA/1999 | 31.3 | 9.6 | 0.25 | 0.6 | 0.6 | 1.8 | 1 | 3.2 | 3.4 | 1.6 | 1.2 | – | 2.2 | – | – | 0.25 | – | 2.5 | 2 | 24 | 46 | 33 | 100 | 650 | – | 0.75 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 13C | 1000-2000 | RCA/1999 | 31 | 10 | 0.25 | 0.6 | 0.6 | 1.8 | 0.7 | 2.8 | 3.2 | 1.6 | 1.4 | – | 2.2 | – | – | 0.25 | – | 2.5 | 1.4 | 33 | 48 | 37 | 83 | 470 | – | 0.3 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 13D | 2000-3000 | RCA/1999 | 25.8 | 9 | 0.25 | 0.6 | 0.5 | 1.6 | 0.7 | 2.4 | 2.8 | 1.2 | 0.9 | – | 1.6 | – | – | 0.25 | – | 2.5 | 1.8 | 27 | 54 | 41 | 100 | 960 | – | 0.34 | – | 3.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 13E | 3000-4000 | RCA/1999 | 32.5 | 9.2 | 0.25 | 0.6 | 0.7 | 2.2 | 0.9 | 3.2 | 3.6 | 1.8 | 1.4 | – | 2.4 | – | – | 0.25 | – | 2.5 | 2.4 | 38 | 77 | 48 | 140 | 1000 | – | 0.38 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 14A | 0-500 | RCA/1999 | 63.45 | 19 | 0.7 | 1 | 0.9 | 3.4 | 1.2 | 5.6 | 5.8 | 3.6 | 2.6 | – | 5.4 | – | – | 0.25 | – | 2.5 | 2.2 | 370 | 63 | 55 | 130 | 650 | – | 0.35 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 14B | 500-1000 | RCA/1999 | 156.4 | 27 | 1.2 | 1.6 | 1.6 | 6 | 2.4 | 14 | 13 | 11 | 7 | – | 18 | – | – | 1.6 | – | 2.5 | 3.4 | 31 | 55 | 32 | 220 | 1200 | – | 0.43 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 14C | 1000-2000 | RCA/1999 | 100.25 | 50 | 1.2 | 2.4 | 2 | 5.8 | 2 | 7.2 | 7.2 | 3.2 | 2.4 | – | 4.4 | – | – | 0.25 | – | 2.5 | 2.2 | 43 | 58 | 44 | 150 | 760 | – | 0.33 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 14D | 2000-3000 | RCA/1999 | 239.8 | 19 | 1.2 | 1.2 | 1.8 | 6.4 | 3.4 | 33 | 30 | 19 | 11 | – | 29 | – | – | 2.8 | – | 2.5 | 5.4 | 86 | 59 | 39 | 260 | 920 | – | 0.65 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 14E | 3000-4000 | RCA/1999 | 253.2 | 43 | 2.4 | 2.2 | 2.8 | 9 | 4 | 21 | 28 | 17 | 11 | – | 28 | – | – | 2.8 | – | 2.5 | 7.4 | 43 | 77 | 44 | 330 | 1400 | – | 0.69 | – | 9.3 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 14F | 4000-5000 | RCA/1999 | 214.4 | 34 | 1.4 | 2.2 | 2.4 | 8.6 | 3.4 | 21 | 18 | 16 | 10 | – | 23 | – | – | 2.4 | – | 2.5 | 3.8 | 36 | 55 | 33 | 280 | 1300 | – | 0.68 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 15A | 0-500 | RCA/1999 | 230.4 | 130 | 2.2 | 5.4 | 4 | 12 | 3.8 | 14 | 12 | 6.4 | 4.2 | – | 9 | – | – | 0.8 | – | 2.5 | 1.6 | 250 | 59 | 40 | 120 | 760 | – | 0.36 | – | – | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 15B | 500-1000 | RCA/1999 | 96 | 34 | 1.2 | 1.6 | 1.8 | 4.6 | 1.8 | 9.8 | 8.4 | 4.2 | 2.8 | – | 6.4 | – | – | 0.6 | – | 2.5 | 1.4 | 52 | 73 | 66 | 56 | 260 | – | 0.51 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 15C | 1000-2000 | RCA/1999 | 117.4 | 50 | 1.8 | 2.6 | 2.4 | 6.6 | 2.4 | 8.6 | 8.4 | 4.4 | 3 | – | 7 | – | – | 0.6 | – | 2.5 | 2.2 | 42 | 57 | 43 | 150 | 860 | – | 0.47 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 16A | 0-500 | RCA/1999 | 251.2 | 60 | 3.4 | 7 | 5.4 | 16 | 6.4 | 33 | 31 | 12 | 8.4 | – | 19 | – | – | 1.6 | – | 2.5 | 0.25 | 2.5 | 7 | 4 | 21 | 120 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 16B | 500-1000 | RCA/1999 | 506.6 | 53 | 7.4 | 39 | 28 | 90 | 24 | 74 | 60 | 19 | 13 | – | 26 | – | – | 2.2 | – | 14 | 4.2 | 20 | 65 | 30 | 170 | 1100 | – | 1.03 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 17A | 0-500 | RCA/1999 | 4.95 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 2.5 | 0.6 | 35 | 45 | 52 | 23 | 150 | – | 0.025 | – | 5.7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 17B | 500-1000 | RCA/1999 | 43.3 | 24 | 0.25 | 1.4 | 0.9 | 2.6 | 0.8 | 2.6 | 2.6 | 1.2 | 0.8 | – | 1.6 | – | – | 0.25 | – | 2.5 | 1.2 | 30 | 45 | 32 | 100 | 580 | – | 0.32 | – | 5.7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 17C | 1000-2000 | RCA/1999 | 46.15 | 22 | 0.5 | 1.8 | 1.4 | 3.6 | 1.2 | 3.6 | 3.8 | 1.4 | 1 | – | 1.6 | – | – | 0.25 | – | 2.5 | 1.2 | 25 | 38 | 29 | 110 | 650 | – | 0.36 | – | 8.7 | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 18A | 0-500 | RCA/1999 | 58.35 | 16 | 0.6 | 0.9 | 0.8 | 2.8 | 1.2 | 5 | 5.8 | 3.2 | 2.6 | – | 4.8 | – | – | 0.25 | – | 2.5 | 1.4 | 40 | 59 | 55 | 63 | 330 | – | 0.25 | – | 7.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 18B | 500-1000 | RCA/1999 | 4.75 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 2.5 | 0.25 | 43 | 55 | 62 | 11 | 98 | – | 0.025 | – | 4.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 18C | 1000-2000 | RCA/1999 | 111.8 | 18 | 0.6 | 0.9 | 0.9 | 4 | 1.6 | 10 | 11 | 7.4 | 6.4 | – | 12 | – | – | 1.4 | – | 2.5 | 3 | 33 | 58 | 37 | 190 | 1000 | – | 0.17 | – | 5.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 19A | 0-500 | RCA/1999 | 21.05 | 4.4 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 2 | 2.4 | 1.4 | 1 | – | 2 | – | – | 0.25 | – | 7 | 2 | 28 | 51 | 42 | 110 | 640 | – | 0.17 | – | 4.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 19B | 500-1000 | RCA/1999 | 33.5 | 4.8 | 0.25 | 0.25 | 0.25 | 1.6 | 0.7 | 3.8 | 4 | 2.4 | 0.8 | – | 3.4 | – | – | 0.25 | – | 2.5 | 2.4 | 15 | 42 | 34 | 120 | 730 | – | 0.23 | – | 5.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 19C | 1000-2000 | RCA/1999 | 27.3 | 4.6 | 0.25 | 0.25 | 0.25 | 1.2 | 0.5 | 2.8 | 3.6 | 1.8 | 1.4 | – | 2.6 | – | – | 0.25 | – | 2.5 | 2 | 27 | 49 | 41 | 110 | 670 | – | 0.2 | – | 4.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 1A | 0-500 | RCA/1999 | 66.55 | 4.4 | 0.25 | 0.6 | 0.5 | 5.8 | 2 | 13 | 11 | 4.4 | 4.4 | – | 4.8 | – | – | 0.6 | – | 7 | 1 | 140 | 55 | 30 | 72 | 390 | – | 0.09 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 1B | 500-1000 | RCA/1999 | 17.8 | 4.4 | 0.25 | 0.25 | 0.25 | 1.2 | 0.6 | 2 | 2 | 0.8 | 0.9 | – | 1.2 | – | – | 0.25 | – | 6 | 1 | 37 | 54 | 35 | 71 | 390 | – | 0.11 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 1C | 1000-2000 | RCA/1999 | 14.95 | 1.8 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 1.6 | 1.8 | 0.9 | 1 | – | 1.6 | – | – | 0.25 | – | 5 | 1.4 | 30 | 46 | 31 | 96 | 430 | – | 0.17 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 1D | 2000-3000 | RCA/1999 | 6.95 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.9 | 1 | 0.25 | 0.25 | – | 0.6 | – | – | 0.25 | – | 2.5 | 0.9 | 25 | 46 | 32 | 68 | 410 | – | 0.13 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 1E | 3000-4000 | RCA/1999 | 18.35 | 3 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 2.2 | 3 | 0.8 | 0.9 | – | 1.6 | – | – | 0.25 | – | 7 | 1.6 | 28 | 55 | 33 | 160 | 1700 | – | 0.36 | – | – | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 1F | 4000-5000 | RCA/1999 | 17.15 | 2 | 0.25 | 0.25 | 0.25 | 1.2 | 0.25 | 2.2 | 3 | 0.8 | 0.9 | – | 1.4 | – | – | 0.25 | – | 2.5 | 1.4 | 29 | 54 | 37 | 140 | 1200 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 20A | 0-500 | RCA/1999 | 27.2 | 13 | 0.25 | 0.8 | 0.6 | 1.6 | 0.6 | 1.8 | 2 | 0.9 | 0.7 | – | 1.2 | – | – | 0.25 | – | 10 | 1 | 33 | 52 | 36 | 83 | 440 | – | 0.14 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 20B | 500-1000 | RCA/1999 | 27.4 | 5 | 0.25 | 0.25 | 0.25 | 1.4 | 0.6 | 3.2 | 3.2 | 1.8 | 1.4 | – | 2.4 | – | – | 0.25 | – | 5 | 1.8 | 26 | 40 | 37 | 97 | 370 | – | 0.2 | – | 5.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 20C | 1000-2000 | RCA/1999 | 25.65 | 4.2 | 0.25 | 0.25 | 0.25 | 1.2 | 0.25 | 2.6 | 3.2 | 1.6 | 1.4 | – | 2.6 | – | – | 0.25 | – | 7 | 1.6 | 29 | 45 | 38 | 110 | 510 | – | 0.14 | – | 5.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 21A | 0-500 | RCA/1999 | 12.15 | 2 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 1.2 | 1.4 | 0.7 | 0.5 | – | 1 | – | – | 0.25 | – | 6 | 0.8 | 22 | 33 | 26 | 65 | 340 | – | 0.19 | – | 3.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 21B | 500-1000 | RCA/1999 | 4.75 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 2.5 | 0.25 | 13 | 23 | 24 | 25 | 160 | – | 0.025 | – | 0.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22A | 0-500 | RCA/1999 | 26.55 | 12 | 0.25 | 0.7 | 0.25 | 1.6 | 0.5 | 2 | 2.2 | 0.9 | 0.7 | – | 1.4 | – | – | 0.25 | – | 8 | 1.2 | 33 | 50 | 37 | 89 | 450 | – | 0.13 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22B | 500-1000 | RCA/1999 | 38.3 | 7.4 | 0.25 | 0.6 | 0.5 | 1.8 | 0.7 | 3.6 | 4.4 | 2.2 | 1.8 | – | 3.6 | – | – | 0.25 | – | 6 | 2.8 | 28 | 47 | 35 | 220 | 950 | – | 0.3 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 22C | 1000-2000 | RCA/1999 | 19.9 | 7.2 | 0.25 | 0.6 | 0.25 | 1.4 | 0.25 | 1.8 | 1.8 | 0.8 | 0.6 | – | 1.2 | – | – | 0.25 | – | 7 | 1 | 23 | 35 | 27 | 72 | 350 | – | 0.13 | – | 5.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 23A | 0-500 | RCA/1999 | 17.25 | 4.8 | 0.25 | 0.25 | 0.25 | 1.2 | 0.25 | 1.8 | 1.8 | 0.9 | 0.7 | – | 1.2 | – | – | 0.25 | – | 6 | 0.9 | 23 | 35 | 27 | 61 | 290 | – | 0.14 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 23B | 500-1000 | RCA/1999 | 20.95 | 7 | 0.25 | 0.6 | 0.25 | 1.4 | 0.5 | 2 | 2 | 1 | 0.8 | – | 1.2 | – | – | 0.25 | – | 2.5 | 0.8 | 22 | 35 | 28 | 55 | 310 | – | 0.11 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 23C | 1000-2000 | RCA/1999 | 4 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 2.5 | 0.25 | 8 | 12 | 6 | 5 | 33 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 24A | 0-500 | RCA/1999 | 39.85 | 18 | 0.6 | 1.6 | 1.2 | 3.4 | 1.2 | 3.2 | 3.4 | 1 | 0.7 | – | 1.4 | – | – | 0.25 | – | 2.5 | 0.7 | 24 | 34 | 29 | 52 | 270 | – | 0.13 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 24B | 500-1000 | RCA/1999 | 22.3 | 12 | 0.25 | 0.8 | 0.5 | 1.6 | 0.5 | 1.6 | 1.6 | 0.5 | 0.25 | – | 0.7 | – | – | 0.25 | – | 8 | 0.7 | 21 | 34 | 25 | 49 | 270 | – | 0.1 | – | 3.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2A | 0-500 | RCA/1999 | 6.4 | 2.4 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 2.5 | 0.7 | 30 | 46 | 40 | 37 | 240 | – | 0.025 | – | – | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 2B | 500-100 | RCA/1999 | 8 | 2.8 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 0.8 | 0.8 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 6 | 0.9 | 28 | 46 | 36 | 43 | 260 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 2C | 1000-2000 | RCA/1999 | 5.3 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 8 | 1.4 | 23 | 39 | 29 | 92 | 400 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 3A | 0-500 | RCA/1999 | 8 | 3.2 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 0.7 | 0.6 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 11 | 0.8 | 31 | 46 | 38 | 48 | 300 | – | 0.025 | – | 8.7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 3B | 500-1000 | RCA/1999 | 6.45 | 1.4 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.8 | 1 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 5 | 1 | 27 | 41 | 34 | 74 | 400 | – | 0.14 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz a anthracene | Chrysene | Benzo(b)&(k)fluoranthen | Benzo a pyrene | Indeno(1,2,3-cd)pyrene | Dibenz a,h anthracene | Benzo(ghi)perylene | Silver | Arsenic | Cadmium | Chromium | Copper | Nickel | Lead | Zinc | Manganese | Mercury | Cyanide | *Total Organic Carbon | Total PCBs | DDD | DDE | TOTAL DDT | DIELDRIN | CHLORODANE | LINDANE | ENDRIN | RADIONUCLIDES #2 | TRIBUTYLTIN | Phenol | Benzene | Toluene | Ethylbenzene | Xylene | TPH C6-C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 | TPH C10-C36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3C | 1000-2000 | RCA/1999 | 5.55 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.6 | 0.7 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 6 | 0.8 | 34 | 45 | 38 | 93 | 380 | – | 0.13 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4A | 0-500 | RCA/1999 | 13 | 6.6 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 1.2 | 1.2 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 6 | 1 | 35 | 48 | 41 | 67 | 330 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4B | 500-1000 | RCA/1999 | 8.6 | 3 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 1 | 1 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 7 | 0.9 | 32 | 43 | 38 | 59 | 320 | – | 0.13 | – | 7.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 4C | 1000-2000 | RCA/1999 | 4.75 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 2.5 | 0.25 | 15 | 27 | 22 | 26 | 140 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5A | 0-500 | RCA/1999 | 4 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 2.5 | 0.25 | 31 | 42 | 48 | 15 | 120 | – | 0.025 | – | – | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 5B | 500-1000 | RCA/1999 | 21.45 | 5.2 | 0.25 | 0.25 | 0.25 | 1.2 | 0.25 | 2.2 | 2.4 | 1.2 | 1.2 | – | 1.6 | – | – | 0.25 | – | 2.5 | 1.8 | 32 | 47 | 41 | 120 | 520 | – | 0.31 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 5C | 1000-2000 | RCA/1999 | 22.9 | 9.6 | 0.25 | 0.6 | 0.25 | 1.4 | 0.25 | 2 | 2 | 0.8 | 0.8 | – | 1.2 | – | – | 0.25 | – | 7 | 1.2 | 35 | 48 | 40 | 75 | 380 | – | 0.16 | – | 7.0 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6A | 0-500 | RCA/1999 | 18.25 | 9.2 | 0.25 | 0.5 | 0.25 | 1.2 | 0.25 | 1.4 | 1.4 | 0.5 | 0.5 | – | 0.7 | – | – | 0.25 | – | 7 | 1 | 31 | 50 | 35 | 70 | 380 | – | 0.18 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6B | 500-1000 | RCA/1999 | 19.7 | 9 | 0.25 | 0.6 | 0.25 | 1.4 | 0.25 | 1.6 | 1.6 | 0.7 | 0.6 | – | 0.9 | – | – | 0.25 | – | 2.5 | 1.6 | 38 | 56 | 47 | 110 | 540 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 6C | 1000-2000 | RCA/1999 | 4.75 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | – | 0.25 | – | 2.5 | 0.9 | 27 | 40 | 37 | 72 | 370 | – | 0.19 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7A | 0-500 | RCA/1999 | 20.5 | 8.8 | 0.25 | 0.6 | 0.25 | 1.2 | 0.25 | 1.6 | 1.6 | 0.7 | 0.7 | – | 1 | – | – | 0.25 | – | 6 | 1.2 | 30 | 53 | 33 | 90 | 470 | – | 0.21 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7B | 500-1000 | RCA/1999 | 28.4 | 10 | 0.25 | 0.7 | 0.5 | 1.6 | 0.6 | 2.4 | 2.6 | 1.2 | 1.2 | – | 1.8 | – | – | 0.25 | – | 6 | 0.9 | 29 | 44 | 34 | 73 | 360 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 7C | 1000-2000 | RCA/1999 | 27.9 | 3.4 | 0.25 | 0.25 | 0.25 | 1.2 | 0.5 | 3.4 | 3.8 | 2 | 1.8 | – | 2.8 | – | – | 0.25 | – | 2.5 | 2.6 | 33 | 58 | 42 | 170 | 1000 | – | 0.28 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9A | 0-500 | RCA/1999 | 33.9 | 1.6 | 0.25 | 0.25 | 0.25 | 2.8 | 0.9 | 7.2 | 6.6 | 2.2 | 2 | – | 2.8 | – | – | 0.25 | – | 6 | 0.6 | 34 | 44 | 46 | 40 | 230 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9B | 500-1000 | RCA/1999 | 22.5 | 5.2 | 0.25 | 0.25 | 0.25 | 1.2 | 0.5 | 2.8 | 2.6 | 1.2 | 1.2 | – | 1.6 | – | – | 0.25 | – | 6 | 1.2 | 35 | 53 | 41 | 99 | 480 | – | 0.22 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9C | 1000-2000 | RCA/1999 | 25.45 | 3.4 | 0.25 | 0.25 | 0.25 | 1.2 | 0.25 | 3.2 | 3.2 | 1.6 | 1.6 | – | 2.4 | – | – | 0.25 | – | 2.5 | 1.2 | 37 | 54 | 42 | 88 | 490 | – | 0.16 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9D | 2000-3000 | RCA/1999 | 25.25 | 3.8 | 0.25 | 0.25 | 0.25 | 1.2 | 0.25 | 2.8 | 3 | 1.6 | 1.6 | – | 2.4 | – | – | 0.25 | – | 2.5 | 1.2 | 34 | 57 | 41 | 120 | 500 | – | 0.24 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9E | | RCA/1999 | 23.25 | 3.8 | 0.25 | 0.25 | 0.25 | 1.2 | 0.25 | 2.8 | 3 | 1.4 | 1.2 | – | 2 | – | – | 0.25 | – | 7 | 1.6 | 36 | 69 | 39 | 160 | 910 | – | 0.29 | – | 6.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 9F | 3000-4000 | RCA/1999 | 13.8 | 5 | 0.25 | 0.25 | 0.25 | 0.9 | 0.25 | 1.4 | 1.4 | 0.6 | 0.5 | – | 0.8 | – | – | 0.25 | – | 7 | 1.2 | 42 | 51 | 40 | 110 | 430 | – | 0.19 | – | – | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 10A2 | 0-500 | RCA/2000 | 55 | 16 | 1 | 6.2 | 2.4 | 4.2 | 1.6 | 5.2 | 5.4 | 2.2 | 1.4 | 4 | 2.8 | 2.6 | 0.25 | 2 | 2.5 | 29 | 0.5 | 39 | 37 | 26 | 120 | 630 | – | 0.18 | – | 2.6 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 310 |
| 10B2 | 500-1000 | RCA/2000 | 92 | 36 | 1.4 | 17 | 5.8 | 7.8 | 2 | 5.2 | 4.8 | 1.8 | 1.2 | 4 | 2 | 2 | 0.25 | 1.6 | 2.5 | 32 | 0.7 | 44 | 44 | 32 | 140 | 550 | – | 0.19 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 420 |
| 11A2 | 0-500 | RCA/2000 | 650 | 110 | 7.8 | 27 | 13 | 34 | 15 | 74 | 81 | 39 | 27 | 85 | 54 | 46 | 6 | 36 | 2.5 | 13 | 1.2 | 77 | 280 | 22 | 360 | 1800 | – | 0.16 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5400 |
| 11B2 | 500-1000 | RCA/2000 | 120 | 7.8 | 0.7 | 2.2 | 1.2 | 4.6 | 2.6 | 21 | 20 | 10 | 6.6 | 17 | 11 | 9 | 0.8 | 7.6 | 2.5 | 9 | 0.025 | 24 | 18 | 16 | 61 | 300 | – | 2.25 | – | 1.2 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 650 |
| 11C2 | 1000-2000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 9 | 0.025 | 15 | 8 | 16 | 6 | 46 | – | 2.67 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 12A | 0-500 | RCA/2000 | 49 | 13 | 0.6 | 1.2 | 0.7 | 2.6 | 1.4 | 6 | 5.8 | 2.8 | 1.8 | 5 | 3.8 | 2.8 | 0.25 | 2.2 | 2.5 | 9 | 0.025 | 29 | 19 | 14 | 69 | 410 | – | 0.16 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 260 |
| 12B | 500-1000 | RCA/2000 | 2 | 2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 8 | 0.025 | 18 | 10 | 15 | 14 | 96 | – | 0.19 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 12C | 1000-2000 | RCA/2000 | 1.2 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 10 | 0.025 | 17 | 9 | 14 | 12 | 70 | – | 0.27 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 13A | 0-500 | RCA/2000 | 39 | 6.2 | 0.5 | 0.8 | 0.5 | 2 | 0.9 | 4.2 | 4.6 | 2.2 | 1.8 | 6 | 4 | 3.2 | 0.25 | 2.6 | 2.5 | 8 | 0.025 | 24 | 17 | 20 | 41 | 240 | – | 0.42 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 150 |
| 13B | 500-1000 | RCA/2000 | 80 | 5.2 | 0.8 | 1.2 | 1 | 6 | 2 | 14 | 13 | 5.6 | 4 | 10 | 7.8 | 5.2 | 0.7 | 4.2 | 2.5 | 9 | 0.025 | 20 | 11 | 16 | 18 | 110 | – | 0.75 | 0.25 | – | 0.5 | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 250 |
| 13C | 1000-2000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 10 | 0.025 | 22 | 10 | 18 | 7 | 49 | – | 0.3 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 14A2 | 0-500 | RCA/2000 | 33 | 4.4 | 0.25 | 0.5 | 0.25 | 1.8 | 0.6 | 4.6 | 4.6 | 2.4 | 1.8 | 5 | 3.4 | 2.6 | 0.25 | 2 | 2.5 | 7 | 0.25 | 24 | 12 | 18 | 30 | 180 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 14B2 | 500-1000 | RCA/2000 | 24 | 1.8 | 0.25 | 0.25 | 0.25 | 1.4 | 0.9 | 5.2 | 4.6 | 2 | 1.4 | 3 | 2 | 1.4 | 0.25 | 0.9 | 2.5 | 7 | 0.25 | 19 | 9 | 18 | 9 | 61 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 14C2 | 1000-2000 | RCA/2000 | 260 | 3.2 | 3.4 | 3.4 | 3 | 23 | 11 | 58 | 47 | 21 | 13 | 28 | 22 | 15 | 1.8 | 10 | 2.5 | 9 | 0.25 | 30 | 14 | 21 | 41 | 240 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 500 |
| 15A2 | 0-500 | RCA/2000 | 12 | 5.2 | 0.25 | 0.25 | 0.25 | 0.8 | 0.25 | 1.2 | 1.2 | 0.5 | 0.5 | – | 0.7 | – | 0.25 | – | 2.5 | 2.5 | 0.25 | 68 | 46 | 73 | 45 | 270 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 15B2 | 500-1000 | RCA/2000 | 90 | 9.2 | 0.9 | 1.2 | 1.2 | 4.8 | 2 | 11 | 16 | 4.2 | 3.2 | – | 8.6 | – | 0.9 | – | 2.5 | 16 | 1.8 | 110 | 190 | 35 | 800 | 2600 | – | 1.07 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 1690 |
| 15C2 | 1000-2000 | RCA/2000 | 65 | 12 | 0.9 | 0.9 | 0.9 | 3.8 | 1.4 | 7 | 8.2 | 3 | 2.2 | – | 6.2 | – | 0.6 | – | 2.5 | 19 | 2 | 90 | 140 | 38 | 540 | 2500 | – | 1.07 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 1580 |
| 16A2 | 0-500 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | – | 0.25 | – | 0.25 | – | 2.5 | 6 | 0.25 | 50 | 38 | 55 | 36 | 240 | – | 0.025 | 2.6 | – | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 16B2 | 500-1000 | RCA/2000 | 39 | 4.2 | 0.25 | 0.25 | 0.5 | 2.2 | 0.8 | 3.8 | 5.2 | 3.2 | 2.4 | – | 4 | – | 0.7 | – | 2.5 | 9 | 1.2 | 73 | 58 | 47 | 150 | 810 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 1060 |
| 16C2 | 1000-2000 | RCA/2000 | 29 | 5.2 | 0.25 | 0.25 | 0.25 | 1.4 | 0.6 | 2.8 | 3.6 | 1.8 | 1.4 | 5 | 3 | 2.4 | 0.25 | 1.8 | 2.5 | 8 | 1.8 | 62 | 52 | 50 | 170 | 670 | – | 0.36 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 320 |
| 17A2 | 0-500 | RCA/2000 | 110 | 57 | 1.2 | 3 | 2 | 6.2 | 2.2 | 7.6 | 7.2 | 3.6 | 2.6 | 7 | 4.8 | 3.8 | 0.5 | 2.8 | 2.5 | 9 | 0.7 | 70 | 47 | 60 | 120 | 640 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 630 |
| 17B2 | 500-1000 | RCA/2000 | 69 | 23 | 0.7 | 1.2 | 1 | 3.4 | 1.4 | 5.8 | 6.4 | 3.4 | 2.4 | 8 | 5 | 4 | 0.6 | 3 | 2.5 | 10 | 2.4 | 68 | 45 | 46 | 200 | 810 | – | 0.32 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 440 |
| 17C2 | 1000-2000 | RCA/2000 | 95 | 17 | 0.8 | 0.9 | 1 | 3.4 | 1.8 | 7.8 | 13 | 5 | 4.4 | 15 | 9.6 | 8.6 | 1.2 | 5.8 | 2.5 | 12 | 4 | 91 | 61 | 59 | 320 | 1300 | – | 0.54 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 570 |
| 18A2 | 0-500 | RCA/2000 | 18 | 7.4 | 0.25 | 0.6 | 0.25 | 1.8 | 0.25 | 2 | 1.6 | 0.7 | 0.5 | 1 | 0.9 | 0.7 | 0.25 | 0.6 | 2.5 | 2.5 | 0.25 | 5 | 2.5 | 3 | 12 | 60 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 18B2 | 500-1000 | RCA/2000 | 93 | 42 | 0.9 | 3.2 | 2.6 | 7.4 | 2.6 | 9 | 8.2 | 3 | 2.2 | 5 | 3.4 | 2.8 | 0.25 | 2 | 2.5 | 7 | 0.25 | 73 | 37 | 47 | 140 | 840 | – | 0.29 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 880 |
| 18C2 | 1000-2000 | RCA/2000 | 12 | 9 | 0.25 | 0.9 | 0.25 | 1 | 0.25 | 0.8 | 0.7 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 2.5 | 0.25 | 9 | 6 | 6 | 21 | 150 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 19A2 | 0-500 | RCA/2000 | 110 | 48 | 1.4 | 2.6 | 1.8 | 6.8 | 2.2 | 9.2 | 8.4 | 3.8 | 3 | 8 | 5.8 | 5 | 0.6 | 3.6 | 2.5 | 7 | 0.9 | 79 | 52 | 71 | 99 | 720 | – | 0.14 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 250 |
| 19B2 | 500-1000 | RCA/2000 | 61 | 16 | 0.6 | 0.8 | 0.6 | 2.8 | 1 | 5.8 | 6 | 3.4 | 2.6 | 8 | 5.4 | 4.2 | 0.6 | 3.2 | 2.5 | 8 | 1.4 | 75 | 50 | 62 | 120 | 680 | – | 0.14 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 19C2 | 1000-2000 | RCA/2000 | 64 | 21 | 0.8 | 1 | 0.9 | 3.4 | 1.2 | 5.2 | 6.4 | 2.8 | 2.2 | 7 | 4.8 | 4.4 | 0.5 | 3 | 2.5 | 15 | 2.4 | 76 | 74 | 54 | 440 | 1800 | – | 0.5 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 200 |
| 1A2 | 0-500 | RCA/2000 | 250 | 120 | 2.2 | 4.4 | 3.6 | 12 | 4 | 18 | 18 | 9.6 | 7.4 | 22 | 13 | 13 | 1.6 | 9.8 | 2.5 | 12 | 1 | 30 | 28 | 21 | 95 | 450 | – | 0.38 | 1.8 | 4.3 | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 1320 |
| 1B2 | 500-1000 | RCA/2000 | 290 | 90 | 2.4 | 5.2 | 4 | 14 | 5.2 | 25 | 25 | 17 | 12 | 34 | 21 | 20 | 2.4 | 15 | 2.5 | 18 | 1.6 | 53 | 56 | 34 | 150 | 890 | – | 0.25 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 1640 |
| 1C2 | 1000-2000 | RCA/2000 | 220 | 22 | 1.2 | 1.8 | 1.6 | 8.6 | 3.6 | 26 | 28 | 19 | 13 | 38 | 22 | 21 | 2.6 | 16 | 2.5 | 15 | 2.8 | 48 | 45 | 40 | 220 | 960 | – | 0.49 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 1520 |
| 20A2 | 0-500 | RCA/2000 | 11 | 6.8 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 0.9 | 0.9 | 0.25 | 0.25 | 0.25 | 0.6 | 0.6 | 0.25 | 0.25 | 2.5 | 6 | 0.25 | 70 | 49 | 73 | 43 | 300 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 20B2 | 500-1000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 2.5 | 0.25 | 68 | 49 | 80 | 22 | 180 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 20C2 | 1000-2000 | RCA/2000 | 92 | 20 | 0.9 | 1 | 0.9 | 4 | 1.4 | 8.4 | 11 | 5 | 3.8 | 20 | 9.2 | 7.8 | 1 | 5.8 | 2.5 | 17 | 2.6 | 140 | 71 | 56 | 420 | 2000 | – | 0.57 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 630 |
| 21A2 | 0-500 | RCA/2000 | 1.6 | 1.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 2.5 | 0.25 | 87 | 57 | 98 | 16 | 140 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 21B2 | 500-1000 | RCA/2000 | 32 | 6.6 | 0.25 | 0.5 | 0.25 | 1.6 | 0.6 | 3 | 3.4 | 1.8 | 1.4 | 5 | 3.2 | 2.8 | 0.25 | 2.2 | 2.5 | 8 | 1.6 | 68 | 59 | 57 | 140 | 650 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 320 |
| 21C2 | 1000-2000 | RCA/2000 | 94 | 19 | 0.8 | 1.2 | 1 | 4 | 1.6 | 8.2 | 10 | 5.4 | 4.2 | 14 | 10 | 8 | 1 | 6 | 2.5 | 16 | 4 | 100 | 71 | 55 | 520 | 1900 | – | 0.37 | 6 | – | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 920 |
| 22A2 | 0-500 | RCA/2000 | 96 | 14 | 0.9 | 1.2 | 0.9 | 4.4 | 1.6 | 9.6 | 10 | 6 | 4.6 | 15 | 11 | 9 | 1.2 | 7 | 2.5 | 13 | 2.6 | 100 | 69 | 54 | 360 | 1700 | – | 0.75 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 1000 |
| 22B2 | 500-1000 | RCA/2000 | 17 | 2.2 | 0.25 | 0.25 | 0.25 | 0.8 | 0.25 | 2 | 2.6 | 0.9 | 0.8 | 3 | 1.8 | 1.6 | 0.25 | 1.2 | 2.5 | 12 | 1.2 | 81 | 110 | 53 | 540 | 1500 | – | 0.31 | 14 | – | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 320 |
| 22C2 | 1000-2000 | RCA/2000 | 22 | 4.2 | 0.25 | 0.25 | 0.25 | 1.2 | 0.25 | 2.4 | 3.2 | 1 | 0.9 | 3 | 2.2 | 2.2 | 0.25 | 1.6 | 2.5 | 9 | 1 | 77 | 72 | 64 | 320 | 1100 | – | 0.22 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 520 |
| 23A2 | 0-500 | RCA/2000 | 2.6 | 2.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 2.5 | 0.25 | 19 | 12 | 18 | 26 | 180 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 29A2 | 0-500 | RCA/2000 | 1300 | 450 | 4.6 | 150 | 66 | 220 | 47 | 120 | 81 | 29 | 15 | 35 | 26 | 24 | 2.4 | 15 | 2.5 | 23 | 2.6 | 76 | 68 | 33 | 530 | 3400 | – | 1.74 | – | 2.1 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5420 |
| 29B2 | 500-1000 | RCA/2000 | 45 | 12 | 0.5 | 1.2 | 1 | 3 | 1.2 | 5.8 | 5.8 | 2.2 | 1.2 | 4 | 3 | 2.8 | 0.25 | 1.8 | 2.5 | 15 | 1.4 | 53 | 62 | 47 | 210 | 1800 | – | 0.8 | – | 2.3 | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 580 |
| 29C2 | 1000-2000 | RCA/2000 | 180 | 86 | 0.5 | 34 | 12 | 17 | 4.4 | 9.2 | 7.6 | 2.2 | 1.2 | 3 | 1.8 | 1.6 | 0.25 | 1 | 2.5 | 16 | 1.4 | 62 | 63 | 47 | 230 | 1800 | – | 0.025 | 0.25 | 2.4 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 1520 |
| 2A2 | 0-500 | RCA/2000 | 1000 | 410 | 4.6 | 80 | 35 | 120 | 38 | 93 | 77 | 24 | 19 | 36 | 24 | 16 | 2 | 14 | 2.5 | 18 | 2 | 55 | 74 | 34 | 410 | 2900 | – | 1.82 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 18080 |
| 2B2 | 500-1000 | RCA/2000 | 1300 | 600 | 12 | 33 | 18 | 64 | 24 | 130 | 120 | 44 | 32 | 77 | 51 | 38 | 4.6 | 30 | 2.5 | 13 | 1.2 | 35 | 180 | 18 | 190 | 1400 | – | 0.82 | 95 | 10.2 | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | 0.25 | 0.25 | 1.5 | 2 | 0.5 | 5 | – | – | – | 6640 |
| 2C2 | 1000-2000 | RCA/2000 | 1500 | 570 | 6.2 | 120 | 37 | 85 | 38 | 190 | 160 | 45 | 34 | 67 | 45 | 30 | 3 | 34 | 2.5 | 23 | 2.8 | 82 | 160 | 39 | 690 | 3700 | – | 1.84 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 12460 |
| 32A2 | 0-500 | RCA/2000 | 7 | 1.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1.4 | 1.2 | 0.6 | 0.25 | 1 | 0.7 | 0.5 | 0.25 | 0.25 | 2.5 | 12 | 0.25 | 27 | 31 | 26 | 29 | 190 | – | 0.025 | 1.8 | 1.0 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 33A2 | 0-500 | RCA/2000 | 40 | 20 | 0.5 | 1 | 0.8 | 2.8 | 0.9 | 3 | 2.8 | 1.2 | 1 | 2 | 1.8 | 1.4 | 0.25 | 1 | 2.5 | 12 | 0.7 | 45 | 40 | 37 | 82 | 430 | – | 0.13 | – | 2.6 | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 110 |
| 33B2 | 500-1000 | RCA/2000 | 93 | 33 | 0.9 | 1.2 | 1.2 | 4.2 | 1.6 | 7.2 | 8.4 | 4.2 | 3.6 | 10 | 7.2 | 5.6 | 0.9 | 4.2 | 2.5 | 15 | 2.4 | 60 | 58 | 36 | 260 | 1200 | – | 0.41 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 360 |
| 33C2 | 1000-2000 | RCA/2000 | 98 | 30 | 1 | 1.4 | 1.2 | 4.4 | 1.8 | 7.4 | 9.8 | 4.4 | 3.2 | 12 | 8.2 | 7.2 | 1 | 5.4 | 2.5 | 15 | 2.8 | 54 | 50 | 32 | 270 | 1200 | – | 0.29 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 820 |
| 34A2 | 0-500 | RCA/2000 | 40 | 18 | 0.5 | 1 | 0.7 | 2.4 | 1 | 3.4 | 3.2 | 1.4 | 1 | 3 | 2 | 1.6 | 0.25 | 1.2 | 2.5 | 14 | 0.7 | 49 | 44 | 41 | 79 | 540 | – | 0.09 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 120 |
| 34B2 | 500-1000 | RCA/2000 | 43 | 4.2 | 0.25 | 0.25 | 0.25 | 1.6 | 0.8 | 7.2 | 7.4 | 3.2 | 3 | 7 | 4.2 | 3.2 | 0.25 | 2 | 2.5 | 13 | 1.8 | 56 | 52 | 45 | 140 | 580 | – | 0.32 | – | 2.1 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 160 |
| 34C2 | 1000-2000 | RCA/2000 | 1.6 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 8 | 0.25 | 32 | 31 | 29 | 29 | 200 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 35A2 | 0-500 | RCA/2000 | 5.4 | 2.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.8 | 0.9 | 0.25 | 0.25 | 1 | 0.5 | 0.25 | 0.25 | 0.25 | 2.5 | 2.5 | 0.25 | 2.5 | 2.5 | 1 | 2.5 | 2.5 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 35B2 | 500-1000 | RCA/2000 | 410 | 97 | 1.4 | 84 | 32 | 61 | 16 | 38 | 31 | 8.8 | 6.8 | 12 | 8 | 5.6 | 0.6 | 4 | 2.5 | 17 | 1.4 | 54 | 57 | 32 | 230 | 1900 | – | 0.88 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 35C2 | 1000-2000 | RCA/2000 | 24 | 11 | 0.25 | 0.7 | 0.25 | 1.6 | 0.5 | 2 | 2 | 0.8 | 0.8 | 2 | 1 | 0.7 | 0.25 | 0.5 | 2.5 | 13 | 0.8 | 40 | 40 | 34 | 81 | 540 | – | 0.11 | – | 2.8 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 7140 |
| 36A2 | 0-500 | RCA/2000 | 4.2 | 3 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.6 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 10 | 0.25 | 31 | 28 | 28 | 41 | 260 | – | 0.025 | – | 2.1 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 36B2 | 500-1000 | RCA/2000 | 3.6 | 2.4 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.6 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 8 | 0.25 | 37 | 34 | 40 | 46 | 270 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 36C2 | 1000-2000 | RCA/2000 | 38 | 15 | 0.5 | 2.2 | 1.6 | 4 | 1.4 | 4 | 3.4 | 1.2 | 0.9 | 2 | 1.2 | 0.7 | 0.7 | 0.6 | 2.5 | 12 | 0.7 | 43 | 40 | 36 | 120 | 920 | – | 0.21 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 560 |
| 38A2 | 0-500 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 0.5 | 0.25 | 0.25 | 2.5 | 8 | 0.25 | 54 | 46 | 62 | 16 | 130 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 38B2 | 500-1000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 10 | 0.25 | 47 | 43 | 53 | 19 | 170 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 38C2 | 1000-2000 | RCA/2000 | 48 | 19 | 0.6 | 1.4 | 1.4 | 4.4 | 1.8 | 6 | 5 | 1.6 | 1.4 | 0.25 | 1.2 | 0.25 | 0.25 | 0.9 | 2.5 | 17 | 1.4 | 45 | 48 | 29 | 290 | 1800 | – | 0.38 | – | 5.4 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 890 |
| 39A2 | 0-500 | RCA/2000 | 12 | 2.6 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 1.2 | 1.4 | 0.8 | 0.6 | 2 | 1 | 0.9 | 0.25 | 0.8 | 2.5 | 12 | 0.9 | 40 | 37 | 35 | 110 | 590 | – | 0.15 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 39B2 | 500-1000 | RCA/2000 | 12 | 1.6 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 1.6 | 1.8 | 0.7 | 0.7 | 2 | 1.4 | 1.2 | 0.25 | 1.2 | 2.5 | 11 | 0.7 | 48 | 51 | 43 | 91 | 600 | – | 0.33 | – | 2.1 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 80 |
| 39C2 | 1000-2000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 8 | 0.25 | 51 | 45 | 54 | 35 | 280 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 3A2 | 0-500 | RCA/2000 | 430 | 300 | 2.4 | 21 | 9.2 | 19 | 7.6 | 25 | 19 | 5.4 | 3.4 | 7 | 4.6 | 4 | 0.25 | 3 | 2.5 | 15 | 0.25 | 25 | 38 | 15 | 41 | 210 | – | 0.06 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | – | – | – | – | – |
| 3B2 | 500-1000 | RCA/2000 | 160 | 18 | 2.6 | 4.8 | 1.6 | 19 | 8 | 29 | 25 | 7.8 | 5.6 | 12 | 8.6 | 7.8 | 0.8 | 6 | 2.5 | 2.5 | 0.25 | 2.5 | 2.5 | 1 | 2.5 | 25 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | – |
| 40A2 | 0-500 | RCA/2000 | 18 | 9 | 0.25 | 0.6 | 0.25 | 1.2 | 0.25 | 1.6 | 1.6 | 0.7 | 0.6 | 1 | 0.8 | 0.5 | 0.25 | 0.6 | 2.5 | 13 | 0.8 | 43 | 41 | 38 | 69 | 480 | – | 0.11 | – | 2.7 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 100 |
| 40B2 | 500-1000 | RCA/2000 | 9.8 | 5 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 1.2 | 1.2 | 0.25 | 0.25 | 1 | 0.5 | 0.25 | 0.25 | 0.25 | 2.5 | 6 | 0.25 | 23 | 21 | 20 | 41 | 230 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 20 |
| 40C2 | 1000-2000 | RCA/2000 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 0.25 | 0.25 | 2.5 | 7 | 0.25 | 30 | 27 | 33 | 25 | 150 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 41A2 | 0-500 | RCA/2000 | 7 | 5.2 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 0.6 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 9 | 0.25 | 30 | 27 | 25 | 52 | 300 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 41B2 | 500-1000 | RCA/2000 | 13 | 8 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 1.2 | 1.2 | 0.25 | 0.25 | 1 | 0.5 | 0.25 | 0.25 | 0.25 | 2.5 | 8 | 0.25 | 30 | 26 | 30 | 34 | 200 | – | 0.025 | – | 2.6 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 70 |
| 41C2 | 1000-2000 | RCA/2000 | 16 | 5.6 | 0.25 | 0.25 | 0.25 | 0.9 | 0.25 | 1.6 | 1.6 | 0.8 | 0.7 | 2 | 1 | 0.7 | 0.25 | 0.7 | 2.5 | 9 | 0.7 | 34 | 32 | 29 | 71 | 390 | – | 0.17 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 90 |
| 42A2 | 0-500 | RCA/2000 | 120 | 63 | 1.6 | 3 | 2.4 | 7.6 | 2.6 | 9.2 | 8.8 | 3.8 | 2.6 | 7 | 4.8 | 3.4 | 0.25 | 3 | 2.5 | 9 | 0.6 | 38 | 33 | 28 | 73 | 450 | – | 0.18 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 280 |
| 42B2 | 500-1000 | RCA/2000 | 6.2 | 3 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.7 | 0.8 | 0.25 | 0.25 | 1 | 0.6 | 0.25 | 0.25 | 0.25 | 2.5 | 5 | 0.25 | 35 | 29 | 34 | 22 | 130 | – | 0.06 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 42C2 | 1000-2000 | RCA/2000 | 110 | 28 | 1.2 | 1.4 | 1.2 | 4.8 | 2 | 9.8 | 13 | 6 | 5 | 16 | 11 | 7.4 | 1 | 6.6 | 2.5 | 15 | 1.8 | 42 | 42 | 25 | 220 | 1200 | – | 0.42 | – | 3.8 | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 610 |
| 43A2 | 0-500 | RCA/2000 | 1.2 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 5 | 0.25 | 25 | 24 | 27 | 15 | 94 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 43B2 | 500-1000 | RCA/2000 | 35 | 10 | 0.25 | 0.5 | 0.5 | 1.8 | 0.7 | 3.2 | 3.6 | 1.8 | 1.6 | 5 | 2.8 | 2 | 0.25 | 1.8 | 2.5 | 10 | 1.6 | 39 | 35 | 28 | 130 | 580 | – | 0.2 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 140 |
| 43C2 | 1000-2000 | RCA/2000 | 46 | 24 | 0.5 | 1.2 | 0.8 | 2.8 | 0.9 | 3.4 | 3 | 1.4 | 1.2 | 3 | 1.8 | 1.2 | 0.25 | 1.2 | 2.5 | 9 | 0.25 | 32 | 29 | 25 | 63 | 340 | – | 0.11 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 140 |
| 44A2 | 0-500 | RCA/2000 | 34 | 8.6 | 0.25 | 0.6 | 0.5 | 1.8 | 0.9 | 4.6 | 3.6 | 2.4 | 1.8 | 4 | 2.4 | 1.8 | 0.25 | 1.6 | 2.5 | 9 | 1.4 | 35 | 32 | 22 | 120 | 520 | – | 0.22 | – | 3.4 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 190 |
| 44B2 | 500-1000 | RCA/2000 | 27 | 14 | 0.25 | 0.7 | 0.5 | 1.6 | 0.6 | 1.8 | 1.8 | 0.8 | 0.6 | 2 | 1 | 0.7 | 0.25 | 0.6 | 2.5 | 8 | 0.25 | 29 | 27 | 23 | 52 | 320 | – | 0.07 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 80 |
| 44C2 | 1000-2000 | RCA/2000 | 7 | 50 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 0.7 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 5 | 0.25 | 23 | 23 | 27 | 12 | 84 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 45A2 | 0-500 | RCA/2000 | 6.4 | 4.8 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 0.6 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 7 | 0.25 | 30 | 27 | 30 | 29 | 160 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 45B2 | 500-1000 | RCA/2000 | 2 | 2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 7 | 0.25 | 26 | 26 | 27 | 29 | 160 | – | 0.025 | – | 2.2 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 45C2 | 1000-2000 | RCA/2000 | 2.4 | 2.4 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 8 | 0.25 | 29 | 27 | 29 | 29 | 170 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 46A2 | 0-500 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 7 | 0.25 | 39 | 33 | 45 | 7 | 57 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenapthylene | Acenapthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz a anthracene | Chrysene | Benzo(b)&(k)fluoranthene | Benzo a pyrene | Indeno(1,2,3-cd)fluoranthene | Dibenz a.h anthracene | Benzo(ghi)perylene | Silver | Arsenic | Cadmium | Chromium | Copper | Nickel | Lead | Zinc | Manganese | Mercury | Cyanide | *Total Organic Carbon | Total PCBs | DDD | DDE | TOTAL DDT | DIELDRIN | CHLORODANE | LINDANE | ENDRIN | RADIONUCLIDES #2 | TRIBUTYLTIN | Phenol | Benzene | Toluene | Ethylbenzene | Xylene | TPH C6-C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 | TPH C10-C36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 46B2 | 500-1000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 7 | 0.25 | 41 | 32 | 44 | 7 | 62 | – | 0.025 | – | 1.8 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 46C2 | 1000-2000 | RCA/2000 | 0.8 | 0.8 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 8 | 0.25 | 33 | 30 | 30 | 43 | 190 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 47A2 | 0-500 | RCA/2000 | 18 | 11 | 0.25 | 0.6 | 0.25 | 1.2 | 0.25 | 1.2 | 1.2 | 0.6 | 0.25 | 1 | 0.8 | 0.7 | 0.25 | 0.25 | 2.5 | 11 | 0.25 | 43 | 48 | 50 | 43 | 220 | – | 0.025 | – | 2.3 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 47B2 | 500-1000 | RCA/2000 | 14 | 8.2 | 0.25 | 0.25 | 0.25 | 0.9 | 0.25 | 1.2 | 1 | 0.5 | 0.25 | 1 | 0.6 | 0.6 | 0.25 | 0.25 | 2.5 | 11 | 0.25 | 44 | 45 | 50 | 44 | 240 | – | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 160 |
| 47C2 | 1000-2000 | RCA/2000 | 31 | 9.2 | 0.25 | 0.25 | 0.25 | 1.4 | 0.6 | 3.2 | 3.2 | 1.8 | 1.2 | 4 | 2.6 | 2.4 | 0.25 | 1.4 | 2.5 | 13 | 0.8 | 56 | 54 | 63 | 51 | 280 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 260 |
| 48A2 | 0-500 | RCA/2000 | 17 | 5.4 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 1.6 | 1.8 | 1 | 0.7 | 2 | 1.4 | 1.2 | 0.25 | 0.8 | 2.5 | 12 | 1 | 41 | 42 | 39 | 89 | 430 | – | 0.17 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 170 |
| 48B2 | 500-1000 | RCA/2000 | 25 | 4 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 2.8 | 3.2 | 2 | 1.4 | 4 | 2.8 | 2.4 | 0.25 | 1.6 | 2.5 | 10 | 1 | 45 | 47 | 40 | 97 | 440 | – | 0.19 | – | 2.1 | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 100 |
| 48C2 | 1000-2000 | RCA/2000 | 59 | 9.8 | 0.7 | 0.6 | 0.7 | 2.4 | 0.9 | 5.2 | 7.2 | 3.4 | 2.2 | 9 | 6.6 | 6.2 | 0.5 | 4 | 2.5 | 14 | 1.4 | 46 | 50 | 36 | 210 | 980 | – | 0.61 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 590 |
| 49A2 | 0-500 | RCA/2000 | 9 | 3.2 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 1 | 1 | 0.5 | 0.25 | 1 | 0.7 | 0.6 | 0.25 | 0.25 | 2.5 | 16 | 0.7 | 38 | 75 | 36 | 180 | 1000 | – | 0.12 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 110 |
| 49B2 | 500-1000 | RCA/2000 | 4.6 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.7 | 0.7 | 0.25 | 0.25 | 1 | 0.6 | 0.5 | 0.25 | 0.25 | 2.5 | 11 | 0.6 | 32 | 34 | 35 | 54 | 340 | – | 0.16 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 49C2 | 1000-2000 | RCA/2000 | 13 | 1.4 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 1.4 | 2 | 0.9 | 0.6 | 2 | 1.4 | 1.4 | 0.25 | 0.9 | 2.5 | 16 | 1.4 | 45 | 58 | 39 | 190 | 880 | – | 0.26 | – | 2.0 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 220 |
| 4A2 | 0-500 | RCA/2000 | 37000 | 10000 | 1700 | 1400 | 1800 | 6000 | 1800 | 4100 | 3400 | 1300 | 950 | 1900 | 1300 | 980 | 110 | 700 | 2.5 | 24 | 0.25 | 86 | 90 | 38 | 280 | 930 | – | 0.27 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | | – | – | – | – |
| 50A2 | 0-500 | RCA/2000 | 5.8 | 1.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.8 | 0.8 | 0.5 | 0.25 | 1 | 0.6 | 0.5 | 0.25 | 0.25 | 2.5 | 12 | 0.6 | 30 | 29 | 33 | 46 | 330 | – | 0.13 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 50B2 | 500-1000 | RCA/2000 | 15 | 1.8 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 1.6 | 1.6 | 1.2 | 0.8 | 3 | 2 | 1.6 | 0.25 | 1.2 | 2.5 | 15 | 1.4 | 45 | 44 | 38 | 150 | 740 | – | 0.21 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 180 |
| 50C2 | 1000-2000 | RCA/2000 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 9 | 0.25 | 36 | 38 | 40 | 27 | 150 | – | 0.15 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 51A2 | 0-500 | RCA/2000 | 0.6 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 11 | 0.25 | 47 | 45 | 53 | 43 | 250 | – | 0.2 | – | 2.0 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 51B2 | 500-1000 | RCA/2000 | 5 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.7 | 1 | 0.25 | 0.25 | 1 | 0.6 | 0.6 | 0.25 | 0.25 | 2.5 | 10 | 1 | 42 | 43 | 45 | 52 | 290 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 51C2 | 1000-2000 | RCA/2000 | 28 | 4.2 | 0.25 | 0.25 | 0.25 | 1.4 | 0.5 | 3.2 | 1.8 | 2 | 1.4 | 5 | 3.8 | 3.4 | 0.25 | 2.2 | 2.5 | 15 | 1.4 | 41 | 49 | 31 | 250 | 1200 | – | 0.44 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 400 |
| 52A2 | 0-500 | RCA/2000 | 13 | 5.2 | 0.25 | 0.25 | 0.25 | 0.9 | 0.25 | 1.2 | 1.2 | 0.6 | 0.25 | 3 | 0.7 | 0.7 | 0.25 | 0.25 | 2.5 | 13 | 0.7 | 40 | 42 | 40 | 73 | 430 | – | 0.11 | – | 2.3 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 150 |
| 52B2 | 500-1000 | RCA/2000 | 7.8 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1 | 1 | 0.6 | 0.5 | 1 | 0.9 | 0.8 | 0.25 | 0.5 | 2.5 | 13 | 0.7 | 38 | 40 | 34 | 53 | 340 | – | 0.025 | – | 2.6 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 140 |
| 52C2 | 1000-2000 | RCA/2000 | 12 | 2 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 1.2 | 1.6 | 0.9 | 0.7 | 2 | 1.4 | 1.2 | 0.25 | 0.8 | 2.5 | 11 | 0.7 | 46 | 45 | 51 | 43 | 250 | – | 0.025 | – | 2.0 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 140 |
| 53A2 | 0-500 | RCA/2000 | 16 | 9.4 | 0.25 | 0.5 | 0.25 | 1.2 | 0.25 | 1.4 | 1.2 | 0.6 | 0.25 | 1 | 0.6 | 0.6 | 0.25 | 0.25 | 2.5 | 13 | 0.5 | 39 | 41 | 37 | 70 | 480 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 53B2 | 500-1000 | RCA/2000 | 25 | 7.8 | 0.25 | 0.6 | 0.25 | 1.4 | 0.5 | 2.2 | 2.4 | 1.4 | 0.9 | 3 | 2 | 1.8 | 0.25 | 1.2 | 2.5 | 11 | 0.6 | 38 | 41 | 40 | 60 | 310 | – | 0.15 | – | 2.6 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 200 |
| 53C2 | 1000-2000 | RCA/2000 | 12 | 1.2 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 1.6 | 1.8 | 0.8 | 0.7 | 2 | 1.2 | 1.2 | 0.25 | 0.9 | 2.5 | 18 | 2 | 51 | 57 | 47 | 170 | 650 | – | 0.26 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 300 |
| 54A2 | 0-500 | RCA/2000 | 1.4 | 1.4 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 10 | 0.25 | 49 | 48 | 60 | 20 | 110 | – | 0.025 | – | 1.7 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 54B2 | 500-1000 | RCA/2000 | 16 | 5.8 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 1.4 | 1.6 | 0.8 | 0.6 | 2 | 1.2 | 1 | 0.25 | 0.7 | 2.5 | 13 | 1 | 43 | 49 | 44 | 94 | 430 | – | 0.19 | – | 3.0 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 190 |
| 54C2 | 1000-2000 | RCA/2000 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 8 | 0.25 | 54 | 58 | 67 | 21 | 110 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 55A2 | 0-500 | RCA/2000 | 22 | 9.6 | 0.25 | 0.8 | 0.5 | 1.6 | 0.5 | 1.8 | 1.8 | 0.8 | 0.6 | 2 | 1.2 | 0.8 | 0.8 | 0.5 | 2.5 | 12 | 0.5 | 38 | 40 | 36 | 64 | 390 | – | 0.17 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 240 |
| 55B2 | 500-1000 | RCA/2000 | 5.4 | 3.4 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 0.8 | 0.7 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 10 | 0.25 | 35 | 37 | 39 | 46 | 250 | – | 0.13 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 210 |
| 55C2 | 1000-2000 | RCA/2000 | 29 | 4.4 | 0.25 | 0.25 | 0.25 | 1.2 | 0.5 | 2.8 | 3.4 | 2 | 1.4 | 5 | 3.4 | 3 | 3 | 2 | 2.5 | 16 | 1.8 | 44 | 44 | 31 | 210 | 820 | – | 0.41 | – | 3.2 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 530 |
| 56A2 | 0-500 | RCA/2000 | 9.4 | 4 | 0.25 | 0.25 | 0.25 | 0.9 | 0.25 | 1.2 | 1.2 | 0.5 | 0.25 | 1 | 0.7 | 0.25 | 0.25 | 0.25 | 2.5 | 11 | 0.6 | 37 | 34 | 35 | 68 | 430 | – | 0.15 | – | 2.0 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 160 |
| 56B2 | 500-1000 | RCA/2000 | 2 | 0.8 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.6 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 10 | 0.7 | 49 | 45 | 55 | 46 | 250 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 56C2 | 1000-2000 | RCA/2000 | 25 | 4 | 0.25 | 0.25 | 0.25 | 1.2 | 0.5 | 2.6 | 3.2 | 1.4 | 1 | 4 | 3 | 2.6 | 0.25 | 2 | 2.5 | 13 | 1 | 41 | 62 | 37 | 240 | 1100 | – | 0.5 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 520 |
| 57A2 | 0-500 | RCA/2000 | 18 | 2.6 | 0.25 | 0.25 | 0.25 | 0.9 | 0.25 | 2 | 2 | 1.4 | 0.9 | 3 | 2.2 | 1.8 | 0.25 | 1.2 | 2.5 | 13 | 1.4 | 37 | 40 | 34 | 130 | 570 | – | 0.28 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 280 |
| 57B2 | 500-1000 | RCA/2000 | 8.8 | 0.7 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1 | 1.4 | 0.7 | 0.5 | 2 | 1.2 | 0.9 | 0.25 | 0.7 | 2.5 | 6 | 0.25 | 19 | 20 | 16 | 51 | 270 | – | 0.025 | – | 2.4 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 57C2 | 1000-2000 | RCA/2000 | 120 | 1.2 | 1.6 | 0.25 | 2.4 | 17 | 12 | 22 | 19 | 8.2 | 5 | 12 | 10 | 8 | 0.8 | 5.2 | 2.5 | 11 | 0.5 | 33 | 38 | 36 | 58 | 350 | – | 0.15 | – | 2.0 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 400 |
| 58A2 | 0-500 | RCA/2000 | 18 | 1.8 | 0.25 | 0.25 | 0.25 | 0.9 | 0.25 | 1.8 | 2 | 1.4 | 1 | 4 | 2.4 | 2 | 0.25 | 1.4 | 2.5 | 13 | 1.2 | 35 | 39 | 32 | 130 | 600 | – | 0.23 | – | 1.8 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 260 |
| 58B2 | 500-1000 | RCA/2000 | 3.2 | 1.2 | 0.25 | 0.25 | 0.25 | 0.8 | 0.25 | 0.7 | 0.7 | 1.6 | 0.25 | 0.25 | 0.6 | 0.25 | 0.25 | 0.25 | 2.5 | 14 | 0.7 | 42 | 53 | 40 | 110 | 640 | – | 0.42 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 58C2 | 1000-2000 | RCA/2000 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 12 | 0.7 | 38 | 50 | 41 | 110 | 700 | – | 0.32 | – | 1.9 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 59A2 | 0-500 | RCA/2000 | 14 | 2.4 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 1.8 | 2 | 1.2 | 0.8 | 3 | 1.6 | 1.2 | 0.25 | 0.8 | 2.5 | 12 | 0.7 | 34 | 36 | 34 | 66 | 360 | – | 0.12 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 90 |
| 59B2 | 500-1000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 11 | 0.25 | 39 | 41 | 42 | 59 | 330 | – | 0.47 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 59C2 | 1000-2000 | RCA/2000 | 8.2 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1 | 1.2 | 0.6 | 0.5 | 2 | 0.9 | 0.7 | 0.25 | 0.5 | 2.5 | 14 | 0.7 | 43 | 49 | 43 | 86 | 450 | – | 0.34 | – | 1.9 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 70 |
| 5A2 | 0-500 | RCA/2000 | 2600 | 1300 | 79 | 110 | 88 | 300 | 85 | 210 | 180 | 60 | 42 | 75 | 55 | 34 | 2.8 | 26 | 2.5 | 36 | 0.25 | 2.5 | 22 | 8 | 48 | 410 | – | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | | – | – | – | |
| 60A2 | 0-500 | RCA/2000 | 6.6 | 2.8 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 1.2 | 1.2 | 0.5 | 0.25 | 0.25 | 0.6 | 0.25 | 0.25 | 0.25 | 2.5 | 13 | 0.6 | 39 | 37 | 40 | 57 | 360 | – | 0.11 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 130 |
| 60B2 | 500-1000 | RCA/2000 | 10 | 1.4 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1.4 | 1.6 | 0.9 | 0.7 | 2 | 1.2 | 0.9 | 0.25 | 0.6 | 2.5 | 13 | 0.5 | 53 | 50 | 58 | 46 | 240 | – | 0.22 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 100 |
| 60C2 | 1000-2000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 13 | 0.5 | 48 | 45 | 52 | 53 | 320 | – | 0.15 | – | 1.8 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 61A2 | 0-500 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 8 | 0.25 | 54 | 52 | 63 | 14 | 110 | – | 0.025 | – | 2.0 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 61B2 | 500-1000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 9 | 0.25 | 50 | 49 | 58 | 16 | 110 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 61C2 | 1000-2000 | RCA/2000 | 29 | 3.2 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 4.2 | 3.8 | 2 | 1.4 | 5 | 3.8 | 3.2 | 0.25 | 1.8 | 2.5 | 15 | 0.25 | 52 | 49 | 58 | 35 | 230 | – | 0.025 | – | 2.2 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 200 |
| 62A2 | 0-500 | RCA/2000 | 14 | 4.2 | 0.25 | 0.25 | 0.25 | 0.8 | 0.25 | 1.4 | 1.4 | 0.8 | 0.6 | 2 | 1.4 | 1.2 | 0.25 | 0.7 | 2.5 | 13 | 0.7 | 56 | 55 | 59 | 71 | 360 | – | 0.14 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 150 |
| 62B2 | 500-1000 | RCA/2000 | 60 | 7.8 | 0.7 | 0.6 | 0.6 | 2.2 | 0.8 | 4.8 | 5.8 | 3.6 | 2 | 10 | 8 | 8.8 | 0.8 | 4.8 | 2.5 | 15 | 1.6 | 60 | 59 | 43 | 280 | 1300 | – | 0.7 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 840 |
| 62C2 | 1000-2000 | RCA/2000 | 77 | 8.4 | 0.9 | 0.6 | 0.7 | 3 | 1.4 | 8.4 | 9.4 | 3.8 | 2.2 | 11 | 10 | 11 | 1 | 6.2 | 2.5 | 19 | 2.4 | 78 | 110 | 43 | 630 | 3000 | – | 1.11 | – | 3.4 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 1830 |
| 63A2 | 0-500 | RCA/2000 | 57 | 6.4 | 0.7 | 0.7 | 0.6 | 3 | 1.4 | 8.4 | 8 | 3.6 | 1.8 | 7 | 6.6 | 6.2 | 0.25 | 3.2 | 2.5 | 8 | 0.5 | 21 | 18 | 17 | 59 | 310 | – | 0.11 | – | – | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 260 |
| 63B2 | 500-1000 | RCA/2000 | 63 | 16 | 1 | 1.4 | 1.2 | 2.8 | 1.4 | 4.4 | 6 | 2.2 | 1 | 8 | 6.6 | 7.2 | 0.5 | 3.8 | 2.5 | 17 | 1.4 | 55 | 52 | 35 | 270 | 1700 | – | 1.56 | – | 5.3 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 1600 |
| 64A2 | 0-500 | RCA/2000 | 7.8 | 6.2 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 0.9 | 0.8 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 12 | 0.5 | 35 | 36 | 34 | 57 | 350 | – | 0.025 | – | 1.7 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 64B2 | 500-1000 | RCA/2000 | 36 | 7 | 0.25 | 0.25 | 0.25 | 1.6 | 0.7 | 3.8 | 4.6 | 2.4 | 2 | 5 | 3.6 | 3.2 | 0.25 | 2.2 | 2.5 | 14 | 2 | 49 | 50 | 33 | 200 | 850 | – | 0.27 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 390 |
| 64C2 | 1000-2000 | RCA/2000 | 17 | 7 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 1.6 | 1.6 | 0.8 | 0.7 | 2 | 1.2 | 1 | 0.25 | 0.7 | 2.5 | 12 | 0.9 | 41 | 41 | 37 | 82 | 410 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 65A2 | 0-500 | RCA/2000 | 22 | 3.2 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 2.4 | 2.8 | 1.6 | 1.4 | 4 | 2.4 | 2.2 | 0.25 | 1.6 | 2.5 | 12 | 1.2 | 33 | 35 | 27 | 140 | 620 | – | 0.19 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 65B2 | 500-1000 | RCA/2000 | 1.6 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 11 | 0.25 | 27 | 29 | 29 | 29 | 220 | – | 0.025 | – | 2.1 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 150 |
| 65C2 | 1000-2000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 9 | 0.25 | 26 | 33 | 30 | 37 | 370 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 66A2 | 0-500 | RCA/2000 | 1.4 | 1.4 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 10 | 0.5 | 29 | 32 | 29 | 56 | 320 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 66B2 | 500-1000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 12 | 0.25 | 30 | 32 | 34 | 38 | 260 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 66C2 | 1000-2000 | RCA/2000 | 11 | 3.2 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 1.2 | 1.2 | 0.6 | 0.6 | 2 | 0.9 | 0.8 | 0.25 | 0.6 | 2.5 | 15 | 1.4 | 36 | 36 | 28 | 140 | 610 | – | 0.15 | – | 2.4 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 67A2 | 0-500 | RCA/2000 | 15 | 26 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 2 | 1.8 | 1 | 1 | 2 | 1.6 | 1.4 | 0.25 | 1 | 2.5 | 17 | 1.2 | 44 | 45 | 38 | 110 | 570 | – | 0.17 | – | 2.2 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 67B2 | 500-1000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 13 | 0.25 | 56 | 57 | 63 | 24 | 150 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 67C2 | 1000-2000 | RCA/2000 | 19 | 2.6 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 2.2 | 2.7 | 1.2 | 1.2 | 3 | 2.2 | 2 | 0.25 | 1.6 | 2.5 | 16 | 1.2 | 37 | 41 | 29 | 170 | 970 | – | 0.34 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 140 |
| 68A2 | 0-500 | RCA/2000 | 15 | 2.6 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 1.6 | 1.6 | 1 | 0.8 | 3 | 1.8 | 1.6 | 0.25 | 1 | 2.5 | 13 | 0.7 | 32 | 35 | 30 | 83 | 410 | – | 0.14 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 68B2 | 500-1000 | RCA/2000 | 3.8 | 0.8 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.7 | 0.7 | 0.25 | 0.25 | 1 | 0.6 | 0.25 | 0.25 | 0.25 | 2.5 | 9 | 0.6 | 26 | 31 | 25 | 81 | 440 | – | 0.08 | – | 2.0 | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 68C2 | 1000-2000 | RCA/2000 | 1.2 | 0.7 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 11 | 0.25 | 22 | 28 | 24 | 25 | 160 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 69A2 | 0-500 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 13 | 0.6 | 34 | 40 | 37 | 62 | 380 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 69B2 | 500-1000 | RCA/2000 | 16 | 2.2 | 0.25 | 0.25 | 0.25 | 0.9 | 0.25 | 2 | 2.2 | 1 | 0.9 | 3 | 1.8 | 1.6 | 0.25 | 1.2 | 2.5 | 14 | 1 | 35 | 50 | 30 | 160 | 1000 | – | 0.47 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 220 |
| 69C2 | 1000-2000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 13 | 0.25 | 30 | 39 | 32 | 62 | 320 | – | 0.025 | – | 2.1 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 6A2 | 0-500 | RCA/2000 | 5700 | 4400 | 10 | 230 | 110 | 250 | 66 | 180 | 150 | 48 | 34 | 48 | 48 | 33 | 3.4 | 25 | 2.5 | 12 | 2 | 78 | 46 | 21 | 260 | 2300 | – | 1.06 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 6B2 | 500-1000 | RCA/2000 | 36 | 22 | 0.25 | 2.2 | 1.2 | 2.2 | 0.8 | 3.6 | 3.4 | 0.5 | 0.25 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 | 2.5 | 11 | 0.25 | 51 | 43 | 53 | 39 | 260 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 6C2 | 1000-2000 | RCA/2000 | 3300 | 1900 | 23 | 140 | 65 | 160 | 70 | 230 | 190 | 88 | 68 | 150 | 110 | 78 | 9 | 52 | 2.5 | 2.5 | 0.25 | 15 | 12 | 7 | 61 | 500 | – | 0.17 | 38 | 20.4 | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | – | 0.05 | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 70A2 | 0-500 | RCA/2000 | 1 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 10 | 0.25 | 43 | 46 | 54 | 14 | 100 | – | 0.025 | – | 1.8 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 70B2 | 500-1000 | RCA/2000 | 16 | 0.9 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.4 | 2.6 | 1.6 | 0.8 | 5 | 1.4 | 1 | 0.25 | 1 | 2.5 | 12 | 0.25 | 42 | 44 | 49 | 35 | 210 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 70C2 | 1000-2000 | RCA/2000 | 4.6 | 0.9 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.8 | 0.8 | 0.25 | 0.25 | 1 | 1 | 0.25 | 0.25 | 0.25 | 2.5 | 12 | 0.7 | 45 | 45 | 51 | 29 | 210 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 71A2 | 0-500 | RCA/2000 | 0.7 | 0.7 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 6 | 0.25 | 10 | 16 | 10 | 19 | 95 | – | 0.025 | – | 0.6 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 71B2 | 500-1000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 7 | 0.25 | 9 | 8 | 9 | 13 | 79 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 71C2 | 1000-2000 | RCA/2000 | 0.7 | 0.7 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 9 | 0.25 | 16 | 17 | 18 | 24 | 120 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 72A2 | 0-500 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 9 | 0.25 | 17 | 19 | 20 | 17 | 95 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 72B2 | 500-1000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 9 | 0.25 | 9 | 10 | 12 | 5 | 33 | – | 0.025 | – | 0.9 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 72C2 | 1000-2000 | RCA/2000 | 2.8 | 1.8 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.5 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 7 | 0.25 | 13 | 14 | 13 | 28 | 170 | – | 0.025 | – | 1.0 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 73A2 | 0-500 | RCA/2000 | 4.2 | 2.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1 | 1 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 6 | 0.25 | 9 | 7 | 9 | 14 | 90 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 73B2 | 500-1000 | RCA/2000 | 17 | 3.8 | 0.25 | 0.25 | 0.25 | 1.4 | 0.5 | 2.4 | 2.4 | 1.2 | 0.8 | 2 | 1.4 | 0.8 | 0.25 | 0.8 | 2.5 | 7 | 0.25 | 15 | 13 | 12 | 41 | 230 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 100 |
| 74A2 | 0-500 | RCA/2000 | 29 | 4.4 | 0.25 | 0.6 | 0.25 | 2.2 | 0.8 | 4.4 | 4.2 | 2 | 1.4 | 4 | 2.6 | 1.6 | 0.25 | 1.6 | 2.5 | 12 | 0.25 | 15 | 13 | 13 | 30 | 150 | – | 0.025 | – | 1.8 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 200 |
| 74B2 | 500-1000 | RCA/2000 | 0.7 | 0.7 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 9 | 0.25 | 8 | 5 | 8 | 8 | 57 | – | 0.025 | – | 2.4 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 74C2 | 1000-2000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 10 | 0.25 | 11 | 8 | 12 | 6 | 41 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 75A2 | 0-500 | RCA/2000 | 65 | 11 | 0.5 | 1.2 | 0.8 | 4 | 1.4 | 8.4 | 8.2 | 4.2 | 3 | 8 | 6 | 4.8 | 0.5 | 3.2 | 2.5 | 11 | 0.25 | 26 | 25 | 17 | 83 | 490 | – | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 540 |
| 75B2 | 500-1000 | RCA/2000 | 19 | 3 | 0.25 | 0.25 | 0.25 | 1.6 | 0.25 | 2.4 | 2.8 | 1.2 | 0.9 | 3 | 2.2 | 1.6 | 0.25 | 1 | 2.5 | 9 | 0.25 | 13 | 12 | 12 | 8 | 57 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 110 |
| 75C2 | 1000-2000 | RCA/2000 | 1.2 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 10 | 0.25 | 13 | 8 | 12 | 10 | 67 | – | 0.025 | – | 1.8 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 76A2 | 0-500 | RCA/2000 | 52 | 4.8 | 0.25 | 0.25 | 0.25 | 3 | 2.2 | 9.8 | 8.6 | 4.2 | 2.8 | 6 | 4.8 | 3.8 | 0.25 | 2.4 | 2.5 | 7 | 0.25 | 20 | 18 | 17 | 63 | 380 | – | 0.14 | – | 1.4 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 180 |
| 76B2 | 500-1000 | RCA/2000 | 8.4 | 3.4 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 0.9 | 1 | 0.25 | 0.25 | 1 | 0.7 | 0.7 | 0.25 | 0.25 | 2.5 | 6 | 0.25 | 17 | 16 | 15 | 43 | 240 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 80 |
| 77A2 | 0-500 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 8 | 0.25 | 12 | 16 | 11 | 32 | 150 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 77B2 | 500-1000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 6 | 0.25 | 7 | 7 | 8 | 2.5 | 26 | – | 0.025 | – | 0.5 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 77C2 | 1000-2000 | RCA/2000 | 7 | 2 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 1 | 1 | 0.25 | 0.25 | 1 | 0.7 | 0.6 | 0.25 | 0.25 | 2.5 | 6 | 0.25 | 16 | 15 | 14 | 56 | 280 | – | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 70 |
| 78A2 | 0-500 | RCA/2000 | 3.4 | 2.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.6 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 13 | 0.25 | 36 | 39 | 43 | 34 | 230 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 78B2 | 500-1000 | RCA/2000 | 2.4 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.6 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 14 | 0.25 | 30 | 35 | 33 | 31 | 190 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 78C2 | 1000-2000 | RCA/2000 | 20 | 4 | 0.25 | 0.25 | 0.25 | 1.2 | 0.5 | 3 | 2.7 | 1 | 0.6 | 3 | 2 | 1.8 | 0.25 | 1.2 | 2.5 | 12 | 0.9 | 34 | 39 | 28 | 160 | 980 | – | 0.3 | – | 2.3 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 360 |
| 79A2 | 0-500 | RCA/2000 | 0.7 | 2.2 | 0.25 | 0.25 | 0.25 | 0.9 | 0.25 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 11 | 0.25 | 33 | 37 | 38 | 27 | 170 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 79B2 | 500-1000 | RCA/2000 | 0.7 | 0.7 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 13 | 0.7 | 41 | 43 | 45 | 50 | 280 | – | 0.025 | – | 1.9 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 79C2 | 1000-2000 | RCA/2000 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 11 | 0.25 | 26 | 30 | 27 | 53 | 310 | – | 0.13 | – | 2.0 | – | – | – | – | – | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 380 |
| 7A2 | 0-500 | RCA/2000 | 4400 | 1700 | 74 | 520 | 290 | 530 | 130 | 360 | 300 | 92 | 73 | 130 | 100 | 71 | 9 | 52 | 2.5 | 20 | 4.2 | 99 | 110 | 49 | 500 | 2400 | – | 0.61 | – | 11.2 | – | – | – | – | – | – | – | – | – | – | 0.25 | 3.8 | 1.5 | 14 | 16 | 140 | – | – | – | 14400 |
| 7B2 | 500-1000 | RCA/2000 | 1500 | 630 | 22 | 200 | 99 | 130 | 32 | 100 | 78 | 26 | 21 | 47 | 34 | 26 | 2.8 | 19 | 2.5 | 24 | 2.6 | 120 | 140 | 39 | 730 | 2500 | – | 0.85 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 7C2 | 1000-2000 | RCA/2000 | 6500 | 3200 | 28 | 630 | 370 | 740 | 170 | 420 | 330 | 100 | 90 | 160 | 110 | 93 | 10 | 65 | 2.5 | 22 | 1 | 44 | 110 | 26 | 420 | 2300 | – | 0.29 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 420 | – | – | – | 18800 |
| 80A2 | 0-500 | RCA/2000 | 1.8 | 1.8 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 2.5 | 9 | 0.25 | 34 | 37 | 33 | 44 | 290 | – | 0.025 | – | – | – | – | – | – | – | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz a anthracene | Chrysene | Benzo(b)&(k)fluoranthene | Benzo a pyrene | Indeno(1,2,3-cd)fluoranthene | Dibenz a.h anthracene | Benzo(ghi)perylene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80B2 | 500-1000 | RCA/2000 | 1.6 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 80C2 | 1000-2000 | RCA/2000 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 81A2 | 0-500 | RCA/2000 | 8.8 | 1.8 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1 | 1.2 | 0.6 | 0.5 | 1 | 0.9 | 0.8 | 0.25 | 0.6 |
| 81B2 | 500-1000 | RCA/2000 | 3 | 0.7 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.6 | 0.6 | 0.25 | 0.25 | 0.25 | 0.5 | 0.5 | 0.25 | 0.25 |
| 81C2 | 1000-2000 | RCA/2000 | 10 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1.2 | 1.2 | 0.7 | 0.6 | 2 | 1.4 | 1.2 | 0.25 | 0.9 |
| 82A2 | 0-500 | RCA/2000 | 12 | 2.8 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 1.6 | 1.6 | 0.7 | 0.6 | 1 | 0.9 | 0.8 | 0.25 | 0.6 |
| 82B2 | 500-1000 | RCA/2000 | 0.6 | 0.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 82C2 | 1000-2000 | RCA/2000 | 10 | 0.9 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 1.2 | 1.4 | 0.8 | 0.7 | 2 | 1.4 | 1.4 | 0.25 | 0.9 |
| 83A2 | 0-500 | RCA/2000 | 1.6 | 1.6 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 83B2 | 500-1000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 83C2 | 1000-2000 | RCA/2000 | 11 | 2.4 | 0.25 | 0.25 | 0.25 | 0.5 | 0.25 | 1.4 | 1.4 | 0.7 | 0.6 | 2 | 1.2 | 0.9 | 0.25 | 0.7 |
| 84A2 | 0-500 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 84B2 | 500-1000 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 84C2 | 1000-2000 | RCA/2000 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 85A2 | 0-500 | RCA/2000 | 28 | 12 | 0.25 | 0.7 | 0.25 | 1.6 | 0.6 | 2.4 | 2.4 | 1.2 | 0.8 | 3 | 1.6 | 1.2 | 0.25 | 1.2 |
| 85B2 | 500-1000 | RCA/2000 | 31 | 15 | 0.25 | 0.8 | 0.5 | 1.8 | 0.7 | 2.2 | 2.2 | 1 | 0.9 | 2 | 1.6 | 1 | 0.25 | 1 |
| 85C2 | 1000-2000 | RCA/2000 | 1.2 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 86A2 | 0-500 | RCA/2000 | 6.2 | 3.8 | 0.25 | 0.25 | 0.25 | 0.7 | 0.25 | 0.9 | 0.9 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 86B2 | 500-1000 | RCA/2000 | 5 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.7 | 0.8 | 0.5 | 0.25 | 1 | 0.6 | 0.25 | 0.25 | 0.25 |
| 86C2 | 1000-2000 | RCA/2000 | 23 | 4.2 | 0.25 | 0.25 | 0.25 | 1 | 0.25 | 2.6 | 2.8 | 1.8 | 1.6 | 4 | 2.4 | 1.8 | 0.25 | 1.8 |
| 87A2 | 0-500 | RCA/2000 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 87B2 | 500-1000 | RCA/2000 | 13 | 1.8 | 0.25 | 0.25 | 0.25 | 0.6 | 0.25 | 1.4 | 1.8 | 1 | 0.9 | 2 | 1.4 | 1 | 0.25 | 1 |
| 87C2 | 1000-2000 | RCA/2000 | 5.8 | 1.2 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.8 | 0.8 | 0.25 | 0.5 | 1 | 0.7 | 0.25 | 0.25 | 0.25 |
| 88A2 | 0-500 | RCA/2000 | 28 | 11 | 0.25 | 0.7 | 0.25 | 1.8 | 0.6 | 2.4 | 2.2 | 1.2 | 1.2 | 3 | 1.8 | 1.2 | 0.25 | 1.2 |
| 88B2 | 500-1000 | RCA/2000 | 42 | 9.4 | 0.25 | 0.6 | 0.5 | 2.4 | 1 | 4.6 | 4.4 | 2.8 | 2 | 6 | 3.8 | 2.6 | 0.25 | 2.6 |
| 88C2 | 1000-2000 | RCA/2000 | 20 | 7.2 | 0.25 | 0.25 | 0.25 | 1.2 | 0.25 | 1.8 | 1.8 | 1.2 | 0.8 | 3 | 1.6 | 1.2 | 0.25 | 1.2 |
| 89A2 | 0-500 | RCA/2000 | 110 | 30 | 1.4 | 4 | 3.2 | 9 | 4 | 14 | 14 | 4.8 | 4 | 9 | 6.2 | 3.8 | 0.5 | 3.6 |
| 89B2 | 500-1000 | RCA/2000 | 41 | 15 | 0.5 | 2.4 | 1.2 | 2.6 | 1.2 | 3.8 | 4.2 | 1.4 | 1.2 | 3 | 2 | 1.4 | 0.25 | 1.2 |
| 8A2 | 0-500 | RCA/2000 | 1200 | 550 | 17 | 52 | 29 | 70 | 23 | 100 | 110 | 31 | 21 | 73 | 54 | 43 | 4.6 | 30 |
| 8B2 | 500-1000 | RCA/2000 | 6300 | 3000 | 110 | 370 | 210 | 550 | 180 | 550 | 450 | 160 | 100 | 220 | 170 | 130 | 13 | 86 |
| 8C2 | 1000-2000 | RCA/2000 | 10000 | 4700 | 100 | 410 | 400 | 1400 | 330 | 940 | 780 | 240 | 170 | 340 | 260 | 180 | 20 | 130 |
| 90A2 | 0-500 | RCA/2000 | 26000 | 1300 | 310 | 3100 | 1500 | 3400 | 920 | 1500 | 1200 | 330 | 210 | 400 | 340 | 270 | 17 | 150 |
| 90B2 | 500-1000 | RCA/2000 | 880 | 270 | 18 | 16 | 27 | 67 | 21 | 74 | 110 | 29 | 24 | 73 | 49 | 36 | 4.4 | 36 |
| 90C2 | 1000-2000 | RCA/2000 | 250 | 120 | 6.4 | 7.2 | 6 | 13 | 6.6 | 20 | 21 | 7.6 | 6 | 14 | 8.8 | 5.6 | 0.8 | 5.2 |
| 91A2 | 0-500 | RCA/2000 | 550 | 270 | 5.6 | 52 | 15 | 39 | 8.6 | 53 | 41 | 9.8 | 9.2 | 22 | 12 | 8 | 1.2 | 7.2 |
| 92A2 | 0-500 | RCA/2000 | 570 | 140 | 27 | 41 | 38 | 110 | 29 | 75 | 59 | 8.4 | 7 | 15 | 10 | 7.4 | 1 | 7.2 |
| 92B2 | 500-1000 | RCA/2000 | 4300 | 2700 | 15 | 270 | 180 | 370 | 110 | 210 | 170 | 50 | 42 | 82 | 59 | 39 | 4.2 | 42 |
| 92C2 | 1000-2000 | RCA/2000 | 65000 | 5400 | 410 | 1400 | 1400 | 2700 | 630 | 1400 | 1000 | 310 | 200 | 420 | 360 | 310 | 20 | 170 |
| 9A2 | 0-500 | RCA/2000 | 28000 | 570 | 16 | 410 | 90 | 160 | 110 | 390 | 330 | 110 | 87 | 190 | 130 | 100 | 8.5 | 65 |
| 9B2 | 500-1000 | RCA/2000 | 3100 | 2100 | 19 | 130 | 99 | 230 | 67 | 150 | 120 | 38 | 29 | 55 | 37 | 26 | 2 | 16 |
| 9C2 | 1000-2000 | RCA/2000 | 1500 | 1300 | 8 | 63 | 28 | 41 | 10 | 28 | 24 | 7.4 | 5.6 | 10 | 6.2 | 16 | 0.5 | 10 |
| TR1 | surface | PBP/2002 | 596 | 110.00 | 7.30 | 17.00 | 9.70 | 55.00 | 16.00 | 97.00 | 87.00 | 34.00 | 31.00 | 53.00 | 35.00 | 18.00 | 3.80 | 22.00 |
| TR2 | surface | PBP/2002 | 32 | 20.00 | 0.30 | 1.40 | 0.70 | 1.60 | 1.50 | 2.10 | 1.90 | 0.60 | 0.70 | 0.70 | 0.30 | 0.10 | <0.04 | <0.04 |
| TR3 | surface | PBP/2002 | 6052 | 3300.00 | 98.00 | 160.00 | 160.00 | 520.00 | 480.00 | 410.00 | 350.00 | 110.00 | 100.00 | 81.00 | 140.00 | 60.00 | 15.00 | 68.00 |
| TR4 | surface | PBP/2002 | 326 | 150.00 | 3.90 | 13.00 | 8.40 | 23.00 | 8.00 | 29.00 | 28.00 | 8.50 | 7.70 | 19.00 | 13.00 | 6.10 | 1.60 | 6.80 |
| TR5 | surface | PBP/2002 | 2337 | 700.00 | 24.00 | 100.00 | 36.00 | 130.00 | 62.00 | 380.00 | 340.00 | 98.00 | 89.00 | 89.00 | 140.00 | 65.00 | 11.00 | 73.00 |
| TR6 | surface | PBP/2002 | 1163 | 880.00 | 6.20 | 40.00 | 24.00 | 51.00 | 18.00 | 45.00 | 39.00 | 11.00 | 9.80 | 9.40 | 15.00 | 6.30 | 1.30 | 6.60 |
| TR7 | surface | PBP/2002 | 447 | 140.00 | 7.90 | 21.00 | 14.00 | 32.00 | 11.00 | 65.00 | 65.00 | 12.00 | 11.00 | 18.00 | 31.00 | 2.40 | 2.70 | 14.00 |
| TR8 | surface | PBP/2002 | 1182 | 510.00 | 19.00 | 36.00 | 23.00 | 94.00 | 33.00 | 130.00 | 110.00 | 36.00 | 32.00 | 66.00 | 45.00 | 21.00 | 4.40 | 23.00 |
| TR9 | surface | PBP/2002 | 2558 | 500.00 | 40.00 | 85.00 | 40.00 | 210.00 | 110.00 | 470.00 | 420.00 | 130.00 | 120.00 | 120.00 | 190.00 | 15.00 | 15.00 | 93.00 |
| TR11 | surface | PBP/2002 | 967 | 340.00 | 19.00 | 21.00 | 17.00 | 70.00 | 23.00 | 120.00 | 100.00 | 37.00 | 34.00 | 78.00 | 51.00 | 24.00 | 5.50 | 27.00 |
| TR12 | surface | PBP/2002 | 572 | 230.00 | 14.00 | 13.00 | 12.00 | 46.00 | 18.00 | 73.00 | 56.00 | 20.00 | 19.00 | 32.00 | 16.00 | 10.00 | 2.10 | 11.00 |
| TR14 | surface | PBP/2002 | 465 | 110.00 | 14.00 | 9.40 | 11.00 | 44.00 | 12.00 | 64.00 | 71.00 | 17.00 | 17.00 | 40.00 | 26.00 | 13.00 | 2.50 | 14.00 |
| TR15 | surface | PBP/2002 | 2520 | 850.00 | 58.00 | 120.00 | 88.00 | 320.00 | 120.00 | 310.00 | 260.00 | 85.00 | 77.00 | 54.00 | 94.00 | 39.00 | 3.60 | 41.00 |
| TR17 | surface | PBP/2002 | 1661 | 640.00 | 22.00 | 40.00 | 27.00 | 110.00 | 49.00 | 210.00 | 190.00 | 67.00 | 60.00 | 57.00 | 94.00 | 42.00 | 9.90 | 43.00 |
| TR18 | surface | PBP/2002 | 2951 | 800.00 | 41.00 | 72.00 | 72.00 | 300.00 | 120.00 | 410.00 | 350.00 | 130.00 | 110.00 | 230.00 | 160.00 | 70.00 | 15.00 | 71.00 |
| TR19 | surface | PBP/2002 | 747 | 300.00 | 12.00 | 31.00 | 17.00 | 55.00 | 20.00 | 92.00 | 89.00 | 25.00 | 22.00 | 18.00 | 32.00 | 15.00 | 3.20 | 16.00 |
| TR20 | surface | PBP/2002 | 3288 | 1400.00 | 29.00 | 220.00 | 120.00 | 310.00 | 100.00 | 330.00 | 280.00 | 93.00 | 85.00 | 78.00 | 120.00 | 53.00 | 15.00 | 55.00 |
| TR23 | surface | PBP/2002 | 26278 | 10000.00 | 830.00 | 2900.00 | 1700.00 | 1200.00 | 1100.00 | 2600.00 | 2200.00 | 640.00 | 580.00 | 1200.00 | 840.00 | 57.00 | 31.00 | 400.00 |
| TR24 | surface | PBP/2002 | 173 | 90.00 | 1.80 | 6.70 | 3.50 | 10.00 | 3.70 | 12.00 | 11.00 | 4.50 | 4.10 | 10.00 | 6.80 | 3.80 | 1.10 | 4.10 |
| TR25 | surface | PBP/2002 | 1331 | 950.00 | 8.00 | 40.00 | 21.00 | 42.00 | 16.00 | 55.00 | 62.00 | 18.00 | 16.00 | 25.00 | 36.00 | 19.00 | 4.10 | 19.00 |
| TR26 | surface | PBP/2002 | 206 | 95.00 | 2.30 | 8.40 | 4.60 | 13.00 | 4.40 | 18.00 | 16.00 | 6.70 | 6.00 | 7.60 | 11.00 | 5.60 | 1.20 | 5.90 |
| TR27 | surface | PBP/2002 | 498 | 89.00 | 7.70 | 19.00 | 10.00 | 25.00 | 12.00 | 70.00 | 80.00 | 27.00 | 24.00 | 34.00 | 48.00 | 25.00 | 2.00 | 25.00 |
| TR29 | surface | PBP/2002 | 718 | 150.00 | 19.00 | 16.00 | 14.00 | 49.00 | 20.00 | 95.00 | 110.00 | 42.00 | 38.00 | 42.00 | 60.00 | 28.00 | 6.70 | 28.00 |
| TR30 | surface | PBP/2002 | 228 | 38.00 | 2.20 | 7.00 | 3.50 | 15.00 | 14.00 | 30.00 | 31.00 | 14.00 | 13.00 | 15.00 | 20.00 | 11.00 | 2.90 | 11.00 |
| TR33 | surface | PBP/2002 | 46 | 13.33 | 0.63 | 2.85 | 0.96 | 2.63 | 2.41 | 5.19 | 5.93 | 2.00 | 1.81 | 2.11 | 2.96 | 1.52 | 0.41 | 1.56 |
| TR34 | surface | PBP/2002 | 22 | 8.10 | 0.20 | 0.80 | 0.50 | 1.40 | 1.30 | 2.10 | 2.10 | 0.80 | 0.80 | 1.60 | 0.70 | 0.50 | 0.10 | 0.60 |
| TR37 | surface | PBP/2002 | 49 | 18.00 | 0.50 | 1.20 | 0.80 | 2.70 | 2.50 | 4.50 | 5.20 | 1.90 | 1.70 | 4.20 | 2.50 | 1.30 | 0.30 | 1.30 |
| TR38 | surface | PBP/2002 | 29 | 13.00 | 0.20 | 0.90 | 0.50 | 1.80 | 1.70 | 2.80 | 2.70 | 1.00 | 1.00 | 1.70 | 0.70 | 0.60 | 0.10 | 0.60 |
| TR39 | surface | PBP/2002 | 26 | 11.00 | 0.30 | 0.70 | 0.50 | 1.60 | 1.40 | 2.30 | 2.50 | 1.00 | 1.00 | 1.60 | 0.80 | 0.60 | 0.10 | 0.70 |
| TR40 | surface | PBP/2002 | 18 | 9.30 | 0.20 | 0.60 | 0.40 | 0.90 | 0.90 | 1.30 | 1.30 | 0.60 | 0.60 | 0.90 | 0.30 | 0.40 | 0.10 | 0.40 |
| CD1 | 0.0-0.5 | GHD/2002 | 348 | 181 | 4.77 | 10.5 | 7.22 | 17 | 6.98 | 28.3 | 29.1 | 9.32 | 6.48 | 17 | 12.6 | 9.57 | 1.21 | 7.68 |
| CD1 | 0.5-1.5 | GHD/2002 | 3.66 | 1.02 | 0.07 | 0.08 | nd | 0.24 | 0.08 | 0.51 | 0.58 | 0.17 | 0.11 | 0.3 | 0.22 | 0.14 | 0.025 | 0.13 |
| CD2 | 0.0-1.4 | GHD/2002 | 8870 | 1810 | 425 | 160 | 484 | 1740 | 496 | 1270 | 994 | 327 | 212 | 390 | 242 | 159 | 29 | 130 |
| CD2 | 1.4-2.8 | GHD/2002 | 16.7 | 0.75 | 0.43 | 0.29 | 0.45 | 2.32 | 0.69 | 3.28 | 2.93 | 0.91 | 0.92 | 1.4 | 1.01 | 0.64 | 0.09 | 0.66 |
| CD2 | 2.8-3.8 | GHD/2002 | 2130 | 524 | 67 | 110 | 147 | 371 | 97.7 | 228 | 177 | 88.1 | 65 | 100 | 69.9 | 39.7 | 9.6 | 33.6 |
| CD2 | 3.8-5.1 | GHD/2002 | 35900 | 12757 | 2300 | 212 | 2040 | 5590 | 979 | 3540 | 2360 | 1420 | 767 | 1600 | 1110 | 607 | 140 | 438 |
| CD3 | 0.0-0.6 | GHD/2002 | 434 | 153 | 10.8 | 11.2 | 9.61 | 42.5 | 11.8 | 51.5 | 44.2 | 18.3 | 10.6 | 27 | 19.2 | 12.7 | 2.25 | 10.2 |
| CD3 | 0.6-2.0 | GHD/2002 | 3.17 | 0.92 | 0.16 | 0.12 | 0.1 | 0.27 | 0.11 | 0.34 | 0.3 | 0.16 | 0.1 | 0.2 | 0.17 | 0.1 | 0.025 | 0.09 |
| CD3 | 2.0-3.5 | GHD/2002 | 1.04 | 0.2 | 0.06 | 0.06 | 0.06 | 0.18 | 0.21 | 0.13 | 0.1 | 0.06 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 |
| CD3 | 3.5-4.5 | GHD/2002 | 1.83 | 0.35 | 0.16 | 0.025 | 0.12 | 0.35 | 0.08 | 0.22 | 0.17 | 0.1 | 0.06 | 0.1 | 0.08 | 0.025 | 0.025 | 0.025 |
| CD4 | 0.0-0.8 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 |
| CD4 | 0.8-1.6 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 |
| CD4 | 1.6-2.3 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 |
| CD5 | 0.0-0.7 | GHD/2002 | 71 | 21.4 | 0.86 | 1.42 | 1.22 | 4.03 | 1.5 | 5.81 | 6.75 | 3.21 | 3.23 | 8.4 | 5.28 | 3.68 | 0.71 | 3.45 |
| CD5 | 0.7-1.6 | GHD/2002 | 48.2 | 12.5 | 0.87 | 0.74 | 0.81 | 2.53 | 1.11 | 5.32 | 5.6 | 2.23 | 1.81 | 5.8 | 3.56 | 2.64 | 0.43 | 2.27 |
| CD5 | 1.6-2.4 | GHD/2002 | 242 | 130 | 2.77 | 5.3 | 5.43 | 16.1 | 7.21 | 18 | 16 | 6.74 | 4.81 | 12 | 7.62 | 5.35 | 0.84 | 4.59 |
| CD5 | 2.4-4.1 | GHD/2002 | 3850 | 2740 | 37.6 | 283 | 139 | 242 | 52.5 | 103 | 85.7 | 36.3 | 23.3 | 50 | 35.6 | 1.51 | 4.85 | 18.9 |
| CD6 | 0.0-0.6 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 |
| CD6 | 0.6-1.3 | GHD/2002 | 0.32 | 0.32 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 |
| CD6 | 1.3-1.9 | GHD/2002 | 231 | 109 | 1.67 | 6.54 | 3.9 | 11.3 | 4.15 | 17.4 | 16 | 7.01 | 6.39 | 17 | 10.7 | 10.6 | 1.35 | 8.84 |
| CD7 | 0.0-1.0 | GHD/2002 | 1020 | 682 | 6.67 | 22.4 | 14.7 | 41.9 | 14.7 | 63.2 | 41.7 | 18.5 | 14.2 | 34 | 22.2 | 21.4 | 2.96 | 16.5 |
| CD7 | 1.0-2.0 | GHD/2002 | 1210 | 1000 | 5.18 | 31.7 | 17.5 | 37.5 | 11.1 | 29.5 | 25 | 8.84 | 6.61 | 15 | 9.62 | 8.85 | 1.15 | 6.88 |
| CD7 | 2.0-3.65 | GHD/2002 | 282 | 162 | 2.25 | 12.5 | 7.65 | 20.8 | 6.24 | 19.2 | 15.7 | 5.79 | 4.22 | 9.2 | 5.98 | 5.29 | 0.73 | 4.04 |
| CD8 | 0.0-0.5 | GHD/2002 | 1.01 | 0.35 | 0.025 | 0.12 | 0.07 | 0.18 | 0.06 | 0.13 | 0.11 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 |
| CD8 | 0.5-1.65 | GHD/2002 | 5.06 | 3.15 | 0.06 | 0.4 | 0.23 | 0.47 | 0.14 | 0.24 | 0.19 | 0.06 | 0.05 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 |
| CD8 | 1.65-2.2 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 |
| CD8 | 2.2-2.4 | GHD/2002 | 55.1 | 21.6 | 0.59 | 1.46 | 1.12 | 3.27 | 1.25 | 4.3 | 4.42 | 2.1 | 1.99 | 5 | 2.96 | 2.38 | 0.42 | 2.27 |
| CD9 | 0.0-0.6 | GHD/2002 | 60.4 | 14.8 | 0.88 | 0.98 | 0.98 | 3.46 | 1.39 | 6.69 | 7.01 | 2.72 | 2.58 | 7 | 4.3 | 3.59 | 0.55 | 3.38 |
| CD9 | 0.6-1.0 | GHD/2002 | 104 | 56.9 | 1.05 | 2.41 | 2.16 | 6.85 | 3.11 | 7.92 | 7.25 | 2.34 | 2.21 | 4.4 | 2.82 | 2.18 | 0.32 | 2.08 |
| CD9 | 1.0-1.6 | GHD/2002 | 1.24 | 0.55 | 0.025 | 0.06 | 0.025 | 0.12 | 0.05 | 0.12 | 0.025 | 0.05 | 0.025 | 0.1 | 0.07 | 0.05 | 0.025 | 0.05 |

| SAMPLE NAME | Silver | Arsenic | Cadmium | Chromium | Copper | Nickel | Lead | Zinc | Manganese | Mercury | Cyanide | *Total Organic Carbon | Total PCBs | DDD | DDE | TOTAL DDT | DIELDRIN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80B2 | 2.5 | 14 | 0.9 | 43 | 46 | 41 | 110 | 520 | – | 0.18 | – | – | – | – | – | – | – |
| 80C2 | 2.5 | 8 | 0.25 | 26 | 29 | 33 | 24 | 170 | – | 0.025 | – | – | – | – | – | – | – |
| 81A2 | 2.5 | 11 | 0.6 | 34 | 37 | 36 | 52 | 300 | – | 0.025 | – | 1.9 | – | – | – | – | – |
| 81B2 | 2.5 | 11 | 0.6 | 32 | 36 | 31 | 63 | 390 | – | 0.025 | – | – | – | – | – | – | – |
| 81C2 | 2.5 | 15 | 1 | 33 | 38 | 28 | 130 | 610 | – | 0.16 | – | – | – | – | – | – | – |
| 82A2 | 2.5 | 9 | 0.25 | 31 | 32 | 31 | 46 | 300 | – | 0.025 | – | – | – | – | – | – | – |
| 82B2 | 2.5 | 9 | 0.25 | 34 | 37 | 41 | 28 | 190 | – | 0.025 | – | 1.8 | – | – | – | – | – |
| 82C2 | 2.5 | 13 | 1 | 35 | 40 | 33 | 110 | 580 | – | 0.17 | – | – | – | – | – | – | – |
| 83A2 | 2.5 | 10 | 0.25 | 30 | 32 | 30 | 29 | 190 | – | 0.025 | – | – | – | – | – | – | – |
| 83B2 | 2.5 | 13 | 0.25 | 26 | 31 | 25 | 28 | 190 | – | 0.025 | – | – | – | – | – | – | – |
| 83C2 | 2.5 | 11 | 4 | 46 | 49 | 47 | 79 | 500 | – | 0.16 | – | 2.1 | – | – | – | – | – |
| 84A2 | 2.5 | 15 | 0.8 | 42 | 43 | 38 | 74 | 510 | – | 0.09 | – | 2.7 | – | – | – | – | – |
| 84B2 | 2.5 | 12 | 0.7 | 33 | 37 | 32 | 31 | 220 | – | 0.025 | – | – | – | – | – | – | – |
| 84C2 | 2.5 | 15 | 0.7 | 36 | 39 | 35 | 42 | 280 | – | 0.025 | – | – | – | – | – | – | – |
| 85A2 | 2.5 | 14 | 1 | 41 | 44 | 34 | 86 | 610 | – | 0.12 | – | – | – | – | – | – | – |
| 85B2 | 2.5 | 14 | 0.9 | 47 | 46 | 42 | 83 | 460 | – | 0.13 | – | 3.0 | – | – | – | – | – |
| 85C2 | 2.5 | 5 | 0.25 | 36 | 30 | 36 | 34 | 200 | – | 0.025 | – | – | – | – | – | – | – |
| 86A2 | 2.5 | 12 | 2.8 | 36 | 36 | 33 | 62 | 340 | – | 0.025 | – | – | – | – | – | – | – |
| 86B2 | 2.5 | 7 | 1.6 | 32 | 30 | 35 | 31 | 140 | – | 0.025 | – | – | – | – | – | – | – |
| 86C2 | 2.5 | 13 | 1.6 | 48 | 46 | 41 | 110 | 510 | – | 0.16 | – | 3.0 | – | – | – | – | – |
| 87A2 | 2.5 | 11 | 0.9 | 39 | 38 | 35 | 51 | 320 | – | 0.025 | – | – | – | – | – | – | – |
| 87B2 | 2.5 | 13 | 1.8 | 37 | 35 | 26 | 140 | 580 | – | 0.15 | – | – | – | – | – | – | – |
| 87C2 | 2.5 | 15 | 1.4 | 45 | 40 | 39 | 130 | 560 | – | 0.11 | – | – | – | – | – | – | – |
| 88A2 | 2.5 | 12 | 1.2 | 52 | 46 | 40 | 97 | 540 | – | 0.13 | – | 3.4 | – | – | – | – | – |
| 88B2 | 2.5 | 12 | 1.6 | 36 | 33 | 20 | 160 | 700 | – | 0.26 | – | – | – | – | – | – | – |
| 88C2 | 2.5 | 13 | 0.8 | 29 | 27 | 22 | 75 | 380 | – | 0.18 | – | – | – | – | – | – | – |
| 89A2 | 2.5 | 9 | 0.8 | 19 | 21 | 12 | 100 | 500 | – | 0.2 | – | – | – | – | – | – | – |
| 89B2 | 2.5 | 8 | 0.7 | 21 | 19 | 13 | 64 | 360 | – | 0.11 | – | 13.6 | – | – | – | – | – |
| 8A2 | 2.5 | 6 | 1.8 | 44 | 55 | 24 | 370 | 2100 | – | 1.05 | – | – | – | – | – | – | – |
| 8B2 | 2.5 | 20 | 1.8 | 40 | 39 | 27 | 240 | 1400 | – | 0.37 | – | 22.1 | – | – | – | – | – |
| 8C2 | 2.5 | 22 | 1.2 | 130 | 80 | 44 | 350 | 2100 | – | 0.5 | – | – | – | – | – | – | – |
| 90A2 | 2.5 | 30 | 3.6 | 160 | 560 | 37 | 670 | 4200 | – | 1.15 | – | – | – | – | – | – | – |
| 90B2 | 2.5 | 26 | 1.6 | 110 | 68 | 25 | 350 | 2300 | – | 0.51 | – | – | – | – | – | – | – |
| 90C2 | 2.5 | 18 | 1.4 | 85 | 84 | 25 | 320 | 1700 | – | 0.45 | – | 5.6 | – | – | – | – | – |
| 91A2 | 2.5 | 15 | 0.7 | 29 | 29 | 20 | 130 | 650 | – | 0.24 | – | – | – | – | – | – | – |
| 92A2 | 2.5 | 18 | 0.9 | 52 | 53 | 39 | 160 | 1200 | – | 0.3 | – | – | – | – | – | – | – |
| 92B2 | 2.5 | 17 | 2 | 88 | 63 | 36 | 210 | 2100 | – | 0.44 | – | – | – | – | – | – | – |
| 92C2 | 2.5 | 16 | 0.6 | 58 | 60 | 50 | 91 | 600 | – | 0.16 | – | – | – | – | – | – | – |
| 9A2 | 2.5 | 29 | 4.6 | 180 | 150 | 40 | 1200 | 4700 | – | 1.34 | – | – | – | – | – | – | – |
| 9B2 | 2.5 | 24 | 3.2 | 110 | 120 | 23 | 930 | 3900 | – | 1.64 | – | – | – | – | – | – | – |
| 9C2 | 2.5 | 25 | 2.6 | 120 | 110 | 55 | 490 | 3300 | – | 0.78 | – | 16.0 | – | – | – | – | – |
| TR1 | – | – | – | – | – | – | – | – | – | – | – | 11 | – | – | – | – | – |
| TR2 | – | – | – | – | – | – | – | – | – | – | – | 2.8 | – | – | – | – | – |
| TR3 | – | – | – | – | – | – | – | – | – | – | – | 9.4 | – | – | – | – | – |
| TR4 | – | – | – | – | – | – | – | – | – | – | – | 7.8 | – | – | – | – | – |
| TR5 | – | – | – | – | – | – | – | – | – | – | – | 25 | – | – | – | – | – |
| TR6 | – | – | – | – | – | – | – | – | – | – | – | 39 | – | – | – | – | – |
| TR7 | – | – | – | – | – | – | – | – | – | – | – | 15 | – | – | – | – | – |
| TR8 | – | – | – | – | – | – | – | – | – | – | – | 1.4 | – | – | – | – | – |
| TR9 | – | – | – | – | – | – | – | – | – | – | – | 48 | – | – | – | – | – |
| TR11 | – | – | – | – | – | – | – | – | – | – | – | 17 | – | – | – | – | – |
| TR12 | – | – | – | – | – | – | – | – | – | – | – | 12 | – | – | – | – | – |
| TR14 | – | – | – | – | – | – | – | – | – | – | – | 21 | – | – | – | – | – |
| TR15 | – | – | – | – | – | – | – | – | – | – | – | 37 | – | – | – | – | – |
| TR17 | – | – | – | – | – | – | – | – | – | – | – | 21 | – | – | – | – | – |
| TR18 | – | – | – | – | – | – | – | – | – | – | – | 35 | – | – | – | – | – |
| TR19 | – | – | – | – | – | – | – | – | – | – | – | 14 | – | – | – | – | – |
| TR20 | – | – | – | – | – | – | – | – | – | – | – | 27 | – | – | – | – | – |
| TR23 | – | – | – | – | – | – | – | – | – | – | – | 17 | – | – | – | – | – |
| TR24 | – | – | – | – | – | – | – | – | – | – | – | 9.4 | – | – | – | – | – |
| TR25 | – | – | – | – | – | – | – | – | – | – | – | 12 | – | – | – | – | – |
| TR26 | – | – | – | – | – | – | – | – | – | – | – | 11 | – | – | – | – | – |
| TR27 | – | – | – | – | – | – | – | – | – | – | – | 18 | – | – | – | – | – |
| TR29 | – | – | – | – | – | – | – | – | – | – | – | 15 | – | – | – | – | – |
| TR30 | – | – | – | – | – | – | – | – | – | – | – | 17 | – | – | – | – | – |
| TR33 | – | – | – | – | – | – | – | – | – | – | – | 27 | – | – | – | – | – |
| TR34 | – | – | – | – | – | – | – | – | – | – | – | 9.5 | – | – | – | – | – |
| TR37 | – | – | – | – | – | – | – | – | – | – | – | 19 | – | – | – | – | – |
| TR38 | – | – | – | – | – | – | – | – | – | – | – | 3.4 | – | – | – | – | – |
| TR39 | – | – | – | – | – | – | – | – | – | – | – | 1.6 | – | – | – | – | – |
| TR40 | – | – | – | – | – | – | – | – | – | – | – | 5.9 | – | – | – | – | – |
| CD1 | – | – | – | – | – | – | – | – | – | – | 0.8 | 2.6 | – | – | – | – | – |
| CD1 | – | – | – | – | – | – | – | – | – | – | 0.025 | 0.05 | – | – | – | – | – |
| CD2 | – | – | – | – | – | – | – | – | – | – | 25 | 23 | – | – | – | – | – |
| CD2 | – | – | – | – | – | – | – | – | – | – | 0.025 | 0.05 | – | – | – | – | – |
| CD2 | – | – | – | – | – | – | – | – | – | – | 0.025 | 3.6 | – | – | – | – | – |
| CD2 | – | – | – | – | – | – | – | – | – | – | 4.6 | 12 | – | – | – | – | – |
| CD3 | – | – | – | – | – | – | – | – | – | – | 2.2 | 8 | – | – | – | – | – |
| CD3 | – | – | – | – | – | – | – | – | – | – | 0.025 | 0.05 | – | – | – | – | – |
| CD3 | – | – | – | – | – | – | – | – | – | – | 0.025 | 0.05 | – | – | – | – | – |
| CD3 | – | – | – | – | – | – | – | – | – | – | 0.025 | 0.05 | – | – | – | – | – |
| CD4 | – | – | – | – | – | – | – | – | – | – | – | 3 | – | – | – | – | – |
| CD4 | – | – | – | – | – | – | – | – | – | – | – | 0.05 | – | – | – | – | – |
| CD4 | – | – | – | – | – | – | – | – | – | – | – | 3.6 | – | – | – | – | – |
| CD5 | – | – | – | – | – | – | – | – | – | – | 4 | 11 | – | – | – | – | – |
| CD5 | – | – | – | – | – | – | – | – | – | – | 1 | 7.4 | – | – | – | – | – |
| CD5 | – | – | – | – | – | – | – | – | – | – | 52 | 5 | – | – | – | – | – |
| CD5 | – | – | – | – | – | – | – | – | – | – | 280 | 17 | – | – | – | – | – |
| CD6 | – | – | – | – | – | – | – | – | – | – | – | 2.6 | – | – | – | – | – |
| CD6 | – | – | – | – | – | – | – | – | – | – | – | 0.7 | – | – | – | – | – |
| CD6 | – | – | – | – | – | – | – | – | – | – | – | 15 | – | – | – | – | – |
| CD7 | – | – | – | – | – | – | – | – | – | – | – | 13 | – | – | – | – | – |
| CD7 | – | – | – | – | – | – | – | – | – | – | – | 24 | – | – | – | – | – |
| CD7 | – | – | – | – | – | – | – | – | – | – | – | 15 | – | – | – | – | – |
| CD8 | – | – | – | – | – | – | – | – | – | – | 0.025 | 0.5 | – | – | – | – | – |
| CD8 | – | – | – | – | – | – | – | – | – | – | 0.025 | 1 | – | – | – | – | – |
| CD8 | – | – | – | – | – | – | – | – | – | – | 0.025 | 0.05 | – | – | – | – | – |
| CD8 | – | – | – | – | – | – | – | – | – | – | 1.4 | 7.2 | – | – | – | – | – |
| CD9 | – | – | – | – | – | – | – | – | – | – | 7.4 | 12 | – | – | – | – | – |
| CD9 | – | – | – | – | – | – | – | – | – | – | 37 | 7.4 | – | – | – | – | – |
| CD9 | – | – | – | – | – | – | – | – | – | – | 0.025 | 2.2 | – | – | – | – | – |

| SAMPLE NAME | CHLORODANE | LINDANE | ENDRIN | RADIONUCLIDES #2 | TRIBUTYLTIN | Phenol | Benzene | Toluene | Ethylbenzene | Xylene | TPH C6-C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 | TPH C10-C36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80B2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 80C2 | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 81A2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 81B2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 81C2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 140 |
| 82A2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 82B2 | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 82C2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 120 |
| 83A2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 83B2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 83C2 | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 84A2 | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 84B2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 84C2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 85A2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 220 |
| 85B2 | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 85C2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 86A2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 86B2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 86C2 | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 5 |
| 87A2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 87B2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 87C2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 88A2 | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 90 |
| 88B2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 280 |
| 88C2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5 |
| 89A2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 490 |
| 89B2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 270 |
| 8A2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 5260 |
| 8B2 | – | – | – | – | – | 0.25 | 5.8 | 7 | 15 | 57 | 5 | – | – | – | 18100 |
| 8C2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 23700 |
| 90A2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 82700 |
| 90B2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 6540 |
| 90C2 | – | – | – | – | – | 0.25 | 0.25 | 1.5 | 0.5 | 0.5 | 5 | – | – | – | 1660 |
| 91A2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 2040 |
| 92A2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 1520 |
| 92B2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 12960 |
| 92C2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 106700 |
| 9A2 | – | – | – | – | – | 0.25 | – | – | – | – | 5 | – | – | – | 27400 |
| 9B2 | – | – | – | – | – | 0.25 | – | – | – | – | 90 | – | – | – | 26900 |
| 9C2 | – | – | – | – | – | 0.25 | 2.2 | 1.5 | 0.5 | 7 | 120 | – | – | – | 8000 |
| TR1 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 280 | 1900 | 440 | – |
| TR2 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 50 | 100 | 100 | – |
| TR3 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 2.20 | 25.0 | 12000 | 14000 | 1200 | – |
| TR4 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 320 | 250 | 4200 | – |
| TR5 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 1500 | 9300 | 1100 | – |
| TR6 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 2500 | 3300 | 310 | – |
| TR7 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 530 | 1500 | 280 | – |
| TR8 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 940 | 2100 | 160 | – |
| TR9 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 1400 | 6900 | 1000 | – |
| TR11 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 710 | 2200 | 310 | – |
| TR12 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 410 | 1200 | 290 | – |
| TR14 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 250 | 1900 | 400 | – |
| TR15 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 2200 | 6400 | 640 | – |
| TR17 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 1200 | 3600 | 460 | – |
| TR18 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 2200 | 8000 | 1200 | – |
| TR19 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 870 | 3200 | 370 | – |
| TR20 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 4200 | 9300 | 1400 | – |
| TR23 | – | – | – | – | – | – | 1.50 | 2.20 | 21.00 | 26.00 | 59.0 | 18000 | 74000 | 4900 | – |
| TR24 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 61 | 100 | 100 | – |
| TR25 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 360 | 1200 | 200 | – |
| TR26 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 190 | 280 | 140 | – |
| TR27 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 180 | 3000 | 460 | – |
| TR29 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 4200 | 22000 | 4600 | – |
| TR30 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 50 | 370 | 100 | – |
| TR33 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 50 | 620 | 100 | – |
| TR34 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 50 | 100 | 100 | – |
| TR37 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 50 | 410 | 100 | – |
| TR38 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 50 | 100 | 100 | – |
| TR39 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 50 | 130 | 100 | – |
| TR40 | – | – | – | – | – | – | 0.50 | 0.50 | 0.50 | 1.00 | 25.0 | 50 | 100 | 100 | – |
| CD1 | – | – | – | – | – | – | – | – | – | – | 5 | 260 | 540 | 80 | 885 |
| CD1 | – | – | – | – | – | – | – | – | – | – | 5 | 20 | 25 | 25 | – |
| CD2 | – | – | – | – | – | – | – | – | – | – | 1300 | 2700 | 7900 | 1800 | – |
| CD2 | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD2 | – | – | – | – | – | – | – | – | – | – | 5 | 1500 | 7900 | 940 | – |
| CD2 | – | – | – | – | – | – | – | – | – | – | 420 | 18000 | 37000 | 4900 | – |
| CD3 | – | – | – | – | – | – | – | – | – | – | 5 | 280 | 940 | 120 | – |
| CD3 | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD3 | – | – | – | – | – | – | – | – | – | – | 20 | 180 | 260 | 25 | – |
| CD3 | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD4 | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD4 | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD4 | – | – | – | – | – | – | – | – | – | – | 5 | 40 | 260 | 25 | – |
| CD5 | – | – | – | – | – | – | – | – | – | – | 5 | 30 | 240 | 25 | – |
| CD5 | – | – | – | – | – | – | – | – | – | – | 5 | 40 | 740 | 120 | – |
| CD5 | – | – | – | – | – | – | – | – | – | – | 5 | 160 | 3400 | 180 | – |
| CD5 | – | – | – | – | – | – | – | – | – | – | 40 | 1000 | 2100 | 260 | – |
| CD6 | – | – | – | – | – | – | – | – | – | – | 5 | 140 | 700 | 70 | – |
| CD6 | – | – | – | – | – | – | – | – | – | – | 5 | 180 | 640 | 160 | – |
| CD6 | – | – | – | – | – | – | – | – | – | – | 5 | 160 | 1800 | 480 | – |
| CD7 | – | – | – | – | – | – | – | – | – | – | 5 | 1500 | 8000 | 1500 | – |
| CD7 | – | – | – | – | – | – | – | – | – | – | 40 | 1500 | 5200 | 700 | – |
| CD7 | – | – | – | – | – | – | – | – | – | – | 20 | 400 | 3900 | 580 | – |
| CD8 | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD8 | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD8 | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD8 | – | – | – | – | – | – | – | – | – | – | 5 | 30 | 140 | 25 | – |
| CD9 | – | – | – | – | – | – | – | – | – | – | 5 | 50 | 720 | 320 | – |
| CD9 | – | – | – | – | – | – | – | – | – | – | 5 | 120 | 3600 | 280 | – |
| CD9 | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz a anthracene | Chrysene | Benzo(b)&(k)fluoranthene | Benzo a pyrene | Indeno(1,2,3-cd)fluoranthenes | Dibenz a,h anthracene | Benzo(ghi)perylene | Silver | Arsenic | Cadmium | Chromium | Copper | Nickel | Lead | Zinc | Manganese | Mercury | Cyanide | *Total Organic Carbon | Total PCBs | DDD | DDE | TOTAL DDT | DIELDRIN | CHLORODANE | LINDANE | ENDRIN | RADIONUCLIDES #2 | TRIBUTYLTIN | Phenol | Benzene | Toluene | Ethylbenzene | Xylene | TPH C6 C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 | TPH C10-C36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CD9 | 1.6-2.5 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | 0.025 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD9 | 2.5-3.4 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | 0.025 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD9 | 3.4-4.3 | GHD/2002 | 293 | 46.6 | 4.88 | 7.47 | 4.61 | 12.8 | 6.25 | 42.7 | 48.9 | 15.4 | 11.1 | 33 | 22.5 | 18.2 | 2.74 | 16.5 | – | – | – | – | – | – | – | – | – | – | 23 | 4.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 30 | 220 | 2400 | 660 | – |
| CD11 | 0.0-0.75 | GHD/2002 | 67.6 | 23.6 | 0.83 | 1.3 | 1.13 | 3.82 | 1.47 | 6.08 | 5.62 | 2.68 | 2.16 | 6.6 | 4.21 | 4.15 | 0.62 | 3.34 | – | – | – | – | – | – | – | – | – | – | – | 7.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 40 | 680 | 120 | – |
| CD11 | 0.75-1.5 | GHD/2002 | 188 | 99.8 | 1.78 | 3.32 | 3.19 | 10.3 | 4.89 | 15 | 12.3 | 5.26 | 3.75 | 10 | 6.36 | 6.05 | 0.84 | 4.8 | – | – | – | – | – | – | – | – | – | – | – | 11 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 220 | 3400 | 340 | – |
| CD11 | 1.5-2.25 | GHD/2002 | 476 | 290 | 4.24 | 7.52 | 9.36 | 28.5 | 9.68 | 29.6 | 24.9 | 10.9 | 8.47 | 19 | 12.1 | 11.7 | 1.62 | 8.92 | – | – | – | – | – | – | – | – | – | – | – | 17 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 30 | 760 | 12000 | 2000 | – |
| CD11 | 2.25-3.1 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD12 | 0.0-0.4 | GHD/2002 | 0.57 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.3 | 0.27 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | 0.025 | 0.7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD12 | 0.4-1.7 | GHD/2002 | 0.24 | 0.24 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | 0.025 | 1.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD12 | 1.7-2.9 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | 0.025 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD12 | 2.4-4.0 | GHD/2002 | 0.25 | 0.25 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | 0.025 | 2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD13 | 0.0-0.6 | GHD/2002 | 36.1 | 8.27 | 0.61 | 1.33 | 1 | 2.68 | 1.15 | 4.66 | 4.68 | 1.65 | 1.28 | 3.2 | 2.11 | 1.79 | 0.24 | 1.45 | – | – | – | – | – | – | – | – | – | – | – | 5.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 20 | 220 | 25 | – |
| CD13 | 0.6-1.2 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 2.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD13 | 1.2-1.9 | GHD/2002 | 0.33 | 0.33 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD13 | 1.9-4.0 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.050 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD17 (Dec) | 2.8 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.050 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5.0 | 5 | 25 | 25 | – |
| CD19 (Dec) | 0.1 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.050 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5.0 | 5 | 25 | 25 | – |
| CD20 (Dec) | 0.5 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.050 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 2.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5.0 | 5 | 25 | 25 | – |
| CD21 (Dec) | 2.5 | GHD/2002 | 56.600 | 8.090 | 1.030 | 0.630 | 0.970 | 2.730 | 1.500 | 11.000 | 8.100 | 2.550 | 2.720 | 6.400 | 4.170 | 3.360 | 0.490 | 3.000 | – | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5.0 | 120 | 4500 | 660 | – |
| CD24 (Dec) | 0.2 | GHD/2002 | 43.000 | 10.600 | 0.800 | 1.090 | 1.410 | 3.190 | 1.510 | 4.760 | 5.620 | 1.420 | 1.490 | 4.200 | 2.890 | 1.990 | 0.320 | 1.660 | – | – | – | – | – | – | – | – | – | – | – | 7.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5.0 | 50 | 500 | 160 | – |
| CD24 (Dec) | 0.7 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.050 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 7.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5.0 | 5 | 25 | 25 | – |
| CD24 (Dec) | 1.4 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.050 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5.0 | 5 | 25 | 25 | – |
| CD26 (Dec) | 0.8 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.050 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5.0 | 5 | 25 | 25 | – |
| CD26 (Dec) | 2 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.050 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5.0 | 5 | 25 | 25 | – |
| CD27 (Dec) | 1.3 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.050 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5.0 | 5 | 25 | 25 | – |
| CD28 (Dec) | 2 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.050 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5.0 | 5 | 25 | 25 | – |
| CD29 (Dec) | 1 | GHD/2002 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.050 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5.0 | 5 | 25 | 25 | – |
| CD10 | 0-0.8 | GHD/2003 | 91.2 | 14.7 | 0.97 | 1.55 | 1.22 | 5.17 | 2.06 | 10.2 | 11.2 | 5.51 | 4.61 | 14 | 8.01 | 5.71 | 0.87 | 4.97 | – | – | – | – | – | – | – | – | – | – | – | 13 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 50 | 540 | 180 | – |
| CD10 | 0.8-1.7 | GHD/2003 | 63.8 | 11.4 | 0.84 | 1.21 | 1.06 | 3.89 | 1.65 | 9.19 | 8.59 | 3.37 | 2.67 | 8 | 4.55 | 3.62 | 0.49 | 3.2 | – | – | – | – | – | – | – | – | – | – | – | 10 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 20 | 90 | 1000 | 280 | – |
| CD10 | 1.7-2.5 | GHD/2003 | 650 | 375 | 3.99 | 18.3 | 13.1 | 42.3 | 14.4 | 50.3 | 39.5 | 16.1 | 11.4 | 27 | 16.4 | 11.2 | 1.55 | 9.39 | – | – | – | – | – | – | – | – | – | – | – | 12 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 20 | 720 | 5800 | 1000 | – |
| CD10 | 2.5-3.3 | GHD/2003 | 336 | 236 | 2.39 | 4.97 | 5.12 | 17.7 | 4.83 | 17.7 | 14.7 | 5.29 | 4.19 | 9.8 | 5.58 | 3.83 | 0.53 | 3.25 | – | – | – | – | – | – | – | – | – | – | – | 23 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 100 | 1400 | 14000 | 3200 | – |
| CD14 | 0-0.6 | GHD/2003 | 7.68 | 2.2 | 0.14 | 0.2 | 0.16 | 0.53 | 0.25 | 0.79 | 0.82 | 0.36 | 0.26 | 0.8 | 0.49 | 0.34 | 0.05 | 0.3 | – | – | – | – | – | – | – | – | – | – | – | 5.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 20 | 260 | 25 | – |
| CD14 | 0.6-1.2 | GHD/2003 | 0.13 | 0.13 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 2.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD14 | 1.2-1.8 | GHD/2003 | 0.09 | 0.09 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD15 | 0-0.8 | GHD/2003 | 6.6 | 1.22 | 0.06 | 0.1 | 0.09 | 0.39 | 0.13 | 0.67 | 0.76 | 0.44 | 0.41 | 1 | 0.51 | 0.37 | 0.08 | 0.44 | – | – | – | – | – | – | – | – | – | – | – | 7.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD15 | 0.8-1.6 | GHD/2003 | 43.3 | 6.73 | 0.43 | 0.52 | 0.5 | 2.09 | 0.77 | 4.05 | 4.99 | 2.67 | 2.1 | 7.6 | 4.1 | 3.3 | 0.54 | 2.85 | – | – | – | – | – | – | – | – | – | – | – | 9.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 10 | 340 | 140 | – |
| CD15 | 1.6-2.5 | GHD/2003 | 17.1 | 3.17 | 0.54 | 0.26 | 0.3 | 0.91 | 0.51 | 1.33 | 2.25 | 0.58 | 0.43 | 2.8 | 1.53 | 1.25 | 0.16 | 1.1 | – | – | – | – | – | – | – | – | – | – | – | 5.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 10 | 840 | 25 | – |
| CD16 | 0.0-0.5 | GHD/2003 | 79.3 | 21.9 | 1.22 | 4.43 | 2.42 | 6.78 | 2.53 | 7 | 8.97 | 3.24 | 2.22 | 8.2 | 4.75 | 2.87 | 0.48 | 2.28 | – | – | – | – | – | – | – | – | – | – | – | 28 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 20 | 100 | 620 | 140 | – |
| CD16 | 0.5-1.0 | GHD/2003 | 12.1 | 2.49 | 0.24 | 0.37 | 0.29 | 0.94 | 0.44 | 1.33 | 1.54 | 0.62 | 0.42 | 1.4 | 0.86 | 0.57 | 0.09 | 0.49 | – | – | – | – | – | – | – | – | – | – | – | 2.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 20 | 220 | 25 | – |
| CD17 | 0-1.0 | GHD/2003 | 1.07 | 0.4 | 0.025 | 0.025 | 0.025 | 0.08 | 0.025 | 0.11 | 0.11 | 0.06 | 0.025 | 0.1 | 0.07 | 0.06 | 0.025 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | 1.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD17 | 1-2.0 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD17 | 2.0-2.5 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 0.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD18 | 0-0.8 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 6.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 10 | 5 | 25 | 25 | – |
| CD18 | 0.8-1.3 | GHD/2003 | 7.45 | 1.4 | 0.12 | 0.1 | 0.12 | 0.46 | 0.21 | 1.05 | 1.05 | 0.36 | 0.32 | 1 | 0.47 | 0.41 | 0.06 | 0.4 | – | – | – | – | – | – | – | – | – | – | – | 5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 60 | 25 | – |
| CD18 | 1.3-2.1 | GHD/2003 | 5.5 | 3.64 | 0.06 | 0.08 | 0.09 | 0.28 | 0.1 | 0.33 | 0.29 | 0.11 | 0.09 | 0.2 | 0.1 | 0.08 | 0.025 | 0.08 | – | – | – | – | – | – | – | – | – | – | – | 5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD18 | 2.1-2.8 | GHD/2003 | 0.7 | 0.51 | 0.025 | 0.025 | 0.025 | 0.07 | 0.025 | 0.06 | 0.06 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD18 | 2.8-3.6 | GHD/2003 | 27.8 | 18.4 | 0.23 | 0.35 | 0.39 | 1.46 | 0.56 | 1.7 | 1.45 | 0.56 | 0.47 | 1 | 0.52 | 0.39 | 0.05 | 0.37 | – | – | – | – | – | – | – | – | – | – | – | 6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD19 | 0.0-0.8 | GHD/2003 | 41.1 | 13.5 | 0.72 | 1.59 | 1.21 | 3.05 | 1.36 | 4.04 | 4.99 | 1.35 | 1.1 | 3.4 | 1.96 | 1.43 | 0.21 | 1.28 | – | – | – | – | – | – | – | – | – | – | – | 12 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 10 | 60 | 600 | 90 | – |
| CD19 | 0.8-1.6 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD20 | 0.0-0.8 | GHD/2003 | 0.82 | 0.47 | 0.025 | 0.025 | 0.025 | 0.07 | 0.025 | 0.09 | 0.09 | 0.05 | 0.025 | 0.05 | 0.05 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 2.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD20 | 0.8-1.6 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 3 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD20 | 1.6-2.4 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD20 | 2.4-3.2 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 2.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD21 | 0.0-0.8 | GHD/2003 | 8.17 | 1.91 | 0.07 | 0.13 | 0.11 | 0.41 | 0.16 | 0.76 | 0.94 | 0.47 | 0.43 | 1.2 | 0.59 | 0.49 | 0.07 | 0.47 | – | – | – | – | – | – | – | – | – | – | – | 6.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD21 | 0.8-1.6 | GHD/2003 | 16.4 | 3.05 | 0.27 | 0.25 | 0.25 | 0.92 | 0.52 | 2.59 | 2.32 | 0.83 | 0.74 | 1.8 | 1.04 | 0.86 | 0.11 | 0.82 | – | – | – | – | – | – | – | – | – | – | – | 7.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 10 | 10 | 700 | 25 | – |
| CD21 | 1.6-2.4 | GHD/2003 | 12.6 | 5.1 | 0.17 | 0.21 | 0.32 | 0.96 | 0.39 | 1.42 | 1.16 | 0.54 | 0.42 | 0.8 | 0.45 | 0.32 | 0.025 | 0.32 | – | – | – | – | – | – | – | – | – | – | – | 6.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 20 | 680 | 25 | – |
| CD21 | 2.4-3.2 | GHD/2003 | 7 | 4.56 | 0.06 | 0.09 | 0.11 | 0.39 | 0.14 | 0.4 | 0.35 | 0.17 | 0.13 | 0.3 | 0.14 | 0.1 | 0.025 | 0.1 | – | – | – | – | – | – | – | – | – | – | – | 6.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD22 | 0.0-0.8 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 0.7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD22 | 0.8-1.6 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 0.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD22 | 1.6-2.2 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 2.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD23 | 0.0-0.6 | GHD/2003 | 9.15 | 2.86 | 0.13 | 0.19 | 0.13 | 0.53 | 0.21 | 0.96 | 0.94 | 0.43 | 0.34 | 1 | 0.57 | 0.42 | 0.06 | 0.39 | – | – | – | – | – | – | – | – | – | – | – | 2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 80 | 25 | – |
| CD23 | 0.6-1.2 | GHD/2003 | 0.05 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD23 | 1.2-1.8 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD24 | 0.0-0.5 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 15 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 50 | 520 | 80 | – |
| CD24 | 0.5-1.3 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD24 | 1.3-2.1 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD25 | 0.0-0.8 | GHD/2003 | 2.72 | 0.48 | 0.05 | 0.05 | 0.025 | 0.18 | 0.06 | 0.37 | 0.39 | 0.18 | 0.13 | 0.4 | 0.18 | 0.14 | nd | 0.15 | – | – | – | – | – | – | – | – | – | – | – | 6.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD25 | 0.8-1.6 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD25 | 1.6-2.5 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD26 | 0.0-0.8 | GHD/2003 | 30.8 | 4.83 | 0.45 | 1.48 | 1.28 | 4.1 | 1.27 | 4.08 | 4.46 | 1.67 | 1.22 | 2.6 | 1.59 | 0.89 | 0.14 | 0.78 | – | – | – | – | – | – | – | – | – | – | – | 16 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 280 | 25 | – |
| CD26 | 0.8-1.6 | GHD/2003 | 0.05 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD26 | 1.6-2.8 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD27 | 0.0-0.8 | GHD/2003 | 1.79 | 0.65 | 0.025 | 0.025 | 0.025 | 0.12 | 0.025 | 0.16 | 0.16 | 0.11 | 0.07 | 0.2 | 0.12 | 0.09 | nd | 0.09 | – | – | – | – | – | – | – | – | – | – | – | 3 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD27 | 0.8-1.7 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD27 | 1.7-2.6 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD28 | 0.0-0.3 | GHD/2003 | 17.7 | 2.13 | 0.48 | 0.21 | 0.28 | 1.02 | 0.45 | 2.34 | 2.66 | 0.96 | 0.77 | 2.4 | 1.6 | 1.15 | 0.14 | 1.03 | – | – | – | – | – | – | – | – | – | – | – | 5.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 10 | 20 | 300 | 50 | – |
| CD28 | 0.3-0.9 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 0.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD28 | 0.9-1.7 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD29 | 0.0-0.5 | GHD/2003 | 5.28 | 1.83 | 0.05 | 0.1 | 0.07 | 0.27 | 0.12 | 0.46 | 0.49 | 0.27 | 0.23 | 0.6 | 0.33 | 0.25 | nd | 0.25 | – | – | – | – | – | – | – | – | – | – | – | 4.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD29 | 0.5-1.0 | GHD/2003 | 0.08 | 0.08 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 5.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD29 | 1.0-1.5 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD29 | 1.5-2.0 | GHD/2003 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.05 | 0.025 | 0.025 | 0.025 | 0.025 | – | – | – | – | – | – | – | – | – | – | – | 1.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 25 | 25 | – |
| CD30 | 0.0-0.8 | GHD/2003 | 6.75 | 1.44 | 0.05 | 0.1 | 0.07 | 0.32 | 0.11 | 0.68 | 0.66 | 0.46 | 0.38 | 1 | 0.49 | 0.43 | 0.06 | 0.42 | – | – | – | – | – | – | – | – | – | – | – | 6.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 120 | 25 | – |
| CD30 | 0.8-1.5 | GHD/2003 | 4.23 | 0.59 | 0.06 | 0.1 | 0.09 | 0.27 | 0.11 | 0.58 | 0.54 | 0.25 | 0.21 | 0.6 | 0.31 | 0.28 | 0.025 | 0.26 | – | – | – | – | – | – | – | – | – | – | – | 5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 50 | 25 | – |
| CD30 | 1.5-2.3 | GHD/2003 | 18.5 | 3.21 | 0.44 | 0.29 | 0.26 | 0.79 | 0.6 | 3.01 | 2.56 | 0.88 | 0.8 | 2.2 | 1.26 | 1.02 | 0.14 | 0.92 | – | – | – | – | – | – | – | – | – | – | – | 6.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 5 | 280 | 25 | – |
| CD30 | 2.3-3.0 | GHD/2003 | 18.2 | 11.9 | 0.13 | 0.16 | 0.24 | 0.84 | 0.34 | 1.18 | 0.98 | 0.45 | 0.36 | 0.7 | 0.41 | 0.28 | 0.025 | 0.26 | – | – | – | – | – | – | – | – | – | – | – | 14 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 20 | 160 | 25 | – |
| CD30 | 3.0-3.7 | GHD/2003 | 7.29 | 5.45 | 0.025 | 0.09 | 0.08 | 0.34 | 0.09 | 0.31 | 0.28 | 0.13 | 0.11 | 0.2 | 0.1 | 0.06 | 0.025 | 0.07 | – | – | – | – | – | – | – | – | – | – | – | 7 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 10 | 80 | 25 | – |
| L6 | surface | PBP/2003 | 190 | 54 | 2.6 | 10 | 3.6 | 16 | 5.4 | 25 | 25 | 7 | 5.4 | 13 | 8.6 | 6 | 0.8 | 5.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 10 | 10 | 50 | 50 | – |
| L7 | surface | PBP/2003 | 300 | 62 | 5.2 | 16 | 7.6 | 30 | 11 | 45 | 42 | 12 | 8.8 | 21 | 15 | 10 | 1.4 | 9.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 70 | 220 | 25 | – |
| L8 | surface | PBP/2003 | 480 | 150 | 6.8 | 31 | 17 | 47 | 15 | 56 | 56 | 15 | 10 | 26 | 20 | 13 | 2 | 11 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 320 | 680 | 25 | – |
| L9 | surface | PBP/2003 | 420 | 180 | 6.2 | 19 | 11 | 27 | 8.2 | 40 | 45 | 11 | 8.6 | 23 | 17 | 12 | 1.4 | 8.6 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 440 | 920 | 50 | – |
| L10 | surface | PBP/2003 | 380 | 200 | 5.2 | 23 | 12 | 31 | 9 | 27 | 30 | 6.4 | 4.8 | 13 | 9.4 | 6.4 | 0.8 | 4.8 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 180 | 680 | 120 | – |
| M1 | surface | PBP/2003 | 2700 | 1800 | 9.4 | 150 | 91 | 180 | 59 | 130 | 100 | 31 | 22 | 46 | 34 | 23 | 3 | 17 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 10 | 240 | 540 | 100 | – |
| M2 | surface | PBP/2003 | 2400 | 1300 | 22 | 98 | 66 | 180 | 66 | 170 | 140 | 53 | 37 | 78 | 58 | 39 | 5.6 | 27 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 70 | 2200 | 3800 | 740 | – |
| M3 | surface | PBP/2003 | 3600 | 2000 | 55 | 120 | 69 | 190 | 83 | 300 | 240 | 98 | 61 | 140 | 100 | 74 | 11 | 51 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 50 | 1500 | 3700 | 1000 | – |
| M4 | surface | PBP/2003 | 1400 | 670 | 34 | 73 | 51 | 130 | 56 | 93 | 92 | 39 | 30 | 59 | 36 | 30 | 4.8 | 23 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 50 | 2100 | 5000 | 1200 | – |

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz a anthracene | Chrysene | Benzo(b)&(k)fluoranthene | Benzo a pyrene | Indeno(1,2,3-cd)pyrene | Dibenz a,h anthracene | Benzo(ghi)perylene | Silver | Arsenic | Cadmium | Chromium | Copper | Nickel | Lead | Zinc | Mangenese | Mercury | Cyanide | *Total Organic Carbon | Total PCBs | DDD | DDE | TOTAL DDT | DIELDRIN | CHLORODANE | LINDANE | ENDRIN | RADIONUCLIDES #2 | TRIBUTYLTIN | Phenol | Benzene | Toluene | Ethylbenzene | Xylene | TPH C6 - C9 | TPH C10 - C14 | TPH C15 - C28 | TPH C29 - C36 | TPH C10 - C36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M5 | surface | PBP/2003 | 4600 | 2200 | 80 | 150 | 120 | 310 | 130 | 470 | 360 | 160 | 110 | 200 | 130 | 97 | 21 | 69 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 20 | 560 | 1300 | 240 | – |
| M6 | surface | PBP/2003 | 1200 | 940 | 13 | 34 | 28 | 55 | 15 | 32 | 24 | 7.6 | 5.6 | 11 | 8 | 5 | 0.8 | 3.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 60 | 2200 | 5800 | 1300 | – |
| M7 | surface | PBP/2003 | 3000 | 1000 | 71 | 110 | 77 | 350 | 150 | 400 | 310 | 120 | 72 | 140 | 120 | 70 | 11 | 47 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 60 | 1100 | 1600 | 540 | – |
| M8 | surface | PBP/2003 | 200 | 100 | 2.6 | 9.2 | 6.6 | 15 | 5.2 | 18 | 15 | 4.8 | 3.8 | 8 | 6.2 | 4.2 | 0.6 | 3.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 50 | 1400 | 4800 | 25 | – |
| M9 | surface | PBP/2003 | 1900 | 1400 | 15 | 76 | 57 | 120 | 29 | 60 | 46 | 16 | 12 | 23 | 17 | 10 | 1.6 | 7.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 5 | 140 | 460 | 100 | – |
| M10 | surface | PBP/2003 | 1400 | 1100 | 20 | 40 | 34 | 66 | 22 | 60 | 46 | 17 | 13 | 29 | 20 | 14 | 1.8 | 10 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 50 | 1400 | 2300 | 600 | – |
| H1 | surface | PBP/2003 | 1300 | 710 | 20 | 110 | 56 | 110 | 34 | 85 | 62 | 17 | 13 | 29 | 20 | 14 | 1.8 | 10 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 70 | 1300 | 2400 | 680 | – |
| H2 | surface | PBP/2003 | 10117 | 5700 | 160 | 890 | 520 | 1000 | 270 | 550 | 410 | 120 | 76 | 160 | 120 | 79 | 12 | 64 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 20 | 4300 | 7800 | 840 | – |
| H3 | surface | PBP/2003 | 10916 | 7600 | 120 | 630 | 350 | 600 | 170 | 410 | 330 | 120 | 94 | 190 | 120 | 100 | 20 | 77 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 140 | 10000 | 14000 | 2000 | – |
| H4 | surface | PBP/2003 | 5300 | 3400 | 43 | 350 | 250 | 470 | 70 | 270 | 200 | 40 | 27 | 71 | 52 | 34 | 5.4 | 28 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 90 | 11000 | 9000 | 1400 | – |
| H5 | surface | PBP/2003 | 2200 | 990 | 17 | 190 | 130 | 290 | 75 | 180 | 140 | 44 | 30 | 59 | 45 | 29 | 4.2 | 21 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 90 | 6200 | 11000 | 1900 | – |
| H6 | surface | PBP/2003 | 7500 | 1800 | 95 | 380 | 380 | 1400 | 350 | 1000 | 820 | 270 | 160 | 330 | 120 | 220 | 43 | 150 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 50 | 2100 | 5900 | 1000 | – |
| H7 | surface | PBP/2003 | 1200 | 420 | 8.2 | 120 | 63 | 150 | 45 | 120 | 91 | 30 | 21 | 48 | 35 | 23 | 3.4 | 16 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 10 | 2900 | 11000 | 1500 | – |
| H8 | surface | PBP/2003 | 140 | 54 | 1.2 | 13 | 7 | 12 | 4.6 | 14 | 11 | 3.2 | 2.4 | 5 | 3.8 | 2.8 | nd | 2.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 30 | 1100 | 4500 | 840 | – |
| H9 | surface | PBP/2003 | 3400 | 830 | 48 | 230 | 150 | 480 | 130 | 460 | 360 | 130 | 82 | 210 | 150 | 110 | 16 | 77 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 10 | 140 | 600 | 60 | – |
| H10 | surface | PBP/2003 | 800 | 270 | 7.4 | 60 | 34 | 73 | 42 | 89 | 67 | 27 | 20 | 45 | 32 | 21 | 3 | 15 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 40 | 1400 | 5600 | 840 | – |
| SB1 | 0-1050 | PBP/2003 | 2880 | 2200 | 20.2 | 140 | 53 | 140 | 42 | 87 | 72 | 23.7 | 15.9 | 32 | 19.8 | 10.1 | 2 | 8.93 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 1900 | 2300 | 640 | – |
| SB1 | 1050-2000 | PBP/2003 | 2.83 | 2.29 | *0.025* | 0.21 | *0.025* | 0.11 | 0.08 | 0.08 | 0.07 | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB2 | 0-1150 | PBP/2003 | 22960 | 15000 | 398 | 1800 | 1100 | 2000 | 500 | 790 | 600 | 170 | 110 | 200 | 130 | 78 | 11.1 | 70 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 190 | 17000 | 15000 | 1500 | – |
| SB2 | 1150-1840 | PBP/2003 | 315 | 221 | 0.89 | 22.4 | 17.5 | 29.6 | 7.08 | 6.74 | 4.96 | 0.980 | 0.810 | 1.200 | 0.730 | 0.400 | 0.060 | 0.420 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 400 | 360 | *25* | – |
| SB2 | 1840-2800 | PBP/2003 | 174 | 172 | 0.06 | 1.51 | *0.025* | 0.06 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | 0.050 | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 220 | 25 | 25 | – |
| SB3 | 0-840 | PBP/2003 | 23104 | 15000 | 290 | 1700 | 1100 | 1900 | 510 | 920 | 690 | 209.000 | 139.000 | 260.000 | 170.000 | 108.000 | 13.200 | 95.000 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 52 | 54000 | 29000 | 2900 | – |
| SB3 | 1020-1550 | PBP/2003 | 3000 | 1900 | 15 | 330 | 180 | 250 | 76 | 100 | 74 | 20.900 | 12.300 | 20.000 | 11.500 | 5.900 | 1.170 | 4.700 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 10 | 1300 | 3700 | 960 | – |
| SB3 | 1550-2340 | PBP/2003 | 208 | 126 | 0.58 | 16.3 | 14 | 22.1 | 5.24 | 8.89 | 6.69 | 1.820 | 1.480 | 2.400 | 1.340 | 0.830 | 0.120 | 0.780 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 90 | 390 | 100 | – |
| SB3 | 2340-3480 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB4 | 0-1000 | PBP/2003 | 0.71 | 0.38 | *0.025* | 0.06 | *0.025* | 0.09 | *0.025* | 0.08 | 0.1 | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB4 | 1000-2000 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB5 | 0-620 | PBP/2003 | 49.1 | 5.58 | 0.95 | 0.78 | 0.89 | 3.88 | 1.71 | 7.28 | 7.76 | 2.880 | 2.370 | 6.200 | 3.850 | 2.480 | 0.370 | 2.290 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB5 | 620-1600 | PBP/2003 | 0.33 | 0.1 | *0.025* | *0.025* | *0.025* | 0.06 | *0.025* | 0.15 | 0.15 | 0.070 | 0.060 | 0.100 | 0.090 | 0.060 | *0.025* | 0.070 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 10 | 460 | 60 | – |
| SB5 | 1700-2600 | PBP/2003 | 0.91 | 0.06 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | 0.1 | 0.1 | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 10 | 280 | 80 | – |
| SB6 | 0-1000 | PBP/2003 | 0.49 | 0.23 | *0.025* | *0.025* | *0.025* | 0.06 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB6 | 1750-1980 | PBP/2003 | 0.41 | 0.35 | *0.025* | 0.06 | *0.025* | *0.025* | *0.025* | 0.22 | 0.27 | 0.090 | 0.080 | 0.200 | 0.100 | 0.090 | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB7 | 0-700 | PBP/2003 | 1.41 | 0.22 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 50 | 740 | 200 | – |
| SB7 | 700-1700 | PBP/2003 | 0.08 | 0.08 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 80 | 25 | – |
| SB8 | 0-550 | PBP/2003 | 0.1 | 0.1 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB8 | 550-940 | PBP/2003 | 7.65 | 0.94 | 0.3 | 0.07 | 0.11 | 0.42 | 0.2 | 0.93 | 1.14 | 0.330 | 0.310 | 1.000 | 0.660 | 0.490 | 0.070 | 0.560 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB9 | 0-400 | PBP/2003 | 43.5 | 11.2 | 0.84 | 1.1 | 1.1 | 3.3 | 1.8 | 4.6 | 5.7 | 2.000 | 1.400 | 4.400 | 2.600 | 1.900 | 0.230 | 1.300 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB9 | 400-1160 | PBP/2003 | 6.8 | 0.94 | 0.14 | 0.1 | 0.14 | 0.71 | 0.26 | 1.02 | 1.14 | 0.370 | 0.280 | 0.700 | 0.420 | 0.280 | 0.025 | 0.320 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB9 | 1160-2000 | PBP/2003 | 0.07 | 0.07 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB10 | 0-560 | PBP/2003 | 0.37 | 0.08 | *0.025* | *0.025* | *0.025* | 0.07 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB10 | 840-1530 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB11 | 0-940 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB12 | 0-1000 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB13 | 0-1000 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB13 | 1000-1860 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | 0.13 | 0.06 | 0.29 | 0.32 | 0.120 | 0.110 | 0.300 | 0.150 | 0.090 | *0.025* | 0.110 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB14 | 0-520 | PBP/2003 | 1.94 | 0.3 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB14 | 520-1540 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |
| SB15 | 0-1000 | PBP/2003 | 0.08 | 0.08 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2.5 | 5 | 25 | 25 | – |

Notes
1. Datasets include an assortment of Total Organic Matter (TOM) and Total Organic Carbon (TOC) results. All data has been converted to TOC using the following conversion - TOM x 0.58 = TOC
2. -- No sample collected or no data available
3. *italics* - Numbers in italics are those reported as Non Detected and are included as 1/2 PQL for statistical purpose
4. * guideline value normalised to 1% TOC

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz a anthracene | Chrysene | Benzo(b)&(k)fluoranthene | Benzo a pyrene | Indeno(1,2,3-cd)pyrene | Dibenz a.h anthracene | Benzo(ghi)perylene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UNITS | mm | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| ANZECC Sediment Quality Guidelines - Low | | | 4 | 0.16* | 0.044* | 0.016* | 0.019* | 0.24* | 0.085* | 0.6* | 0.665* | 0.261* | 0.384* | – | 0.43* | – | 0.063* | – |
| ANZECC Sediment Quality Guidelines - High | | | 45 | 2.1* | 0.64* | 0.5* | 0.54* | 1.5* | 1.1* | 5.1* | 2.6* | 1.6* | 2.8* | – | 1.6* | – | 1.6* | – |
| D11A | 0-200 | D&M/1990 | 5.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D11A | 250-500 | D&M/1990 | 17.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D14A | 0-250 | D&M/1990 | 105 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D14A | 250-500 | D&M/1990 | 858 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D14B | 0-60 | D&M/1990 | 1.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D15 | 0-300 | D&M/1990 | 3410 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D15 | 300-600 | D&M/1990 | 75413 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D17 | 0-250 | D&M/1990 | 69.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D9 | 0-300 | D&M/1990 | 12.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D9 | 300-500 | D&M/1990 | 5.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| B4 | 0-100 | D&M/1990 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D4 | 0-100 | D&M/1990 | 0.4 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D5 | 0-50 | D&M/1990 | 0.5 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D6 | 0-100 | D&M/1990 | 0.1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| MZ3 | 0-250 | D&M/1990 | 206 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| MZ3 | 250-500 | D&M/1990 | 61.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| MZ5 | 0-100 | D&M/1990 | 1.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| MZ5 | 100-200 | D&M/1990 | 11.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| MZ4 | 0-100 | D&M/1990 | 1.2 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| MZ4 | 0-250 | D&M/1990 | 11.9 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10BB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10BM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10BS | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10BT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 10CB | – | DJ/1993 | 4.1 | 0.05 | 0.25 | 0.1 | 0.05 | 0.7 | 0.05 | 0.7 | 1.6 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 |
| 10CM | – | DJ/1993 | 8.85 | 0.05 | 0.25 | 0.05 | 0.05 | 0.5 | 0.2 | 0.05 | 3.1 | 0.6 | 0.7 | – | 1 | – | – | 0.1 |
| 10CT | – | DJ/1993 | 3.55 | 0.05 | 0.25 | 0.05 | 0.05 | 0.3 | 0.1 | 0.05 | 0.5 | 0.5 | 0.4 | – | 0.5 | – | – | 0.05 |
| 11AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 11AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 11AT | – | DJ/1993 | 1 | 0.05 | 0.25 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 |
| 12AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 12AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 12AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 13AB | – | DJ/1993 | 920 | 420 | 26 | 6.9 | 58 | 160 | 48 | 110 | 16 | 41 | 19 | – | 18 | – | – | 0.5 |
| 13AM | – | DJ/1993 | 7476.1 | 5600 | 98 | 32 | 250 | 540 | 160 | 350 | 50 | 124 | 62 | – | 56 | – | – | 1.4 |
| 13AS | – | DJ/1993 | 11.95 | 1.3 | 0.25 | 1.2 | 3.1 | 1 | 0.3 | 2.2 | 0.3 | 0.9 | 0.4 | – | 0.4 | – | – | 0.05 |
| 13AT | – | DJ/1993 | 1233.9 | 440 | 8.5 | 42 | 52 | 200 | 68 | 200 | 30 | 76 | 22 | – | 26 | – | – | 1.1 |
| 14AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 14AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 14AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 14BB | – | DJ/1993 | 1 | 0.05 | 0.25 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 |
| 14BM | – | DJ/1993 | 35.95 | 24 | 0.25 | 0.6 | 3.6 | 9.2 | 2.7 | 7.7 | 3.6 | 1.7 | 0.9 | – | 1.4 | – | – | 0.05 |
| 14BT | – | DJ/1993 | 6102.2 | 1750 | 340 | 32 | 300 | 940 | 400 | 1080 | 173 | 480 | 110 | – | 160 | – | – | 7.2 |
| 14CB | – | DJ/1993 | 1082.15 | 810 | 0.25 | 11.1 | 13 | 50 | 16 | 54 | 8.2 | 22 | 5.5 | – | 7.3 | – | – | 0.2 |
| 14CM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 14CT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 15AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 15AM | – | DJ/1993 | 1922 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 15AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 15BB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 15BM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 15BT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 15CB | – | DJ/1993 | 2126 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 15CM | – | DJ/1993 | 2782 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 15CT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 16AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 16AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 16AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 16BB | – | DJ/1993 | 276.1 | 170 | 0.25 | 4.1 | 6.1 | 25 | 8.5 | 32 | 4.7 | 11 | 3.9 | – | 3.8 | – | – | 0.05 |
| 16BM | – | DJ/1993 | 1962.55 | 1680 | 0.25 | 11.3 | 16 | 64 | 23 | 74 | 12 | 34 | 11 | – | 16 | – | – | 0.4 |
| 16BT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 16CB | – | DJ/1993 | 1121.45 | 340 | 0.25 | 98 | 56 | 190 | 40 | 104 | 150 | 68 | 20 | – | 23 | – | – | 1.3 |
| 16CM | – | DJ/1993 | 3582.35 | 1480 | 0.25 | 350 | 150 | 420 | 100 | 260 | 340 | 160 | 84 | – | 64 | – | – | 7.1 |
| 16CT | – | DJ/1993 | 584.25 | 140 | 0.25 | 12 | 6.3 | 40 | 12 | 38 | 104 | 54 | 20 | – | 42 | – | – | 5.7 |
| 17AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 17AM | – | DJ/1993 | 1006 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 17AT | – | DJ/1993 | 1049 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 17BB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 17BM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 17BT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 17CB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 17CM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 17CT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 18AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 18AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 18AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 18BB #3 | – | DJ/1993 | 68.2 | 23 | 0.25 | 2.6 | 3.5 | 11 | 3.6 | 12 | 2.9 | 2.3 | 2.1 | – | 1.9 | – | – | 0.1 |
| 18BM #3 | – | DJ/1993 | 22.25 | 6.6 | 0.25 | 3.1 | 2.2 | 3.5 | 0.9 | 2.7 | 1.4 | 0.4 | 0.4 | – | 0.3 | – | – | 0.05 |
| 18BT #3 | – | DJ/1993 | 4.15 | 0.05 | 0.25 | 0.05 | 0.05 | 1.6 | 0.05 | 0.4 | 0.3 | 0.1 | 0.1 | – | 0.05 | – | – | 0.1 |
| 18CB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 18CM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 18CT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 19AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 19AM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 19AT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 19BB | – | DJ/1993 | 88.25 | 54 | 0.25 | 3.6 | 4.5 | 7.7 | 2.4 | 6.8 | 4.1 | 1 | 1.2 | – | 1 | – | – | 0.5 |
| 19BM | – | DJ/1993 | 20.1 | 95 | 3 | 27 | 2 | 235 | 6.5 | 23 | 36 | 6.5 | 4.5 | – | 0.1 | – | – | 2.5 |
| 19BT | – | DJ/1993 | 13.15 | 1.5 | 0.25 | 1 | 0.1 | 0.5 | 0.5 | 0.1 | 3.5 | 1 | 1 | – | 0.5 | – | – | 0.5 |
| 19CB | – | DJ/1993 | 7.05 | 1.5 | 0.25 | 1 | 0.1 | 0.5 | 0.1 | 0.1 | 1.5 | 0.5 | 0.5 | – | 0.1 | – | – | 0.1 |
| 19CM | – | DJ/1993 | 64.45 | 5.5 | 0.25 | 3.5 | 0.1 | 4.5 | 1.5 | 7 | 22 | 5.5 | 2 | – | 1 | – | – | 0.1 |
| 19CT | – | DJ/1993 | 17.45 | 1.5 | 0.25 | 1 | 0.1 | 1 | 0.5 | 2 | 5 | 1.5 | 0.5 | – | 0.5 | – | – | 0.5 |
| 1AB | – | DJ/1993 | 1392.35 | 730 | 0.25 | 180 | 46 | 115 | 34 | 86 | 110 | 18 | 13 | – | 18 | – | – | 1.4 |
| 1AM | – | DJ/1993 | 2210.8 | 1060 | 18 | 300 | 73 | 210 | 49 | 10 | 49 | 175 | 20 | – | 26 | – | – | 0.3 |
| 1AS | – | DJ/1993 | 1 | 0.05 | 0.25 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | 0.05 | – | – | 0.05 |
| 1BB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 1BM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 1BT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 1CB | – | DJ/1993 | 65.55 | 41 | 0.25 | 5.7 | 1.9 | 3.9 | 1.4 | 2.9 | 5 | 0.9 | 0.7 | – | 0.7 | – | – | 0.05 |
| 1CM | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 1CT | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| 20AB | – | DJ/1993 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |

| SAMPLE NAME | Depth | Silver | Arsenic | Cadmium | Chromium | Copper | Nickel | Lead | Zinc | Manganese | Mercury | Cyanide | *Total Organic Carbon |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UNITS | mm | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | % |
| ANZECC Sediment Quality Guidelines - Low | | 1 | 20 | 1.5 | 80 | 65 | 21 | 50 | 200 | - | 0.15 | - | - |
| ANZECC Sediment Quality Guidelines - High | | 3.7 | 70 | 10 | 370 | 270 | 52 | 220 | 410 | - | 1 | - | - |
| D11A | 0-200 | 0.25 | 5 | 4 | 147 | 59 | 72 | 470 | 1960 | – | 0.9 | – | 28.5 |
| D11A | 250-500 | 0.25 | 5 | 3 | 139 | 46 | 83 | 490 | 1900 | – | 0.8 | – | 36.5 |
| D14A | 0-250 | 1 | 5 | 2 | 122 | 64 | 44 | 289 | 1570 | – | 0.9 | – | 9.1 |
| D14A | 250-500 | 0.25 | 5 | 1 | 95 | 47 | 54 | 212 | 1040 | – | 0.9 | – | 12.3 |
| D14B | 0-60 | 0.25 | 5 | 1 | 83 | 33 | 16 | 112 | 840 | – | 0.4 | – | 6.7 |
| D15 | 0-300 | 0.25 | 5 | 0.5 | 62 | 52 | 24 | 121 | 690 | – | 1.4 | – | 12.2 |
| D15 | 300-600 | 1 | 5 | 1 | 83 | 36 | 19 | 128 | 670 | – | 3.3 | – | 13.7 |
| D17 | 0-250 | 3 | 10 | 3 | 21 | 180 | 17 | 820 | 3040 | – | 2.2 | – | 12.1 |
| D9 | 0-300 | 0.25 | 5 | 1 | 84 | 53 | 6 | 133 | 830 | – | 0.9 | – | 40.3 |
| D9 | 300-500 | 0.25 | 5 | 1 | 88 | 270 | 40 | 254 | 620 | – | 0.7 | – | 22.3 |
| B4 | 0-100 | 0.25 | 5 | 0.5 | 49 | 19 | 13 | 54 | 430 | – | 0.3 | – | 2.1 |
| D4 | 0-100 | – | 5 | 2 | 353 | 52 | 65 | 166 | 1090 | – | 2.4 | – | 18.0 |
| D5 | 0-50 | – | 5 | 3 | 74 | 96 | 17 | 344 | 22000 | – | 0.4 | – | 5.6 |
| D6 | 0-100 | – | 5 | 1 | 39 | 180 | 12 | 103 | 810 | – | 0.1 | – | 32.2 |
| MZ3 | 0-250 | 0.25 | 5 | 1 | 73 | 33 | 21 | 144 | 790 | – | 0.4 | – | 19.1 |
| MZ3 | 250-500 | 0.25 | 5 | 0.5 | 66 | 42 | 15 | 124 | 700 | – | 0.8 | – | 39.4 |
| MZ5 | 0-100 | 0.25 | 5 | 0.5 | 49 | 4 | 2 | 8 | 27 | – | 0.3 | – | 0.1 |
| MZ5 | 100-200 | 1 | 5 | 0.5 | 48 | 7 | 3 | 13 | 42 | – | 0.3 | – | 0.1 |
| MZ4 | 0-100 | – | 5 | 2 | 44 | 79 | 26 | 324 | 1670 | – | 0.3 | – | 11.6 |
| MZ4 | 0-250 | – | 5 | 2 | 112 | 62 | 25 | 305 | 1940 | – | 1.2 | – | 24.3 |
| 10AB | – | – | 2.5 | 0.5 | 31 | 31 | 27 | 120 | 550 | – | 0.3 | – | – |
| 10AM | – | – | 2.5 | 0.9 | 35 | 33 | 30 | 130 | 510 | – | 0.38 | – | – |
| 10AT | – | – | 2.5 | 0.4 | 37 | 30 | 31 | 73 | 390 | – | 0.23 | – | – |
| 10BB | – | – | 2.5 | 0.1 | 29 | 23 | 28 | 49 | 310 | – | 0.14 | – | – |
| 10BM | – | – | 2.5 | 0.2 | 29 | 26 | 34 | 65 | 380 | – | 0.25 | – | – |
| 10BS | – | – | 2.5 | 0.05 | 8 | 2.5 | 2.5 | 5 | 33 | – | 0.025 | – | – |
| 10BT | – | – | 2.5 | 0.05 | 17 | 15 | 17 | 20 | 130 | – | 0.1 | – | – |
| 10CB | – | – | 2.5 | 0.4 | 29 | 25 | 20 | 95 | 450 | – | 0.22 | – | 1.6 |
| 10CM | – | – | 2.5 | 1.1 | 28 | 23 | 17 | 140 | 510 | – | 0.23 | – | 1.5 |
| 10CT | – | – | 2.5 | 0.3 | 28 | 23 | 24 | 49 | 260 | – | 0.15 | – | 1.6 |
| 11AB | – | 0.5 | 28 | 0.05 | 15 | 27 | 10 | 47 | 240 | – | 0.39 | – | – |
| 11AM | – | 0.5 | 11 | 0.2 | 20 | 41 | 13 | 110 | 480 | – | 0.53 | – | – |
| 11AT | – | 0.5 | 2.5 | 0.5 | 23 | 37 | 16 | 170 | 760 | – | 0.54 | – | 0.1 |
| 12AB | – | – | 2.5 | 0.05 | 9 | 11 | 6 | 12 | 46 | – | 0.025 | – | – |
| 12AM | – | – | 2.5 | 0.05 | 5 | 9 | 5 | 10 | 37 | – | 0.05 | – | – |
| 12AT | – | – | 2.5 | 1.4 | 52 | 59 | 29 | 260 | 900 | – | 0.71 | – | – |
| 13AB | – | – | 2.5 | 0.05 | 11 | 7 | 5 | 21 | 180 | – | 0.05 | – | 13.0 |
| 13AM | – | – | 2.5 | 0.05 | 7 | 2.5 | 2.5 | 5 | 24 | – | 0.025 | – | 2.5 |
| 13AS | – | – | 2.5 | 0.05 | 13 | 14 | 7 | 33 | 260 | – | 0.08 | – | 0.1 |
| 13AT | – | – | 2.5 | 1.3 | 44 | 45 | 20 | 240 | 1800 | – | 0.5 | – | 5.4 |
| 14AB | – | 0.5 | 2.5 | 0.05 | 26 | 33 | 28 | 5 | 59 | – | 0.07 | – | – |
| 14AM | – | 0.5 | 2.5 | 0.2 | 28 | 30 | 28 | 35 | 280 | – | 0.18 | – | – |
| 14AT | – | 0.5 | 2.5 | 0.6 | 25 | 46 | 13 | 140 | 610 | – | 1.3 | – | – |
| 14BB | – | – | 2.5 | 0.05 | 12 | 5 | 11 | 5 | 27 | – | 0.025 | – | 1.4 |
| 14BM | – | – | 2.5 | 0.1 | 9 | 5 | 6 | 5 | 67 | – | 0.06 | – | 0.5 |
| 14BT | – | – | 2.5 | 0.3 | 17 | 23 | 10 | 53 | 250 | – | 0.51 | – | 2.2 |
| 14CB | – | – | 2.5 | 1.9 | 38 | 48 | 32 | 220 | 2700 | – | 0.7 | – | – |
| 14CM | – | – | 7 | 1.4 | 41 | 58 | 29 | 320 | 1400 | – | 0.49 | – | – |
| 14CT | – | – | 2.5 | 1.2 | 40 | 35 | 38 | 100 | 390 | – | 0.2 | – | – |
| 15AB | – | – | 2.5 | 0.05 | 35 | 32 | 41 | 5 | 50 | – | 0.07 | – | – |
| 15AM | – | – | 2.5 | 0.6 | 33 | 25 | 15 | 100 | 850 | – | 0.35 | – | – |
| 15AT | – | – | 2.5 | 1.1 | 34 | 25 | 9 | 170 | 1200 | – | 0.41 | – | – |
| 15BB | – | – | 2.5 | 0.05 | 29 | 27 | 37 | 11 | 89 | – | 0.06 | – | – |
| 15BM | – | – | 2.5 | 0.05 | 11 | 48 | 10 | 46 | 260 | – | 0.33 | – | – |
| 15BT | – | – | 2.5 | 0.4 | 13 | 23 | 11 | 87 | 510 | – | 1.5 | – | – |
| 15CB | – | – | 15 | 2.9 | 83 | 72 | 24 | 690 | 3800 | – | 0.58 | – | – |
| 15CM | – | – | 15 | 2.3 | 57 | 74 | 16 | 650 | 3300 | – | 1.1 | – | – |
| 15CT | – | – | 19 | 6.9 | 34 | 110 | 20 | 1000 | 12000 | – | 16.1 | – | – |
| 16AB | – | – | 2.5 | 0.05 | 20 | 44 | 20 | 5 | 34 | – | 0.025 | – | – |
| 16AM | – | – | 2.5 | 0.05 | 20 | 16 | 22 | 5 | 38 | – | 0.025 | – | – |
| 16AT | – | – | 2.5 | 1.3 | 50 | 35 | 21 | 250 | 1500 | – | 0.45 | – | – |
| 16BB | – | – | 10 | 1.9 | 37 | 44 | 17 | 520 | 2600 | – | 0.27 | – | – |
| 16BM | – | – | 2.5 | 2 | 53 | 52 | 30 | 260 | 1700 | – | 0.9 | – | – |
| 16BT | – | – | 2.5 | 3 | 69 | 53 | 33 | 260 | 1500 | – | 0.83 | – | – |
| 16CB | – | – | 2.5 | 1.8 | 37 | 37 | 19 | 430 | 2300 | – | 0.48 | – | 4.7 |
| 16CM | – | – | 2.5 | 0.6 | 29 | 30 | 25 | 110 | 740 | – | 0.27 | – | 3.7 |
| 16CT | – | – | 2.5 | 2 | 44 | 44 | 32 | 270 | 2000 | – | 0.45 | – | 3.2 |
| 17AB | – | – | 11 | 2.6 | 70 | 45 | 25 | 320 | 2600 | – | 0.33 | – | – |
| 17AM | – | – | 11 | 2.2 | 50 | 43 | 20 | 590 | 3800 | – | 0.51 | – | – |
| 17AT | – | – | 2.5 | 1.8 | 43 | 43 | 29 | 320 | 2100 | – | 0.45 | – | – |
| 17BB | – | – | 10 | 1.8 | 45 | 45 | 24 | 450 | 2600 | – | 0.29 | – | – |
| 17BM | – | – | 12 | 2.3 | 43 | 55 | 28 | 430 | 3100 | – | 0.5 | – | – |
| 17BT | – | – | 2.5 | 1.2 | 33 | 32 | 31 | 150 | 750 | – | 0.22 | – | – |
| 17CB | – | – | 2.5 | 1.7 | 52 | 37 | 30 | 190 | 1700 | – | 0.1 | – | – |
| 17CM | – | – | 2.5 | 0.4 | 34 | 28 | 28 | 98 | 760 | – | 0.11 | – | – |
| 17CT | – | – | 2.5 | 0.5 | 38 | 30 | 34 | 60 | 380 | – | 0.09 | – | – |
| 18AB | – | – | 2.5 | 0.4 | 41 | 29 | 33 | 86 | 620 | – | 0.12 | – | – |
| 18AM | – | – | 2.5 | 0.2 | 38 | 33 | 39 | 53 | 450 | – | 0.12 | – | – |
| 18AT | – | – | 2.5 | 1 | 42 | 46 | 34 | 180 | 1000 | – | 0.8 | – | – |
| 18BB #3 | – | – | 2.5 | 0.3 | 35 | 25 | 35 | 27 | 300 | – | 0.05 | – | 2.3 |
| 18BM #3 | – | – | 2.5 | 0.8 | 49 | 37 | 34 | 170 | 1400 | – | 0.19 | – | 2.7 |
| 18BT #3 | – | – | 2.5 | 0.6 | 42 | 31 | 33 | 67 | 430 | – | 0.11 | – | 2.9 |
| 18CB | – | – | 2.5 | 1.8 | 37 | 44 | 26 | 360 | 2400 | – | 0.29 | – | – |
| 18CM | – | – | 2.5 | 0.7 | 35 | 43 | 34 | 130 | 980 | – | 0.19 | – | – |
| 18CT | – | – | 2.5 | 0.5 | 31 | 30 | 30 | 60 | 350 | – | 0.12 | – | – |
| 19AB | – | – | 2.5 | 1.9 | 50 | 35 | 28 | 290 | 2000 | – | 0.35 | – | – |
| 19AM | – | – | 2.5 | 0.6 | 35 | 34 | 29 | 130 | 1000 | – | 0.18 | – | – |
| 19AT | – | – | 2.5 | 0.4 | 30 | 29 | 31 | 69 | 450 | – | 0.13 | – | – |
| 19BB | – | – | 2.5 | 0.4 | 42 | 32 | 29 | 120 | 840 | – | 0.12 | – | – |
| 19BM | – | – | 11 | 2.1 | 51 | 53 | 23 | 520 | 3100 | – | 0.43 | – | – |
| 19BT | – | – | 2.5 | 0.6 | 35 | 34 | 33 | 110 | 670 | – | 0.016 | – | – |
| 19CB | – | – | 2.5 | 0.3 | 36 | 28 | 33 | 78 | 680 | – | 0.2 | – | – |
| 19CM | – | – | 16 | 2.8 | 63 | 73 | 25 | 740 | 5700 | – | 0.96 | – | – |
| 19CT | – | – | 2.5 | 0.4 | 11 | 8 | 7 | 68 | 480 | – | 0.1 | – | – |
| 1AB | – | – | 2.5 | 0.4 | 30 | 19 | 14 | 66 | 430 | – | 0.18 | – | 2.3 |
| 1AM | – | – | 13 | 1.8 | 56 | 53 | 22 | 520 | 2900 | – | 0.5 | – | 8.6 |
| 1AS | – | – | 2.5 | 0.05 | 9 | 2.5 | 2.5 | 5 | 2.5 | – | 0.025 | – | 0.0 |
| 1BB | – | – | 10 | 0.5 | 59 | 36 | 23 | 230 | 1500 | – | 0.31 | – | – |
| 1BM | – | – | 10 | 0.8 | 55 | 42 | 27 | 290 | 1800 | – | 0.34 | – | – |
| 1BT | – | – | 11 | 2.4 | 51 | 42 | 25 | 370 | 2900 | – | 0.48 | – | – |
| 1CB | – | – | 2.5 | 0.2 | 31 | 25 | 34 | 39 | 370 | – | 0.05 | – | – |
| 1CM | – | – | 2.5 | 0.4 | 30 | 28 | 26 | 86 | 680 | – | 0.2 | – | – |
| 1CT | – | – | 13 | 2.6 | 41 | 54 | 30 | 460 | 4300 | – | 0.53 | – | – |
| 20AB | – | – | 2.5 | 1.3 | 49 | 40 | 30 | 270 | 2000 | – | 0.29 | – | – |

| SAMPLE NAME | Depth | Total PCBs | DDD | DDE | TOTAL DDT | DIELDRIN | CHLORODANE | LINDANE | ENDRIN | RADIONUCLIDES #2 | TRIBUTYLTIN | Phenol | Benzene | Toluene | Ethylbenzene | Xylene | TPH C6-C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 | TPH C10-C36 |
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| UNITS | mm | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | Bq/g | ng/g | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| ANZECC Sediment Quality Guidelines - Low | | 0.023* | 0.002* | 0.0022* | 0.0016* | 0.00002* | 0.0005* | 0.00032* | 0.00002* | 35 | 5 | – | – | – | – | – | – | – | – | – | – |
| ANZECC Sediment Quality Guidelines - High | | 0.18* | 0.02* | 0.027* | 0.046* | 0.008* | 0.006* | 0.001* | 0.008* | 35 | 72 | – | – | – | – | – | – | – | – | – | – |
| D11A | 0-200 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D11A | 250-500 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D14A | 0-250 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D14A | 250-500 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D14B | 0-60 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D15 | 0-300 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D15 | 300-600 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D17 | 0-250 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D9 | 0-300 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D9 | 300-500 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| B4 | 0-100 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D4 | 0-100 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D5 | 0-50 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| D6 | 0-100 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| MZ3 | 0-250 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| MZ3 | 250-500 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| MZ5 | 0-100 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| MZ5 | 100-200 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| MZ4 | 0-100 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| MZ4 | 0-250 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
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| 10CM | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
| 10CT | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
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| 18BM #3 | – | – | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | – | – | – | – | – | – | – | – | – | – | – | – |
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# ATTACHMENT 2

## CONSULTATION: MINUTES OF "SCIENTIFIC GROUP MEETINGS"

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consulting engineers

# MINUTES

## South Arm Hunter River Sediments

**Friday 12th April 2002**

**Present: Neil Pearson (NPC), Gant Beattie (NPC), Ian Irvine (EA), Graeme Batley (CSIRO), Stuart Simpson (CSIRO), Tony Roach (EPA), Therese Manning (EPA), Ian Dawson (GHD), Greg Britton (PBP) and Ali Stone (PBP)**

| ITEM |
|---|
| 1. Greg Britton provided an introduction and discussed the general purpose of the meeting. |
| 2. Ian Irvine briefly outlined his main comments on the CSIRO reports. These included:<br>• cadmium and silver detection limits too high;<br>• mercury should have been included in suite of tests;<br>• more sampling and analysis is required in the South Arm to support a sea dumping application due to large volume of material;<br>• detection limits for elutriates too high; and,<br>• toxicity testing has only tested short term effects of the sediments at the dump ground. |
| 3. EPA provided comments on the sediment toxicity investigations undertaken to-date.<br>• EPA's primary concern is the limited number of samples tested for toxicity around the 100-200 mg/kg level of PAH contamination to enable identification of a suitable cutoff for sea disposal versus land disposal/treatment. EPA would like to see range of samples tested for toxicity with PAH concentrations in the 100-300 mg/kg range.<br>• EPA is also concerned about the concept of "mixing" sediments with intermediate PAH concentration with sediments of lower total PAH concentration. EPA suggest one line (*level of PAH contamination*) would be better to define material suitable for sea disposal.<br>• The normalisation calculation at the RCA 2000 MPT Stage 2 sampling site number 9 needs to be checked. |

4. The meeting was opened to general discussion on a way forward with the aim to reach agreement on further sampling and testing required to provide sufficient information to support a permit application for the offshore disposal of sediment considered appropriate for unconfined sea disposal.

   (a) Discussion as to whether additional sampling & analysis is required to better establish the relationship between total PAH and sediment toxicity.

   - CSIRO raised concern that additional toxicity testing using the best available methods will probably show no toxicity at levels possibly 3 to 10 times the ANZECC guideline values for sea disposal. There were discussions as to whether EA will accept results of the toxicity testing ie will EA grant a permit for sea disposal of material that shows no toxicity at levels well above current ANZECC Guidelines.
   - EPA feel an additional 6 to 10 samples are required to better establish the relationship between total PAH and sediment toxicity. Preferably the sediment used for the toxicity tests should have PAH levels in the range 100-300 mg/kg level. EPA also considers it important to test a couple of samples with a higher level of contamination ie around 500-600 mg/kg.
   - GHD (Ian) asked if EA would then require additional toxicity testing in the South Arm on a volumetric basis or would they be happy with the extent of testing undertaken. EA (Ian) suggested EA would probably be happy with results but may require some additional confirmatory samples.
   - EPA asked how dredging would be undertaken. PBP (Greg) provided brief explanation of the possible dredging process.
   - CSIRO (Graeme) asked if the sands would go to sea. PBP (Greg) explained sands would be used for beneficial reuse on land.
   - EA (Ian) asked whether there were any additional test organisms that could be used for the toxicity tests. CSIRO (Stuart) explained they are limited to species that are collectable or culturalable. It was suggested CSIRO use a different amphipod. CSIRO (Graeme) recommended it would be better to stick with the same amphipod used in the previous investigations for completeness and to allow comparison of results.
   - It was suggested to include a worm in the testing program but possibly to only use the worm on a couple of samples.
   - Following the meeting, EA (Ian) recommended that testing using a polychaete worm should not be restricted to just a couple of samples. Considering the size of the proposed dredging program, and the levels of contamination involved, it is important to be confident that disposal of any material proposed for sea disposal is not going to adversely effect organisms exposed to it.
   - EA recommended the worm should be used on all samples to be tested with the other organisms.

   (b) Additional sampling to better define contours of total PAH

   - It was agreed that following the recommended additional toxicity testing to better establish the relationship between total PAH and sediment toxicity, the sediment quality data should be revisited to assess the need for more data to confirm the spatial location of the total PAH contours, particularly, at the northern end of the site
   - It was agreed that sediment samples for the toxicity testing, to better establish the relationship between total PAH and sediment toxicity, should include samples taken from the northern end (*upstream*) of the site so the total PAH results for these samples could also be used to better define the total PAH contours.

- It was agreed that development of a "3-D picture" of contamination was the preferred method to better define the extent of total PAH contamination.

(c) Suitability of sediments with intermediate PAH concentration for unconfined sea disposal following "mixing" with sediments of lower total PAH concentration during the dredging process

- EPA general position "dilution not a solution for pollution".
- PBP (Greg) explained it is not an artificial mixing or dilution rather it is a practical consequence of the dredging process
- EA's general policy is that, where possible, areas of high contamination should be handled separately. However, it is not always technically feasible to avoid or isolate areas of high contamination in which case "mixing" or averaging contamination levels is permissible.

(d) Bioaccumulation impacts of sediments at offshore disposal site

- It was agreed a desktop study would be adequate to address the potential for bioaccumulation impacts of sediments at the offshore disposal site since suitable bioaccumulation tests are not yet available.

*(e) Other issues*

Confined Sea Disposal

- EPA expressed concern regarding long term stability of a confined sea disposal site and queried the practicality of confined disposal ie how can it actually be carried out in a guaranteed way in deep water at sea.
- EA (Ian) advised that if NSW EPA were opposed to confined disposal it is unlikely EA would support the option.
- EA (Ian) indicated that, though confined sea disposal was achievable in an engineering sense, there are so many concerns about ocean disposal of such contaminated material and its long term stability that in practice it would be very difficult to demonstrate that it was safe, and therefore to obtain a sea dumping permit.

Land Disposal

- EPA (Tony) advised Bill Gara, Graham Clarke & Craig Lamberton from NSW EPA are the best people to consult regarding land disposal but advised that if a waste is classified as hazardous waste (depends on contamination levels) it can only be stored or treated. For PAH contamination a possible treatment technique is thermal desorption.

Light Toxicity

- EPA (Tony) raised issue that PAHs become more toxic with exposure to light.
- CSIRO (Stuart) advised that the sediments are unlikely to get any more light on the sea bed than the light they get in the lab during testing.
- It was agreed that some discussion of issue of light toxicity should be included in any further investigation but it is not necessary to do any additional testing.
- CSIRO (Graeme) could discuss issue with NZ labs who are currently researching the issue.

Time frame

- It was agreed the time frame for any additional investigation is dependent on funding.

Sampling Method – surface sampling vs vibrocoring

- It was agreed surface sampling using a grab sampler is the most efficient method of sampling for toxicity testing due to the large volume of sample required for the tests.
- Vibrocoring can be undertaken to retrieve samples at depth. However, several cores at the one location are required to retrieve the volume of sediment required for toxicity testing.
- If surface sediment samples are to be used for the toxicity testing they must be representative of sediment at depth ie types of contaminants and level of contamination.
- It was agreed that all available sediment quality data should be analysed to determine if surface sediment samples are representative of sediment at depth before proceeding with surface sampling for toxicity testing.
- In regards to sampling to better define the contours of total PAH, as opposed to sampling for toxicity testing, vibrocoring is considered the most appropriate method of sampling as development of a "3-D picture" of contamination is preferred to establish the extent of contamination.

5. Agreement on way forward

- Existing sediment quality data should be reviewed to determine if surface mud samples are representative of mud at depth ie that contamination (levels & constituents) at the surface is typical of contamination with depth.
- If surface muds are representative of muds at depth, surface sampling using a grab sampler would be adequate to collect samples for toxicity testing. If surface muds are not representative of muds at depth, vibrocoring would be required to obtain samples at depth.
- Sampling of sediment for toxicity testing would require collection of at least 30 samples to get the required range of PAH levels.
- Some samples should be taken from the upstream area so they can also be used to better define contours of PAH in this area where there are limited data.
- Samples collected for toxicity testing should include re-sampling at RCA MPT Stage 2 sampling site number 29.
- All samples collected should initially be tested for total PAHs and TOC.
- Based on the results of the total PAH analysis, 10 samples should be selected for toxicity testing to better confirm the relationship between total PAH and toxicity (preferably 8 samples with total PAH levels around 100-300 mg/kg and 2 samples near the 500 mg/kg total PAH level).
- Toxicity testing should include amphipod and algae tests for all 10 samples. Following recommendations provided by EA (Ian) after the meeting, it was agreed the worm toxicity test should also be undertaken for all 10 samples.
- Following the recommended additional toxicity testing to better establish the relationship between total PAH and sediment toxicity, the sediment quality data should be revisited to assess the need for more data to confirm the spatial location of the total PAH contours, particularly at the northern end of the site.
- Development of a "3-D picture" of contamination was preferred therefore vibrocoring was considered the most appropriate method of sampling to better define the contours of total PAH.
- A desk top study would be adequate to address the potential for bioaccumulation impacts of sediments at the offshore disposal site since suitable bioaccumulation tests are not available.
- Some discussion of the issue of light toxicity of PAHs should be included in any further investigation but it is not considered necessary to do any additional testing.

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# MINUTES

## South Arm Hunter River Sediments

### Monday 2nd December 2002

**Present:** **Grant Beattie (NPC), Trevor Heise (NPC), Ian Irvine (EA), Graeme Batley (CSIRO), Stuart Simpson (CSIRO), Tony Roach (EPA), Therese Manning (EPA), Ian Dawson (GHD), Greg Britton (PBP) and Ali Stone (PBP)**

**Apologies:** **Neil Pearson**

| Item |
|---|
| 1. Greg Britton provided an introduction and discussed the general purpose of the meeting. |
| 2. CSIRO presented a summary of the key findings of the recent investigation to better define the relationship between ecotoxicological effects and total PAH (refer CSIRO Report No: ET IR541).<br>• Thirty samples were analysed for total PAHs, BTEXs and TPHs. Results indicated that there was a strong relationship between total PAHs and TPHs. BTEXS were generally below detection.<br>• Ten samples were selected for toxicity testing (alga, amphipod and bivalve toxicity tests). Although PAHs and TPHs are considered to be the most likely cause of toxicity in the Hunter River sediments, the correlations between the bioassay responses and PAH and TPH concentrations was poor. Tony Roach indicated that there may be a better correlation than suggested by CSIRO (see comment under item 4)<br>• Based on the available data, it is recommended that sediment with total PAH concentrations greater than 75 mg/kg (normalised to 1% TOC) or TPH concentrations greater than 450 mg/kg (sum of C6-C36, normalised to 1% TOC) should be considered unsuitable for ocean disposal.<br>• Because the bioassays were all acute toxicity tests, it can not be definitively discounted that chronic effects do not occur at lower PAH or TPH concentrations.<br>• Bioaccumulation of PAHs may be expected to occur for any organisms which inhabit the dredge spoil, and this may be estimated based on equilibrium partitioning approaches. However, the absence of suitable relationships between contaminant bioaccumulation and effect to organisms currently limits the use of this information.<br>• Photo-induced toxicity of bioaccumulated PAHS should be considered unlikely due to low light intensities expected on the seabed at the dump ground, namely in 30m water depths and greater. |
| 3. Greg Britton provided a summary of the location of the various offshore Dump Grounds and the fate of sediment during and following disposal. |
| 4. The meeting was opened to discussion regarding the outcomes of the recent sediment toxicity investigation.<br>a) Adoption of recommended total PAH & TPH concentrations<br>• CSIRO considers there is still uncertainty regarding the level of confidence we can place in the guideline values of 75 mg/kg total PAH and 450 mg/kg TPH but acknowledges that |

there is similar uncertainty regarding most published guideline values. It was queried as to where the 50 mg/kg PAH contour line falls. A plan showing the 50 mg/kg contour was passed around which shows only a slight difference between the 75 mg/kg total PAH and 50 mg/kg total PAH contour line. All contour lines have been drawn based on the maximum total PAH value with depth at any sampling site.

- The 12 mg/kg 95 % UCL of the mean for sediment outside the 75 mg/kg contour line is reassuring to EA as this concentration of contamination is close to a chronic toxicity guideline reported by Di Toro et al ( 2000). Ian Irvine (EA) advised that even though the maximum value for Total PAH specified in the Guidelines (45 mg/kg) is not scientifically rigorous, it would be prudent for the 95% UCL of the sediment proposed for sea disposal to lie below this value. It would be hard to convince the public that the 'maximum' value set in the ODG can be exceeded safely
- Greg Britton (PBP) queried if there is a number between 12 mg/kg & 45 mg/kg total PAH we can adopt to define the 95% UCL for sediment acceptable for sea disposal.
- General opinion was that due to the likely level of agency and public scrutiny that the South Arm Dredging EIS will be subject to, it would be best for the 95% UCL of the mean of the sediment proposed for sea disposal to lie close to the chronic toxicity guideline value reported by Di Toro et al (2000).
- Ian Irvine advised that the ocean disposal guidelines require comparison of the 95% UCL (for all the sediment proposed for sea disposal) to the guideline levels, rather than using a contour based on the maximum value at any sampling location, no matter where in the sediment sequence that maximum value may lie. This will, presumably, result in mean (95% UCL) values that are significantly lower than the present contour values. Presentation of the sediment quality data in the EIS should therefore involve calculation of the 95% UCL of the mean for the sediment proposed for sea disposal.
- It was agreed that the most appropriate method of assessing the sediment quality data is as follows:
    - where sediment quality data exist at depth, calculate the average concentration of contamination with depth at a location;
    - draw the 75 mg/kg PAH & 450 mg/kg TPH contour lines (values recommended in the CSIRO report);
    - calculate the 95% UCL for the sediment outside the contour lines; and,
    - compare to the chronic toxicity guideline level (Di Toro et al., 2000).
- While it was agreed that PAHs were the most likely candidate for toxicity, it was agreed that a broader screen for organics could be undertaken to eliminate other possible contaminants.
- Tony Roach presented his analysis of the toxicity testing results to date and suggested a reasonable relationship between total PAH and toxicity exists. In addition, the relationship between some PAH constituents (eg pyrene) and toxicity is better than others.
- Ian Dawson queried whether it could be argued that since the Dump Ground is a dispersive site, sediment with higher contamination concentrations could go to sea ie we rely on natural dispersion.
- Graeme Batley suggested it would be better to use the dispersive nature of the dump ground as another layer of confidence in proposing the sediment go to sea.
- Tony Roach noted that the EPA would be uncomfortable philosophically in using the suggested argument of sending sediment with higher concentrations of contamination to sea and relying on the dispersive nature of the dump ground, and would have particular concern that sediment may reside at the dump ground for many months ie long enough for chronic effects to possible arise.

b) chronic toxicity

- It was generally agreed that based on the results of the CSIRO acute toxicity tests it can not be discounted that chronic toxicity effects do not occur at total PAH or TPH concentrations lower than 75 mg/kg PAH and 450 mg/kg TPH. Due to the likely level of agency and public scrutiny it is considered prudent if the 95% UCL of the mean of the sediment to be disposed of at sea is close to the chronic toxicity guideline value of 10.4 mg/kg total PAH reported by Di Toro et al (2000).

c) bioaccumulation

- The group accepted CSIRO's assessment of bioaccumulation but agreed it would be useful for CSIRO to undertake calculations to estimate the potential for bioaccumulation of PAHs based on equilibrium partitioning approaches for sediment with a range of PAH concentrations (95% UCL of the mean) around 12 mg/kg, eg 10, 15 and 20 mg/kg.

d) photo-induced toxicity

- The group agreed with CSIRO's assessment that photo-induced toxicity of bioaccumulated PAHs would be unlikely if low light intensities are expected at the sea disposal site.
- Tony Roach will confirm the relationship between light penetration and water depth.

5. The meeting was opened to discussion on further sampling and testing required to better define the position of the limiting contour and to provide sufficient information to support a permit application for the offshore disposal of sediment considered appropriate for unconfined sea disposal and to support an EIS for land disposal.
   - The further sampling (vibrocoring) to better define the position of the limiting contour will be undertaken next week (09.12.02). It was agreed that Patterson Britton should nominate proposed sampling locations and circulate the proposed sampling locations to the scientific group for comment.
   - The further testing of the samples retrieved during the proposed vibrocoring exercise next week should include geochemical testing for total PAH and TPH only. No further ecotox testing was considered necessary.
   - It was suggested that a broader screen for organics could be undertaken to eliminate other possible contaminants. This should include all the major contaminant groups expected on an integrated steelworks site that have not already been analysed for. At a minimum, this might include the USEPA Priority Pollutants List or the most recent version of this.
   - Graeme Batley queried the need to undertake further testing of organics as the more contaminants that are tested for the more that will be found. We are then faced with the difficulty of how to relate the new contamination data to the toxicity work undertaken to date. Ian Irvine agreed but considered it important to investigate all possible contaminants due to the level of scrutiny the EIS will be subject to and the possibility that unidentified contaminants are causing toxicity.
   - It was agreed a broader organics screen should be undertaken on a few of the sediment samples used in the recent toxicity investigation.

6. Other?
   - Greg Britton queried whether it might be possible to separate the highly contaminated silty sediment from the potentially less contaminated sand fraction using a hydrocyclone.
   - CSIRO/EPA/EA all agreed separation of the sediment would probably not be particularly successful as the oily contaminant in the sediment coats all particles large and small.
   - Trevor Heise queried if there would be a recommendation for recreational fishers to avoid the Dump Ground area during disposal.
   - It was agreed that the low contamination concentration that is being proposed to be adopted as suitable for sea disposal should result in no restrictions to fishing.
   - Ian Dawson queried if the 1995 Robert Carr & Associates dataset could be excluded due to the lack of confidence in its accuracy.
   - It was generally agreed that there needs to be a very good reason to ignore datasets.
   - It was suggested that the original RCA report could be reviewed including the QA/QC procedures to determine if there is any basis to question the data.
   - The RCA 1995 sampling locations should also be re-sampled.

7. Agreement on way forward
   - Patterson Britton is to nominate proposed sampling locations to better define the position of the limiting contour. The proposed sampling locations should be forwarded to the scientific

group for comment.

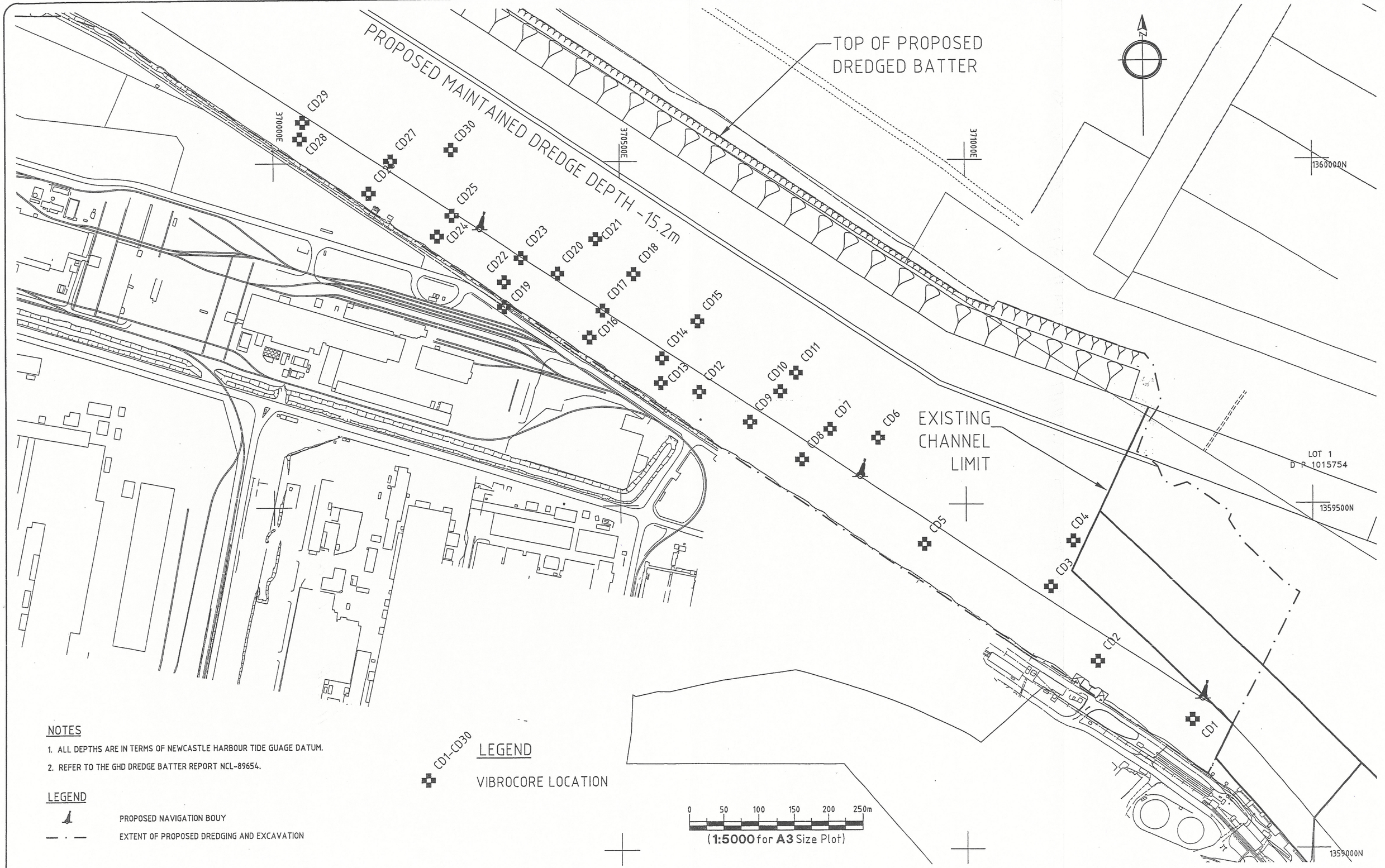
- The vibrocoring exercise is scheduled for next week. The samples recovered should be tested for total PAHs and TPHs.
- CSIRO will arrange testing of sediments used in the recent toxicity investigation for a broad screen of organics.
- CSIRO will undertake calculations to estimate the potential for bioaccumulation of PAHs based on equilibrium partitioning approaches for sediment with a range of PAH concentrations (95% UCL of the mean) around 12 mg/kg eg 10, 15 and 20 mg/kg

7. Agreement on way forward (continued)
   - Tony Roach will confirm the relationship between light penetration and water depth.
   - The reporting for the RCA 1995 sediment sampling and testing will be reviewed to confirm the dataset's reliability.
   - The method of assessment of the sediment quality data is to take place as set out under Item 4.

# ATTACHMENT 3

## DECEMBER & JANUARY VIBROCORING EXERCISES

# GHD-Longmac in December 2002 and January 2003 Vibrocoring Exercise




## NOTES

1. ALL DEPTHS ARE IN TERMS OF NEWCASTLE HARBOUR TIDE GUAGE DATUM.
2. REFER TO THE GHD DREDGE BATTER REPORT NCL-89654.

## LEGEND

PROPOSED NAVIGATION BOUY

EXTENT OF PROPOSED DREDGING AND EXCAVATION

CD1-CD30 VIBROCORE LOCATION

REFERENCE: BASE PLAN SUPPLIED BY GHD SYDNEY DRAWING No. 10370-C100 REV. A DATED 3/3/03

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HUNTER RIVER SOUTH ARM, NEWCASTLE

DRAWING TITLE: INVESTIGATION TEST HOLE LOCATION PLAN

CAD FILE: 2111484_D1.DWG | SCALE: 1:5000 | DRAWING SIZE: A3

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|---|---|---|
| 21/11484 | D1 | 0 |

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benza anthracene | Chrysene | Benzo(b)&(k)fluoranthene | Benzo a pyrene | Indeno(1,2,3-cd)fluoranthene | Dibenz a.h anthracene | Benzo(ghi)perylene | Cyanide | Total Organic Carbon | TPH C6 C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UNITS | mm | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | % | mg/kg | mg/kg | mg/kg | mg/kg |
| **ANZECC Sediment Quality Guidelines - Low** | | | **4** | **0.16*** | **0.044*** | **0.016*** | **0.019*** | **0.24*** | **0.085*** | **0.6*** | **0.665*** | **0.261*** | **0.384*** | -- | **0.43*** | -- | **0.063*** | -- | -- | -- | -- | -- | -- | -- |
| **ANZECC Sediment Quality Guidelines - High** | | | **45** | **2.1*** | **0.64*** | **0.5*** | **0.54*** | **1.5*** | **1.1*** | **5.1*** | **2.6*** | **1.6*** | **2.8*** | -- | **1.6*** | -- | **1.6*** | -- | -- | -- | -- | -- | -- | -- |
| CD1 | 0.0-0.5 | GHD/2002 | 348 | 181 | 4.77 | 10.5 | 7.22 | 17 | 6.98 | 28.3 | 29.1 | 9.32 | 6.48 | 17 | 12.6 | 9.57 | 1.21 | 7.68 | 0.8 | 2.6 | *5* | 260 | 540 | 80 |
| CD1 | 0.5-1.5 | GHD/2002 | 3.66 | 1.02 | 0.07 | 0.08 | nd | 0.24 | 0.08 | 0.51 | 0.58 | 0.17 | 0.11 | 0.3 | 0.22 | 0.14 | *0.025* | 0.13 | *0.025* | *0.05* | *5* | 20 | *25* | *25* |
| CD2 | 0.0-1.4 | GHD/2002 | 8870 | 1810 | 425 | 160 | 484 | 1740 | 496 | 1270 | 994 | 327 | 212 | 390 | 242 | 159 | 29 | 130 | 25 | 23 | 1300 | 2700 | 7900 | 1800 |
| CD2 | 1.4-2.8 | GHD/2002 | 16.7 | 0.75 | 0.43 | 0.29 | 0.45 | 2.32 | 0.69 | 3.28 | 2.93 | 0.91 | 0.92 | 1.4 | 1.01 | 0.64 | 0.09 | 0.66 | *0.025* | *0.05* | *5* | *5* | *25* | *25* |
| CD2 | 2.8-3.8 | GHD/2002 | 2130 | 524 | 67 | 110 | 147 | 371 | 97.7 | 228 | 177 | 88.1 | 65 | 100 | 69.9 | 39.7 | 9.6 | 33.6 | *0.025* | 3.6 | *5* | 1500 | 7900 | 940 |
| CD2 | 3.8-5.1 | GHD/2002 | 35900 | 12757 | 2300 | 212 | 2040 | 5590 | 979 | 3540 | 2360 | 1420 | 767 | 1600 | 1110 | 607 | 140 | 438 | 4.6 | 12 | 420 | 18000 | 37000 | 4900 |
| CD3 | 0.0-0.6 | GHD/2002 | 434 | 153 | 10.8 | 11.2 | 9.61 | 42.5 | 11.8 | 51.5 | 44.2 | 18.3 | 10.6 | 27 | 19.2 | 12.7 | 2.25 | 10.2 | 2.2 | 8 | *5* | 280 | 940 | 120 |
| CD3 | 0.6-2.0 | GHD/2002 | 3.17 | 0.92 | 0.16 | 0.12 | 0.1 | 0.27 | 0.11 | 0.34 | 0.3 | 0.16 | 0.1 | 0.2 | 0.17 | 0.1 | *0.025* | 0.09 | *0.025* | *0.05* | *5* | *5* | *25* | *25* |
| CD3 | 2.0-3.5 | GHD/2002 | 1.04 | 0.2 | 0.06 | 0.06 | 0.06 | 0.18 | 0.21 | 0.13 | 0.1 | 0.06 | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | 20 | 180 | 260 | *25* |
| CD3 | 3.5-4.5 | GHD/2002 | 1.83 | 0.35 | 0.16 | *0.025* | 0.12 | 0.35 | 0.08 | 0.22 | 0.17 | 0.1 | 0.06 | 0.1 | 0.08 | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *5* | *5* | *25* | *25* |
| CD4 | 0.0-0.8 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 3 | *5* | *5* | *25* | *25* |
| CD4 | 0.8-1.6 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | *0.05* | *5* | *5* | *25* | *25* |
| CD4 | 1.6-2.3 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 3.6 | *5* | 40 | 260 | *25* |
| CD5 | 0.0-0.7 | GHD/2002 | 71 | 21.4 | 0.86 | 1.42 | 1.22 | 4.03 | 1.5 | 5.81 | 6.75 | 3.21 | 3.23 | 8.4 | 5.28 | 3.68 | 0.71 | 3.45 | 4 | 11 | *5* | 30 | 240 | *25* |
| CD5 | 0.7-1.6 | GHD/2002 | 48.2 | 12.5 | 0.87 | 0.74 | 0.81 | 2.53 | 1.11 | 5.32 | 5.6 | 2.23 | 1.81 | 5.8 | 3.56 | 2.64 | 0.43 | 2.27 | 1 | 7.4 | *5* | 40 | 740 | 120 |
| CD5 | 1.6-2.4 | GHD/2002 | 242 | 130 | 2.77 | 5.3 | 5.43 | 16.1 | 7.21 | 18 | 16 | 6.74 | 4.81 | 12 | 7.62 | 5.35 | 0.84 | 4.59 | 52 | 5 | *5* | 160 | 3400 | 180 |
| CD5 | 2.4-4.1 | GHD/2002 | 3850 | 2740 | 37.6 | 283 | 139 | 242 | 52.5 | 103 | 85.7 | 36.3 | 23.3 | 50 | 35.6 | 1.51 | 4.85 | 18.9 | 280 | 17 | 40 | 1000 | 2100 | 260 |
| CD6 | 0.0-0.6 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 2.6 | *5* | 140 | 700 | 70 |
| CD6 | 0.6-1.3 | GHD/2002 | 0.32 | 0.32 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 0.7 | *5* | 180 | 640 | 160 |
| CD6 | 1.3-1.9 | GHD/2002 | 231 | 109 | 1.67 | 6.54 | 3.9 | 11.3 | 4.15 | 17.4 | 16 | 7.01 | 6.39 | 17 | 10.7 | 10.6 | 1.35 | 8.84 | -- | 15 | *5* | 160 | 1800 | 480 |
| CD7 | 0.0-1.0 | GHD/2002 | 1020 | 682 | 6.67 | 22.4 | 14.7 | 41.9 | 14.7 | 63.2 | 41.7 | 18.5 | 14.2 | 34 | 22.2 | 21.4 | 2.96 | 16.5 | -- | 13 | *5* | 1500 | 8000 | 1500 |
| CD7 | 1.0-2.0 | GHD/2002 | 1210 | 1000 | 5.18 | 31.7 | 17.5 | 37.5 | 11.1 | 29.5 | 25 | 8.84 | 6.61 | 15 | 9.62 | 8.85 | 1.15 | 6.88 | -- | 24 | 40 | 1500 | 5200 | 700 |
| CD7 | 2.0-3.65 | GHD/2002 | 282 | 162 | 2.25 | 12.5 | 7.65 | 20.8 | 6.24 | 19.2 | 15.7 | 5.79 | 4.22 | 9.2 | 5.98 | 5.29 | 0.73 | 4.04 | -- | 15 | 20 | 400 | 3900 | 580 |
| CD8 | 0.0-0.5 | GHD/2002 | 1.01 | 0.35 | *0.025* | 0.12 | 0.07 | 0.18 | 0.06 | 0.13 | 0.11 | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | 0.5 | *5* | *5* | *25* | *25* |
| CD8 | 0.5-1.65 | GHD/2002 | 5.06 | 3.15 | 0.06 | 0.4 | 0.23 | 0.47 | 0.14 | 0.24 | 0.19 | 0.06 | 0.05 | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | 1 | *5* | *5* | *25* | *25* |
| CD8 | 1.65-2.2 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *5* | *5* | *25* | *25* |
| CD8 | 2.2-2.4 | GHD/2002 | 55.1 | 21.6 | 0.59 | 1.46 | 1.12 | 3.27 | 1.25 | 4.3 | 4.42 | 2.1 | 1.99 | 5 | 2.96 | 2.38 | 0.42 | 2.27 | 1.4 | 7.2 | *5* | 30 | 140 | *25* |
| CD9 | 0.0-0.6 | GHD/2002 | 60.4 | 14.8 | 0.88 | 0.98 | 0.98 | 3.46 | 1.39 | 6.69 | 7.01 | 2.72 | 2.58 | 7 | 4.3 | 3.59 | 0.55 | 3.38 | 7.4 | 12 | *5* | 50 | 720 | 320 |
| CD9 | 0.6-1.0 | GHD/2002 | 104 | 56.9 | 1.05 | 2.41 | 2.16 | 6.85 | 3.11 | 7.92 | 7.25 | 2.34 | 2.21 | 4.4 | 2.82 | 2.18 | 0.32 | 2.08 | 37 | 7.4 | *5* | 120 | 3600 | 280 |
| CD9 | 1.0-1.6 | GHD/2002 | 1.24 | 0.55 | *0.025* | 0.06 | *0.025* | 0.12 | 0.05 | 0.12 | *0.025* | 0.05 | *0.025* | 0.1 | 0.07 | 0.05 | *0.025* | 0.05 | *0.025* | 2.2 | *5* | *5* | *25* | *25* |
| CD9 | 1.6-2.5 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *5* | *5* | *25* | *25* |
| CD9 | 2.5-3.4 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *5* | *5* | *25* | *25* |
| CD9 | 3.4-4.3 | GHD/2002 | 293 | 46.6 | 4.88 | 7.47 | 4.61 | 12.8 | 6.25 | 42.7 | 48.9 | 15.4 | 11.1 | 33 | 22.5 | 18.2 | 2.74 | 16.5 | 23 | 4.4 | 30 | 220 | 2400 | 660 |
| CD11 | 0.0-0.75 | GHD/2002 | 67.6 | 23.6 | 0.83 | 1.3 | 1.13 | 3.82 | 1.47 | 6.08 | 5.62 | 2.68 | 2.16 | 6.6 | 4.21 | 4.15 | 0.62 | 3.34 | -- | 7.8 | *5* | 40 | 680 | 120 |
| CD11 | 0.75-1.5 | GHD/2002 | 188 | 99.8 | 1.78 | 3.32 | 3.19 | 10.3 | 4.89 | 15 | 12.3 | 5.26 | 3.75 | 10 | 6.36 | 6.05 | 0.84 | 4.8 | -- | 11 | *5* | 220 | 3400 | 340 |
| CD11 | 1.5-2.25 | GHD/2002 | 476 | 290 | 4.24 | 7.52 | 9.36 | 28.5 | 9.68 | 29.6 | 24.9 | 10.9 | 8.47 | 19 | 12.1 | 11.7 | 1.62 | 8.92 | -- | 17 | 30 | 760 | 12000 | 2000 |
| CD11 | 2.25-3.1 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | *0.05* | *5* | *5* | *25* | *25* |
| CD12 | 0.0-0.4 | GHD/2002 | 0.57 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | 0.3 | 0.27 | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | 0.7 | *5* | *5* | *25* | *25* |
| CD12 | 0.4-1.7 | GHD/2002 | 0.24 | 0.24 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | 1.6 | *5* | *5* | *25* | *25* |
| CD12 | 1.7-2.9 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *5* | *5* | *25* | *25* |
| CD12 | 2.4-4.0 | GHD/2002 | 0.25 | 0.25 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | 2 | *5* | *5* | *25* | *25* |
| CD13 | 0.0-0.6 | GHD/2002 | 36.1 | 8.27 | 0.61 | 1.33 | 1 | 2.68 | 1.15 | 4.66 | 4.68 | 1.65 | 1.28 | 3.2 | 2.11 | 1.79 | 0.24 | 1.45 | -- | 5.6 | *5* | 20 | 220 | *25* |
| CD13 | 0.6-1.2 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 2.6 | *5* | *5* | *25* | *25* |
| CD13 | 1.2-1.9 | GHD/2002 | 0.33 | 0.33 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | *0.05* | *5* | *5* | *25* | *25* |
| CD13 | 1.9-4.0 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 0.1 | 5.0 | *5* | *25* | *25* |
| CD17 (Dec) | 2.8 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 0.05 | *5.0* | *5* | *25* | *25* |
| CD19 (Dec) | 0.1 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 0.05 | *5.0* | *5* | *25* | *25* |

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benza anthracene | Chrysene | Benzo(b)&(k)fluoranthene | Benzo apyrene | Indeno(1,2,3-cd)fluoranthene | Dibenza.h anthracene | Benzo(ghi)perylene | Cyanide | Total Organic Carbon | TPH C6 C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CD20 (Dec) | 0.5 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 2.8 | *5.0* | *5* | *25* | *25* |
| CD21 (Dec) | 2.5 | GHD/2002 | 56.600 | 8.090 | 1.030 | 0.630 | 0.970 | 2.730 | 1.500 | 11.000 | 8.100 | 2.550 | 2.720 | 6.400 | 4.170 | 3.360 | 0.490 | 3.000 | -- | 1 | *5.0* | 120 | 4500 | 660 |
| CD24 (Dec) | 0.2 | GHD/2002 | 43.000 | 10.600 | 0.800 | 1.090 | 1.410 | 3.190 | 1.510 | 4.760 | 5.620 | 1.420 | 1.490 | 4.200 | 2.890 | 1.990 | 0.320 | 1.660 | -- | 7.8 | *5.0* | 50 | 500 | 160 |
| CD24 (Dec) | 0.7 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 7.8 | *5.0* | *5* | *25* | *25* |
| CD24 (Dec) | 1.4 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.4 | *5.0* | *5* | *25* | *25* |
| CD26 (Dec) | 0.8 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.6 | *5.0* | *5* | *25* | *25* |
| CD26 (Dec) | 2 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 0.05 | *5.0* | *5* | *25* | *25* |
| CD27 (Dec) | 1.3 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.4 | *5.0* | *5* | *25* | *25* |
| CD28 (Dec) | 2 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.8 | *5.0* | *5* | *25* | *25* |
| CD29 (Dec) | 1 | GHD/2002 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.4 | *5.0* | *5* | *25* | *25* |
| CD10 | 0-0.8 | GHD/2003 | 91.2 | 14.7 | 0.97 | 1.55 | 1.22 | 5.17 | 2.06 | 10.2 | 11.2 | 5.51 | 4.61 | 14 | 8.01 | 5.71 | 0.87 | 4.97 | -- | 13 | *5* | 50 | 540 | 180 |
| CD10 | 0.8-1.7 | GHD/2003 | 63.8 | 11.4 | 0.84 | 1.21 | 1.06 | 3.89 | 1.65 | 9.19 | 8.59 | 3.37 | 2.67 | 8 | 4.55 | 3.62 | 0.49 | 3.2 | -- | 10 | 20 | 90 | 1000 | 280 |
| CD10 | 1.7-2.5 | GHD/2003 | 650 | 375 | 3.99 | 18.3 | 13.1 | 42.3 | 14.4 | 50.3 | 39.5 | 16.1 | 11.4 | 27 | 16.4 | 11.2 | 1.55 | 9.39 | -- | 12 | 20 | 720 | 5800 | 1000 |
| CD10 | 2.5-3.3 | GHD/2003 | 336 | 236 | 2.39 | 4.97 | 5.12 | 17.7 | 4.83 | 17.7 | 14.7 | 5.29 | 4.19 | 9.8 | 5.58 | 3.83 | 0.53 | 3.25 | -- | 23 | 100 | 1400 | 14000 | 3200 |
| CD14 | 0-0.6 | GHD/2003 | 7.68 | 2.2 | 0.14 | 0.2 | 0.16 | 0.53 | 0.25 | 0.79 | 0.82 | 0.36 | 0.26 | 0.8 | 0.49 | 0.34 | 0.05 | 0.3 | -- | 5.4 | *5* | 20 | 260 | *25* |
| CD14 | 0.6-1.2 | GHD/2003 | 0.13 | 0.13 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 2.2 | *5* | *5* | *25* | *25* |
| CD14 | 1.2-1.8 | GHD/2003 | 0.09 | 0.09 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.8 | *5* | *5* | *25* | *25* |
| CD15 | 0-0.8 | GHD/2003 | 6.6 | 1.22 | 0.06 | 0.1 | 0.09 | 0.39 | 0.13 | 0.67 | 0.76 | 0.44 | 0.41 | 1 | 0.51 | 0.37 | 0.08 | 0.44 | -- | 7.6 | *5* | *5* | *25* | *25* |
| CD15 | 0.8-1.6 | GHD/2003 | 43.3 | 6.73 | 0.43 | 0.52 | 0.5 | 2.09 | 0.77 | 4.05 | 4.99 | 2.67 | 2.1 | 7.6 | 4.1 | 3.3 | 0.54 | 2.85 | -- | 9.8 | *5* | 10 | 340 | 140 |
| CD15 | 1.6-2.5 | GHD/2003 | 17.1 | 3.17 | 0.54 | 0.26 | 0.3 | 0.91 | 0.51 | 1.33 | 2.25 | 0.58 | 0.43 | 2.8 | 1.53 | 1.25 | 0.16 | 1.1 | -- | 5.8 | *5* | 10 | 840 | 25 |
| CD16 | 0.0-0.5 | GHD/2003 | 79.3 | 21.9 | 1.22 | 4.43 | 2.42 | 6.78 | 2.53 | 7 | 8.97 | 3.24 | 2.22 | 8.2 | 4.75 | 2.87 | 0.48 | 2.28 | -- | 28 | 20 | 100 | 620 | 140 |
| CD16 | 0.5-1.0 | GHD/2003 | 12.1 | 2.49 | 0.24 | 0.37 | 0.29 | 0.94 | 0.44 | 1.33 | 1.54 | 0.62 | 0.42 | 1.4 | 0.86 | 0.57 | 0.09 | 0.49 | -- | 2.2 | *5* | 20 | 220 | 25 |
| CD17 | 0-1.0 | GHD/2003 | 1.07 | 0.4 | *0.025* | *0.025* | *0.025* | 0.08 | *0.025* | 0.11 | 0.11 | 0.06 | *0.025* | 0.1 | 0.07 | 0.06 | *0.025* | 0.05 | -- | 1.8 | *5* | *5* | *25* | *25* |
| CD17 | 1-2.0 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.8 | *5* | *5* | *25* | *25* |
| CD17 | 2.0-2.5 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 0.5 | *5* | *5* | *25* | *25* |
| CD18 | 0-0.8 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 6.2 | 10 | *5* | *25* | *25* |
| CD18 | 0.8-1.3 | GHD/2003 | 7.45 | 1.4 | 0.12 | 0.1 | 0.12 | 0.46 | 0.21 | 1.05 | 1.05 | 0.36 | 0.32 | 1 | 0.47 | 0.41 | 0.06 | 0.4 | -- | 5 | *5* | *5* | 60 | *25* |
| CD18 | 1.3-2.1 | GHD/2003 | 5.5 | 3.64 | 0.06 | 0.08 | 0.09 | 0.28 | 0.1 | 0.33 | 0.29 | 0.11 | 0.09 | 0.2 | 0.1 | 0.08 | *0.025* | 0.08 | -- | 5 | *5* | *5* | *25* | *25* |
| CD18 | 2.1-2.8 | GHD/2003 | 0.7 | 0.51 | *0.025* | *0.025* | *0.025* | 0.07 | *0.025* | 0.06 | 0.06 | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 4 | *5* | *5* | *25* | *25* |
| CD18 | 2.8-3.6 | GHD/2003 | 27.8 | 18.4 | 0.23 | 0.35 | 0.39 | 1.46 | 0.56 | 1.7 | 1.45 | 0.56 | 0.47 | 1 | 0.52 | 0.39 | 0.05 | 0.37 | -- | 6 | *5* | *5* | *25* | *25* |
| CD19 | 0.0-0.8 | GHD/2003 | 41.1 | 13.5 | 0.72 | 1.59 | 1.21 | 3.05 | 1.36 | 4.04 | 4.99 | 1.35 | 1.1 | 3.4 | 1.96 | 1.43 | 0.21 | 1.28 | -- | 12 | 10 | 60 | 600 | 90 |
| CD19 | 0.8-1.6 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | *0.05* | *5* | *5* | *25* | *25* |
| CD20 | 0.0-0.8 | GHD/2003 | 0.82 | 0.47 | *0.025* | *0.025* | *0.025* | 0.07 | *0.025* | 0.09 | 0.09 | 0.05 | *0.025* | *0.05* | 0.05 | *0.025* | *0.025* | *0.025* | -- | 2.6 | *5* | *5* | *25* | *25* |
| CD20 | 0.8-1.6 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 3 | *5* | *5* | *25* | *25* |
| CD20 | 1.6-2.4 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.4 | *5* | *5* | *25* | *25* |
| CD20 | 2.4-3.2 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 2.4 | *5* | *5* | *25* | *25* |
| CD21 | 0.0-0.8 | GHD/2003 | 8.17 | 1.91 | 0.07 | 0.13 | 0.11 | 0.41 | 0.16 | 0.76 | 0.94 | 0.47 | 0.43 | 1.2 | 0.59 | 0.49 | 0.07 | 0.47 | -- | 6.4 | *5* | *5* | *25* | *25* |
| CD21 | 0.8-1.6 | GHD/2003 | 16.4 | 3.05 | 0.27 | 0.25 | 0.25 | 0.92 | 0.52 | 2.59 | 2.32 | 0.83 | 0.74 | 1.8 | 1.04 | 0.86 | 0.11 | 0.82 | -- | 7.6 | 10 | 10 | 700 | *25* |
| CD21 | 1.6-2.4 | GHD/2003 | 12.6 | 5.1 | 0.17 | 0.21 | 0.32 | 0.96 | 0.39 | 1.42 | 1.16 | 0.54 | 0.42 | 0.8 | 0.45 | 0.32 | *0.025* | 0.32 | -- | 6.6 | *5* | 20 | 680 | *25* |
| CD21 | 2.4-3.2 | GHD/2003 | 7 | 4.56 | 0.06 | 0.09 | 0.11 | 0.39 | 0.14 | 0.4 | 0.35 | 0.17 | 0.13 | 0.3 | 0.14 | 0.1 | *0.025* | 0.1 | -- | 6.6 | *5* | *5* | *25* | *25* |
| CD22 | 0.0-0.8 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 0.7 | *5* | *5* | *25* | *25* |
| CD22 | 0.8-1.6 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 0.9 | *5* | *5* | *25* | *25* |
| CD22 | 1.6-2.2 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 2.4 | *5* | *5* | *25* | *25* |
| CD23 | 0.0-0.6 | GHD/2003 | 9.15 | 2.86 | 0.13 | 0.19 | 0.13 | 0.53 | 0.21 | 0.96 | 0.94 | 0.43 | 0.34 | 1 | 0.57 | 0.42 | 0.06 | 0.39 | -- | 2 | *5* | *5* | 80 | *25* |
| CD23 | 0.6-1.2 | GHD/2003 | 0.05 | 0.05 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.6 | *5* | *5* | *25* | *25* |
| CD23 | 1.2-1.8 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.2 | *5* | *5* | *25* | *25* |
| CD24 | 0.0-0.5 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 15 | *5* | 50 | 520 | 80 |
| CD24 | 0.5-1.3 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1 | *5* | *5* | *25* | *25* |
| CD24 | 1.3-2.1 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.4 | *5* | *5* | *25* | *25* |
| CD25 | 0.0-0.8 | GHD/2003 | 2.72 | 0.48 | 0.05 | 0.05 | *0.025* | 0.18 | 0.06 | 0.37 | 0.39 | 0.18 | 0.13 | 0.4 | 0.18 | 0.14 | nd | 0.15 | -- | 6.2 | *5* | *5* | *25* | *25* |

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz a anthracene | Chrysene | Benzo(b)&(k)fluoranthene | Benzo a pyrene | Indeno(1,2,3-cd)fluoranthene | Dibenz a.h anthracene | Benzo(ghi)perylene | Cyanide | Total Organic Carbon | TPH C6 C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CD25 | 0.8-1.6 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.4 | *5* | *5* | *25* | *25* |
| CD25 | 1.6-2.5 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1 | *5* | *5* | *25* | *25* |
| CD26 | 0.0-0.8 | GHD/2003 | 30.8 | 4.83 | 0.45 | 1.48 | 1.28 | 4.1 | 1.27 | 4.08 | 4.46 | 1.67 | 1.22 | 2.6 | 1.59 | 0.89 | 0.14 | 0.78 | -- | 16 | *5* | *5* | 280 | *25* |
| CD26 | 0.8-1.6 | GHD/2003 | 0.05 | 0.05 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | *0.05* | *5* | *5* | *25* | *25* |
| CD26 | 1.6-2.8 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.8 | *5* | *5* | *25* | *25* |
| CD27 | 0.0-0.8 | GHD/2003 | 1.79 | 0.65 | *0.025* | *0.025* | *0.025* | 0.12 | *0.025* | 0.16 | 0.16 | 0.11 | 0.07 | 0.2 | 0.12 | 0.09 | *0.025* | 0.09 | -- | 3 | *5* | *5* | *25* | *25* |
| CD27 | 0.8-1.7 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.6 | *5* | *5* | *25* | *25* |
| CD27 | 1.7-2.6 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.6 | *5* | *5* | *25* | *25* |
| CD28 | 0.0-0.3 | GHD/2003 | 17.7 | 2.13 | 0.48 | 0.21 | 0.28 | 1.02 | 0.45 | 2.34 | 2.66 | 0.96 | 0.77 | 2.4 | 1.6 | 1.15 | 0.14 | 1.03 | -- | 5.4 | 10 | 20 | 300 | 50 |
| CD28 | 0.3-0.9 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 0.6 | *5* | *5* | *25* | *25* |
| CD28 | 0.9-1.7 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.4 | *5* | *5* | *25* | *25* |
| CD29 | 0.0-0.5 | GHD/2003 | 5.28 | 1.83 | 0.05 | 0.1 | 0.07 | 0.27 | 0.12 | 0.46 | 0.49 | 0.27 | 0.23 | 0.6 | 0.33 | 0.25 | *0.025* | 0.25 | -- | 4.6 | *5* | *5* | *25* | *25* |
| CD29 | 0.5-1.0 | GHD/2003 | 0.08 | 0.08 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 5.8 | *5* | *5* | *25* | *25* |
| CD29 | 1.0-1.5 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.4 | *5* | *5* | *25* | *25* |
| CD29 | 1.5-2.0 | GHD/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | -- | 1.6 | *5* | *5* | *25* | *25* |
| CD30 | 0.0-0.8 | GHD/2003 | 6.75 | 1.44 | 0.05 | 0.1 | 0.07 | 0.32 | 0.11 | 0.68 | 0.66 | 0.46 | 0.38 | 1 | 0.49 | 0.43 | 0.06 | 0.42 | -- | 6.2 | *5* | *5* | 120 | *25* |
| CD30 | 0.8-1.5 | GHD/2003 | 4.23 | 0.59 | 0.06 | 0.1 | 0.09 | 0.27 | 0.11 | 0.58 | 0.54 | 0.25 | 0.21 | 0.6 | 0.31 | 0.28 | *0.025* | 0.26 | -- | 5 | *5* | *5* | 50 | *25* |
| CD30 | 1.5-2.3 | GHD/2003 | 18.5 | 3.21 | 0.44 | 0.29 | 0.26 | 0.79 | 0.6 | 3.01 | 2.56 | 0.88 | 0.8 | 2.2 | 1.26 | 1.02 | 0.14 | 0.92 | -- | 6.2 | *5* | *5* | 280 | *25* |
| CD30 | 2.3-3.0 | GHD/2003 | 18.2 | 11.9 | 0.13 | 0.16 | 0.24 | 0.84 | 0.34 | 1.18 | 0.98 | 0.45 | 0.36 | 0.7 | 0.41 | 0.28 | *0.025* | 0.26 | -- | 14 | *5* | 20 | 160 | *25* |
| CD30 | 3.0-3.7 | GHD/2003 | 7.29 | 5.45 | *0.025* | 0.09 | 0.08 | 0.34 | 0.09 | 0.31 | 0.28 | 0.13 | 0.11 | 0.2 | 0.1 | 0.06 | *0.025* | 0.07 | -- | *7* | *5* | 10 | 80 | *25* |

Notes

1. Datasets include an assortment of Total Organic Matter (TOM) and Total Organic Carbon (TOC) results. All data has been converted to TOC using the following conversion - TOM x 0.58 = TOC
2. -- No sample collected or no data available
3. *italics* - Numbers in italics are those reported as Non Detected and are included as 1/2 PQL for statistical purpose
4. * guideline value nomalised to 1% TOC

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD1** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 371325E, 1359185N **Surface RL :** -4.60m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 09/12/02 **Date Completed :** 09/12/02 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C | 0.30 | | SP | Wet, grey, SAND, with trace of clay and silt (alluvium). | Time: 9.40am<br>Water Depth: 6.1m |
| | | | | | | SP | Wet, grey, fine to medium grained, SAND (alluvium). | 'Hard' coring - near refusal in SAND (1m-6m) |
| | | | | 1.40 | | SP | Wet, grey, fine to coarse grained, SAND, with shells (alluvium). | |
| | | | | 1.80 | | SP | Wet, light grey, (loose to medium dense), fine to medium grained, SAND, with occasional shells (alluvium). | |
| | | | C | | | | | |
| | | | | 4.90 | | | | Compression/Loss: 18%<br>1.1m loss from base |
| | | | | 6.00 | | | End of hole 6.0 metres.<br>Expansion factor: 1.9. | |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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GHD-LONGMAC

**Job No.** 21/11484

BOREHOLE LOG SHEET

BOREHOLE 211484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD2** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | **SHEET** 1 **OF** 1 |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | | |
| **Position :** | 371190E, 1359270N | **Surface RL :** -0.20m (NHTG) **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** 09/12/02 | **Date Completed :** 09/12/02 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C | 1.60 | | SP | Wet, black, vitreous, coarse grained, SAND, with oily sheen and 'tarry' deposit (industrial residue). | Time: 10:20am<br>Water Depth: 1.4m<br>'Petro Smell' |
| | | | C | 3.30 | | SP | Wet, grey brown, fine to medium grained, SAND (alluvium). | No sheen or tar |
| | | | C | 3.90 | | SC | Wet, grey brown, fine to medium grained, clayey SAND (alluvium). | |
| | | | C | 4.50 | | CH | Wet, dark brown, very soft, CLAY, with trace silt and sand (alluvium). | 'Petro' smell<br>Oily sheen |
| | | | C | 5.80 | | SC | Wet, grey brown, fine to medium grained, clayey SAND (alluvium). | 'Petro' smell |
| | | | | 6.00 | | CH | Wet, dark brown, very soft, CLAY, with trace silt and fine grained grained sand (alluvium).<br>End of hole at 6.0 metres.<br>Expansion factor: 1.18. | Oily sheen<br>'Petro' smell<br>Tarry residue |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 211484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD3** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 371123E, 1359379N **Surface RL :** -2.20m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** 09/12/02 | **Date Completed :** 09/12/02 | **Logged by :** ARB | **Date :** 25/4/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) *and* ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C | 0.80 | | CH | Wet, dark grey, very soft, CLAY (alluvium). | Time: 10:45am<br>Water depth: 3.9m<br>Slight $H_2S$ smell |
| | | | C | | | SP | Wet, grey brown, fine to medium grained, SAND, with occasional shells (alluvium). | |
| | | | C | 4.90 | | SP | Wet, yellow brown, fine to medium grained, SAND, with occasional shells (alluvium). | |
| | | | C | 5.90<br>6.00 | | | End of hole at 6.0 metres.<br>Expansion factor: 1.3 | Lost 0.1m from base<br>Compression/Loss: 2% |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD4** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 371156E, 1359446N **Surface RL :** -1.30m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 09/12/02 **Date Completed :** 09/12/02 | **Logged by :** ARB | **Date :** 24/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C | 3.69<br>4.00<br>4.50 | | CH<br>CL/CH | Wet, dark grey, very soft, CLAY (alluvium).<br>Wet, dark grey, very soft, CLAY, with some SAND (alluvium). | Time 11:20am<br>Water Depth: 8.5m<br>Loss 0.5m from base<br>Compression/Loss: 11%<br>Refusal at 4.5m |

End of hole at 4.5 metres.
Expansion factor: 1.76

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 211484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD5** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370938E, 1359442N **Surface RL :** -0.30m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 09/12/02 **Date Completed :** 09/12/02 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C | 1.00 | | CL/CH | Wet, dark grey, very soft, CLAY, trace of silt (alluvium). | Time: 11:50am<br>Water depth: 2m<br>Oily sheen, 'Petro' smell |
| | | | C | 2.30 | | SP | Wet, grey brown, fine to medium grained, SAND, with some shells (alluvium). | |
| | | | C | 3.50 | | SC | Wet, grey brown, clayey SAND, with some shells (alluvium). | |
| | | | C | 6.00 | | SP | Wet, grey brown, fine to medium grained, SAND, with some shells (alluvium). | |
| | | | | | | | End of hole at 6.0 metres.<br>Expansion factor: 1.46. | |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD6** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | **SHEET** 1 **OF** 1 |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | | |
| **Position :** | 370872E, 1359597N **Surface RL :** -3.50m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 09/12/02 **Date Completed :** 09/12/02 | **Logged by :** ARB | **Date :** 28/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C | 4.00<br>6.00 | | CH | Wet, dark grey, very soft, CLAY (alluvium).<br><br>End of hole at 6.0 metres<br>Expansion factor: 2.05.<br><br>NOTES:<br>1. Expansion factor=Ratio of *sample x-section area to sample tube x-section* area.<br>2. Surface RL approx. equal to Bed Level | Time: 12:20pm<br>Water depth: 5.2m<br><br>Difficult recovery 3 runs<br><br>Compression/Loss: 33% |

See standard sheets for details of abbreviations & basis of descriptions

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**Job No.** 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD7** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | **SHEET** 1 **OF** 1 |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | | |
| **Position :** | 370802E, 1359610N **Surface RL :** -0.70m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 09/12/02 **Date Completed :** 09/12/02 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C | 0 | | CL | Wet, grey brown, very soft to soft, CLAY, with some fine to medium grained sand and occasional shell layers (alluvium). | Time: 1:30pm<br>Water depth: 2.3m |
| | | | C | 1.80 | | SC | Wet, grey brown, clayey SAND, with shells (alluvium). | |
| | | | | 2.10 | | CL | Wet, grey brown, very soft to soft, CLAY, with some fine to medium grained sand and occasional shell layers (alluvium). | |
| | | | C | 2.50 | | SP | Wet, grey brown, fine to medium grained, SAND, occasional shells (alluvium). | |
| | | | | 4.90 | | | | Loss 0.8m from base<br>Compression/Loss: 18% |
| | | | | 6.00 | | | End of hole at 6.0 metres.<br>Expansion factor: 1.33. | |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD8** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370761E, 1359566N **Surface RL :** -0.70m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** 09/12/02 | **Date Completed :** 09/12/02 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C<br>C | 0.40<br>2.70<br>2.90<br>5.30<br>6.00 | | CL/CH<br>SP<br>CL/CH<br>SP | Wet, dark grey, very soft, CLAY (alluvium).<br>Wet, grey brown, fine to medium grained, SAND, with some shells (alluvium).<br>Wet, grey brown, very soft, CLAY (alluvium).<br>Wet, light grey, fine to coarse grained, SAND (alluvium).<br>End of hole at 6.0 metres.<br>Expansion factor: 1.61. | Time: 1:45pm<br>Water depth: 2.3m<br>Loss 0.7m from base<br>Compression/Loss: 12% |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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GHD-LONGMAC

**Job No.** 21/11484

BOREHOLE LOG SHEET

BOREHOLE 211484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD9** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370687E, 1359621N **Surface RL :** 0.20m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 09/12/02 **Date Completed :** 09/12/02 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| | | | C | 0 | | CL/ CH | Wet, dark grey brown, very soft, CLAY, with shell bands (alluvium). | Time: 2pm<br>Water depth: 1.3m |
| | | | C | | | | As above, but with some sand. | |
| | | | C | 1.20 | | SP | Wet, dark grey, fine to medium grained, SAND, with trace of clay and silt and occasional clayey bands (alluvium). | |
| | | | | 1.90 | | CL/ CH | Wet, grey, soft, CLAY, with some fine to medium grained SAND (alluvium). | |
| | | | C | | | | | |
| | | | C | | | | | |
| | | | C | 5.10 | | SP | Wet, light grey brown, fine to coarse grained, SAND, with some shell (alluvium). | |
| | | | | 5.60 | | | | Loss of 0.4m from base<br>Compression/Loss: 7% |
| | | | | 6.00 | | | End of hole at 6.0 metres.<br>Expansion factor: 1.19. | |
| | | | | | | | NOTES:<br>1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.<br>2. Surface RL approx. equal to Bed Level | |

See standard sheets for details of abbreviations & basis of descriptions

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**Job No.** 21/11484

BOREHOLE LOG SHEET

BOREHOLE 21/11484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD10** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | SHEET 1 OF 1 |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | | |
| **Position :** | 370730E, 1359665N | **Surface RL :** -1.50m (NHTG) | **Angle from Horiz. :** 90° |
| **Rig Type :** | Vibrocore | **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper |
| **Date Started :** | 14/01/03 | **Date Completed :** 14/01/03 | **Logged by :** ARB |

**Processed :** ALF
**Checked :** [signature]
**Date :** 25/3/03

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C<br>C | | | CH | Wet, dark grey, very soft, CLAY (alluvium). | Time: 2:45pm<br>Water Depth: 2.4m<br>Slight oily sheen, and 'petro' smell |
| | | | | 4.30<br>4.40 | | SP | Wet, grey brown, fine to medium grained, SAND (alluvium). | |
| | | | | 5.40 | | | End of hole at 5.4 metres.<br>Expansion factor: 1.3. | Refusal at 5.4m<br>Loss 1.0m from base<br>Compression/Loss: 19% |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD11** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | SHEET 1 OF 1 | |
| **Position :** | 370753E, 1359692N **Surface RL :** -0.60m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** 10/12/02 | **Date Completed :** 10/12/02 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C<br>C | 0.30<br>5.30<br>5.60<br>6.00 | | SC<br>CL/CH<br>SP | Wet, dark grey, clayey SAND (alluvium).<br>Wet, dark grey, very soft, CLAY, trace of silt (alluvium).<br>Wet, grey brown, fine to medium grained, SAND (alluvium).<br>End of hole at 6.0 metres<br>Expansion factor: 1.81. | Time: 2:45pm<br>Water depth: 2.1m<br>'Petro' smell,<br>oily sheen<br>0.4m loss from base |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD12** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370614E, 1359665N **Surface RL :** -0.80m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 10/12/02 **Date Completed :** 10/12/02 | **Logged by :** ARB | **Date :** 24/3/03 |

| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION (Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength) | REMARKS |
|---|---|---|---|---|---|---|---|---|
| | | | C | 0.59 | | CL/CH | Wet, 'slurried' dark grey, CLAY, with silt (alluvium). | Time: 10:00am<br>Water depth: 2.1m |
| | | | C | | | CH | Wet, dark grey, very soft, CLAY (alluvium). | |
| | | | C | 4.09 | | CH | Wet, dark grey, very soft, CLAY, with occasional shells (alluvium). | |
| | | | C | 4.39<br>5.99 | | SP | Wet, grey brown, fine to medium grained, SAND, with occasional shells (alluvium). | |
| | | | | | | | End of hole at 6.0 metres.<br>Expansion factor: 1.5 | |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 211484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD13** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | SHEET 1 OF 1 |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | | |
| **Position :** | 370559E, 1359678N | **Surface RL :** -0.80m (NHTG) | **Angle from Horiz. :** 90° |
| **Rig Type :** | Vibrocore | **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper |
| **Date Started :** | 09/12/02 | **Date Completed :** 09/12/02 | **Logged by :** ARB |

**Processed :** ALF
**Checked :** [illegible]
**Date :** 6/1/03

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C | 1.79<br>2.79<br>5.85<br>6.00 | | CH<br>SP<br>SP | Wet, dark grey, very soft, CLAY (alluvium).<br>Wet, grey brown, fine to medium grained, SAND, with some shells and shell bands (alluvium).<br>Wet, light grey, fine to medium grained, SAND, with occasional shells (alluvium).<br>End of hole at 6.0 metres.<br>Expansion factor: 1.46. | Time: 2:45pm<br>Water depth: 2.1m<br>Oily sheen at top<br>0.15m loss from base |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD14** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | **SHEET** 1 **OF** 1 | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | | |
| **Position :** | 370561E, 1359714N **Surface RL :** -1.10m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C | 2.60 | | CH | Wet, grey brown, very soft, CLAY, with some fine to medium grained sand and silt. Occasional sand lenses, occasional and numerous shells (alluvium). | Time: 1:55pm<br>Water depth: 1.9m |
| | | | | 4.50 | | SP | Wet, grey, fine to medium grained, SAND, with occasional fine shells (alluvium). | |
| | | | | | | | End of hole at 4.5 metres.<br>Expansion factor: 1.51. | Refusal at 4.5m |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD15** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | **SHEET** 1 **OF** 1 | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | | |
| **Position :** | 370612E, 1359768N | **Surface RL :** -2.00m (NHTG) | **Angle from Horiz. :** 90° |
| **Rig Type :** | Vibrocore | **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper |
| **Date Started :** | 14/01/03 | **Date Completed :** 14/01/03 | **Logged by :** ARB |

**Processed :** ALF
**Checked :** [illegible]
**Date :** 21/3/03

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C | 0.50 | | CL/CH | Wet, very soft 'slurried', CLAY, with some silt and trace fine grained sand (alluvium). | Time: 2:30pm<br>Water depth: 2.8m |
| | | | C | | | CH | Wet, dark grey. very soft, CLAY (alluvium). | |
| | | | C | 2.90 | | SP | Wet, grey, fine to medium grained, SAND, with occasional shells (alluvium). | |
| | | | | 4.00 | | | End of hole at 4.0 metres.<br>Expansion factor: 1.17 | Refusal at 4.0m |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD16** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | **SHEET** 1 **OF** 1 |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | | |
| **Position :** | 370456E, 1359745N **Surface RL :** -0.60m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C | 1.40 | | CH<br>CL/CH | Wet, dark grey, very soft, CLAY, with traces of sand and silt (alluvium).<br>As above, but with numerous shells. | Time: 8:50am<br>Water depth: 1.7m |
| | | | | 3.00 | | SP | Wet, grey brown, fine to medium grained, SAND, with occasional fine shells (alluvium). | |
| | | | | | | | End of hole at 3.0 metres.<br>Expansion factor: 1.5 | Refusal at 3.0m |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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BOREHOLE LOG SHEET

BOREHOLE 211148A.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD17** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | **SHEET** 1 **OF** 1 |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | | |
| **Position :** | 370475E, 1359784N | **Surface RL :** -0.70m (NHTG) **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C | 2.50<br>4.70<br>4.80 | | CL/ CH<br>SP | Wet, dark grey brown, very soft, CLAY, with some fine to medium grained SAND. Occasional sand lenses and shells (alluvium).<br>Wet, grey brown, fine to medium grained, SAND (alluvium).<br>As above, but, with occasional sand layers.<br>End of hole at 4.8 metres.<br>Expansion factor: 1.27. | Time: 11:50am<br>Water depth: 1.3m<br>Loss 0.1m from base<br>Refusal at 4.8m |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 211484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD18** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370520E, 1359837N **Surface RL :** -1.50m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C<br>C<br>C | 0<br>1<br>2<br>3<br>4 | | CH | Wet, dark grey, very soft, CLAY (alluvium). | Time: 2:10pm<br>Water depth: 2.3m<br>Slight oily sheen and 'petro' smell |
| | | | | 4.30<br>4.40 | | SP | Wet, grey brown, fine to medium grained, SAND (alluvium). | Loss 1.6m (sand) from base |
| | | | | 6.00<br>6 | | | End of hole at 6.0 metres.<br>Expansion factor: 1.19. | |
| | | | | 7<br>8<br>9<br>10 | | | NOTES:<br>1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.<br>2. Surface RL approx. equal to Bed Level | |

See standard sheets for details of abbreviations & basis of descriptions

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**Job No.** 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD19** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370332E, 1359790N **Surface RL :** -0.70m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C | 0 | | CL/CH | Wet, dark grey, very soft, CLAY (alluvium). | Time: 9:30am<br>Water depth: 0.95m |
| | | | | | | CL/CH | As above, but with numerous shells, some sand and silt. | |
| | | | | 1.00 | | SC | Wet, brown, clayey SAND (alluvium). | |
| | | | C | 1.30 | | SP | Wet, grey brown, fine to medium grained, SAND, with some shell bands (alluvium). | |
| | | | | 4.40 | | | | Loss 0.1m from base |
| | | | | 4.50 | | | End of hole at 4.5 metres.<br>Expansion factor: 1.22. | Refusal at 4.5m |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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GHD-LONGMAC

Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD20** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | SHEET 1 OF 1 | |
| **Position :** | 370410E, 1359838N | **Surface RL :** -0.50m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore | **Mounting :** Jib Crane | **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 | **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 21/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C<br>C | 4.00<br>5.00<br>6.00 | | SC/ CL<br>SP<br>SP | Wet, grey brown, clayey SAND, with sandy clay lenses and some shells (alluvium).<br>Wet, dark grey brown, fine to medium grained, SAND, with some shell bands (alluvium).<br>Wet, light grey brown, fine to medium grained, SAND, with some shell bands (alluvium).<br>End of hole at 6.0 metres.<br>Expansion factor: 1.33. | Time: 1:25pm<br>Water depth: 1.2m |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

CONSULTING GEOTECHNICAL ENGINEERS AND GEOLOGISTS
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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD21** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | SHEET 1 OF 1 | |
| **Position :** | 370465E, 1359888N **Surface RL :** -1.10m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 26/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C<br>C | 4.70<br>5.10<br>6.00 | | CH<br>SP | Wet, dark grey, very soft, CLAY (alluvium).<br>Wet, grey brown, fine to medium grained, SAND (alluvium).<br>End of hole at 6.0 metres.<br>Expansion factor: 1.42. | Time: 1:55pm<br>Water depth: 1.9m<br>Loss 0.9m from base |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD22** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370332E, 1359826N **Surface RL :** -0.80m (NHTG) **Angle from Horiz. :** 90° | | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest **Driller :** G Cooper | | **Checked :** |
| **Date Started :** 14/01/03 | **Date Completed :** 14/01/03 **Logged by :** ARB | | **Date :** 25/3/03 |

| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | BOREHOLE DESCRIPTION — DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
|---|---|---|---|---|---|---|---|---|
| Vibrocoring | | | C | 0.30 | | CL/ CH | Wet, very soft 'slurried', CLAY, with some silt (alluvium). | Time: 10:10am<br>Water depth: 1.5m |
| | | | C | 2.40 | | SC/ CL | Wet, grey brown, clayey SAND / sandy CLAY, with some silt and shells (alluvium). | |
| | | | C | 6.00 | | SP | Wet, grey brown, fine to medium grained, SAND (alluvium). | |
| | | | | | | SP | As above, but grey. | |
| | | | | | | | End of hole at 6.0 metres.<br>Expansion factor: 1.5. | |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

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GHD-LONGMAC

Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD23** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370357E, 1359861N **Surface RL :** -0.40m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C | 0 | | CL/CH | Wet, grey brown, very soft, CLAY, with some fine to medium grained sand and numerous shells (alluvium). | Time: 1:10pm<br>Water depth: 1.1m |
| | | | C | 1 | | | | |
| | | | | 1.80 | | | | |
| | | | | 1.90 | | SP | Wet, grey brown, fine to medium grained, SAND (alluvium). | |
| | | | C | 2 | | CL/CH | Wet, grey brown, very soft, CLAY, with some fine to medium grained sand and numerous shells (alluvium). | |
| | | | | 2.60 | | SP | Wet, grey brown, fine to medium grained, SAND, with some silt and numerous shells (alluvium). | |
| | | | | 3 | | | | |
| | | | | 3.80 | | | | |
| | | | | 3.90 | | | | Loss 0.1m from base<br>Refusal at 3.9m |
| | | | | 4 | | | End of hole at 3.9 metres.<br>Expansion factor: 1.46. | |
| | | | | 5 | | | | |
| | | | | 6 | | | NOTES:<br>1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.<br>2. Surface RL approx. equal to Bed Level | |
| | | | | 7 | | | | |
| | | | | 8 | | | | |
| | | | | 9 | | | | |
| | | | | 10 | | | | |

See standard sheets for details of abbreviations & basis of descriptions

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GHD-LONGMAC

Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD24** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370235E, 1359893N **Surface RL :** -0.70m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION (Moisture, colour, consistency, structure, SOIL TYPE (origin) and *ROCK TYPE, colour, grain size, structure,* weathering, strength) | REMARKS |
|---|---|---|---|---|---|---|---|---|
| Vibrocoring | | | C | 0.60 | | CH | Wet, dark grey, very soft, CLAY (alluvium). | Time: 10:25am<br>Water depth: 1.4m |
| | | | C | 2.60 | | CL/ SC | Wet, grey brown, clayey SAND / sandy CLAY, with some silt and shells (alluvium). | |
| | | | C | 5.80 | | SP | Wet, grey brown, fine to medium grained, SAND (alluvium). | |
| | | | | 6.00 | | | | Loss 0.2m from base |
| | | | | | | | End of hole at 6.0 metres.<br>Expansion factor: 1.2. | |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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GHD-LONGMAC

**Job No.** 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD25** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370256E, 1359923N **Surface RL :** -0.30m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | BOREHOLE DESCRIPTION — DESCRIPTION (Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength) | REMARKS |
|---|---|---|---|---|---|---|---|---|
| Vibrocoring | | | C | 0 | | CL/ CH | Wet, dark grey, very soft, CLAY, with some fine to medium grained sand, numerous shells, occasional sandy clay bands (alluvium). | Time: 12:55pm<br>Water depth: 0.9m |
| | | | C | 1.60 | | SC/ CL | Wet, grey brown, clayey SAND / sandy CLAY, with some silt and shells (alluvium). | |
| | | | C | 3.20 | | SP | Wet, grey brown, fine to medium grained, SAND (alluvium). | |
| | | | | 3.70 | | | | Loss 0.8m from base |
| | | | | 4.50 | | | End of hole at 4.5 metres.<br>Expansion factor: 1.24. | Refusal at 4.5m |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

GHD
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GHD-LONGMAC

Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 211484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD26** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | **SHEET** 1 **OF** 1 |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | | |
| **Position :** | 370137E, 1359956N | **Surface RL :** -0.30m (NHTG) **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 26/3/03 |

| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | BOREHOLE DESCRIPTION — DESCRIPTION (Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength) | REMARKS |
|---|---|---|---|---|---|---|---|---|
| Vibrocoring | | | C | 1.00 | | CH | Wet, dark grey, very soft, CLAY (alluvium). | Time: 10:40am<br>Water depth: 1.1m<br>Oily sheen |
| | | | C | 2.00 | | SP | Wet, dark grey, fine to medium grained, SAND, with occasional shells (alluvium). | |
| | | | C | 3.40 | | CL | Wet, grey, very soft, CLAY, with some fine to medium grained sand and sandy clay / clayey sand lenses (alluvium). | |
| | | | | 4.60 | | SP | Wet, dark grey, fine to medium grained, SAND, with occasional shells (alluvium). | |
| | | | | 5.90 | | SP | Wet, light grey, fine to medium grained, *SAND, with some shells (alluvium).* | |
| | | | | 6.00 | | | End of hole at 6.0 metres.<br>Expansion factor: 1.22. | Loss 0.1m from base |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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GHD-LONGMAC

Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD27** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370168E, 1360002N **Surface RL :** -0.40m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 25/4/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C | 3.70 | | SC/ CL | Wet, grey brown, clayey SAND / sandy CLAY, with some silt and shells (alluvium). | Time: 12:30pm<br>Water depth: 1.0m |
| | | | | 4.40 | | SP | Wet, grey brown, fine to medium grained, SAND, with occasional shells (alluvium). | |
| | | | | | | | End of hole at 4.4 metres.<br>Expansion factor: 1.43. | Refusal at 4.4m |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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Job No. 21/11484

BOREHOLE LOG SHEET

BOREHOLE 211484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD28** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370038E, 1360035N **Surface RL :** -0.20m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C | 0.50 | | CH | Wet, dark grey, very soft, CLAY (alluvium). | Time: 11:00am<br>Water depth: 0.8m |
| | | | C | 1.50 | | SP | Wet, grey brown, fine to medium SAND, some clay and silt, numerous shells (alluvium). | |
| | | | C | 2.90 | | SC/ CL | Wet, grey brown, clayey SAND / sandy CLAY, with some silt and shells (alluvium). | |
| | | | | 5.00 | | SP | Wet, grey brown, fine to medium grained, SAND (alluvium). | |
| | | | | 5.10 | | CH | Moist, brown, very stiff, CLAY (residual). | |
| | | | | 5.20 | | | SANDSTONE, brown, highly weathered, very weak. | Loss 0.1m from base |
| | | | | 5.30 | | | End of hole at 5.3 metres.<br>Expansion factor: 1.72 | Refusal at 5.3m |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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GHD-LONGMAC

**Job No.** 21/11484

BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD29** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 **OF** 1 | |
| **Position :** | 370042E, 1360059N **Surface RL :** 0.00m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore **Mounting :** Jib Crane **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 25/3/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C<br>C | 1.49<br>3.09<br>4.89<br>5.19 | | CL/ CH<br>SC/ CL<br>SP | Wet, dark grey, very soft, CLAY, with some fine to medium grained sand and trace of silt (alluvium).<br>Wet, grey brown, clayey SAND / sandy CLAY, with some shell bands (alluvium).<br>Wet, grey, fine to medium grained, SAND, trace of silt, occasional shells (alluvium).<br>SHALE, grey brown, highly weathered, very weak. | Time: 12:15pm<br>*Water depth: 0.6m* |
| | | | | | | | End of hole at 5.2 metres.<br>Expansion factor: 1.53. | Refusal at 5.2m |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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BOREHOLE LOG SHEET

BOREHOLE 2111484.GPJ GHD.GDT 26/03/03

| | | | |
|---|---|---|---|
| **Client :** | NEWCASTLE PORT CORPORATION | **HOLE No. CD30** | |
| **Project :** | SOUTH ARM DREDGING MASTERPLAN - EIS | | |
| **Location :** | HUNTER RIVER SOUTH ARM, NEWCASTLE | **SHEET** 1 OF 1 | |
| **Position :** | 370255E, 1360018N | **Surface RL :** -1.30m (NHTG) | **Angle from Horiz. :** 90° | **Processed :** ALF |
| **Rig Type :** | Vibrocore | **Mounting :** Jib Crane | **Contractor :** Groundtest | **Driller :** G Cooper | **Checked :** |
| **Date Started :** | 14/01/03 | **Date Completed :** 14/01/03 | **Logged by :** ARB | **Date :** 25/03/03 |

| DRILLING | | | | | BOREHOLE DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|
| DRILLING METHOD | HOLE SUPPORT | WATER | SAMPLES & TESTS | DEPTH metres | GRAPHIC LOG | USC SYMBOL | DESCRIPTION<br>Moisture, colour, consistency, structure, SOIL TYPE (origin) and ROCK TYPE, colour, grain size, structure, weathering, strength | REMARKS |
| Vibrocoring | | | C<br>C<br>C<br>C<br>C | 5.60 | | CH | Wet, dark grey, very soft, CLAY (alluvium). | Time: 12:40pm<br>Water depth: 1.9m<br>Slight 'petro' smell |
| | | | | | | | End of hole at 5.6 metres.<br>Expansion factor: 1.51. | Refusal on bedrock? at 5.6m |

NOTES:
1. Expansion factor=Ratio of sample x-section area to sample tube x-section area.
2. Surface RL approx. equal to Bed Level

See standard sheets for details of abbreviations & basis of descriptions

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GHD-LONGMAC

Job No. 21/11484

# *Soil Index Properties - Report*

***Report No.*** 10971

Client: Newcastle Port Corporation

Job Number: 211156300

Project: South Arm Dredging Master Plan

Location: Kooragang, NSW

| TEST METHODS : | | | | | |
|---|---|---|---|---|---|
| | Moisture Content | - | ☐ | AS1289.2.1.1 | ☐ RTA T120 |
| | Liquid Limit (Four Point) | - | ☒ | AS1289.3.1.1 | ☐ RTA T102 |
| | Liquid Limit (One Point) | - | ☒ | AS1289.3.1.2 | ☐ RTA T108 |
| | Plastic Limit | - | ☒ | AS1289.3.2.1 | ☐ RTA T109 |
| | Plasticity Index | - | ☒ | AS1289.3.3.1 | ☐ RTA T103 |
| | *Linear Shrinkage* | - | ☒ | AS1289.3.4.1 | ☐ RTA T113 |

**Sample History :** Sampled by GHD-LONGMAC (Geotechnical)

| LongMac Sample No. | Client Sample ID | Test Hole | Depth (m) | Description | NDD (t/m³) | FMC (%) | LL (%) | PL (%) | PI (%) | LS (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3188/04 | n/a | CD 3 | 0.0 to 0.6 | Sandy medium plasticity CLAY | nt | nt | 44 | 20 | 24 | 11.0 |
| 3188/05 | n/a | CD 3 | 2.0 to 2.5 | SAND | nt | nt | n/a | NP | NP | nt |
| 3188/06 | n/a | CD 4 | 1.6 to 2.3 | Sandy medium plasticity CLAY | nt | nt | 38 | 17 | 21 | 9.5 |
| 3188/07 | n/a | CD 5 | 0.0 to 0.6 | Medium plasticity CLAY with sand | nt | nt | 49 | 25 | 24 | 11.0 |
| 3188/09 | n/a | CD 6 | 0.6 to 1.3 | High plasticity CLAY | nt | nt | 67 | 33 | 34 | 17.0 |
| 3188/10 | n/a | CD 9 | 0.0 to 0.6 | Silty, clayey SAND | nt | nt | 25 | 19 | 6 | 5.0 |
| 3188/11 | n/a | CD 9 | 2.5 to 3.4 | Clayey SAND | nt | nt | 28 | 17 | 11 | 8.0 |
| 3188/12 | n/a | CD 11 | 0.75 to 1.5 | High plasticity SILT | nt | nt | 67 | 37 | 30 | 16.0 |

**Abbreviations :**

| | |
|---|---|
| LL | Liquid Limit |
| PL | Plastic Limit |
| PI | Plasticity Index |
| LS | Linear Shrinkage |
| FMC | Field Moisture Content |
| n/a | not applicable |
| nt | not tested |
| n/av | not available |

***Note :***

NP = Non Plastic

**Sample History** ☐ Natural — Liquid Limit ☐ Air Dried ☒ Oven Dried

**Preparation Method** ☐ Wet — Liquid Limit ☒ Dry

**Type of Test** ☒ Four Point — Liquid Limit ☒ One Point

**Type of Test** ☒ 125mm — Linear Shrinkage - Mould Size ☐ 150mm ☐ 250mm

| | |
|---|---|
| Tested by: | GV |
| Date tested: | 23/12/02 |
| Checked by: | |
| Authorised Signatory : | |
| Date: | 21/1/03 |


**GHD - LONGMAC**
36 Oxley Street, Crows Nest NSW 2065
Tel: (02) 9439 4033 Fax: (02) 9436 0606
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# *Soil Index Properties - Report*

***Report No.*** 10972

Client: Newcastle Port Corporation

Project: South Arm Dredging Master Plan

Location: Kooragang, NSW

Job Number: 211156300

| TEST METHODS : | | | | | |
|---|---|---|---|---|---|
| | Moisture Content | - | ☐ | AS1289.2.1.1 | ☐ RTA T120 |
| | Liquid Limit (Four Point) | - | ☒ | AS1289.3.1.1 | ☐ RTA T102 |
| | Liquid Limit (One Point) | - | ☒ | AS1289.3.1.2 | ☐ RTA T108 |
| | Plastic Limit | - | ☒ | AS1289.3.2.1 | ☐ RTA T109 |
| | Plasticity Index | - | ☒ | AS1289.3.3.1 | ☐ RTA T103 |
| | Linear Shrinkage | - | ☒ | AS1289.3.4.1 | ☐ RTA T113 |

**Sample History :** Sampled by GHD-LONGMAC (Geotechnical)

| LongMac Sample No. | Client Sample ID | Test Hole | Depth (m) | Description | NDD (t/m³) | FMC (%) | LL (%) | PL (%) | PI (%) | LS (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3188/13 | n/a | CD 11 | 2.9 to 3.1 | Clayey SAND | nt | nt | 30 | 19 | 11 | 6.5 |
| 3188/14 | n/a | CD 13 | 0.6 to 1.2 | Clayey SAND | nt | nt | 29 | 19 | 10 | 5.5 |

**Abbreviations :**

| | |
|---|---|
| LL | Liquid Limit |
| PL | Plastic Limit |
| PI | Plasticity Index |
| LS | Linear Shrinkage |
| FMC | Field Moisture Content |
| n/a | not applicable |
| nt | not tested |
| n/av | not available |

**Note :**

**Sample History** ☐ Natural — Liquid Limit ☐ Air Dried ☒ Oven Dried

**Preparation Method** ☐ Wet — Liquid Limit ☒ Dry

**Type of Test** ☒ Four Point — Liquid Limit ☒ One Point

**Type of Test** ☒ 125mm — Linear Shrinkage - Mould Size ☐ 150mm ☐ 250mm

| | |
|---|---|
| Tested by: | GV |
| Date tested: | 23/12/02 |
| Checked by: | |
| Authorised Signatory : | D. BROOKE |
| Date: | 24/1/03 |

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# *Soil Index Properties - Report*

***Report No.*** 11113

Client: Newcastle Port Corporation

Job Number: 2111563/00

Project: South Arm Dredging Master Plan

Location: South Arm Hunter River, Newcastle

| TEST METHODS : | | | | | |
|---|---|---|---|---|---|
| | Moisture Content | - | ☒ AS1289.2.1.1 | ☐ | RTA T120 |
| | Liquid Limit (Four Point) | - | ☒ AS1289.3.1.1 | ☐ | RTA T102 |
| | Liquid Limit (One Point) | - | ☒ AS1289.3.1.2 | ☐ | RTA T108 |
| | Plastic Limit | - | ☒ AS1289.3.2.1 | ☐ | RTA T109 |
| | Plasticity Index | - | ☐ AS1289.3.3.1 | ☐ | RTA T103 |
| | Linear Shrinkage | - | ☒ AS1289.3.4.1 | ☐ | RTA T113 |

**Sample History :** Sampled by GHD-LONGMAC (Geotechnical)

| LongMac Sample No. | Client Sample ID | Test Hole | Depth (m) | Description | NDD (t/m³) | FMC (%) | LL (%) | PL (%) | PI (%) | LS (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3215/01 | - | CD 14 | 0.3 - 0.9 | silty clayey SAND | - | 36.6 | 27 | 21 | 6 | 3.5 |
| 3215/03 | - | CD 15 | 0.0 - 0.45 | High plasticity CLAY | - | 120.8 | 69 | 33 | 36 | 17.5 |
| 3215/04 | - | CD 15 | 1.0 - 2.0 | High Plasticity CLAY | - | 121.4 | 72 | 31 | 41 | 17.0 |
| 3215/05 | - | CD 19 | 0.0 - 0.5 | silty clayey SAND | - | 98.5 | - | - | - | - |
| 3215/06 | - | CD 19 | 0.8 - 1.6 | Poorly graded SAND | - | 25.1 | NO | NP | NP | - |
| 3215/07 | - | CD 23 | 0.0 - 0.6 | clayey SAND with silt | - | 33.1 | - | - | - | - |
| 3215/08 | - | CD 23 | 0.6 - 1.2 | silty SAND | - | 29.0 | NO | NP | NP | - |
| 3215/10 | - | CD 25 | 0.0 - 1.25 | clayey SAND | - | 32.6 | 29 | 14 | 15 | 6.5 |

**Abbreviations :**

| | |
|---|---|
| LL | Liquid Limit |
| PL | Plastic Limit |
| PI | Plasticity Index |
| LS | Linear Shrinkage |
| FMC | Field Moisture Content |
| n/a | not applicable |
| nt | not tested |
| n/av | not available |

**Note :**

NO - not obtainable

NP - non plastic

**Sample History** ☐ Natural — Liquid Limit ☐ Air Dried ☒ Oven Dried

**Preparation Method** ☐ Wet — Liquid Limit ☒ Dry

**Type of Test** ☒ Four Point — Liquid Limit ☐ One Point

**Type of Test** ☐ 125mm — Linear Shrinkage - Mould Size ☐ 150mm ☒ 250mm

| | |
|---|---|
| Tested by: | GV |
| Date tested: | 3/3/02 |
| Checked by: | |
| Authorised Signatory : | S. Inman |
| Date: | 12.03.03 |


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# *Soil Index Properties - Report*

***Report No.*** 11114

Client: Newcastle Port Corporation

Job Number: 2111563/00

Project: South Arm Dredging Master Plan

Location: South Arm Hunter River, Newcastle

| TEST METHODS : | | | | | |
|---|---|---|---|---|---|
| | Moisture Content | - | ☒ AS1289.2.1.1 | ☐ | RTA T120 |
| | Liquid Limit (Four Point) | - | ☒ AS1289.3.1.1 | ☐ | RTA T102 |
| | Liquid Limit (One Point) | - | ☐ AS1289.3.1.2 | ☐ | RTA T108 |
| | Plastic Limit | - | ☒ AS1289.3.2.1 | ☐ | RTA T109 |
| | Plasticity Index | - | ☒ AS1289.3.3.1 | ☐ | RTA T103 |
| | Linear Shrinkage | - | ☒ AS1289.3.4.1 | ☐ | RTA T113 |

**Sample History :** Sampled by GHD-LONGMAC (Geotechnical)

| LongMac Sample No. | Client Sample ID | Test Hole | Depth (m) | Description | NDD (t/m³) | FMC (%) | LL (%) | PL (%) | PI (%) | LS (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3215/11 | - | CD 25 | 1.25 - 2.5 | silty SAND | - | 26.4 | NO | NP | NP | - |
| 3215/12 | - | CD 26 | 0.0 - 0.8 | high plasticity SAND | - | 101.6 | 68 | 31 | 37 | 13.0 |
| 3215/13 | - | CD 26 | 1.6 - 2.8 | silty SAND | - | 30.6 | NO | NP | NP | - |
| 3215/15 | - | CD 28 | 0.0 - 0.3 | silty SAND | - | 47.1 | - | - | - | - |
| 3215/17 | - | CD 28 | 0.9 - 1.7 | clayey SAND | - | 27.6 | 26 | 17 | 9 | 3.0 |
| 3215/18 | - | CD 29 | 0.0 - 1.0 | silty SAND with clay | - | 36.3 | - | - | - | - |
| 3215/19 | - | CD 29 | 1.0 - 2.0 | silty SAND | - | 29.9 | - | - | - | - |
| 3215/22 | - | CD 30 | 0.8 - 1.5 | high plasticity SILT | - | 87.1 | 64 | 33 | 31 | 16.0 |

**Abbreviations :**

| | |
|---|---|
| LL | Liquid Limit |
| PL | Plastic Limit |
| PI | Plasticity Index |
| LS | Linear Shrinkage |
| FMC | Field Moisture Content |
| n/a | not applicable |
| nt | not tested |
| n/av | not available |

**Note :**

NO - Not obtainable

NP - Non Plastic

**Sample History** ☐ Natural — Liquid Limit ☐ Air Dried ☒ Oven Dried

**Preparation Method** ☐ Wet — Liquid Limit ☒ Dry

**Type of Test** ☒ Four Point — Liquid Limit ☐ One Point

**Type of Test** ☒ 125mm — Linear Shrinkage - Mould Size ☐ 150mm ☐ 250mm

| | |
|---|---|
| Tested by: | GZ |
| Date tested: | 3/3/03 |
| Checked by: | |
| Authorised Signatory : | S. Ignatin |
| Date: | 12.03.03 |


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# *Soil Index Properties - Report*

***Report No.*** 11115

Client: Newcastle Port Corporation

Job Number: 2111563/00

Project: South Arm Dredging Master Plan

Location: *South Arm Hunter River, Newcastle*

| TEST METHODS : | | | | | |
|---|---|---|---|---|---|
| | Moisture Content | - | ☒ AS1289.2.1.1 | ☐ | RTA T120 |
| | Liquid Limit (Four Point) | - | ☒ AS1289.3.1.1 | ☐ | RTA T102 |
| | Liquid Limit (One Point) | - | ☐ AS1289.3.1.2 | ☐ | RTA T108 |
| | Plastic Limit | - | ☒ AS1289.3.2.1 | ☐ | RTA T109 |
| | Plasticity Index | - | ☒ AS1289.3.3.1 | ☐ | RTA T103 |
| | Linear Shrinkage | - | ☒ AS1289.3.4.1 | ☐ | RTA T113 |

**Sample History :** Sampled by GHD-LONGMAC (Geotechnical)

| LongMac Sample No. | Client Sample ID | Test Hole | Depth (m) | Description | NDD (t/m³) | FMC (%) | LL (%) | PL (%) | PI (%) | LS (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3215/23 | - | CD 30 | 2.3 - 3.0 | High plasticity CLAY | - | 85.3 | 67 | 29 | 38 | 15.0 |

**Abbreviations :**

| | |
|---|---|
| LL | Liquid Limit |
| PL | Plastic Limit |
| PI | Plasticity Index |
| LS | Linear Shrinkage |
| FMC | Field Moisture Content |
| n/a | not applicable |
| nt | not tested |
| n/av | not available |

**Note :**

**Sample History** ☐ Natural — Liquid Limit ☐ Air Dried ☒ Oven Dried

***Preparation Method*** ☐ Wet — Liquid Limit ☒ Dry

**Type of Test** ☒ Four Point — Liquid Limit ☐ One Point

**Type of Test** ☒ 125mm — Linear Shrinkage - Mould Size ☐ 150mm ☐ 250mm

| | |
|---|---|
| Tested by: | GZ |
| Date tested: | 3/03/03 |
| Checked by: | |
| Authorised Signatory : | S. IHNATIN |
| Date: | 12.03.03 |

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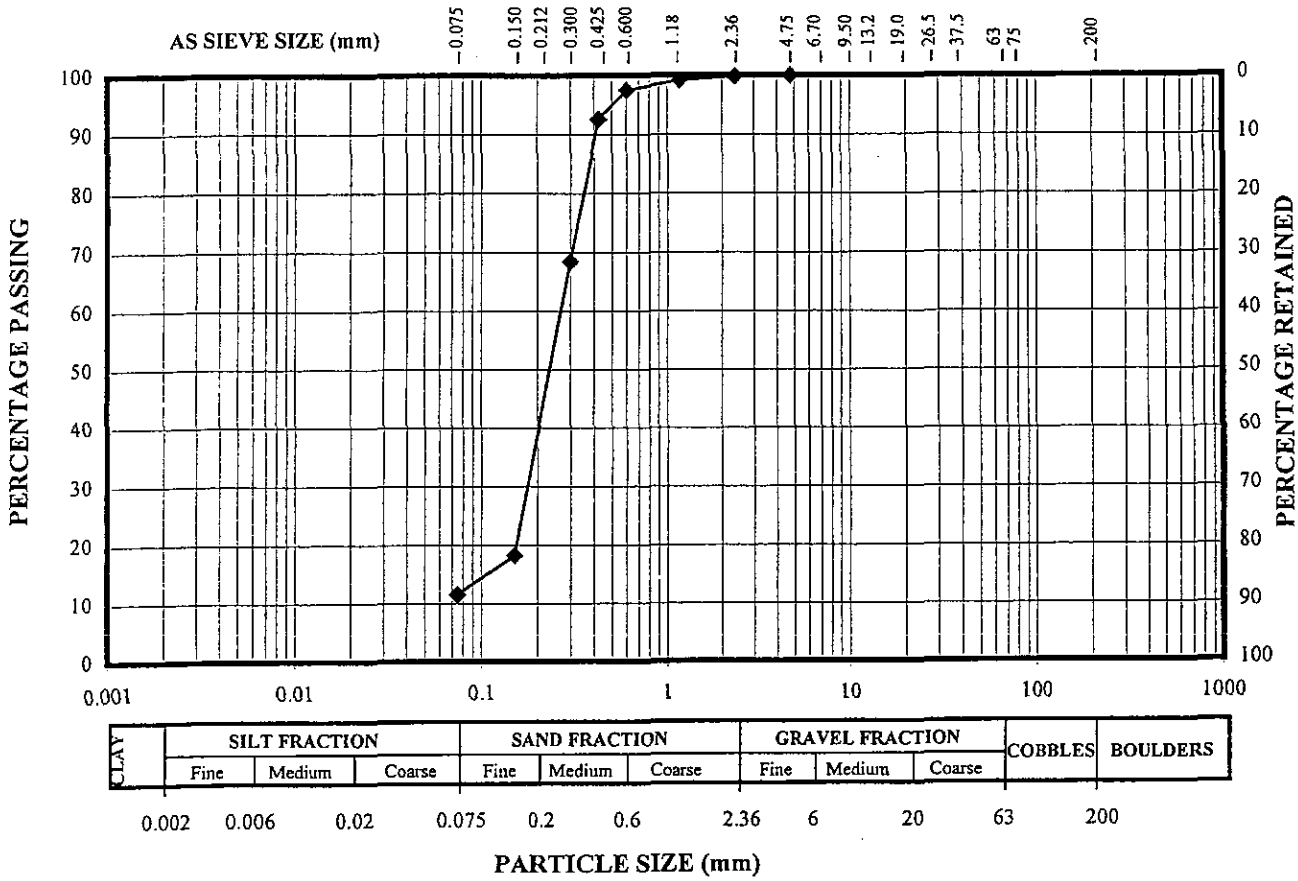
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD 1 |
| **Depth:** | 0.0 to 0.15 |
| **Sample No:** | 3188/01 |

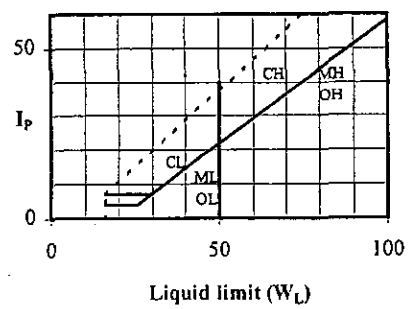
**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.1

**OTHER TESTS**




**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:**

**SOIL NAME:** SAND with silt (visual)

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

Tested by: GV
Date tested: 18.12.02
Checked by:
Date checked: 21.1.03.

Certified by:
21/1/03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| | |
|---|---|
| JOB No. | 211156300 |
| REPORT No. | 10950 |

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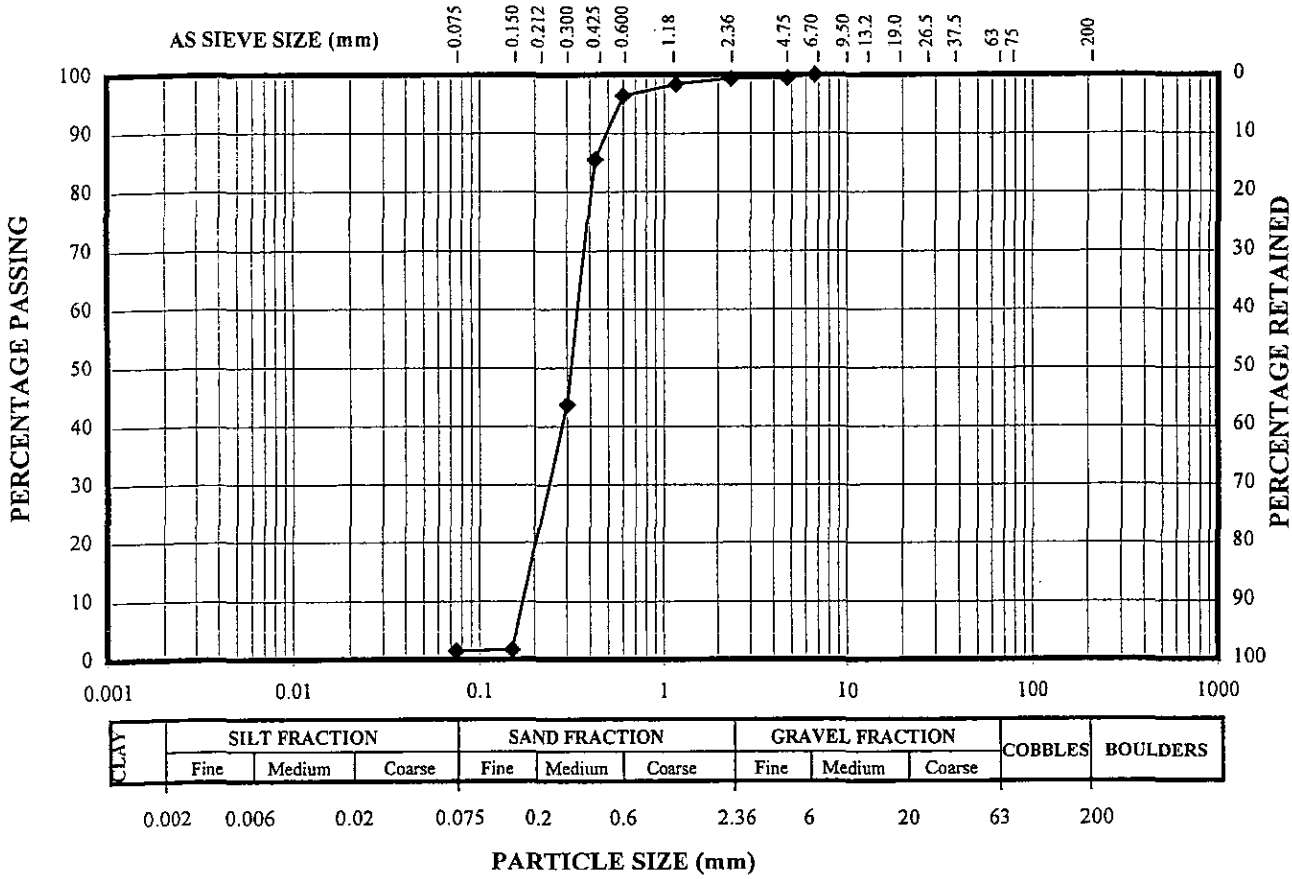
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD 1 |
| **Depth:** | 0.5 to 1.5 |
| **Sample No:** | 3188/02 |

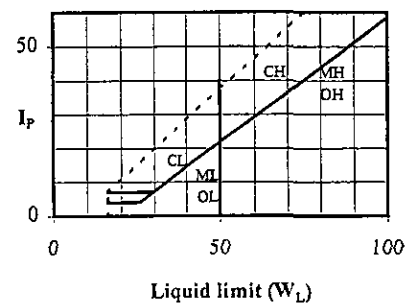
**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.1

**OTHER TESTS**




***GRADING***
$C_u = D_{60} / D_{10} =$ 1.9
$C_c = D_{30} / (D_{10} \times D_{60}) =$ 1.0

**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:** SP

***SOIL NAME:*** *Poorly graded SAND*

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

**REMARKS:**

Tested by: GV
Date tested: 18.12.02
Checked by: SB
Date checked: 21.01.03.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**GHD-LONGMAC PTY. LTD.** Accreditation No: 679


Certified by: D. Groove 21/1/03

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| | |
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| JOB No. | 211156300 |
| REPORT No. | 10951 |

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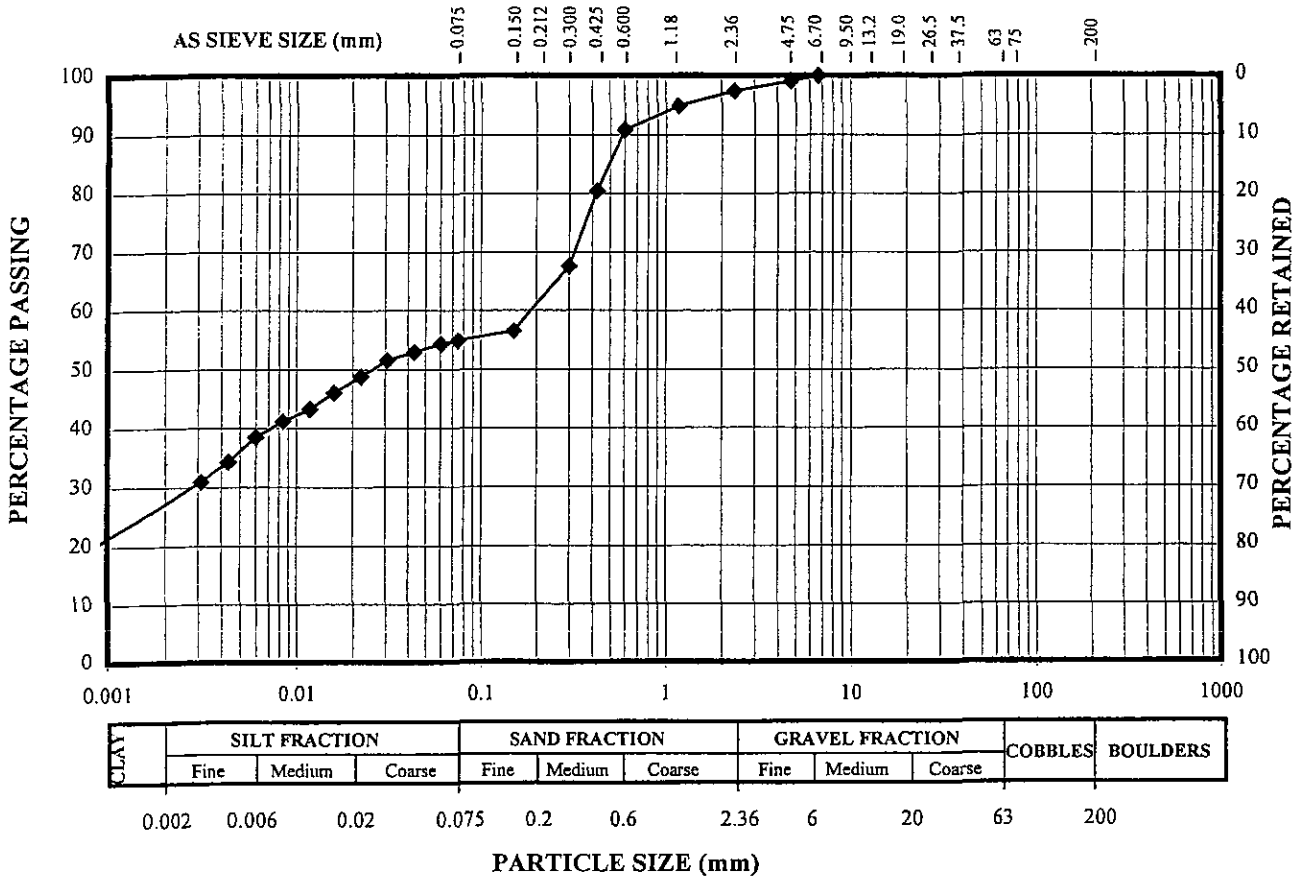
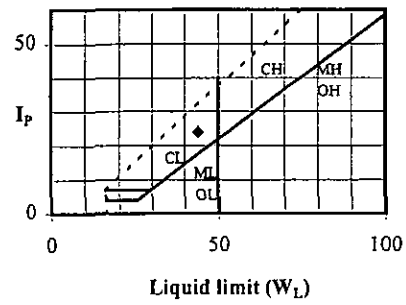
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD 3 |
| **Depth:** | 0.0 to 0.6 |
| **Sample No:** | 3188/04 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289.3.1.2
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve with dispersing agent

**GROUP SYMBOL:** CL

**SOIL NAME:** Sandy medium plasticity CLAY

**INDEX PROPERTIES (%)**
Liquid Limit = 44 Plastic Limit = 20
Plasticity Index = 24 Linear Shrinkage % 11.0

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) One point

**Linear Shrinkage** (mould size) 125 mm

**REMARKS:**

Tested by: GV
Date tested: 19.12.02
Checked by: SD
Date checked: 21.01.03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Telephone (02) 9439 4033 Fax (02) 9436 0606 A.C.N. 003 666 966
**GHD-LONGMAC PTY. LTD.** Accreditation No: 679


Certified by: D. GROVE 21/1/03

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| | |
|---|---|
| JOB No. | 211156300 |
| REPORT No. | 10952 |

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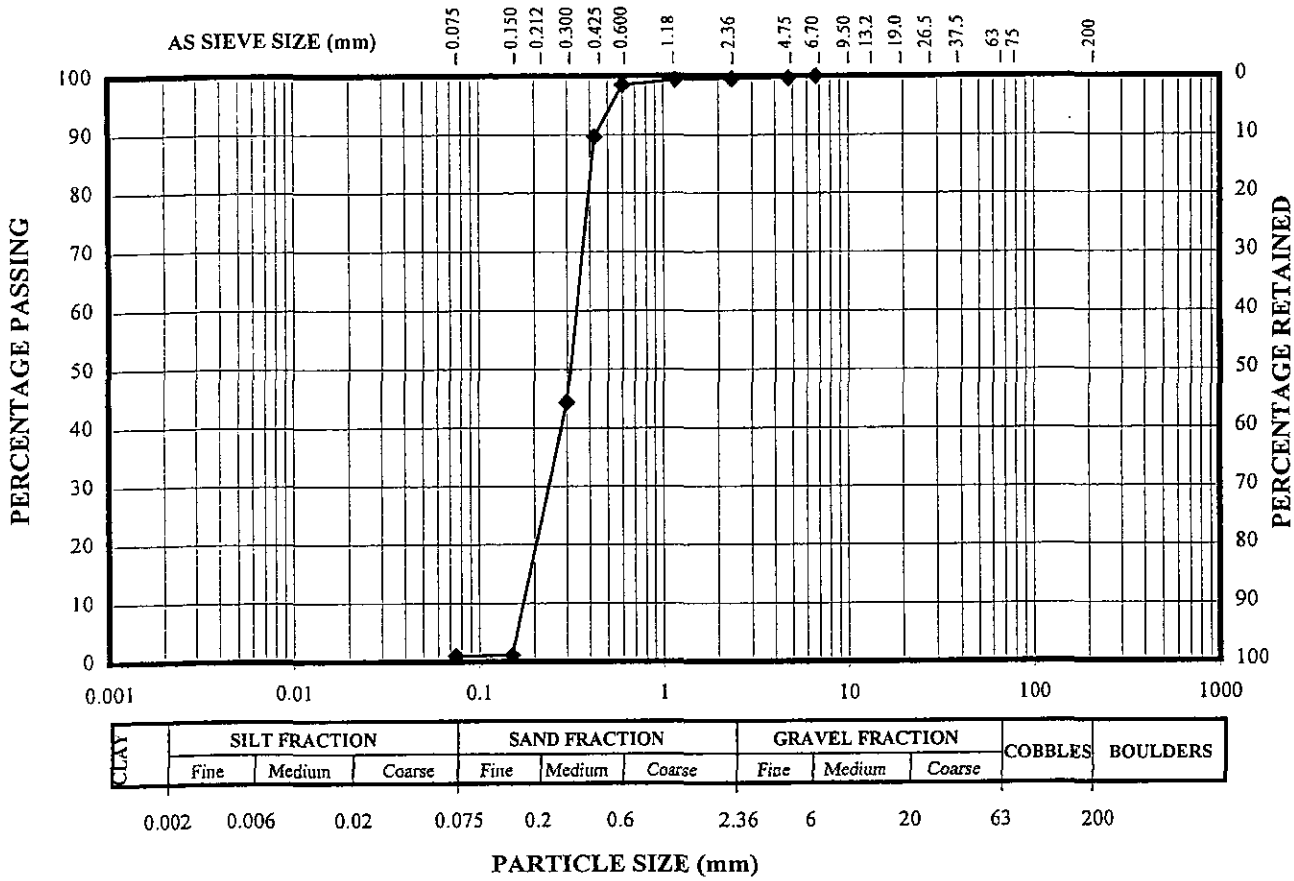
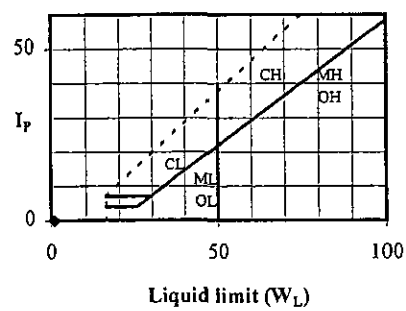
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD 3 |
| **Depth:** | 2.0 to 2.5 |
| **Sample No:** | 3188/05 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.1

**OTHER TESTS** AS1289.3.1.2
AS1289.3.2.1 AS1289.3.3.1

**GRADING**
$C_u = D_{60} / D_{10} =$ 1.9
$C_c = D_{30} / (D_{10} \times D_{60}) =$ 1.0

**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:** SP

**SOIL NAME:** Poorly graded SAND

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = n/a Plastic Limit = NP
Plasticity Index = NP Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) One point

**Linear Shrinkage** (mould size)

Tested by: GV
Date tested: 19.12.02
Checked by:
Date checked: 21.01.03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Certified by:
D. BROOKE
21/1/03

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| JOB No. | 211156300 |
| REPORT No. | 10953 |

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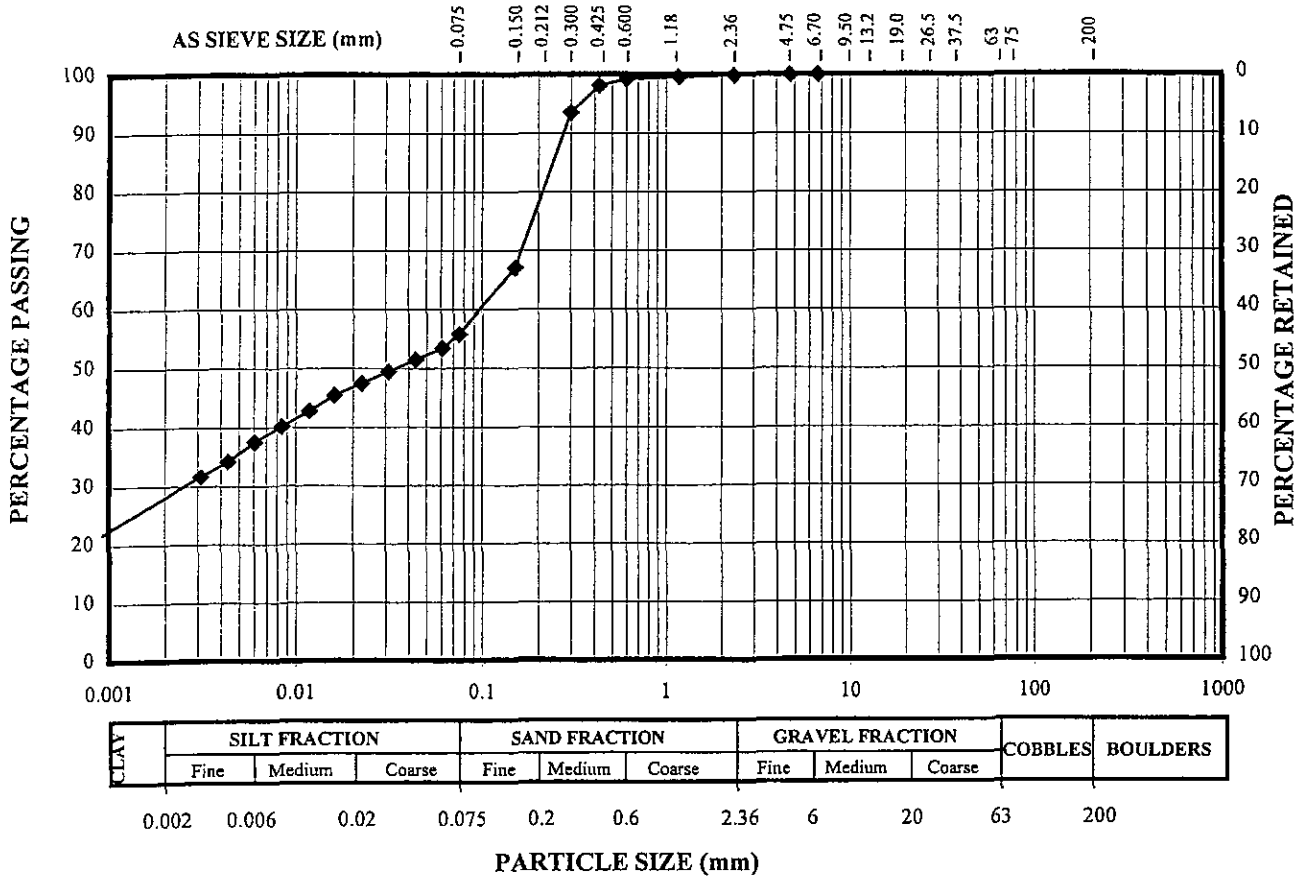
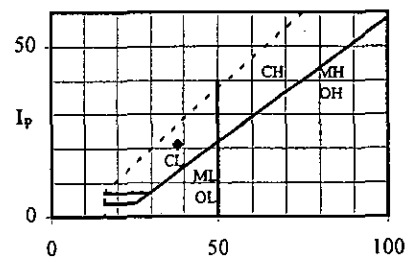
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD 4 |
| **Depth:** | 1.6 to 2.3 |
| **Sample No:** | 3188/06 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1 AS1289/C5.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.57 (measured)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve with dispersing agent

**GROUP SYMBOL:** CL

**SOIL NAME:** Sandy medium plasticity CLAY

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = 38 Plastic Limit = 17
Plasticity Index = 21 Linear Shrinkage % 9.5

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) Four point

**Linear Shrinkage** (mould size) 125 mm

Tested by: GV
Date tested: 19.12.02
Checked by:
Date checked: 21.01.03

Certified by:
21/1/03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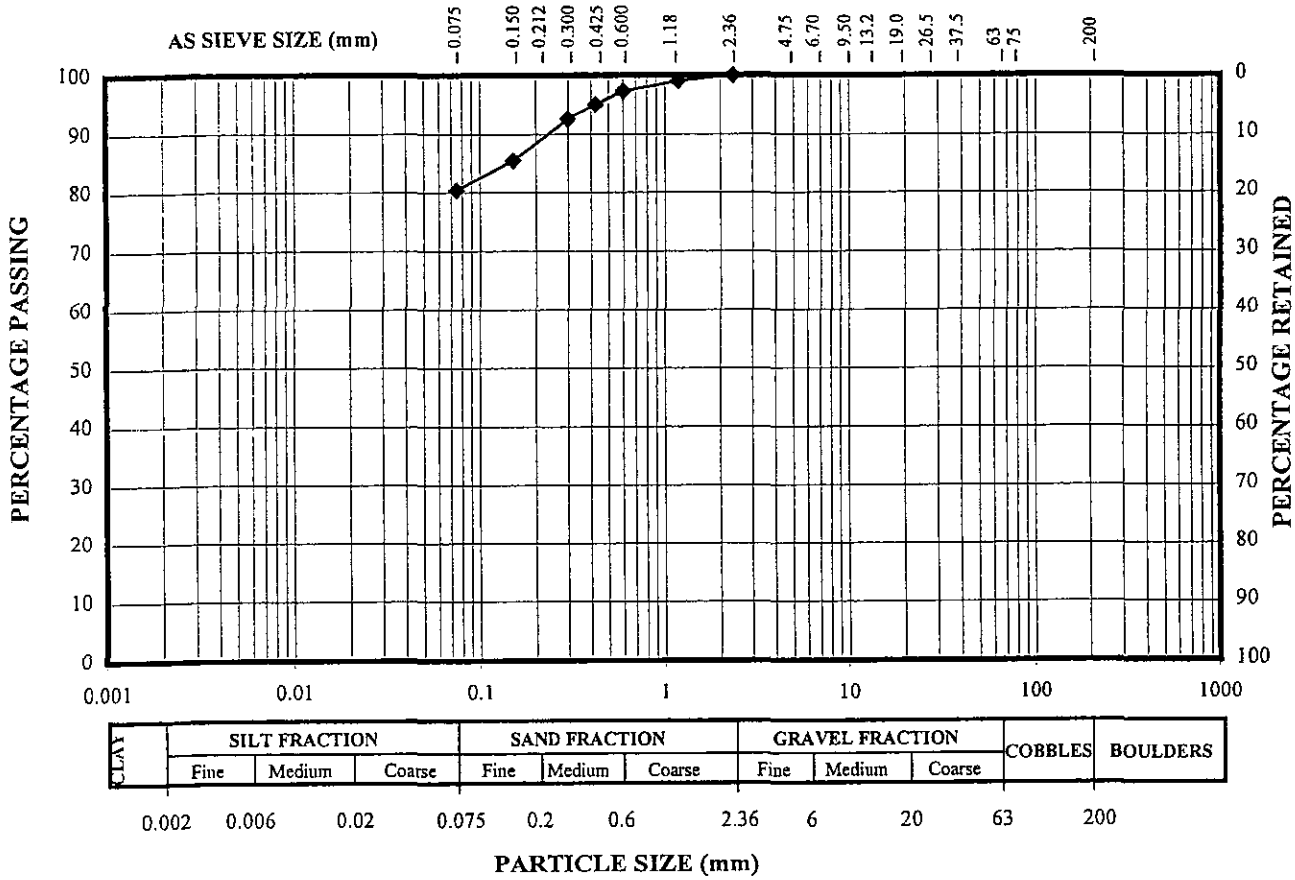
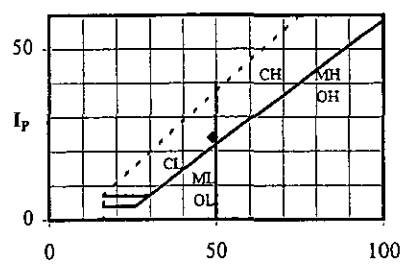
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD 5 |
| **Depth:** | 0.0 to 0.7 |
| **Sample No:** | 3188/07 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification *AS1726 A2* *Particle size* *AS1289.3.6.1*

**OTHER TESTS** AS1289.3.1.2
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:** CL

**SOIL NAME:** Medium plasticity CLAY with sand

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = 49 Plastic Limit = 25
Plasticity Index = 24 Linear Shrinkage % 11.0

**Atterberg Limits** (preparation method) Dry
**Liquid Limit** (type of test) One point
**Linear Shrinkage** (mould size) 125 mm

Tested by: GV
Date tested: 19.12.02
Checked by:
Date checked: 21.01.03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Certified by:
D. Brooke
21/1/03

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| REPORT No. | 10955 |

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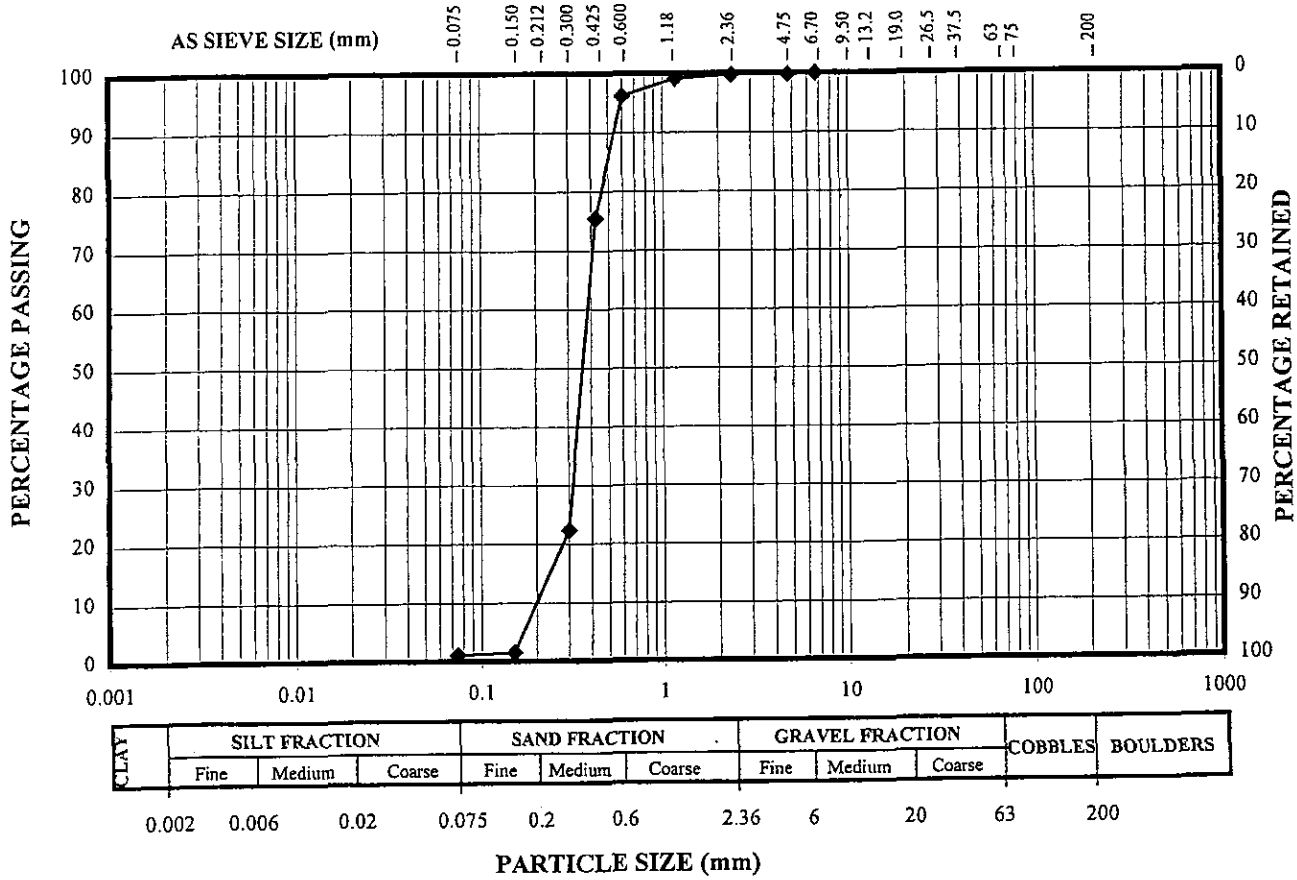
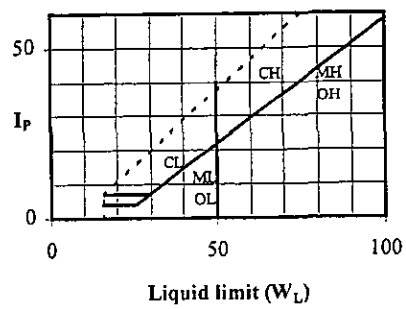
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD 5 |
| **Depth:** | 2.4 to 4.1 |
| **Sample No:** | 3188/08 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.1

**OTHER TESTS**

**GRADING**
$C_u = D_{60} / D_{10} =$ 1.8
$C_c = D_{30} / (D_{10} \times D_{60}) =$ 1.2

**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:** SP

**SOIL NAME:** Poorly graded SAND

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

**REMARKS:**

Tested by: GV
Date tested: 18.12.02
Checked by:
Date checked: 21.01.03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Certified by:
D Bloore
21/1/03

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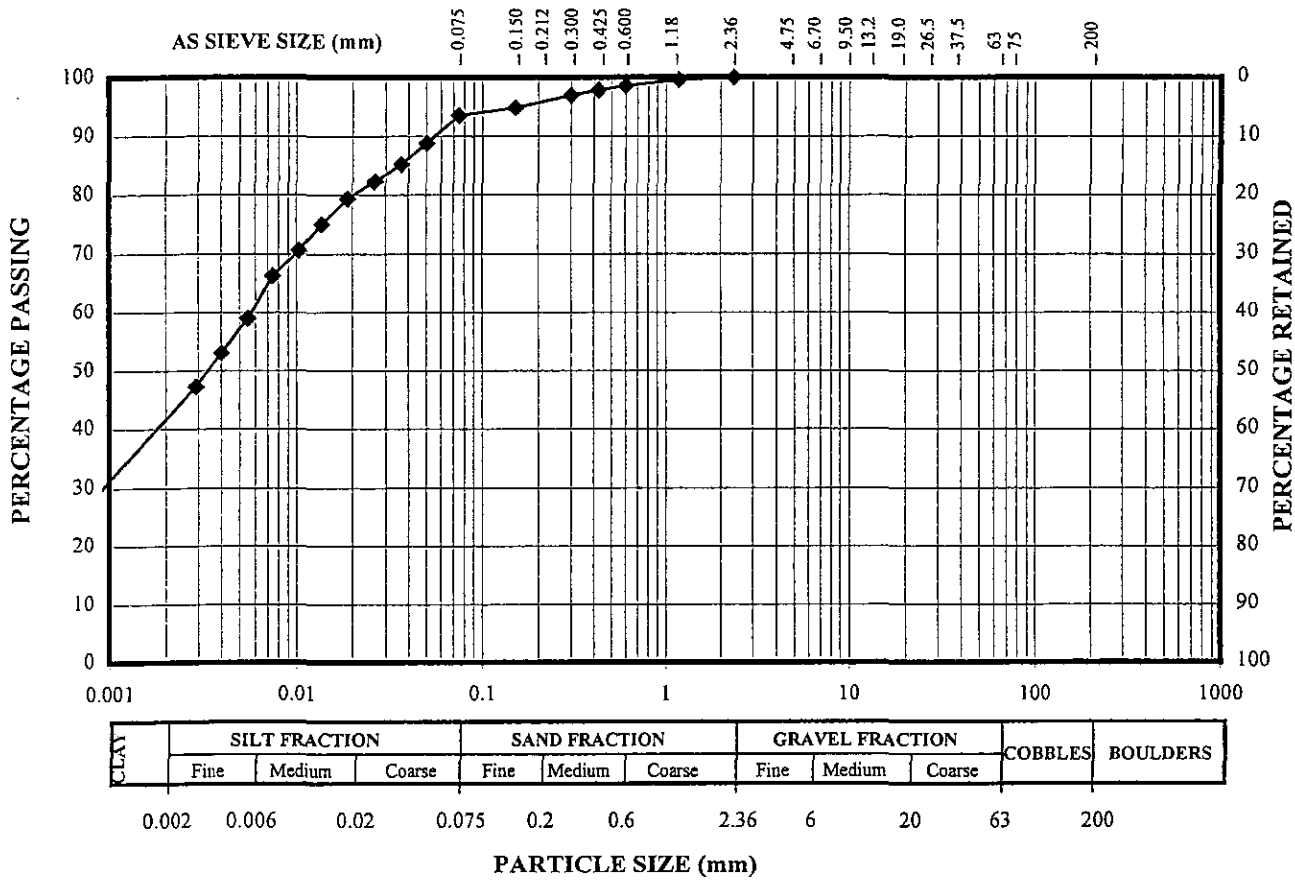
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD 6 |
| **Depth:** | 0.6 to 1.3 |
| **Sample No:** | 3188/09 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

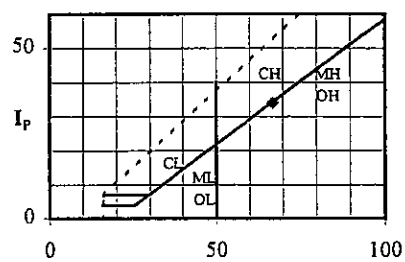
**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.3

**OTHER TESTS** AS1289.3.1.2
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable




**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve with dispersing agent

**GROUP SYMBOL:** CH

**SOIL NAME:** High plasticity CLAY

**INDEX PROPERTIES (%)**
Liquid Limit = 67 Plastic Limit = 33
Plasticity Index = 34 Linear Shrinkage % 17.0

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) One point

**Linear Shrinkage** (mould size) 125 mm

**REMARKS:**

Tested by: GV
Date tested: 19.12.02
Checked by: SJ
Date checked: 21.01.03

Certified by: D. BROOKE 21/1/03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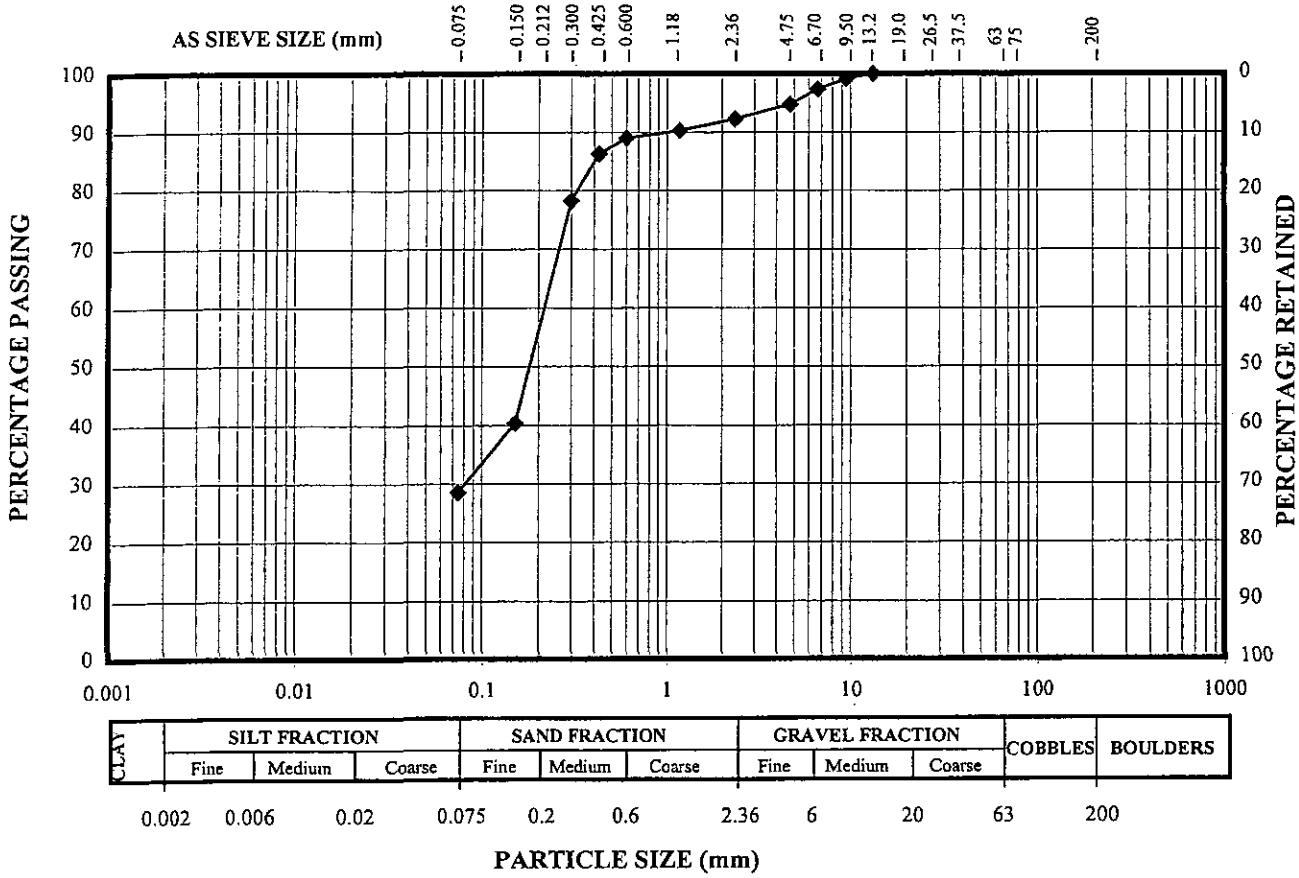
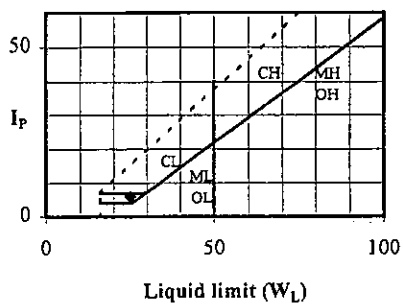
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD 9 |
| **Depth:** | 0.0 to 0.6 |
| **Sample No:** | 3188/10 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.1

**OTHER TESTS** AS1289.3.1.2
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:** SC - SM

**SOIL NAME:** Silty, clayey SAND

**INDEX PROPERTIES (%)**
Liquid Limit = 25 Plastic Limit = 19
Plasticity Index = 6 Linear Shrinkage % 5.0

**Atterberg Limits** (preparation method) Dry
**Liquid Limit** (type of test) One point
**Linear Shrinkage** (mould size) 125 mm

**REMARKS:**

Tested by: GV
Date tested: 19.12.02
Checked by:
Date checked: 21.01.03

Certified by:
D. BROOKE
21/1/03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| REPORT No. | 10958 |

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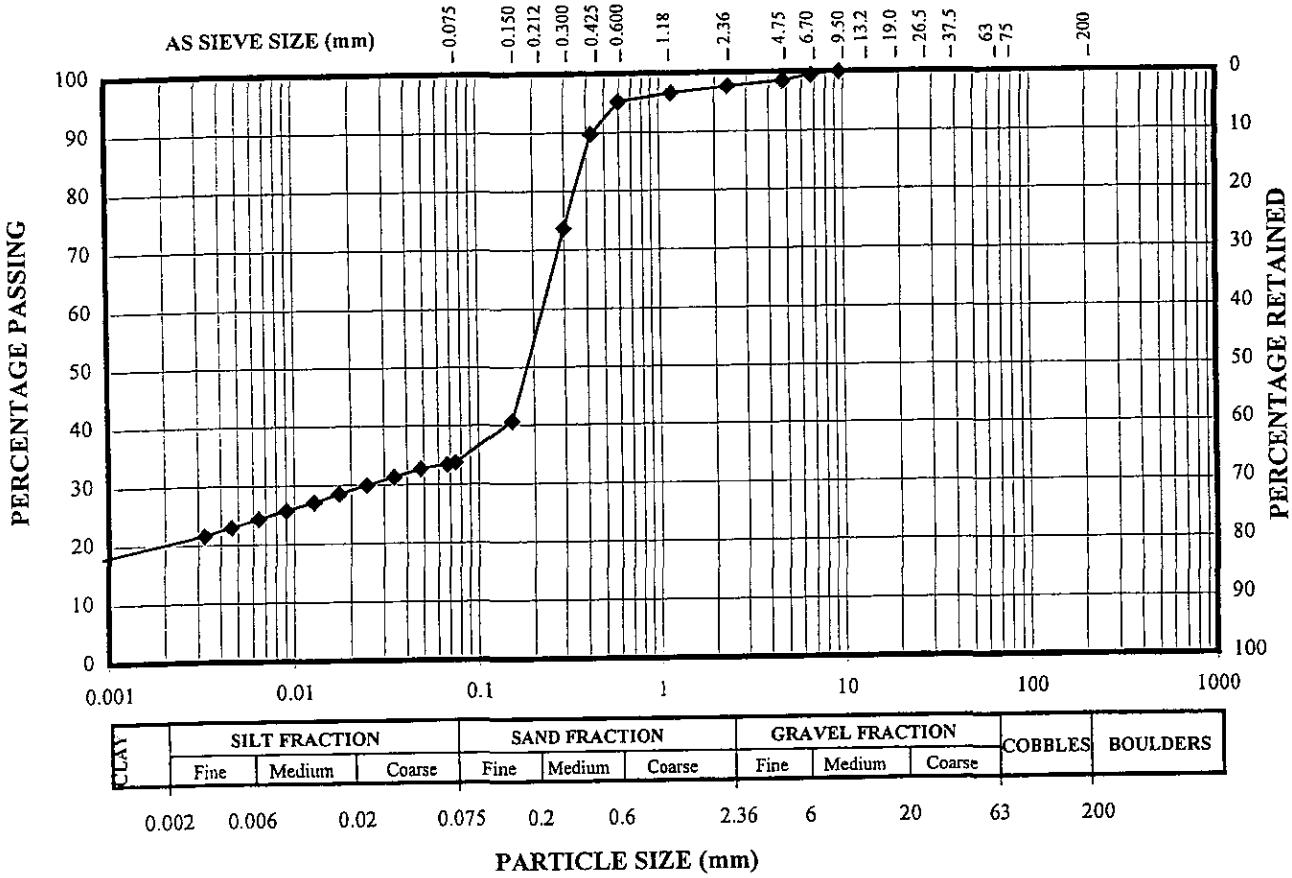
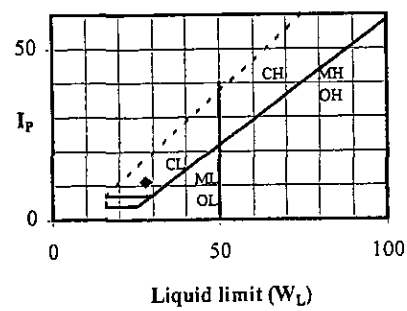
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| Trial Hole: | CD 9 |
| Depth: | 2.5 to 3.4 |
| Sample No: | 3188/11 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve with dispersing agent

**GROUP SYMBOL:** SC

**SOIL NAME:** Clayey SAND

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = 28 Plastic Limit = 17
Plasticity Index = 11 Linear Shrinkage % 8.0

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) Four point

**Linear Shrinkage** (mould size) 125 mm

Tested by: GV
Date tested: 19.12.02
Checked by: SB
Date checked: 21.01.03

Certified by:
D Brooke
21/1/03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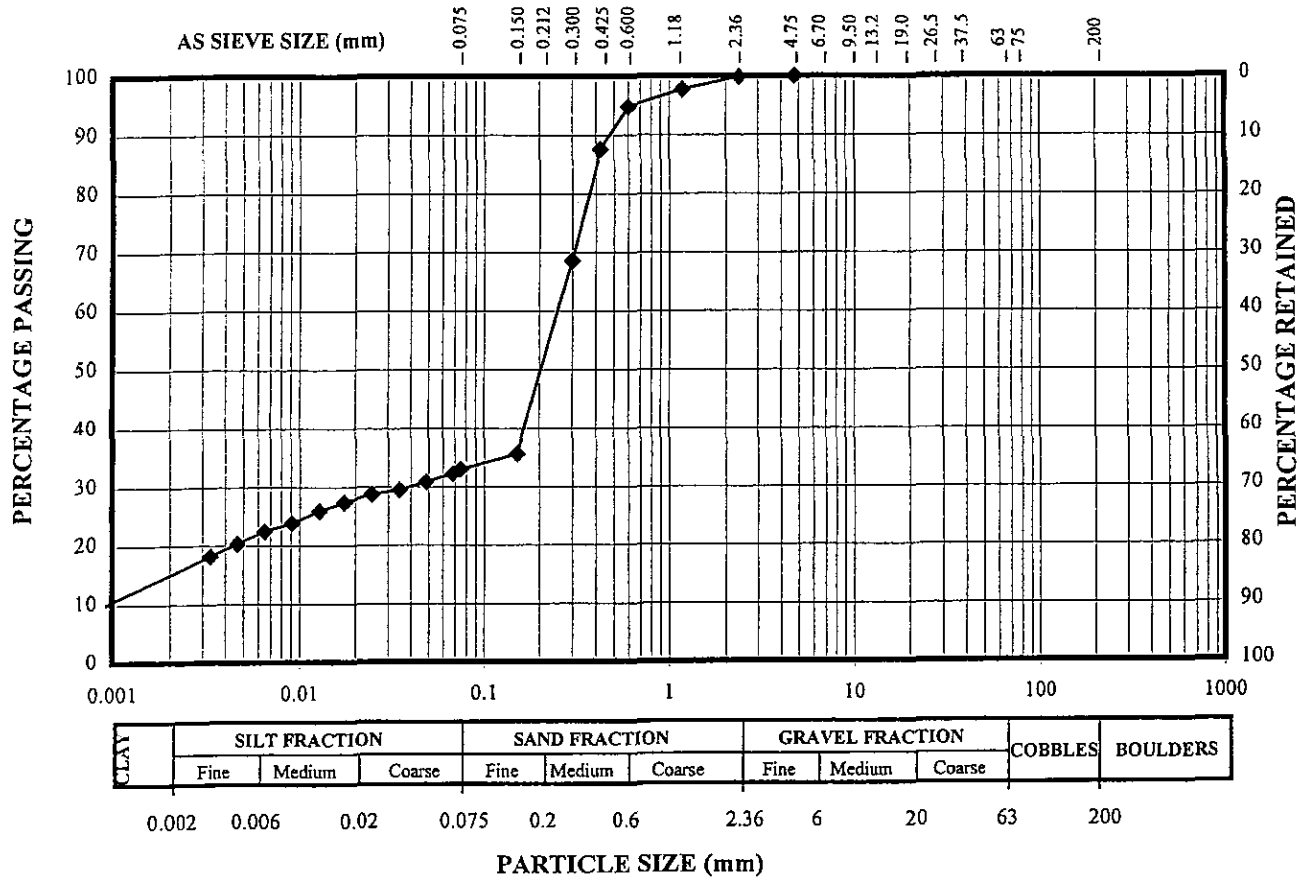
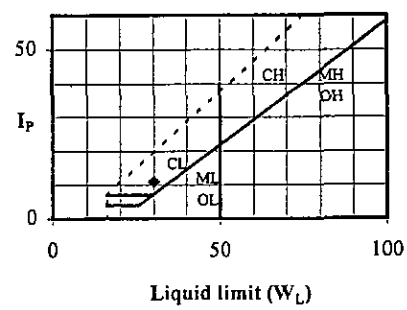
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD 11 |
| **Depth:** | 2.9 to 3.1 |
| **Sample No:** | 3188/13 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289.3.1.2
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10} =$ 247.9
$C_c = D_{30} / (D_{10} \times D_{60}) =$ 5.8

**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve with dispersing agent

**GROUP SYMBOL:** SC

**SOIL NAME:** Clayey SAND

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = 30 Plastic Limit = 19
Plasticity Index = 11 Linear Shrinkage % 6.5

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) One point

**Linear Shrinkage** (mould size) 125 mm

Tested by: GV
Date tested: 19.12.02
Checked by:
Date checked: 21.01.03

Certified by:
21/1/03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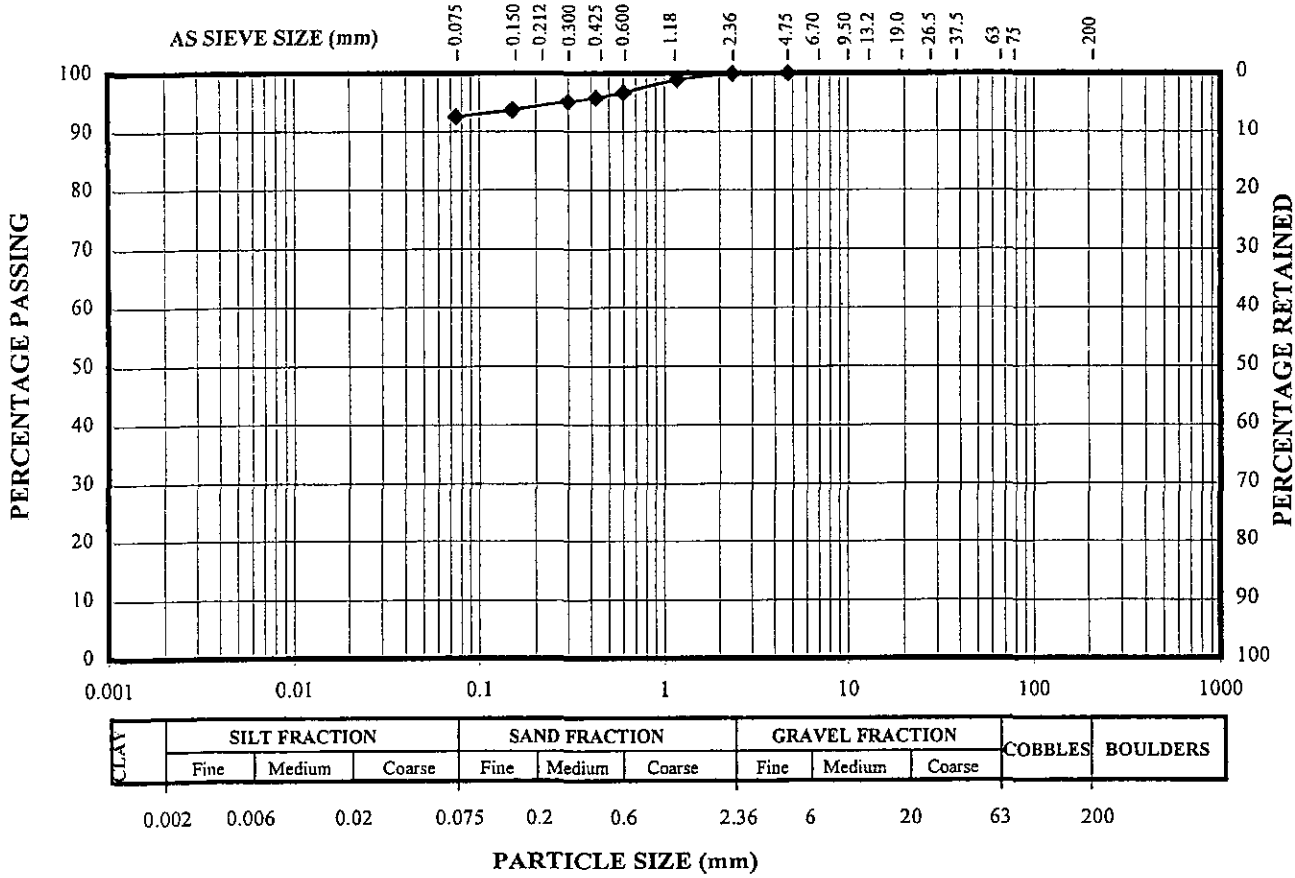
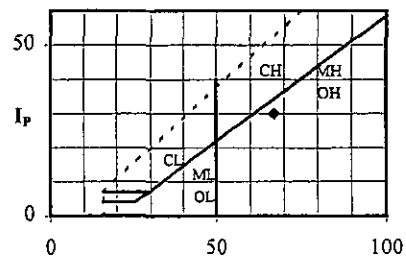
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD 11 |
| **Depth:** | 0.75 to 1.5 |
| **Sample No:** | 3188/12 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.1

**OTHER TESTS** AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:** MH

**SOIL NAME:** High plasticity SILT

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = 67 Plastic Limit = 37
Plasticity Index = 30 Linear Shrinkage % 16.0

**Atterberg Limits** (preparation method) Dry

***Liquid Limit*** (type of test) Four point

**Linear Shrinkage** (mould size) 125 mm

Tested by: GV
Date tested: 19.12.02
Checked by:
Date checked: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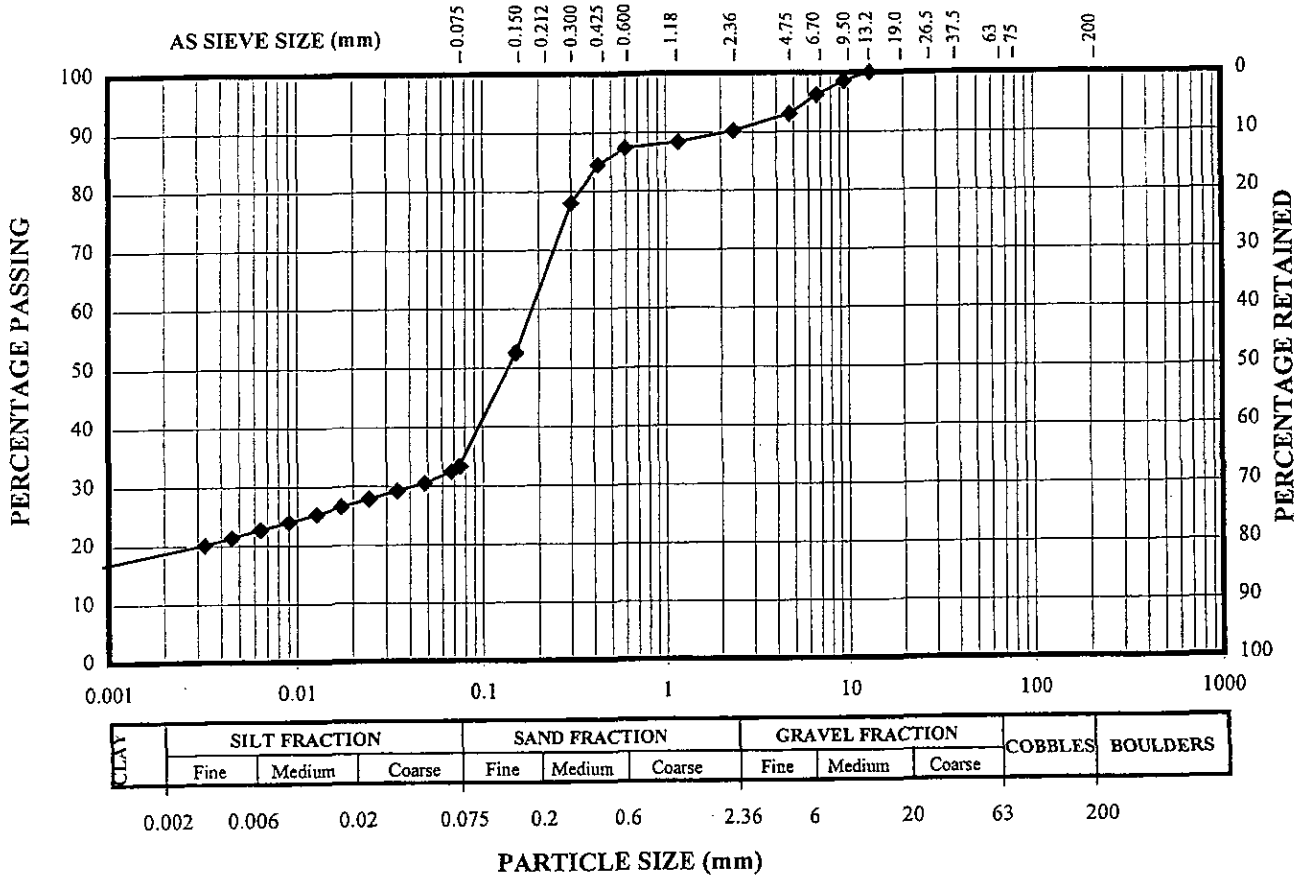
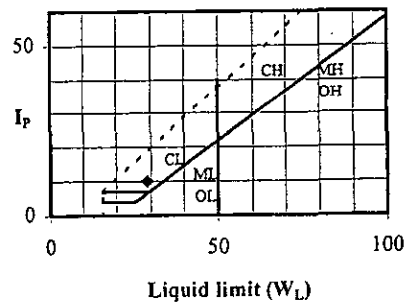
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| Trial Hole: | CD 13 |
| Depth: | 0.6 to 1.2 |
| Sample No: | 3188/14 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sampled by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve with dispersing agent

**GROUP SYMBOL:** SC

**SOIL NAME:** Clayey SAND

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = 29 Plastic Limit = 19
Plasticity Index = 10 Linear Shrinkage % 5.5

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) Four point

**Linear Shrinkage** (mould size) 125 mm

Tested by: GV
Date tested: 19.12.02
Checked by:
Date checked: 21.01.03

Certified by:
21/1/03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| JOB No. | 211156300 |
| REPORT No. | 10968 |

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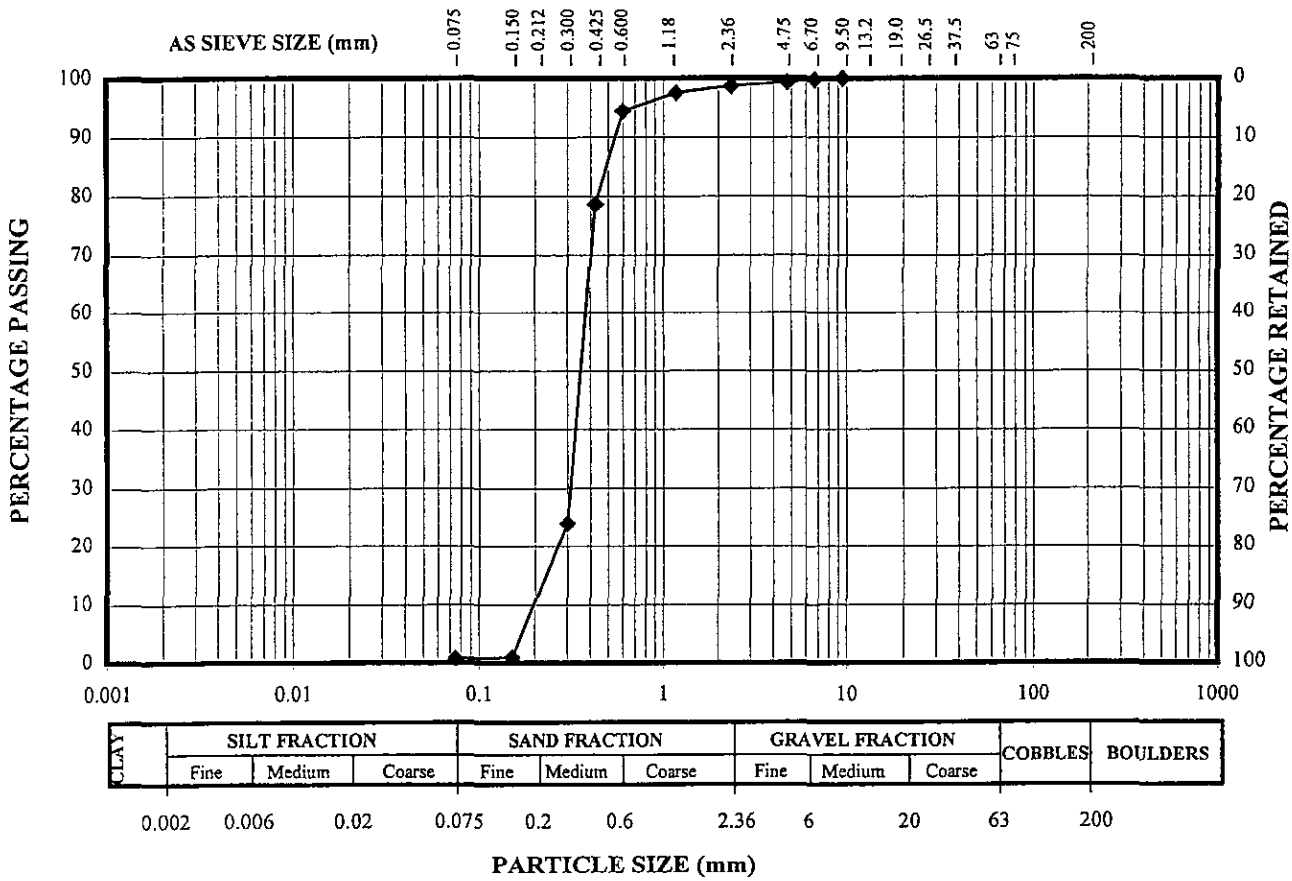
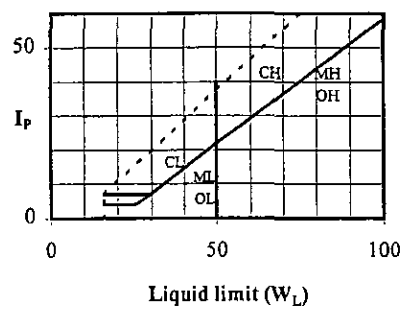
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| Trial Hole: | CD 13 |
| Depth: | 1.9 to 4.0 |
| Sample No: | 3188/15 |

**Client:** Newcastle port Corporation
***Project:*** *South Arm Dredging Master Plan*
**Location:** Kooragang, NSW

**Client Sample No.:** n/a
**Sample History:** Sample by GHD Longmac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.1

**OTHER TESTS**

**GRADING**
$C_u = D_{60} / D_{10} =$ 1.8
$C_c = D_{30} / (D_{10} \times D_{60}) =$ 1.2

**PARTICLE DENSITY** 2.6 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:** SP

**SOIL NAME:** Poorly graded SAND

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

Tested by: GV
*Date tested:* 18.12.02
Checked by:
*Date checked:* 21.01.03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Certified by:
D. Brooke
21/1/03

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| REPORT No. | 10970 |

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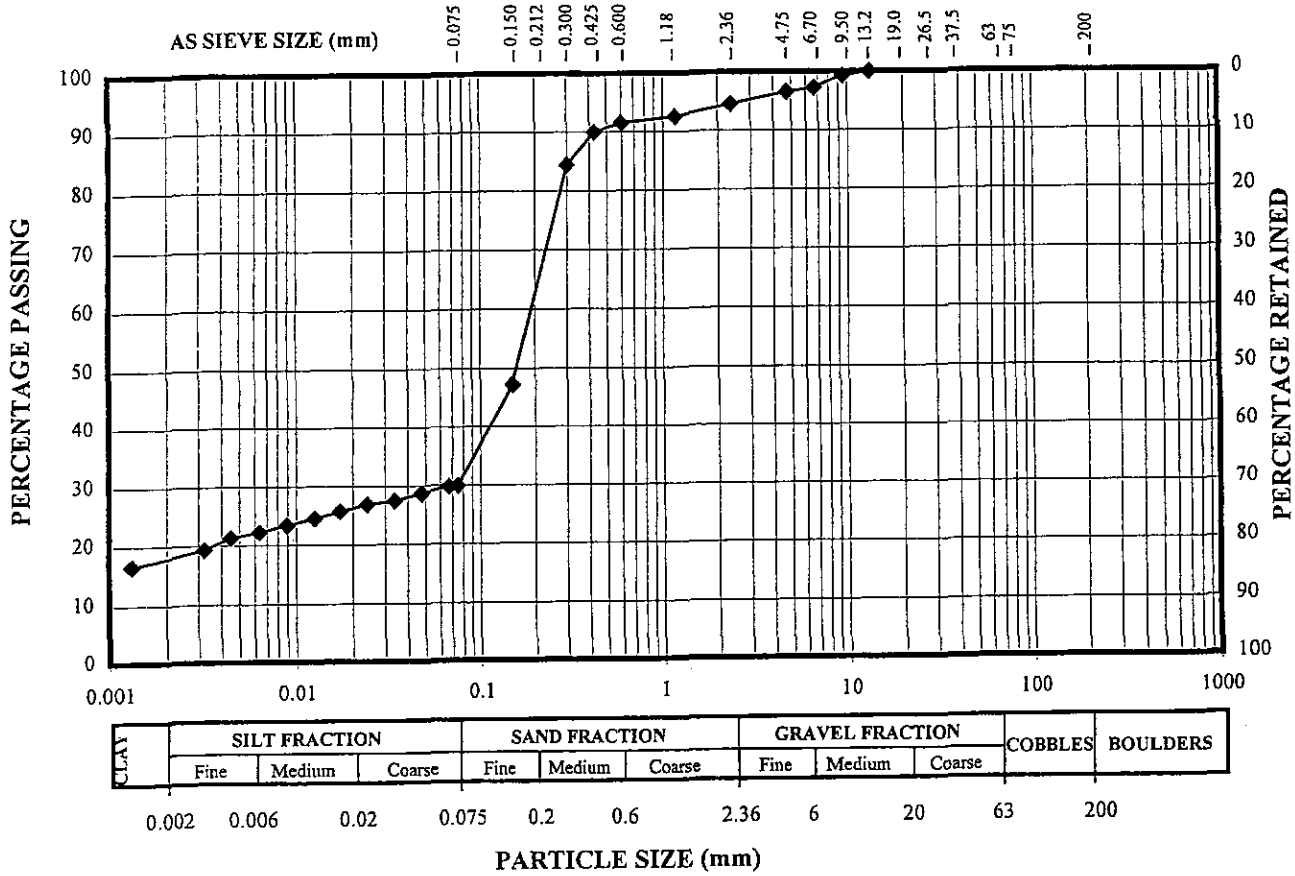
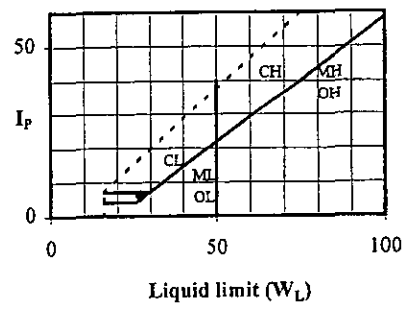
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD14 |
| **Depth:** | 0.3 to 0.9 |
| **Sample No:** | 3215/01 |

**Client:** Newcastle Ports Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289/2.1.1 AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1 AS1289/C5.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.61 (measured)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Dry

**GROUP SYMBOL:** SC-SM

**SOIL NAME:** Silty, clayey sand.

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = 27 Plastic Limit = 21
Plasticity Index = 6 Linear Shrinkage % 3.5

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) Standard

**Linear Shrinkage** (mould size) 250 mm

Tested by: GZ
Date tested: 25.02.03
Checked by: DB
Date checked: 6/3/03

Certified by: S. Ignatin 12.03.03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| REPORT No. | 11065 |

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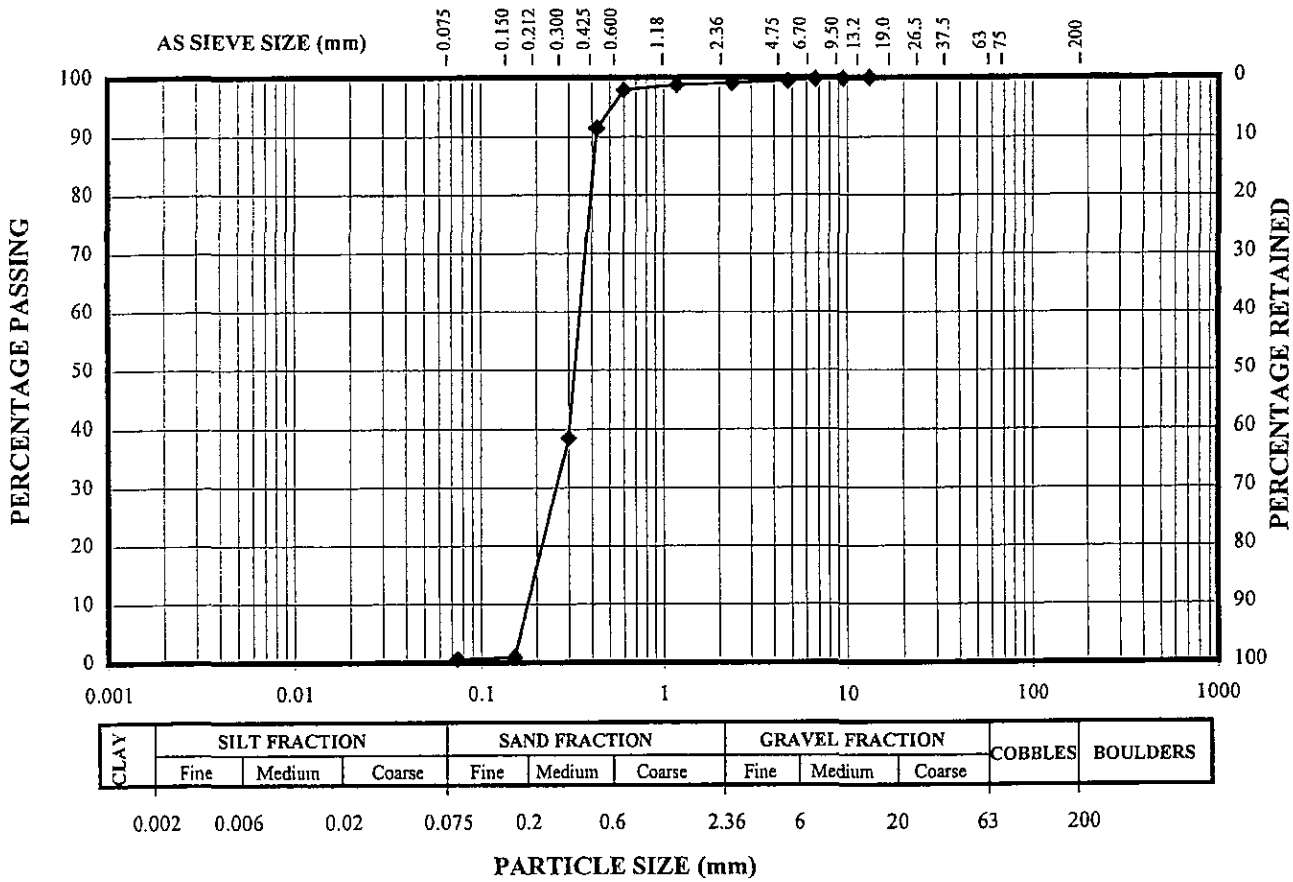
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| Trial Hole: | CD14 |
| Depth: | 2.1 to 2.5 |
| Sample No: | 3215/02 |

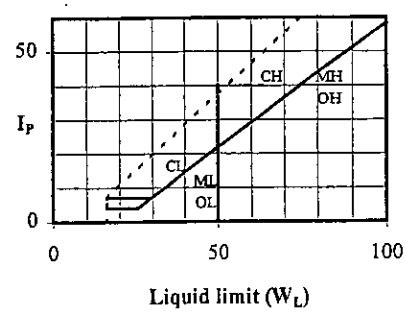
**Client:** Newcastle Ports Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.1

**OTHER TESTS**




**GRADING**
$C_u = D_{60} / D_{10}$ = 1.9
$C_c = D_{30} / (D_{10} \times D_{60})$ = 1.1

**PARTICLE DENSITY** 2.65 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:** SW

**SOIL NAME:** Well-graded sand.

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

**REMARKS:**

Tested by: GZ
Date tested: 25.02.03
Checked by: JB
Date checked: 6/3/03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Accreditation No: 679

Certified by: S. Ignatin 12.03.03

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| REPORT No. | 11093 |

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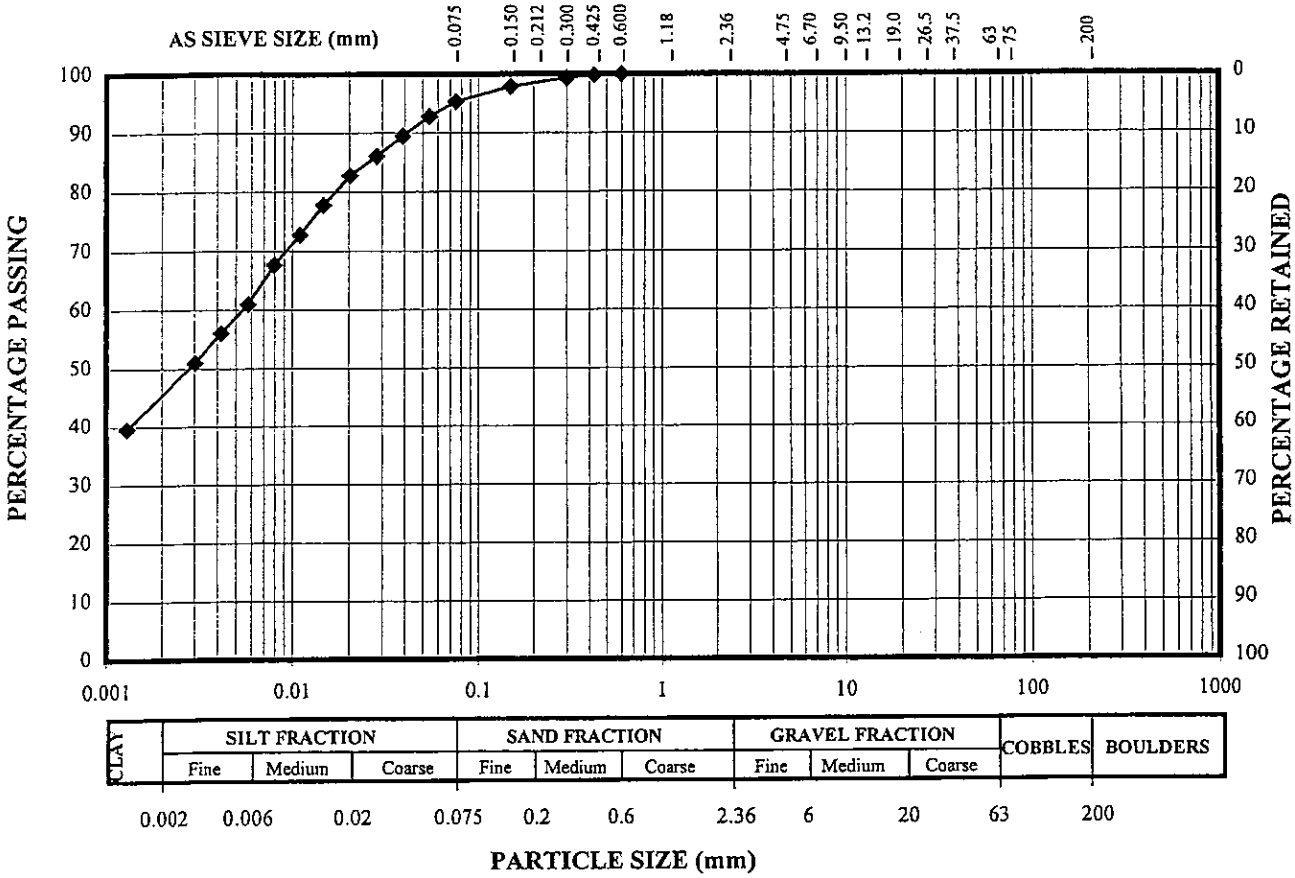
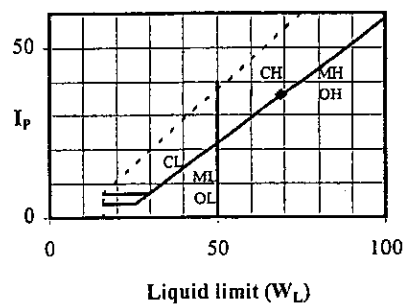
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD15 |
| **Depth:** | 0.0 to 0.45 |
| **Sample No:** | 3215/03 |

**Client:** Newcastle Ports Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289/2.1.1 AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1 AS1289/C5.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.53 (measured)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Dry

**GROUP SYMBOL:** CH

**SOIL NAME:** High plasticity clay.

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = 69 Plastic Limit = 33
Plasticity Index = 36 Linear Shrinkage % 17.5

**Atterberg Limits** (preparation method) Dry
**Liquid Limit** (type of test) Standard
**Linear Shrinkage** (mould size) 150 mm

Tested by: GZ
Date tested: 25.02.03
Checked by: D
Date checked: 6/3/03

Certified by: S. IGNATIN
12.03.03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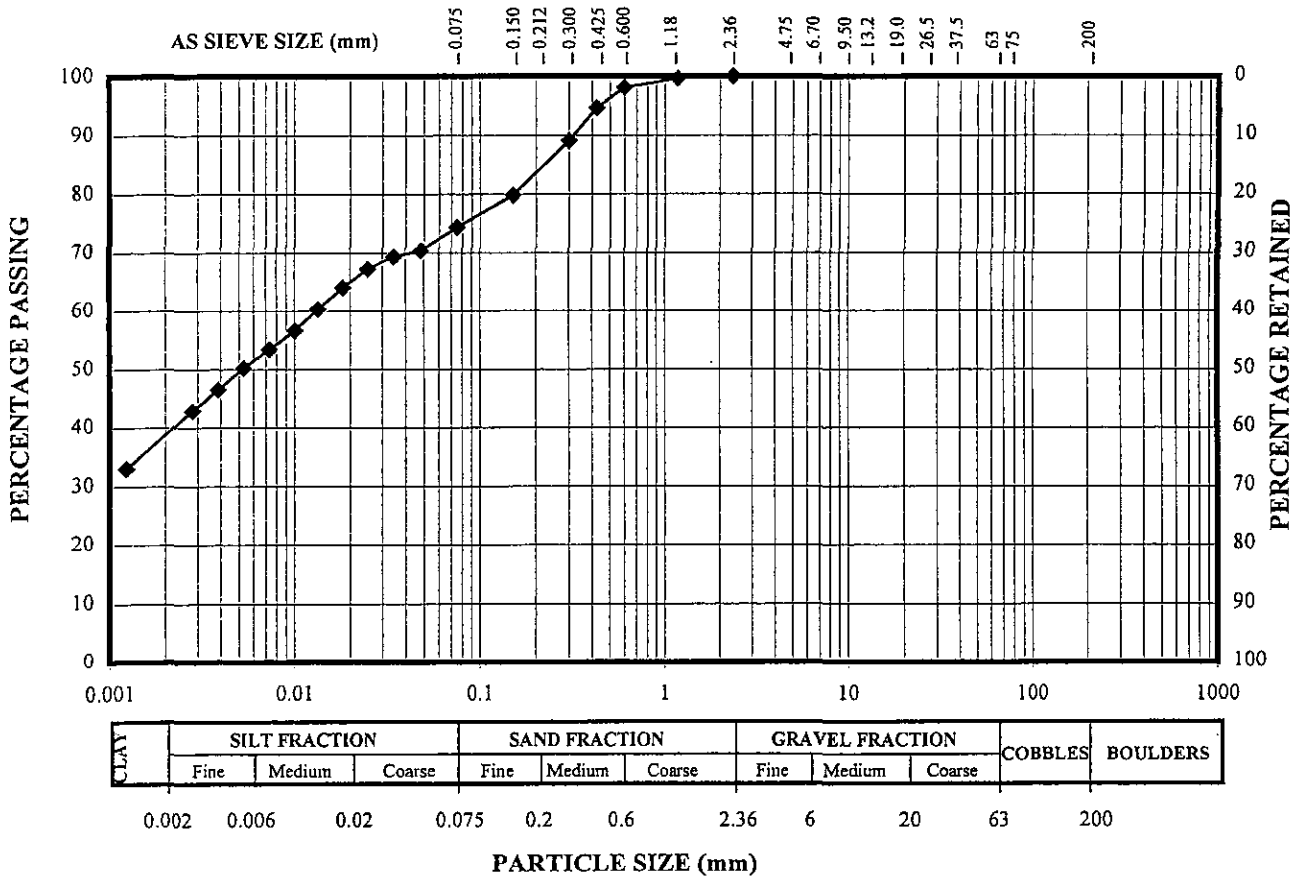
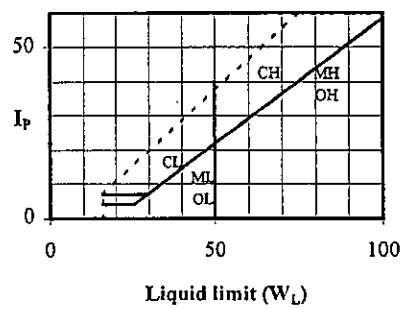
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD19 |
| **Depth:** | 0.0 to 0.5 |
| **Sample No:** | 3215/05 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS**

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.53 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Dry

**GROUP SYMBOL:**

**SOIL NAME:** Silty , clayey sand. (visual only)

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

Tested by: GZ
Date tested: 25.02.03
Checked by:
Date checked: 6/3/03

Certified by: S. Ignatiu
12.03.03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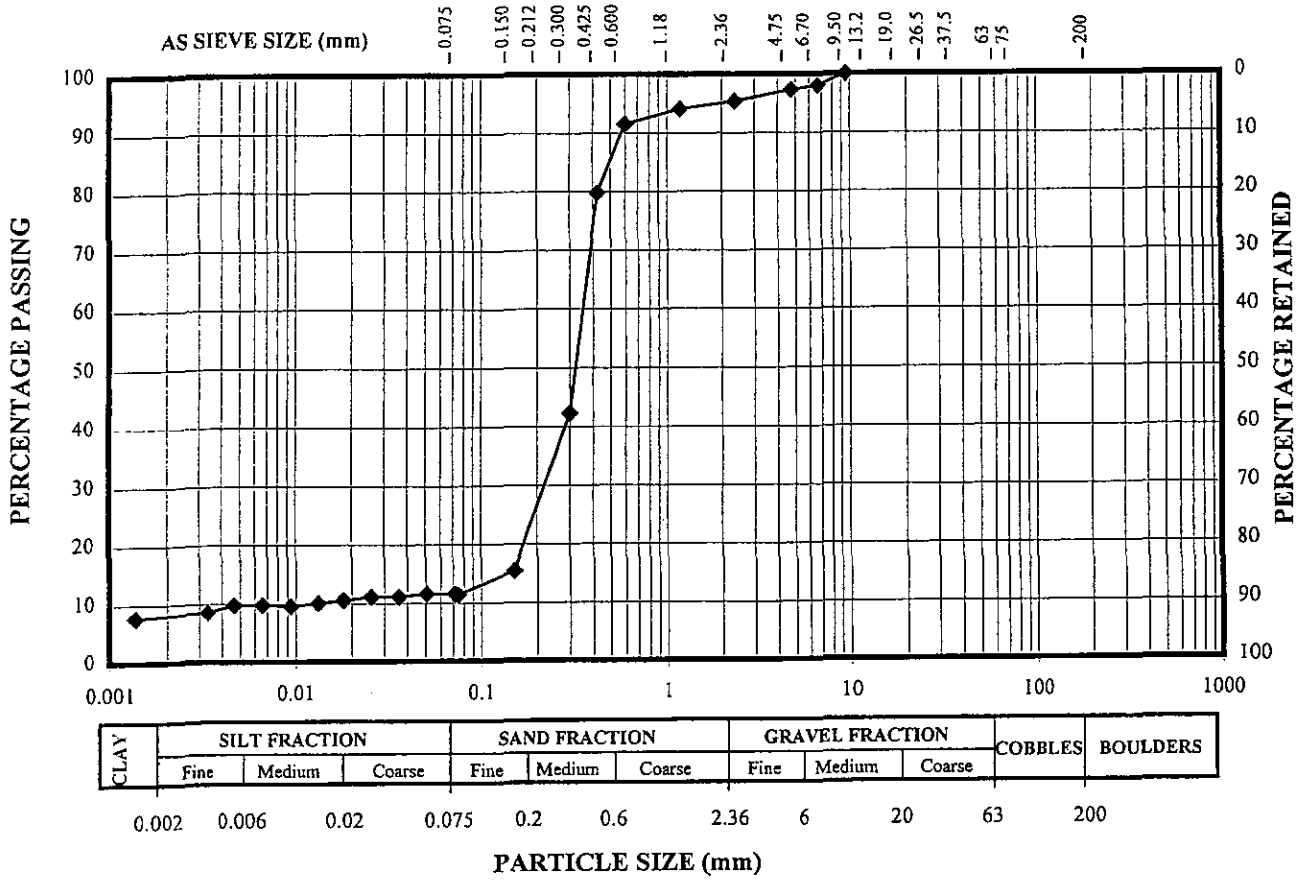
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD19 |
| **Depth:** | 0.8 to 1.6 |
| **Sample No:** | 3215/06 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

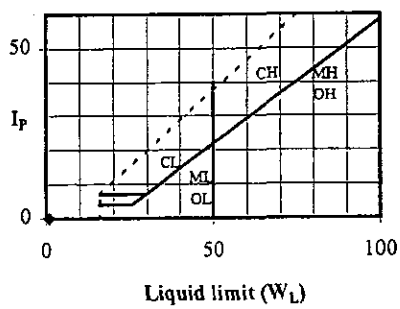
**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289/2.1.1 AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1

**GRADING**
$C_u = D_{60} / D_{10}$ = 27.9
$C_c = D_{30} / (D_{10} \times D_{60})$ = 11.6




**PARTICLE DENSITY** 2.65 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve with dispersing agent

**GROUP SYMBOL:** SP-SM

**SOIL NAME:** Poorly graded sand with silt.

**INDEX PROPERTIES (%)**
Liquid Limit = NO
Plasticity Index = NP
Plastic Limit = NP
Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) Standard

**Linear Shrinkage** (mould size)

**REMARKS:** NO = Not Obtainable NP = Non Plastic.

Tested by: GZ
Date tested: 24.02.03
Checked by: DB
Date checked: 6/3/03

Certified by: S. Ignatin
12.03.03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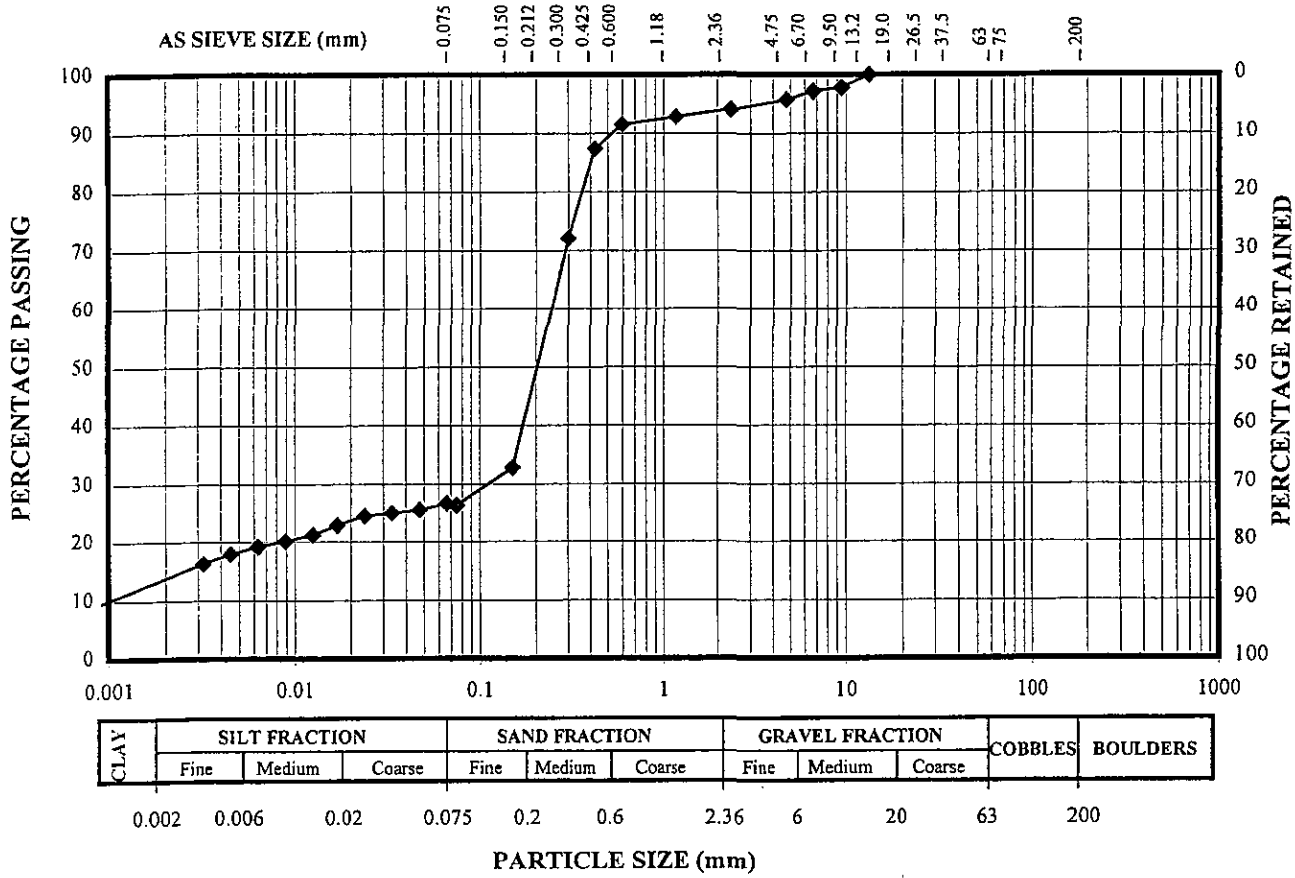
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD23 |
| **Depth:** | 0.0 to 0.6 |
| **Sample No:** | 3215/07 |

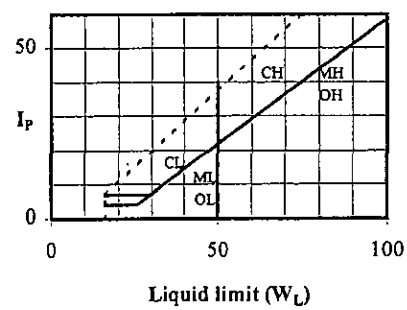
**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS**




**GRADING**
$C_u = D_{60} / D_{10} =$ 227.3
$C_c = D_{30} / (D_{10} \times D_{60}) =$ 48.7

**PARTICLE DENSITY** 2.65 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve with dispersing agent

**GROUP SYMBOL:** N/A

**SOIL NAME:** Clayey sand with silt. (visual only)

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

**REMARKS:**

Tested by: GZ
Date tested: 25.02.03
Checked by: DB
Date checked: 6/3/03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Certified by: S. Ignatin 12.03.03

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| REPORT No. | 11069 |

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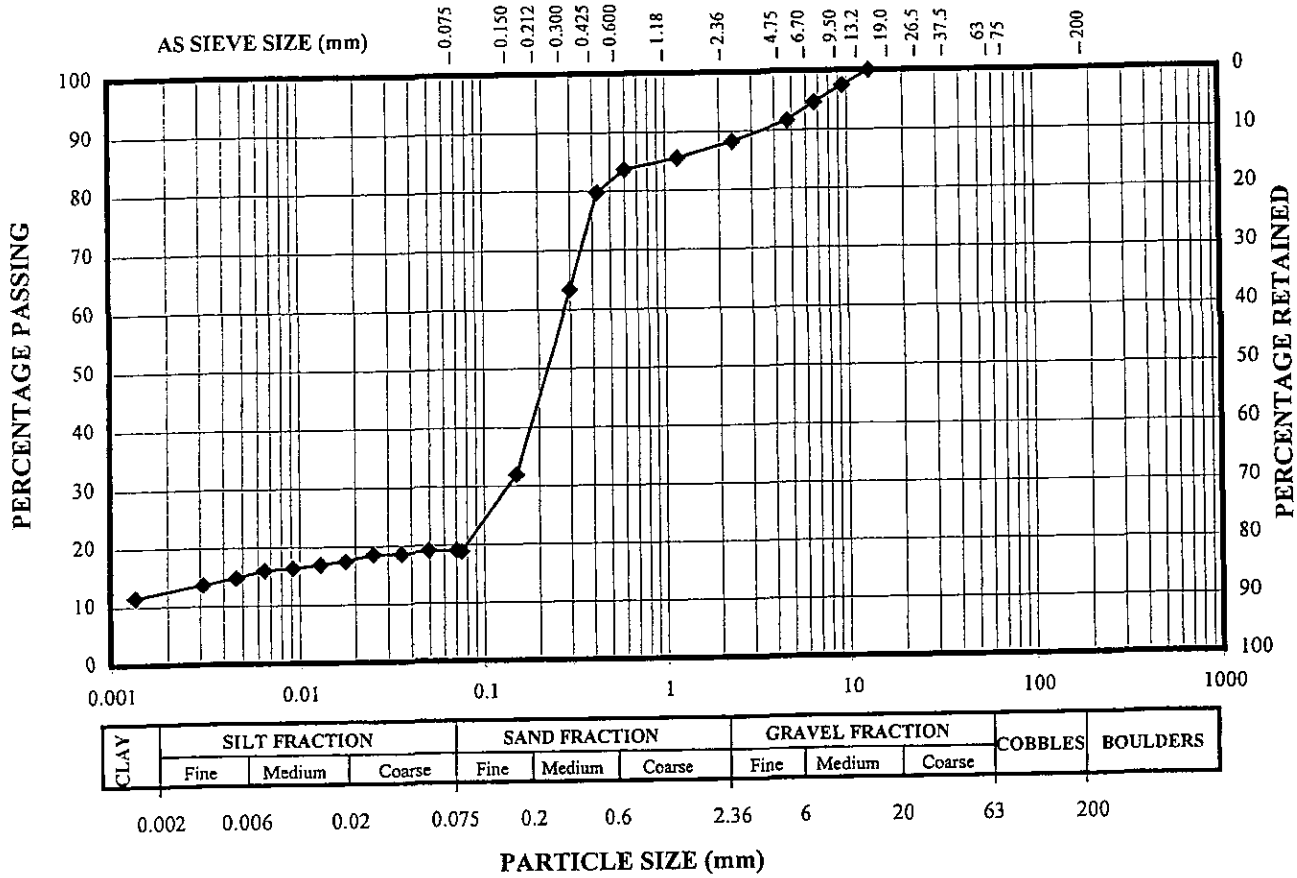
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD23 |
| **Depth:** | 0.6 to 1.2 |
| **Sample No:** | 3215/08 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289/2.1.1 AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1 AS1289/C5.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

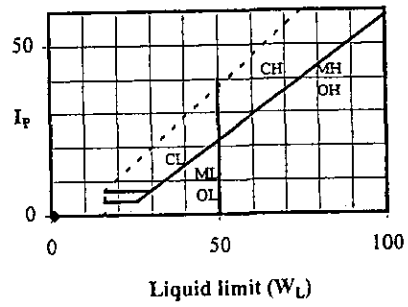
**PARTICLE DENSITY** 2.61 (measured)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve with dispersing agent

**GROUP SYMBOL:** SM

**SOIL NAME:** Silty sand.




**INDEX PROPERTIES (%)**
Liquid Limit = NO Plastic Limit = NP
Plasticity Index = NP Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) Standard

**Linear Shrinkage** (mould size)

**REMARKS:** NO = Not Obtainable NP = Non Plastic.

Tested by: GZ
Date tested: 25.02.03
Checked by: JS
Date checked: 6/3/03


**GEOTECHNICAL TESTING SERVICES**
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Telephone (02) 9439 4033 Fax (02) 9436 0606
GHD-LONGMAC


Accreditation No: 679

Certified by: S. Ihnatin
12.03.03

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| REPORT No. | 11070 |

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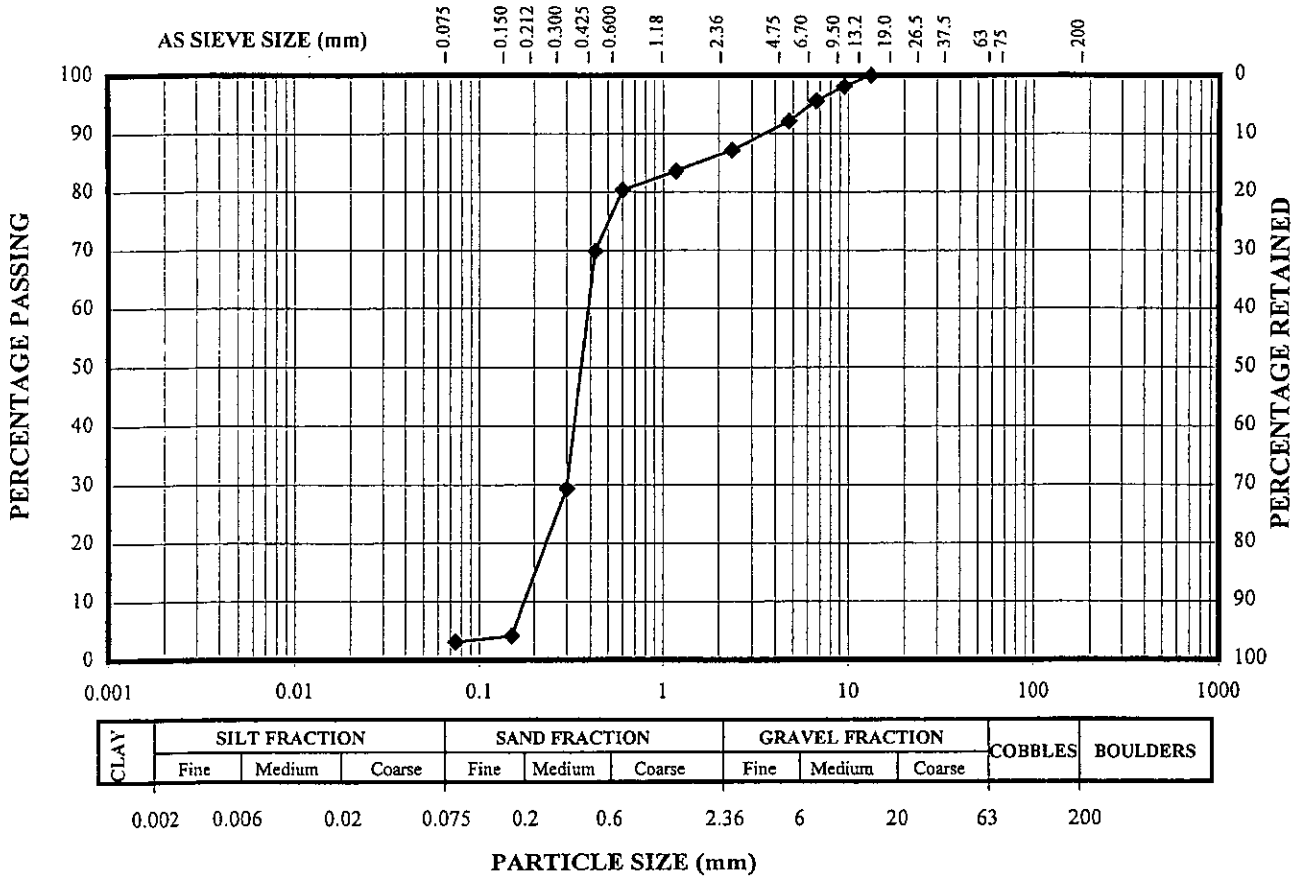
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD23 |
| **Depth:** | 1.8 to 2.6 |
| **Sample No:** | 3215/09 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

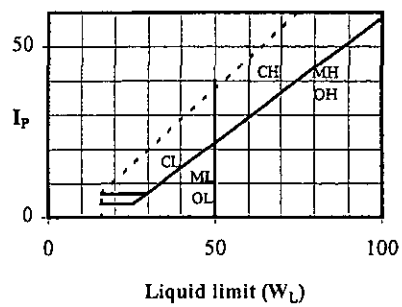
**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS**
AS1289/C5.1

**GRADING**
$C_u = D_{60} / D_{10} =$ 2.1
$C_c = D_{30} / (D_{10} \times D_{60}) =$ 1.2




**PARTICLE DENSITY** 2.66 (measured)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:** SP

**SOIL NAME:** Poorly graded sand.

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

**REMARKS:**

Tested by: GZ
Date tested: 25.02.03
Checked by: DB
Date checked: 6/3/03


**GEOTECHNICAL TESTING SERVICES**
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**GHD-LONGMAC** Accreditation No: 679


Certified by: S. Hinatin 12.03.03

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| JOB No. | 211563/00 |
| REPORT No. | 11094 |

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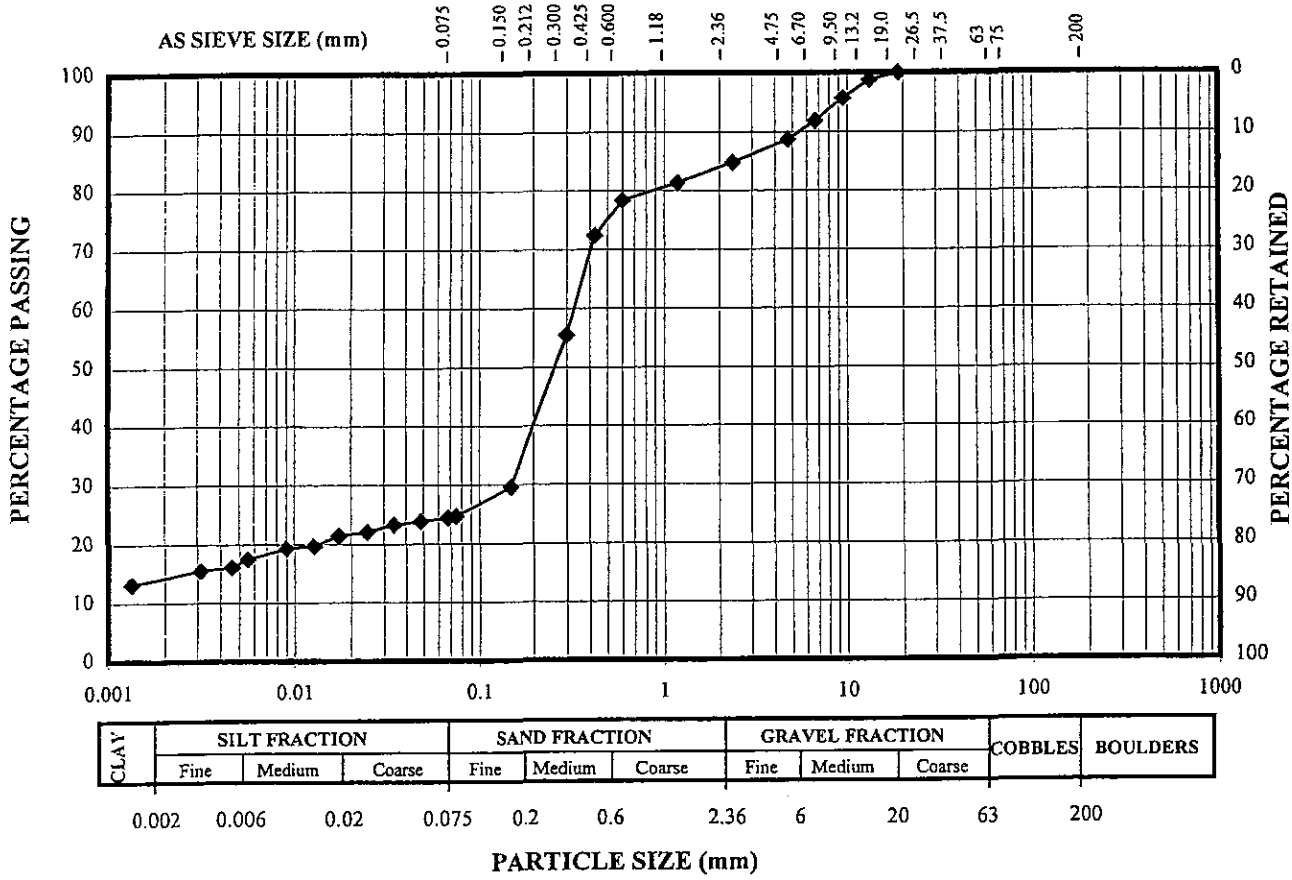
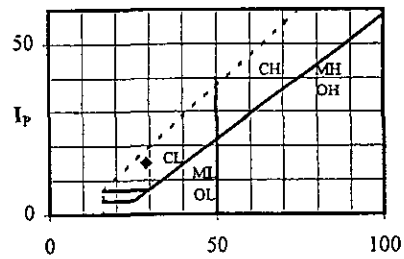
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD25 |
| **Depth:** | 0.0 to 1.25 |
| **Sample No:** | 3215/10 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289/2.1.1 AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.65 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve with dispersing agent

**GROUP SYMBOL:** SC

**SOIL NAME:** Clayey sand.

**REMARKS:**

**INDEX PROPERTIES (%)**

| | | | |
|---|---|---|---|
| Liquid Limit = | 29 | Plastic Limit = | 14 |
| Plasticity Index = | 15 | Linear Shrinkage % | 6.5 |

**Atterberg Limits** (preparation method) Dry
**Liquid Limit** (type of test) Standard
**Linear Shrinkage** (mould size) 125 mm

Tested by: GZ
Date tested: 25.02.03
Checked by: DS
Date checked: 6/3/03

Certified by: S. Hunting 12.03.03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| REPORT No. | 11071 |

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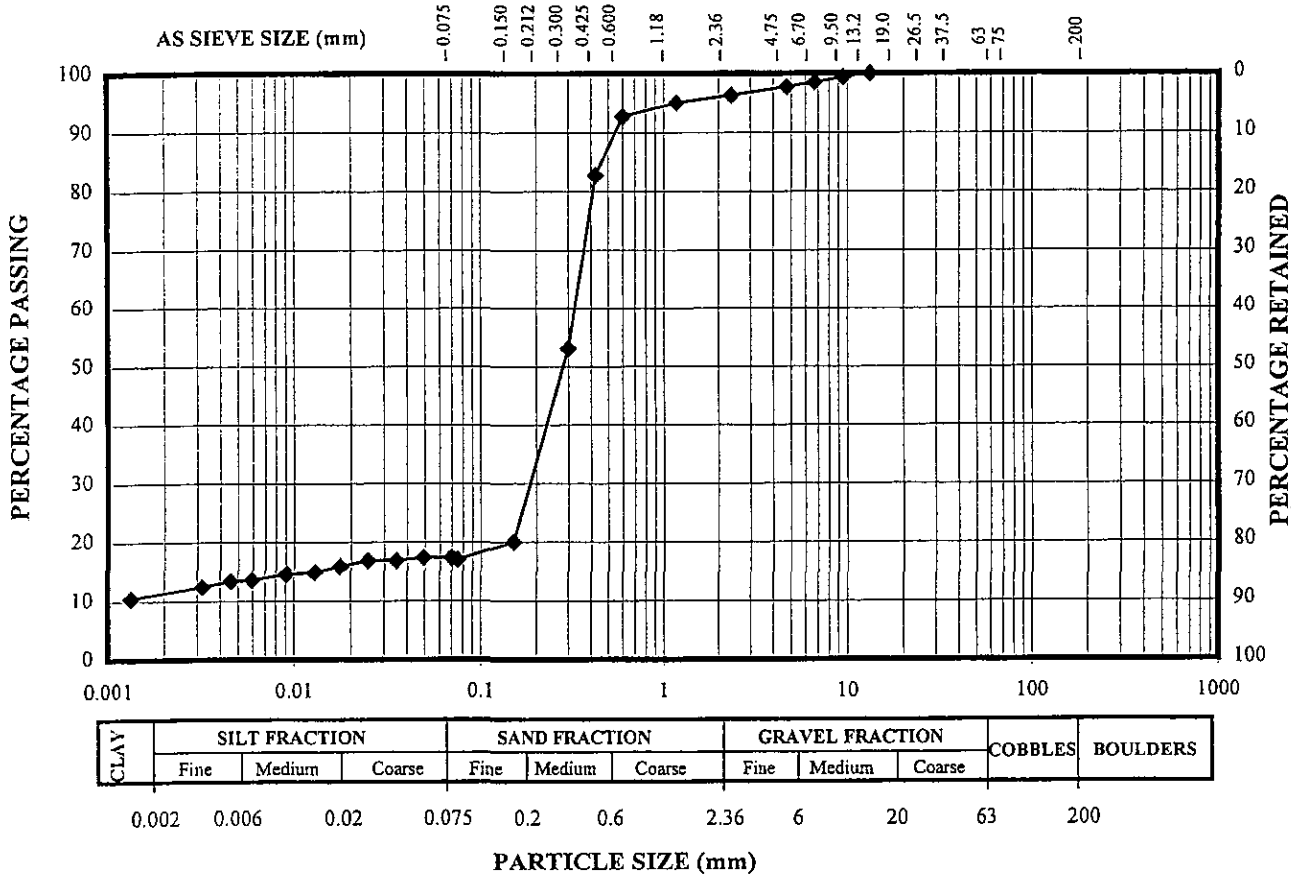
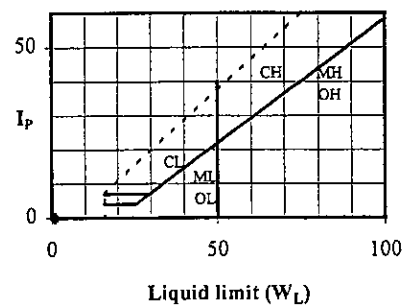
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD25 |
| **Depth:** | 1.25 to 2.5 |
| **Sample No:** | 3215/11 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289/2.1.1 AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.65 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve with dispersing agent

**GROUP SYMBOL:** SM

**SOIL NAME:** Silty sand.

**INDEX PROPERTIES (%)**
Liquid Limit = ND Plastic Limit = NP
Plasticity Index = NP Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) Standard

**Linear Shrinkage** (mould size)

**REMARKS:** ND = Not determinable NP = Non Plastic.

Tested by: GZ
Date tested: 25.02.03
Checked by: JB
Date checked: 6/3/03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**GHD-LONGMAC**


Accreditation No: 679

Certified by: S. Ghnath 12.03.03

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| REPORT No. | 11072 |

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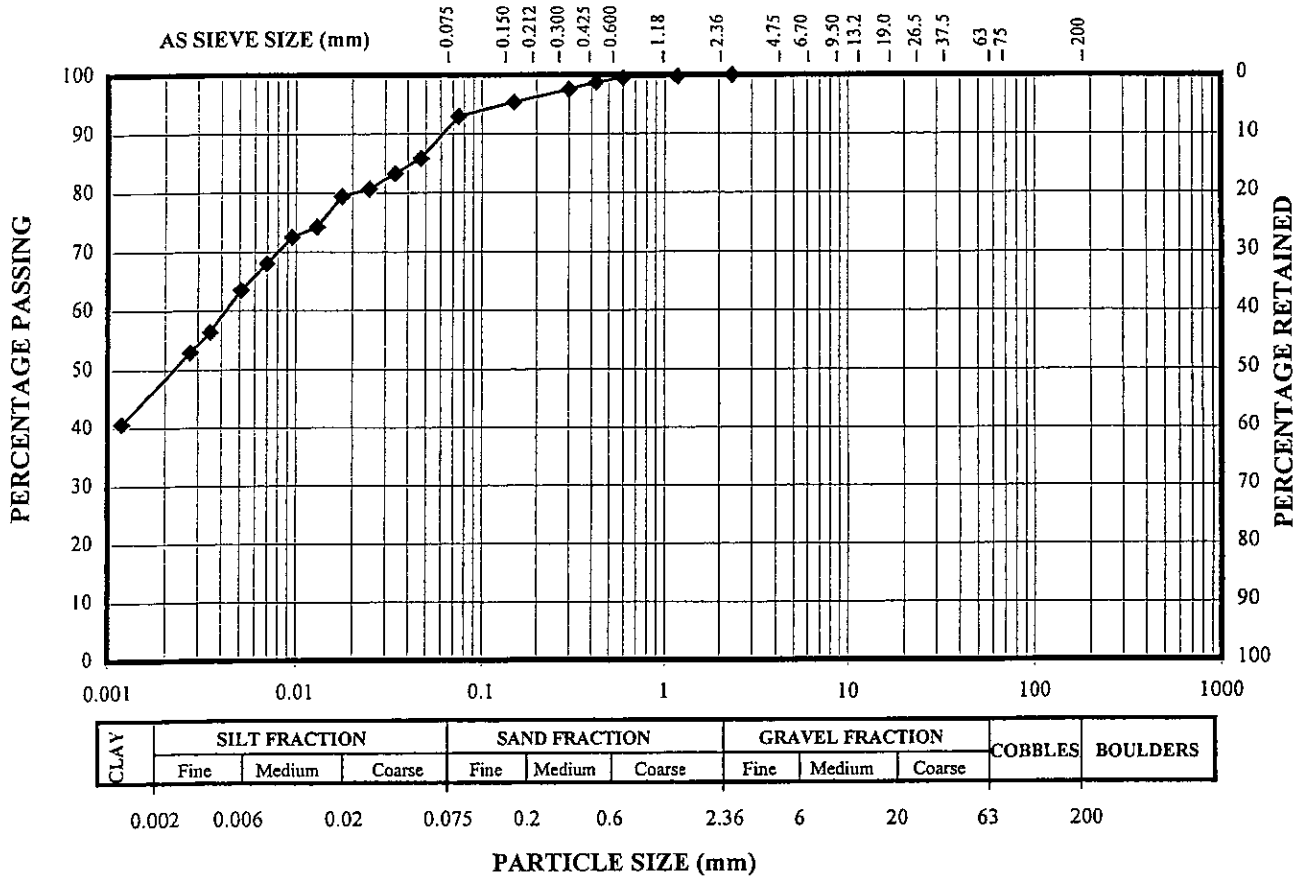
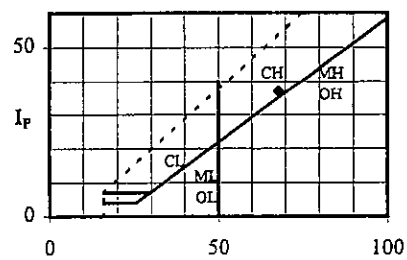
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD26 |
| **Depth:** | 0.0 to 0.8 |
| **Sample No:** | 3215/12 |

**Client:** Newcastle Ports Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289/2.1.1 AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.61 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Dry

**GROUP SYMBOL:** CH

**SOIL NAME:** High plasticity clay.

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = 68 Plastic Limit = 31
Plasticity Index = 37 Linear Shrinkage % 13.0

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) Standard

**Linear Shrinkage** (mould size) 125 mm

Tested by: GZ
Date tested: 25.02.03
Checked by: DB
Date checked: 6/3/03

Certified by: S. Thwaites 12.03.03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GHD-LONGMAC


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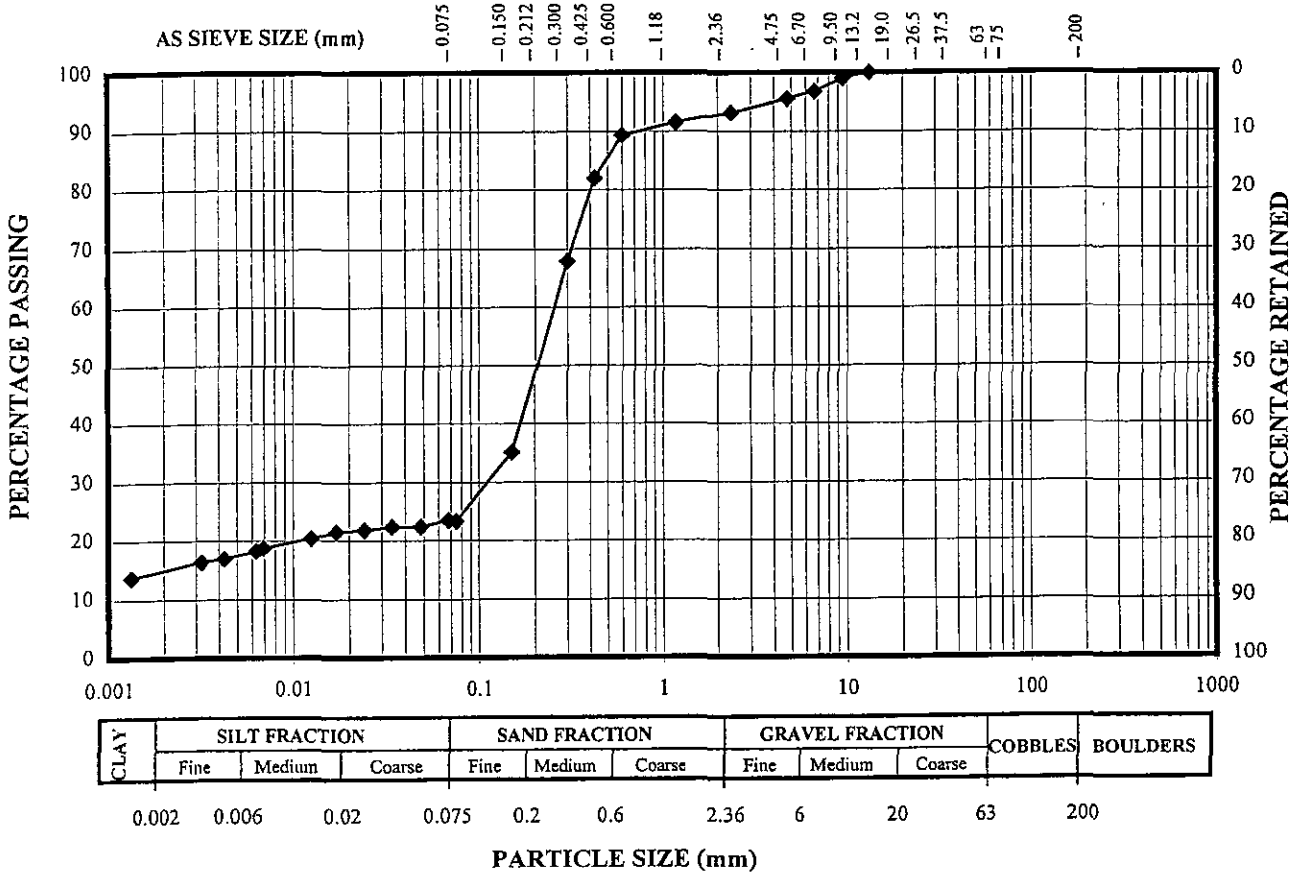
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD26 |
| **Depth:** | 1.6 to 2.8 |
| **Sample No:** | 3215/13 |

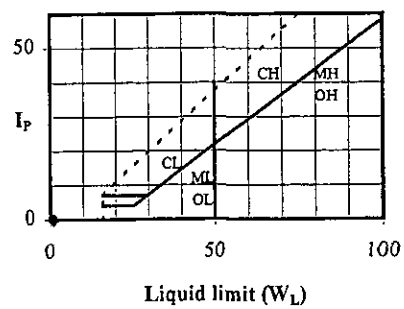
**Client:** Newcastle Ports Corporation
**Project:** South Arm Dredging Maste Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS**




**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.65 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Dry

**GROUP SYMBOL:** SM

**SOIL NAME:** Silty sand

**INDEX PROPERTIES (%)**
Liquid Limit = N/O Plastic Limit = NP
Plasticity Index = NP Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) Standard

**Linear Shrinkage** (mould size)

**REMARKS:** N/O = Not Obtainable, NP = Non Plastic.

Tested by: GZ
Date tested: 25.02.03
Checked by:
Date checked: 6/3/03

Certified by: S. Ihnatin 12.03.03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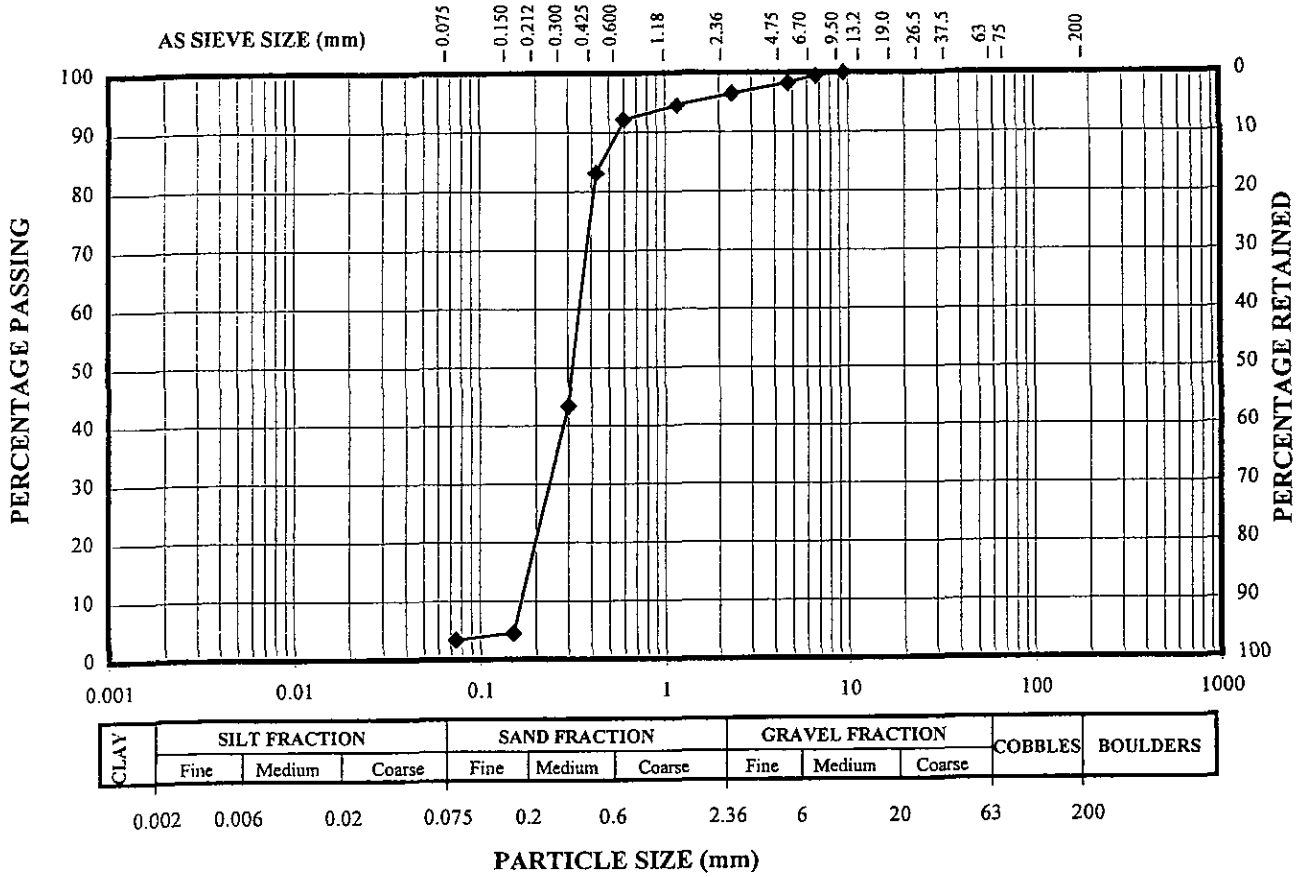
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD26 |
| **Depth:** | 3.2 to 3.7 |
| **Sample No:** | 3215/14 |

**Client:** Newcastle Ports Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

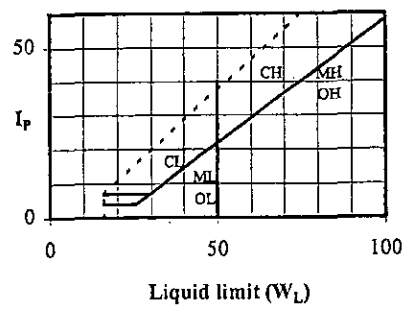
**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.1

**OTHER TESTS**

**GRADING**
$C_u = D_{60} / D_{10} =$ 2.1
$C_c = D_{30} / (D_{10} \times D_{60}) =$ 1.0




**PARTICLE DENSITY**

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:** SP

**SOIL NAME:** Poorly graded sand.

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

Tested by: GZ
Date tested: 25.02.03
Checked by: [illegible]
Date checked: 6/3/03

Certified by: S. Ihnatin
12.03.03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| REPORT No. | 11095 |


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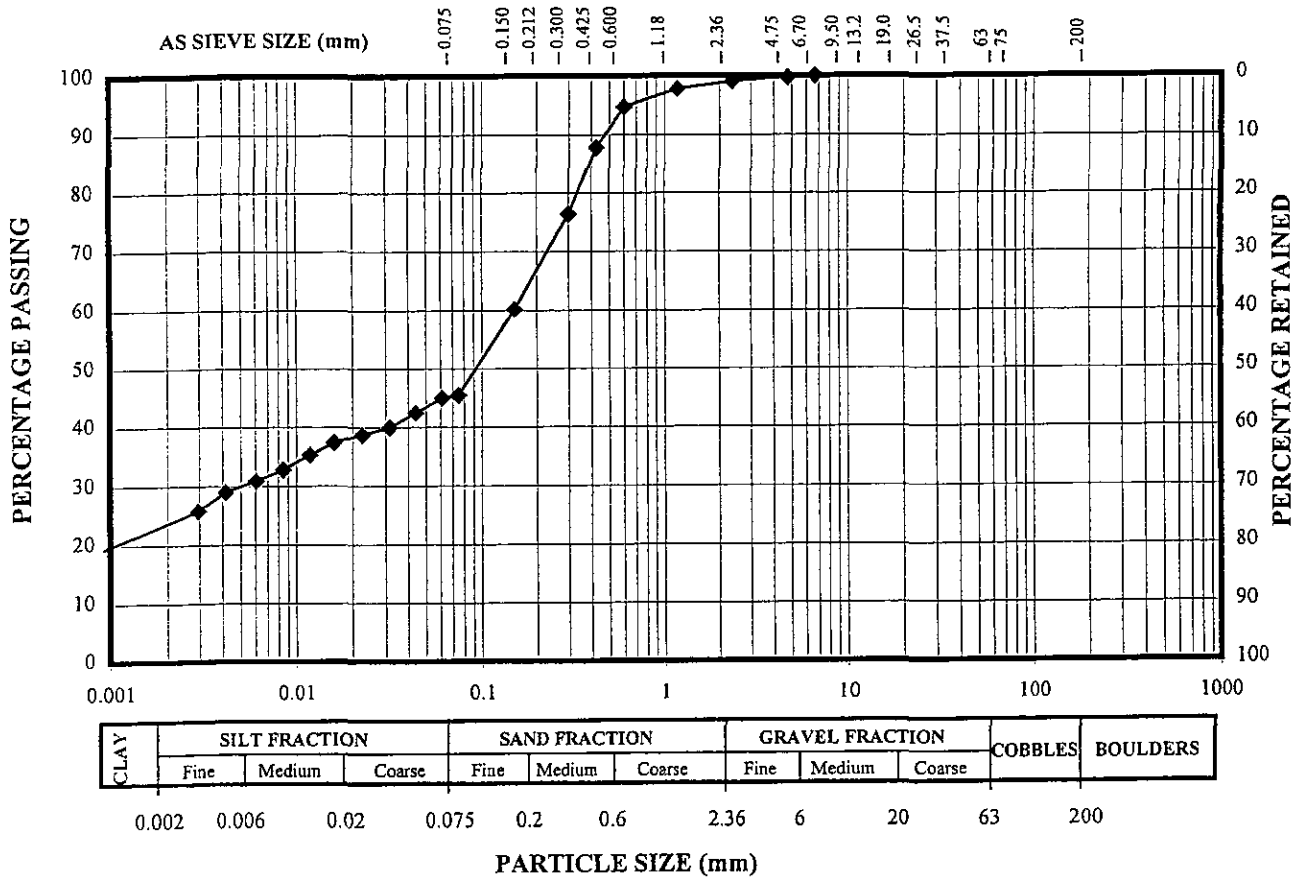
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD28 |
| **Depth:** | 0.0 to 0.3 |
| **Sample No:** | 3215/15 |

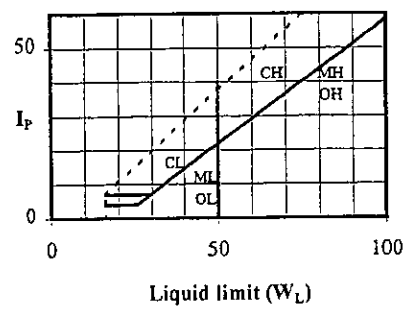
**Client:** Newcastle Ports Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS**




**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.65 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Dry

**GROUP SYMBOL:**

**SOIL NAME:** Silty Sand. (visual only)

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

Tested by: GZ
Date tested: 25.02.03
Checked by: DB
Date checked: 6/3/03

Certified by: S. Ignatin 12.03.03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Telephone (02) 9439 4033 Fax (02) 9436 0606
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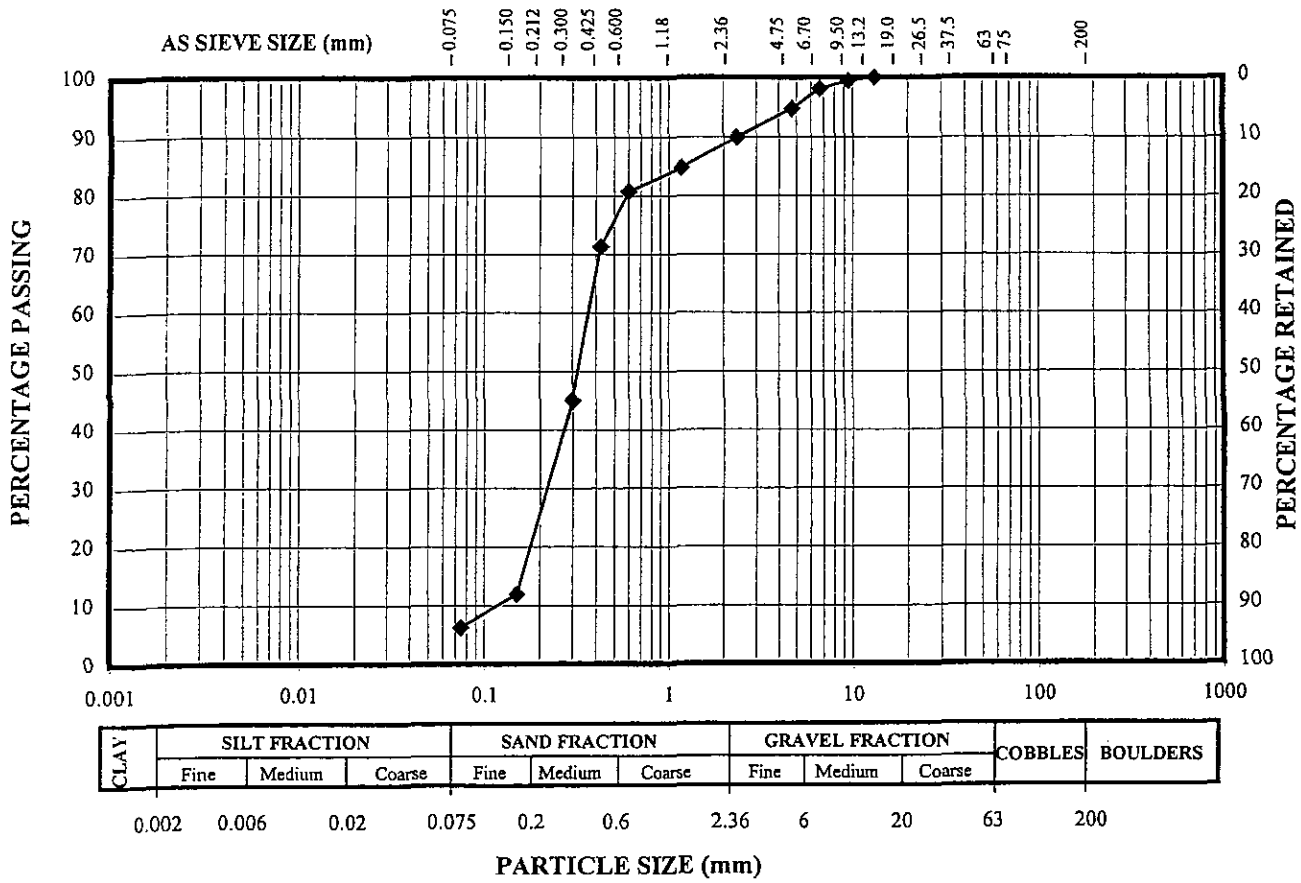
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD28 |
| **Depth:** | 0.3 to 0.9 |
| **Sample No:** | 3215/16 |

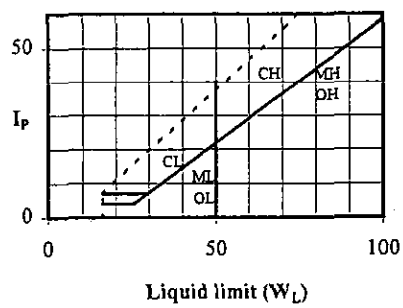
**Client:** Newcastle Ports Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.1

**OTHER TESTS**




**GRADING**
$C_u = D_{60} / D_{10}$ = 3.0
$C_c = D_{30} / (D_{10} \times D_{60})$ = 1.2

**PARTICLE DENSITY** n/a (measured)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:** N/A

**SOIL NAME:** Poorly graded sand. (visual only).

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

**REMARKS:**

Tested by: GZ
Date tested: 25.02.03
Checked by:
Date checked: 6/3/03

Certified by: S. IGNATIN 12.03.03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| REPORT No. | 11096 |

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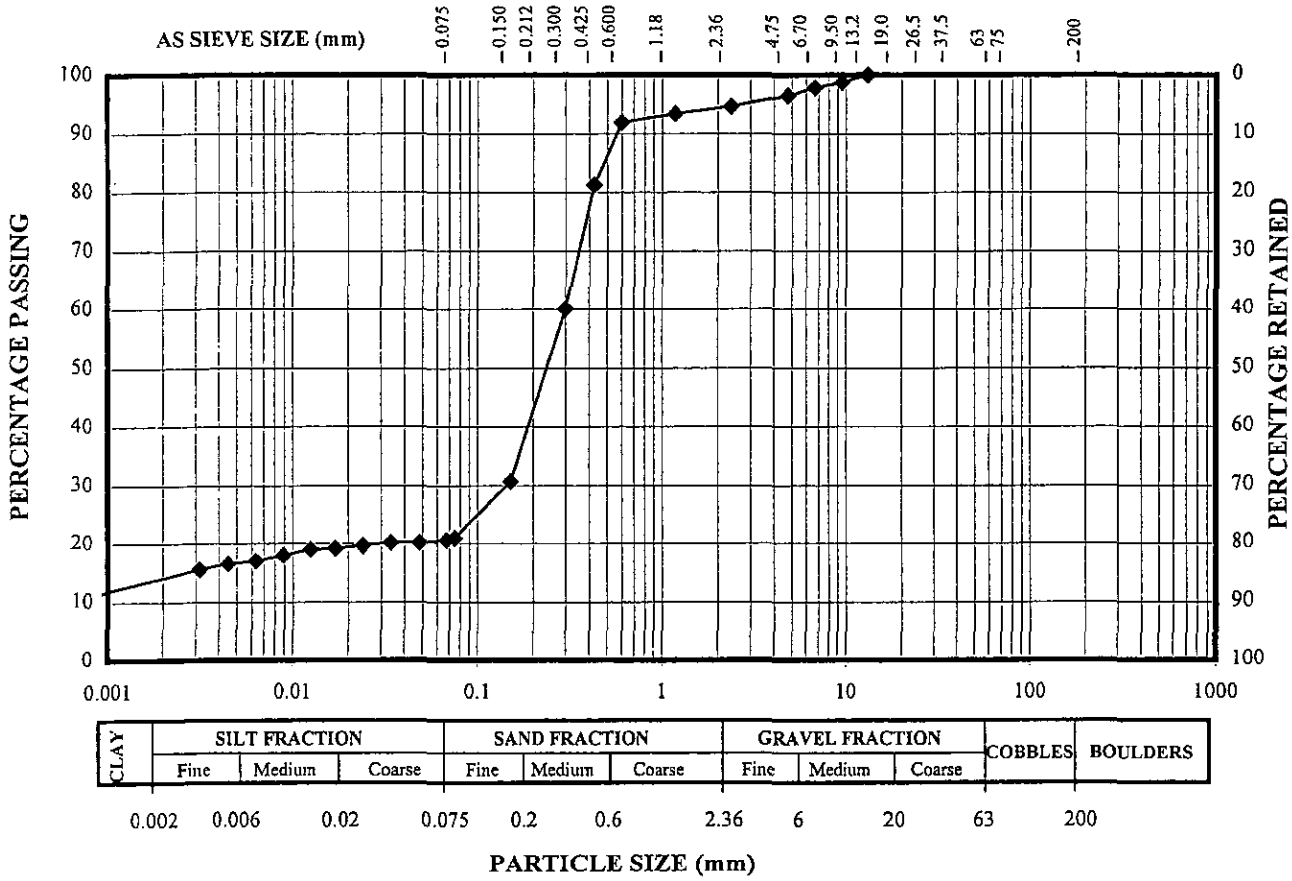
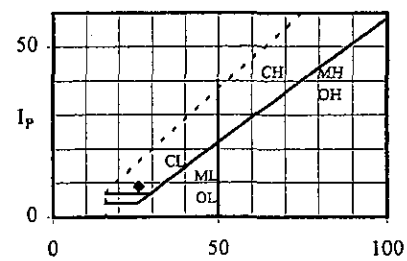
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD28 |
| **Depth:** | 0.9 to 1.7 |
| **Sample No:** | 3215/17 |

**Client:** Newacstle Ports Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289/2.1.1 AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.65 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Dry

**GROUP SYMBOL:** SC

**SOIL NAME:** Clayey sand.

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = 26 Plastic Limit = 17
Plasticity Index = 9 Linear Shrinkage % 3.0

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) Standard

**Linear Shrinkage** (mould size) 125 mm

Tested by: GZ
Date tested: 25.02.03
Checked by: TB
Date checked: 6/3/03

Certified by: S. Ihnatin 12.03.03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| REPORT No. | 11088 |

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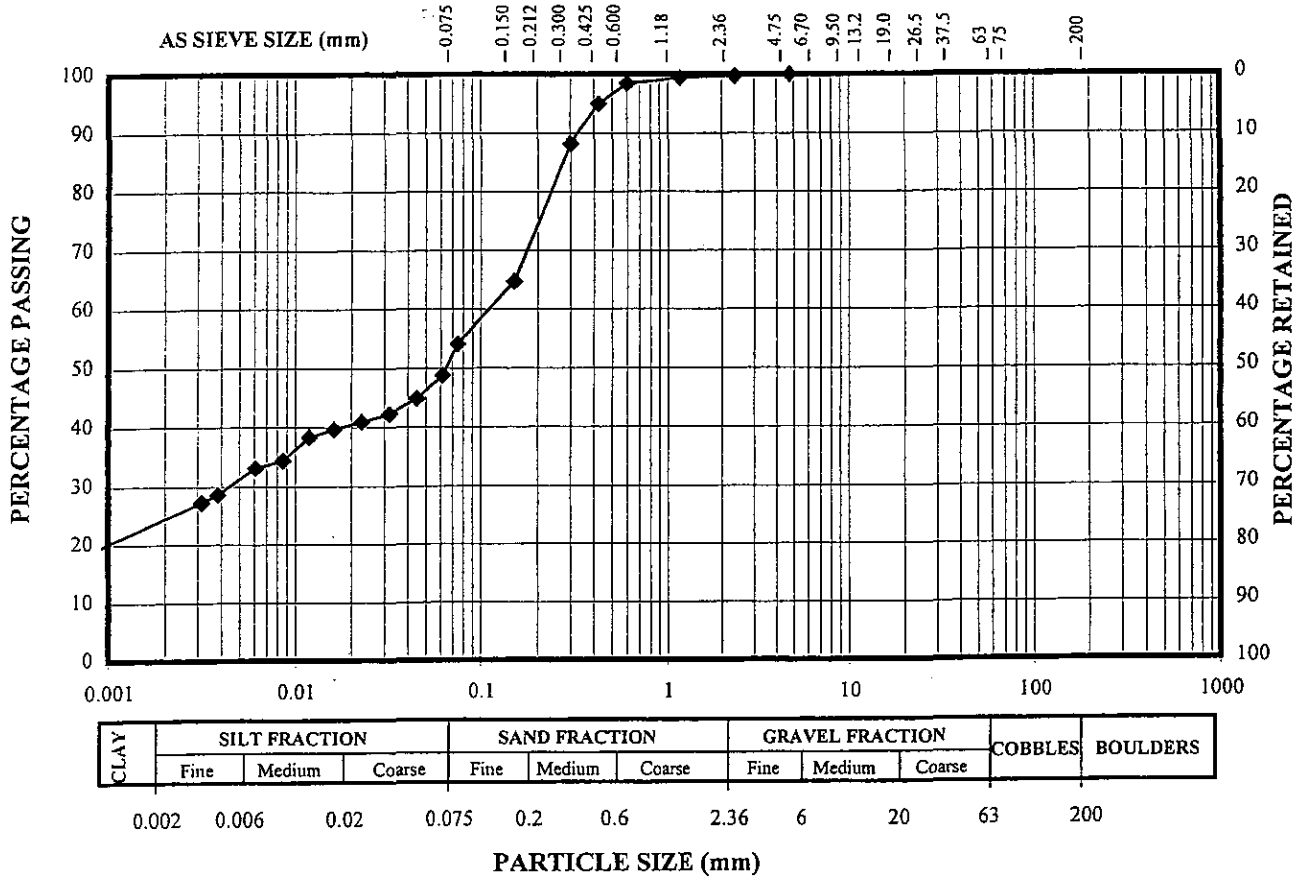
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD29 |
| **Depth:** | 0.0 to 1.0 |
| **Sample No:** | 3215/18 |

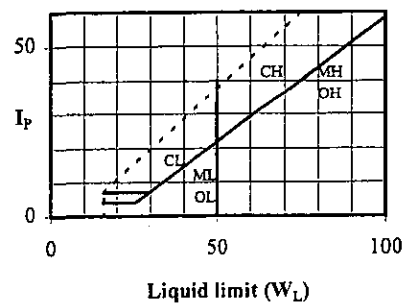
**Client:** Newcastle Ports Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS**




**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.61 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Dry

**GROUP SYMBOL:**

**SOIL NAME:** Silty sand with clay. (visual only).

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

Tested by: GZ
Date tested: 25.02.03
Checked by: DB
Date checked: 6/3/03

Certified by: S. Hnatiw 12.03.03


GEOTECHNICAL TESTING SERVICES
36 Oxley Street, Crows Nest, N.S.W. 2065
Telephone (02) 9439 4033 Fax (02) 9436 0606
GHD-LONGMAC


Accreditation No: 679

This laboratory is accreditted by the National Association of Testing Authorities Australia
The test reported herein have been performed in accordance with its terms of accreditation

JOB No. 2111563/00
REPORT No. 11089
Ref: PSWUTIL/LAB/START/SIEVE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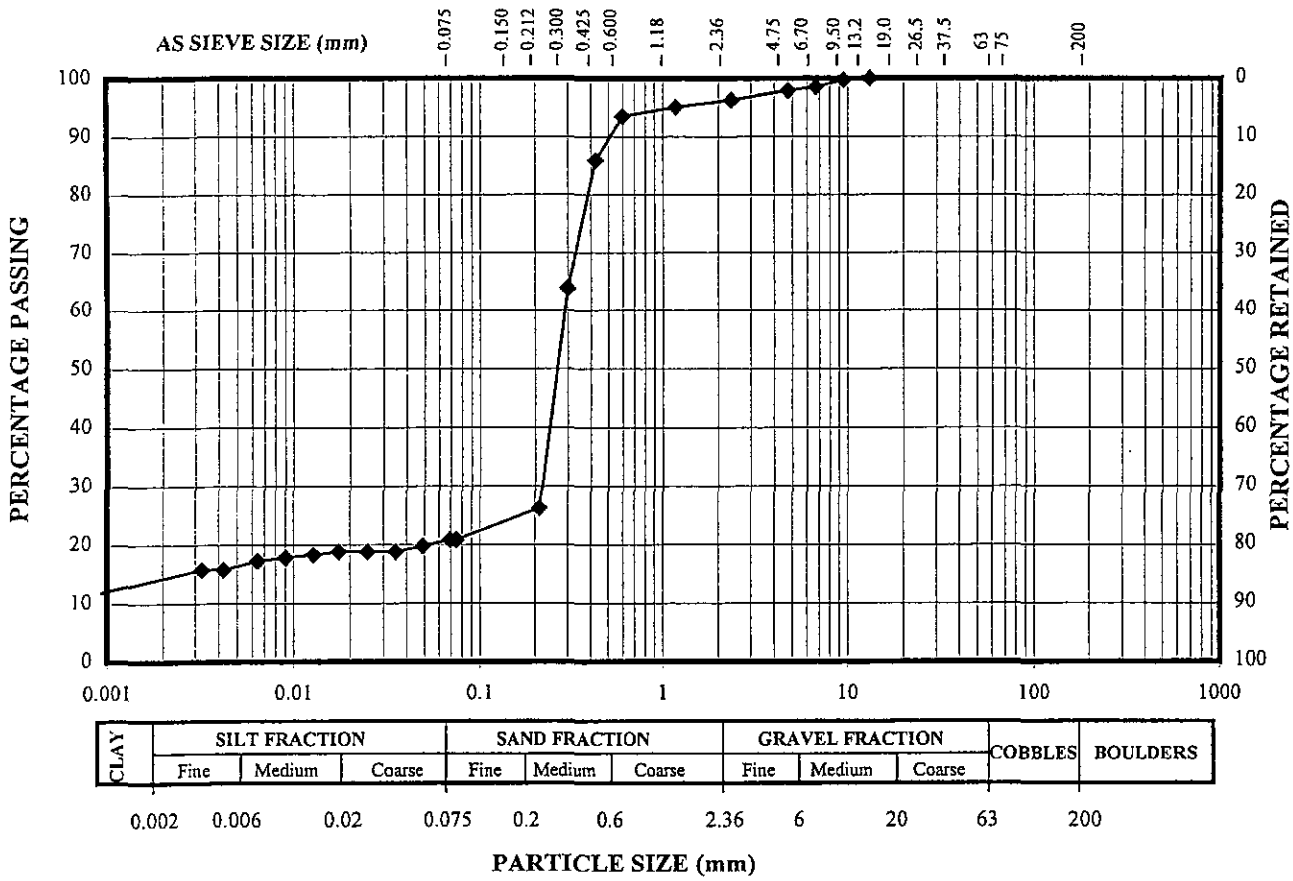
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD29 |
| **Depth:** | 1.0 to 2.0 |
| **Sample No:** | 3215/19 |

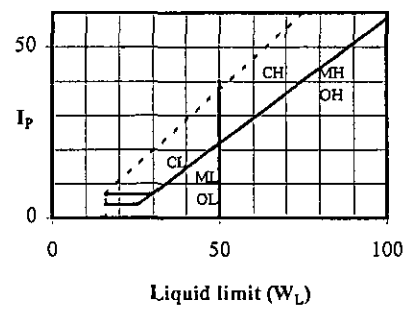
**Client:** Newcastle Ports Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS**




**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.61 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Dry

**GROUP SYMBOL:**

**SOIL NAME:** Silty sand. (visual only).

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

***Liquid Limit*** (type of test)

**Linear Shrinkage** (mould size)

**REMARKS:**

Tested by: GZ
Date tested: 25.02.03
Checked by: DB
Date checked: 6/3/03


**GEOTECHNICAL TESTING SERVICES**
36 Oxley Street, Crows Nest, N.S.W. 2065
Telephone (02) 9439 4033 Fax (02) 9436 0606
**GHD-LONGMAC** Accreditation No: 679


Certified by: S Whatin 12.03.03

This laboratory is accreditted by the National Association of Testing Authorities Australia
The test reported herein have been performed in accordance with its terms of accreditation

| | |
|---|---|
| JOB No. | 2111563/00 |
| REPORT No. | 11090 |

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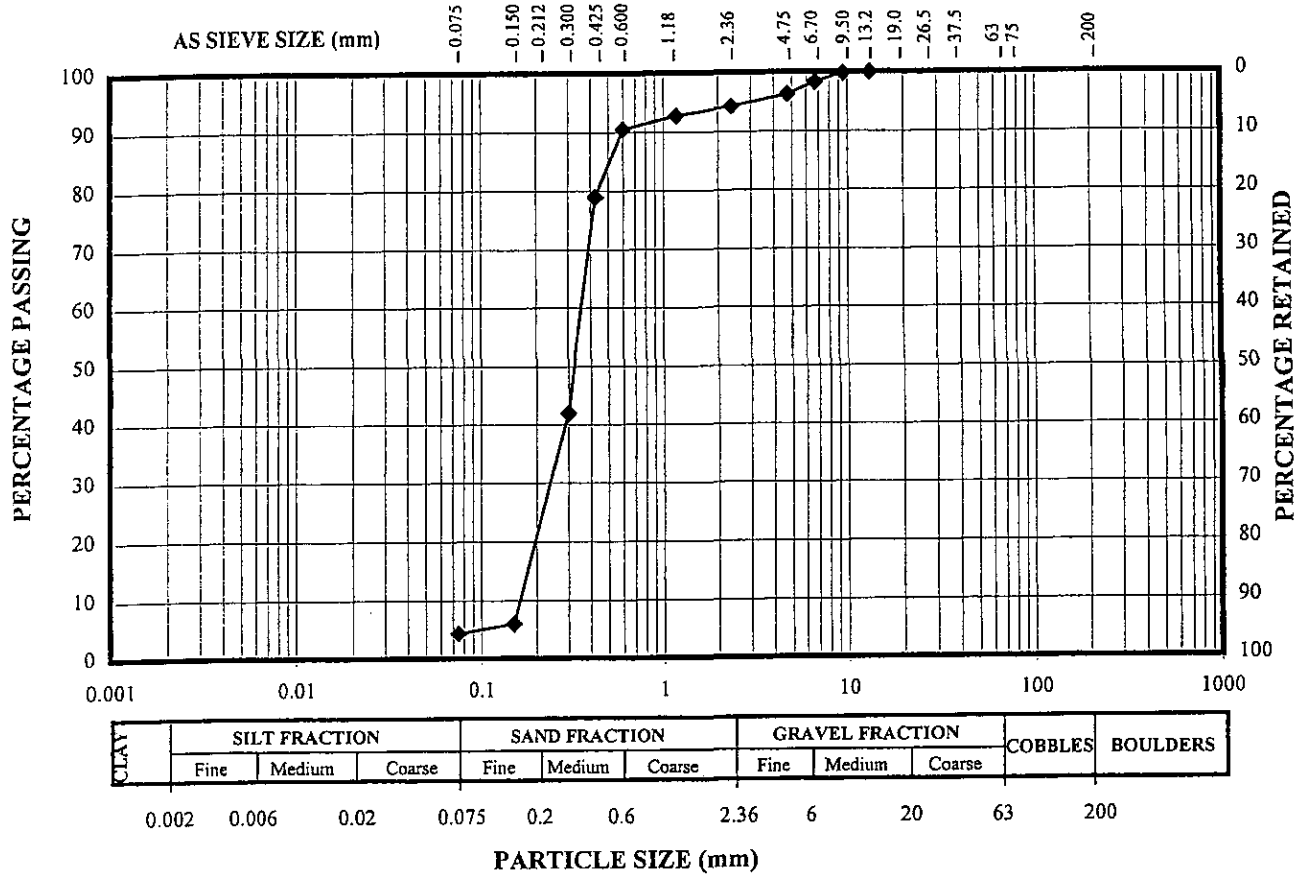
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| Trial Hole: | CD29 |
| Depth: | 2.0 to 3.0 |
| Sample No: | 3215/20 |

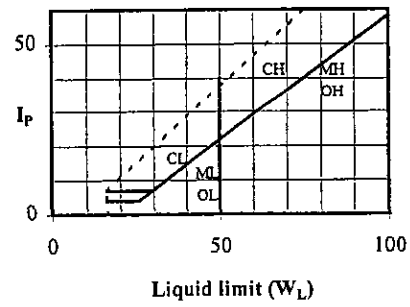
**Client:** Newcastle Ports Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.1

**OTHER TESTS**




**GRADING**
$C_u = D_{60} / D_{10} =$ 2.2
$C_c = D_{30} / (D_{10} \times D_{60}) =$ 1.0

**PARTICLE DENSITY**

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Dry

**GROUP SYMBOL:** SP

**SOIL NAME:** Poorly graded sand.

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

Tested by: GZ
Date tested: 25.02.03
Checked by: DB
Date checked: 6/3/03

Certified by: S. Ghattin 12.03.03


**GEOTECHNICAL TESTING SERVICES**
36 Oxley Street, Crows Nest, N.S.W. 2065
Telephone (02) 9439 4033 Fax (02) 9436 0606
**GHD-LONGMAC** Accreditation No: 679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| | |
|---|---|
| JOB No. | 2111563/00 |
| REPORT No. | 11097 |

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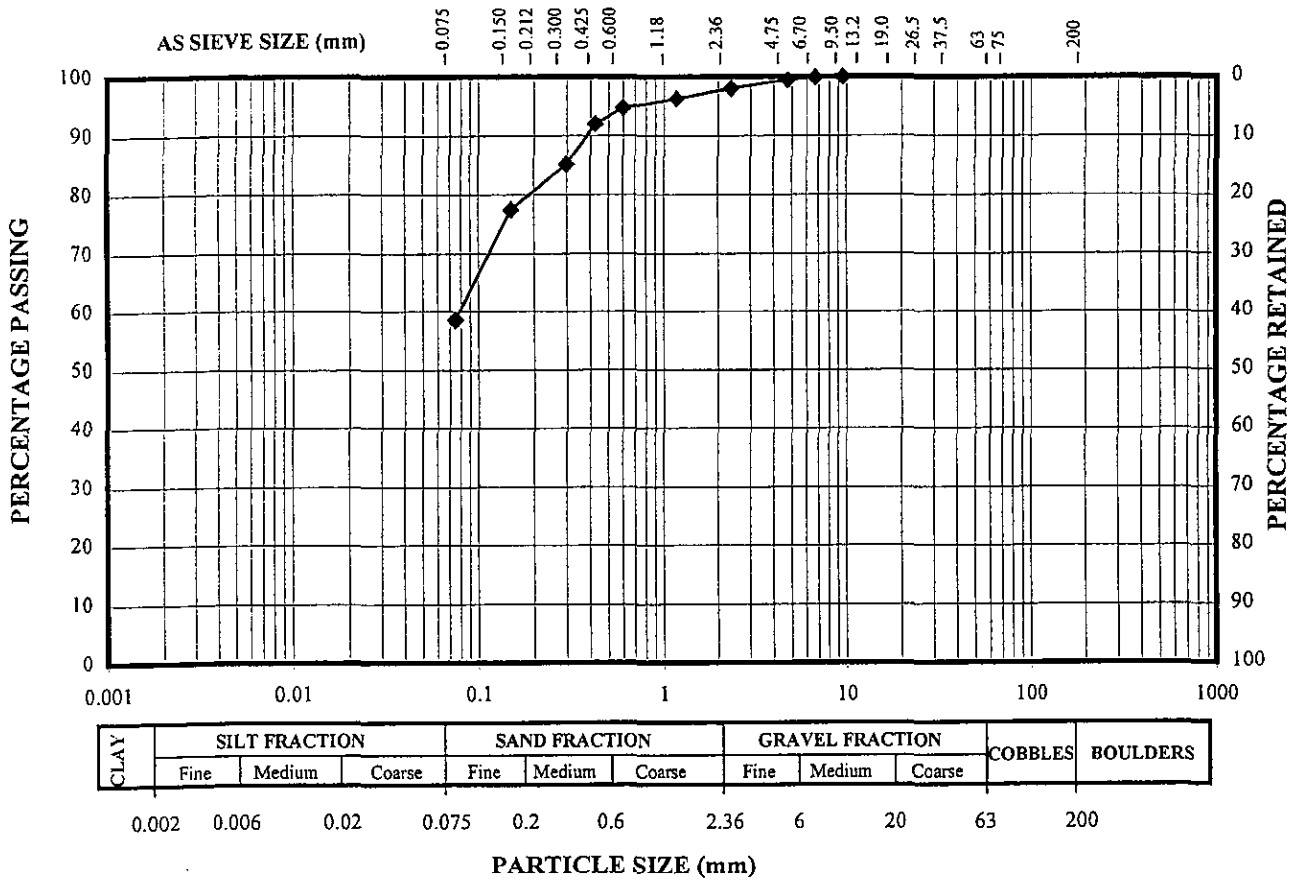
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD29 |
| **Depth:** | 3.2 to 3.4 |
| **Sample No:** | 3215/21 |

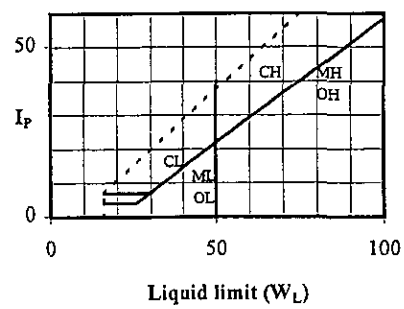
**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical.




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.3.6.1

**OTHER TESTS**




**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** n/a (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve without dispersing agent

**GROUP SYMBOL:** N/A

**SOIL NAME:** Sandy CLAY (visual only)

**REMARKS:**

**INDEX PROPERTIES (%)**
Liquid Limit = N/A Plastic Limit = N/A
Plasticity Index = N/A Linear Shrinkage % Not determined

**Atterberg Limits** (preparation method)

**Liquid Limit** (type of test)

**Linear Shrinkage** (mould size)

Tested by: GZ
Date tested: 25.02.03
Checked by: JB
Date checked: 6/3/03

Certified by: S. Ignatin
12.03.03


GEOTECHNICAL TESTING SERVICES
36 Oxley Street, Crows Nest, N.S.W. 2065
Telephone (02) 9439 4033 Fax (02) 9436 0606
GHD-LONGMAC Accreditation No: 679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| | |
|---|---|
| JOB No. | 2111563/00 |
| REPORT No. | 11098 |

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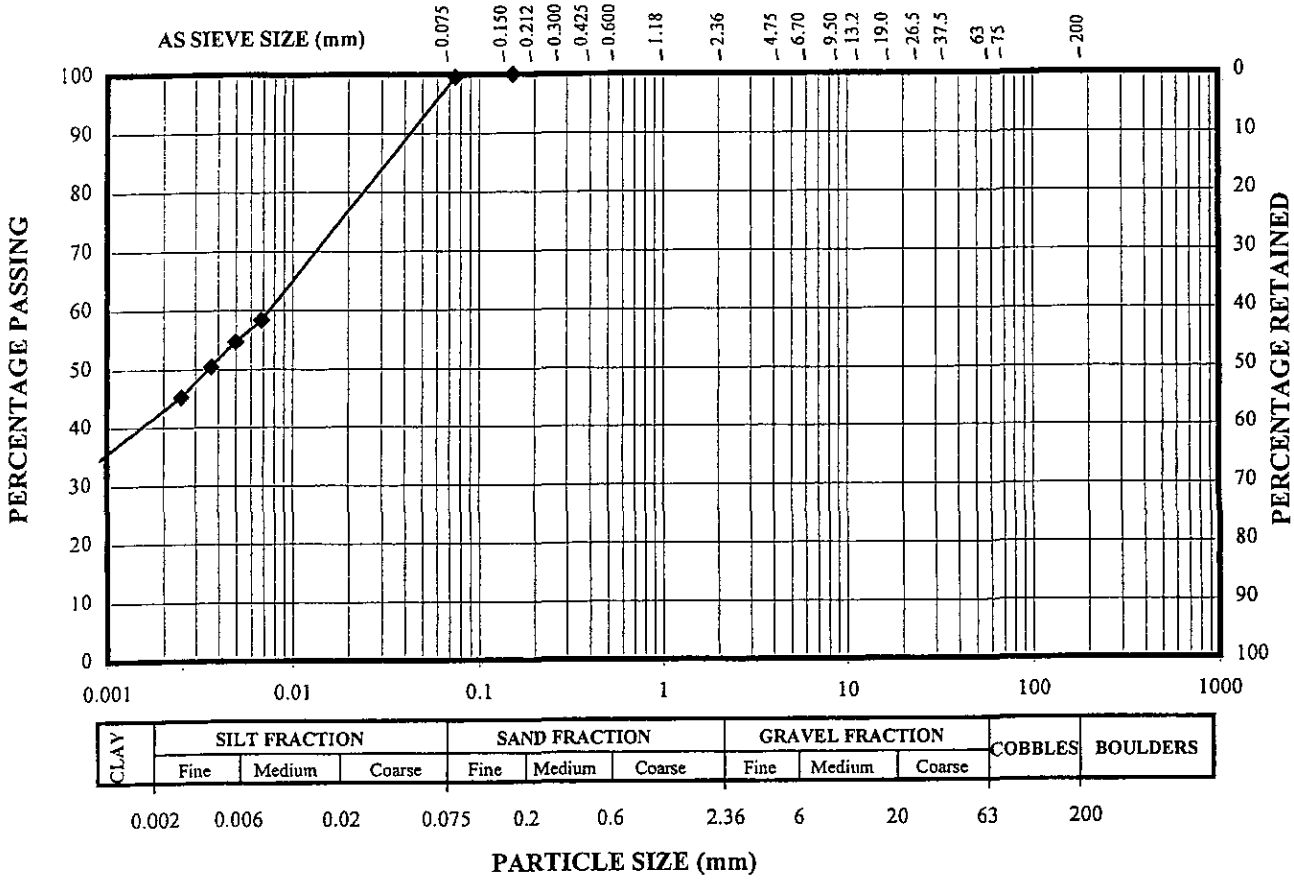
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD30 |
| **Depth:** | 0.8 to 1.5 |
| **Sample No:** | 3215/22 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289/2.1.1 AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

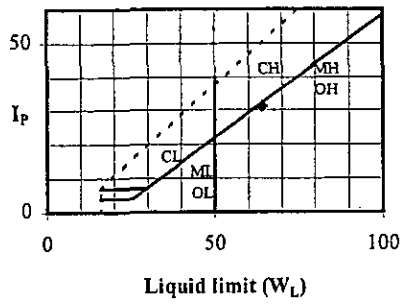
**PARTICLE DENSITY** 2.61 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Dry

**GROUP SYMBOL:** MH

**SOIL NAME:** High plasticity SILT




**INDEX PROPERTIES (%)**
Liquid Limit = 64 Plastic Limit = 33
Plasticity Index = 31 Linear Shrinkage % 16.0

**Atterberg Limits** (preparation method) Dry
**Liquid Limit** (type of test) Standard
**Linear Shrinkage** (mould size) 125 mm

**REMARKS:** Due to excessive froth & high hydrometer readings no reliable readings were obtained for the first 30 minutes

Tested by: GZ
Date tested: 25.02.03
Checked by: DB
Date checked: 6/3/03

Certified by: S. Ignatin 12.03.03


**GEOTECHNICAL TESTING SERVICES**
36 Oxley Street, Crows Nest, N.S.W. 2065
Telephone (02) 9439 4033 Fax (02) 9436 0606
**GHD-LONGMAC**


Accreditation No: 679

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The test reported herein have been performed in accordance with its terms of accreditation

| | |
|---|---|
| JOB No. | 2111563/00 |
| REPORT No. | 11091 |

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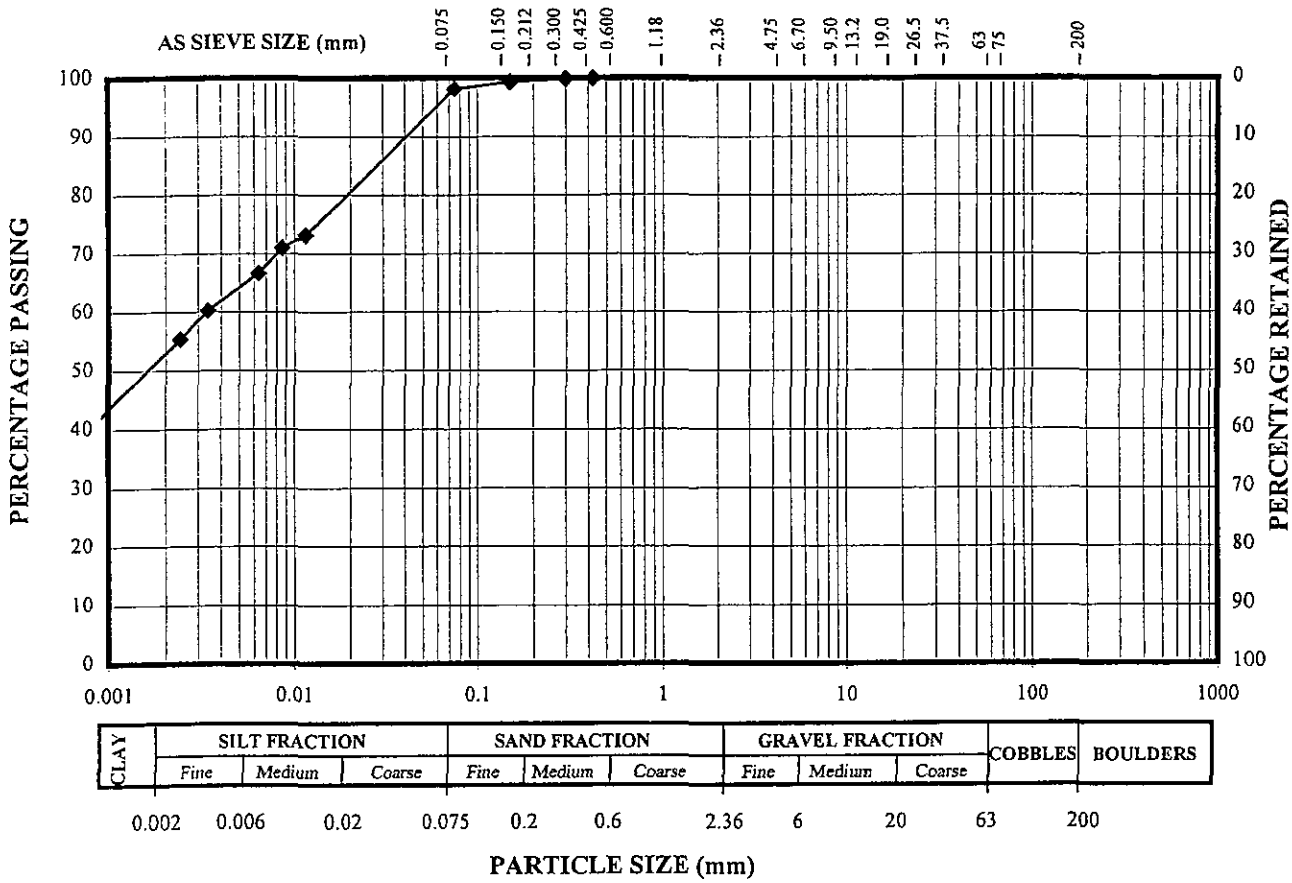
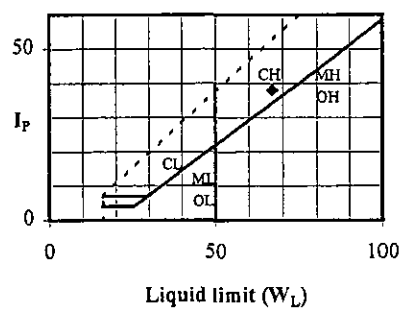
# SOIL CLASSIFICATION REPORT

| | |
|---|---|
| **Trial Hole:** | CD30 |
| **Depth:** | 2.3 to 3.0 |
| **Sample No:** | 3215/23 |

**Client:** Newcastle Port Corporation
**Project:** South Arm Dredging Master Plan
**Location:** South Arm Hunter River, Newcastle.

**Client Sample No.:** n/a.
**Sample History:** Sampled by GHD-LongMac Geotechnical




**TEST METHODS**
Classification AS1726 A2 Particle size AS1289.36.2

**OTHER TESTS** AS1289/2.1.1 AS1289.3.1.1
AS1289.3.2.1 AS1289.3.3.1 AS1289/3.4.1

**GRADING**
$C_u = D_{60} / D_{10}$ = not determinable
$C_c = D_{30} / (D_{10} \times D_{60})$ = not determinable

**PARTICLE DENSITY** 2.61 (assumed)

**PRE-TREATMENT HYDROMETER** N/A

**TEST CONDITION** Washed sieve with dispersing agent

**GROUP SYMBOL:** CH

**SOIL NAME:** High plasticity CLAY

**INDEX PROPERTIES (%)**
Liquid Limit = 67 Plastic Limit = 29
Plasticity Index = 38 Linear Shrinkage % 15.0

**Atterberg Limits** (preparation method) Dry

**Liquid Limit** (type of test) Standard

**Linear Shrinkage** (mould size) 125 mm

**REMARKS:** Due to excessive frothing of the sample no reliable readings were obtained for the first 8 minutes

Tested by: GZ
Date tested: 25.02.03
Checked by:
Date checked: 6/3/03

Certified by: S. Ignatiw 12.03.03


GEOTECHNICAL TESTING SERVICES
36 Oxley Street, Crows Nest, N.S.W. 2065
Telephone (02) 9439 4033 Fax (02) 9436 0606
GHD-LONGMAC Accreditation No: 679


This laboratory is accreditted by the National Association of Testing Authorities Australia
The test reported herein have been performed in accordance with its terms of accreditation

| | |
|---|---|
| JOB No. | 2111563/00 |
| REPORT No. | 11092 |

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**SYDNEY ANALYTICAL LABORATORIES**

Office:
PO BOX 48
ERMINGTON NSW 2115

Laboratory:
1/4 ABBOTT ROAD
SEVEN HILLS NSW 2147
Telephone: (02) 9838 8903
Fax: (02) 9838 8919
A.C.N. 003 614 695
A.B.N. 81 829 182 852

ANALYTICAL REPORT for:

GHD-LONGMAC PTY LTD

PO BOX 940
CROWS NEST 2065

ATTN: DAVID BROOKE

JOB NO: SAL12809

CLIENT ORDER: 2111563

DATE RECEIVED: 19/12/02

DATE COMPLETED: 16/01/03

TYPE OF SAMPLES: SOILS

NO OF SAMPLES: 16

NATA Accredited Laboratory
Number: 1884

NATA ENDORSED TEST REPORT
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.....
Issued on 23/01/03
Lance Smith
(Chief Chemist)

## ANALYTICAL REPORT

JOB NO: SAL12809
CLIENT ORDER: 2111563

| | SAMPLES | TAA mol/T | TPA mol/T | *S(KCl) % | *S(P) % | *S(POS % |
|---|---|---|---|---|---|---|
| 1 | CD1/0.7-1.5 | <5 | <5 | <0.01 | <0.01 | <0.0 |
| 2 | CD2/1.4-2.8 | <5 | <5 | <0.01 | 0.02 | 0.0 |
| 3 | CD3/0.0.6 | <5 | <5 | 0.07 | 0.46 | 0.3 |
| 4 | CD4/0-0.8 | <5 | <5 | 0.11 | 0.39 | 0.2 |
| 5 | CD5/1.6-2.4 | <5 | <5 | 0.02 | 0.15 | 0.1 |
| 6 | CD6/1.3-1.9 | <5 | <5 | 0.05 | 0.28 | 0.2 |
| 7 | CD7/0-1.0 | <5 | <5 | 0.04 | 0.36 | 0.3 |
| 8 | CD8/1.65-2.2 | <5 | <5 | <0.01 | 0.02 | 0.0 |
| 9 | CD9/0-0.6 | <5 | <5 | 0.06 | 0.28 | 0.2 |
| 10 | CD12/2.9-4.0 | <5 | <5 | <0.01 | <0.01 | <0.0 |
| 11 | CD13/0-0.6 | <5 | <5 | 0.05 | 0.27 | 0.2 |
| 12 | CD14/0.4 | <5 | <5 | 0.07 | 0.49 | 0.4 |
| 13 | CD17/2.5 | <5 | <5 | <0.01 | 0.01 | 0.01 |
| 14 | CD20/3.4 | <5 | <5 | <0.01 | <0.01 | <0.01 |
| 15 | CD23-2/0.7 | <5 | 110 | 0.11 | 0.58 | 0.47 |
| 16 | CD25/0.3 | <5 | <5 | 0.09 | 0.36 | 0.27 |
| DUPLICATES: | | | | | | |
| 15 | CD23-2/0.7 | <5 | 100 | 0.10 | 0.55 | 0.45 |
| MDL | | 5 | 5 | 0.01 | 0.01 | 0.01 |
| Method Code | | C31 | C30 | C41 | C41 | C41 |
| Preparation | | P12 | P12 | P12 | P12 | P12 |

ANALYTICAL REPORT

JOB NO: SAL12809
CLIENT ORDER: 2111563

| | SAMPLES | TSA mol/T |
|---|---|---|
| 1 | CD1/0.7-1.5 | <5 |
| 2 | CD2/1.4-2.8 | <5 |
| 3 | CD3/0.0.6 | <5 |
| 4 | CD4/0-0.8 | <5 |
| 5 | CD5/1.6-2.4 | <5 |
| 6 | CD6/1.3-1.9 | <5 |
| 7 | CD7/0-1.0 | <5 |
| 8 | CD8/1.65-2.2 | <5 |
| 9 | CD9/0-0.6 | <5 |
| 10 | CD12/2.9-4.0 | <5 |
| 11 | CD13/0-0.6 | <5 |
| 12 | CD14/0.4 | <5 |
| 13 | CD17/2.5 | <5 |
| 14 | CD20/3.4 | <5 |
| 15 | CD23-2/0.7 | 110 |
| 16 | CD25/0.3 | <5 |
| DUPLICATES: | | |
| 15 | CD23-2/0.7 | 100 |

| | |
|---|---|
| MDL | 5 |
| Method Code | C42 |
| Preparation | P12 |

RESULTS ON DRY BASIS

SYDNEY ANALYTICAL LABORATORIES



LABORATORY DUPLICATE REPORT

JOB NO: SAL12809
CLIENT ORDER: 2111563

| Sample Number | Analyte | Units | MDL | Sample Result | Duplicate Result | %RPI |
|---|---|---|---|---|---|---|
| CD23-2/0.7 | TAA | mol/T | 5 | <5 | <5 | ( |
| CD23-2/0.7 | TPA | mol/T | 5 | 110 | 100 | 1( |
| CD23-2/0.7 | *S(KCl) | % | 0.01 | 0.11 | 0.10 | 9 |
| CD23-2/0.7 | *S(P) | % | 0.01 | 0.58 | 0.55 | 5 |
| CD23-2/0.7 | *S(POS) | % | 0.01 | 0.47 | 0.45 | 4 |
| CD23-2/0.7 | TSA | mol/T | 5 | 110 | 100 | 1( |

Acceptance criteria:

RPD <50% for low level (<20xMDL)
RPD <30% for medium level (20-100xMDL)
RPD <15% for high level (>100xMDL)
No limit applies at <2xMDL

MDL = Method Detection Limit

All results are within the acceptance criteria

ANALYTICAL REPORT

JOB NO: SAL12809
CLIENT ORDER: 2111563

METHODS OF PREPARATION AND ANALYSIS

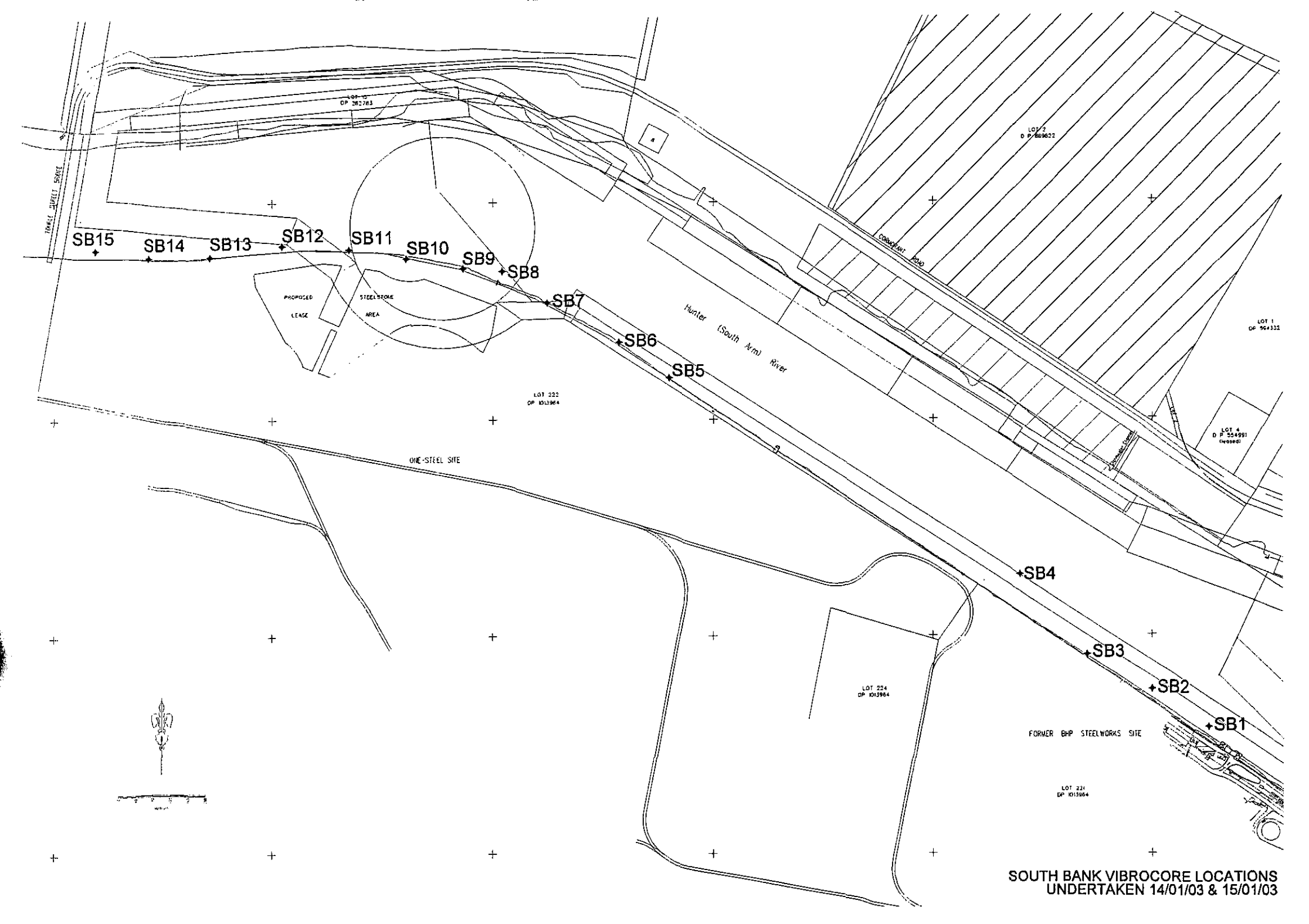
The tests contained in this report have been carried out on the samples as received by the laboratory.

| | |
|---|---|
| P12 | Sample dried, jaw crushed and sieved at 2mm<br>Visible shell removed prior to crushing |
| C31 | Total Actual Acidity - RTA T1030 |
| C30 | Total Potential Acidity - RTA T1031 |
| *C41 | Peroxide Oxidation - Combined Acidity & Sulphate (POCAS)<br>ASS Method 21 (Draft 1.63 for ASSMACTC May 1997) |
| C42 | Total Sulphidic Acidity - Calculation (TPA-TAA) |

*The laboratory's NATA registration does not cover performance of this service

A preliminary report was faxed on 16/01/03

# Southern Bank of the South Arm January 2003
# Vibrocoring Exercise




SOUTH BANK VIBROCORE LOCATIONS
UNDERTAKEN 14/01/03 & 15/01/03

| SAMPLE NAME | Depth | Report / Date | Total PAHs | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benza anthracene | Chrysene | Benzo(b)&(k)fluoranthene | Benzo a pyrene | Indeno(1,2,3-cd)fluoranthene | Dibenza.h anthracene | Benzo(ghi)perylene | *Total Organic Carbon | TPH C6 C9 | TPH C10-C14 | TPH C15-C28 | TPH C29-C36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UNITS | mm | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | % | mg/kg | mg/kg | mg/kg | mg/kg |
| **ANZECC Sediment Quality Guidelines - Low** | | | **4** | **0.16*** | **0.044*** | **0.016*** | **0.019*** | **0.24*** | **0.085*** | **0.6*** | **0.665*** | **0.261*** | **0.384*** | -- | **0.43*** | -- | **0.063*** | -- | - | -- | -- | -- | -- |
| **ANZECC Sediment Quality Guidelines - High** | | | **45** | **2.1*** | **0.64*** | **0.5*** | **0.54*** | **1.5*** | **1.1*** | **5.1*** | **2.6*** | **1.6*** | **2.8*** | -- | **1.6*** | -- | **1.6*** | -- | - | -- | -- | -- | -- |
| SB1 | 0-1050 | PBP/2003 | 2880 | 2200 | 20.2 | 140 | 63 | 140 | 42 | 87 | 72 | 23.7 | 15.9 | 32 | 19.8 | 10.1 | 2 | 8.93 | 26 | *2.5* | 1900 | 2300 | 640 |
| SB1 | 1050-2000 | PBP/2003 | 2.83 | 2.29 | *0.025* | 0.21 | *0.025* | 0.11 | 0.08 | 0.08 | 0.07 | *0.025* | *0.025* | *0.05* | *0.025* | *0.025* | *0.025* | *0.025* | 2.6 | *2.5* | *5* | *25* | *25* |
| SB2 | 0-1150 | PBP/2003 | 22960 | 15000 | 398 | 1800 | 1100 | 2000 | 500 | 790 | 600 | 170 | 110 | 200 | 130 | 78 | 11.1 | 70 | 0.05 | 190 | 17000 | 15000 | 1500 |
| SB2 | 1150-1840 | PBP/2003 | 315 | 221 | 0.89 | 22.4 | 17.5 | 29.6 | 7.08 | 6.74 | 4.96 | 0.980 | 0.810 | 1.200 | 0.730 | 0.400 | 0.060 | 0.420 | 4.8 | *2.5* | 400 | 360 | *25* |
| SB2 | 1840-2800 | PBP/2003 | 174 | 172 | 0.06 | 1.51 | *0.025* | 0.06 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | 2.2 | *2.5* | 220 | *25* | *25* |
| SB3 | 0-840 | PBP/2003 | 23104 | 15000 | 290 | 1700 | 1100 | 1900 | 510 | 920 | 690 | 209.000 | 139.000 | 260.000 | 170.000 | 108.000 | 13.200 | 95.000 | 34 | 52 | 54000 | 29000 | 2900 |
| SB3 | 1020-1550 | PBP/2003 | 3000 | 1900 | 15 | 330 | 180 | 250 | 76 | 100 | 74 | 20.900 | 12.300 | 20.000 | 11.500 | 5.900 | 1.170 | 4.700 | 37 | 10 | 1300 | 3700 | 960 |
| SB3 | 1550-2340 | PBP/2003 | 208 | 126 | 0.58 | 16.3 | 14 | 22.1 | 5.24 | 8.89 | 6.69 | 1.820 | 1.480 | 2.400 | 1.340 | 0.830 | 0.120 | 0.780 | 4.8 | *2.5* | 90 | 380 | 100 |
| SB3 | 2340-3480 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | 1.6 | *2.5* | *5* | *25* | *25* |
| SB4 | 0-1000 | PBP/2003 | 0.71 | 0.38 | *0.025* | 0.06 | *0.025* | 0.09 | *0.025* | 0.08 | 0.1 | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | 1.6 | *2.5* | *5* | *25* | *25* |
| SB4 | 1000-2000 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | 1 | *2.5* | *5* | *25* | *25* |
| SB5 | 0-620 | PBP/2003 | 49.1 | 5.58 | 0.95 | 0.78 | 0.89 | 3.68 | 1.71 | 7.28 | 7.76 | 2.880 | 2.370 | 6.200 | 3.850 | 2.480 | 0.370 | 2.290 | 8.4 | 2.5 | 10 | 280 | 80 |
| SB5 | 620-1600 | PBP/2003 | 0.33 | 0.1 | *0.025* | *0.025* | *0.025* | 0.05 | *0.025* | 0.08 | 0.1 | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | 2.6 | *2.5* | *5* | *25* | *25* |
| SB5 | 1700-2600 | PBP/2003 | 0.91 | 0.06 | *0.025* | *0.025* | *0.025* | 0.06 | *0.025* | 0.15 | 0.15 | 0.070 | 0.060 | 0.100 | 0.090 | 0.060 | *0.025* | 0.070 | 3.2 | *2.5* | *5* | *25* | *25* |
| SB6 | 0-1000 | PBP/2003 | 0.49 | 0.23 | *0.025* | *0.025* | *0.025* | 0.06 | *0.025* | 0.1 | 0.1 | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | 5.8 | *2.5* | *5* | *25* | *25* |
| SB6 | 1750-1980 | PBP/2003 | 0.41 | 0.35 | *0.025* | 0.06 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *2.5* | *5* | *25* | *25* |
| SB7 | 0-700 | PBP/2003 | 1.41 | 0.22 | *0.025* | *0.025* | *0.025* | 0.08 | *0.025* | 0.22 | 0.27 | 0.090 | 0.080 | 0.200 | 0.100 | 0.090 | *0.025* | 0.080 | 4 | *2.5* | 10 | 460 | 60 |
| SB7 | 700-1700 | PBP/2003 | 0.08 | 0.08 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | 1.2 | *2.5* | *5* | *25* | *25* |
| SB8 | 0-550 | PBP/2003 | 0.1 | 0.1 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *2.5* | *5* | *25* | *25* |
| SB8 | 550-940 | PBP/2003 | 7.65 | 0.94 | 0.3 | 0.07 | 0.11 | 0.42 | 0.2 | 0.93 | 1.14 | 0.330 | 0.310 | 1.000 | 0.660 | 0.490 | 0.070 | 0.560 | 5.6 | *2.5* | *5* | *25* | *25* |
| SB9 | 0-400 | PBP/2003 | 43.5 | 11.2 | 0.84 | 1.1 | 1.1 | 3.3 | 1.8 | 4.6 | 5.7 | 2.000 | 1.400 | 4.400 | 2.600 | 1.900 | 0.230 | 1.300 | 15 | *2.5* | 50 | 740 | 200 |
| SB9 | 400-1160 | PBP/2003 | 6.8 | 0.94 | 0.14 | 0.1 | 0.14 | 0.71 | 0.26 | 1.02 | 1.14 | 0.370 | 0.280 | 0.700 | 0.420 | 0.280 | *0.025* | 0.320 | 5.6 | *2.5* | *5* | 80 | *25* |
| SB9 | 1160-2000 | PBP/2003 | 0.07 | 0.07 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | 1.4 | *2.5* | *5* | *25* | *25* |
| SB10 | 0-560 | PBP/2003 | 0.37 | 0.08 | *0.025* | *0.025* | *0.025* | 0.07 | *0.025* | 0.11 | 0.11 | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | 2.8 | *2.5* | *5* | *25* | *25* |
| SB10 | 840-1530 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *2.5* | *5* | *25* | *25* |
| SB11 | 0-940 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *2.5* | *5* | *25* | *25* |
| SB12 | 0-1000 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *2.5* | *5* | *25* | *25* |
| SB13 | 0-1000 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *2.5* | *5* | *25* | *25* |
| SB13 | 1000-1860 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *2.5* | *5* | *25* | *25* |
| SB14 | 0-520 | PBP/2003 | 1.94 | 0.3 | *0.025* | *0.025* | *0.025* | 0.13 | 0.06 | 0.29 | 0.32 | 0.120 | 0.110 | 0.300 | 0.150 | 0.090 | *0.025* | 0.110 | 2.8 | *2.5* | *5* | *25* | *25* |
| SB14 | 520-1540 | PBP/2003 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | *0.05* | *2.5* | *5* | *25* | *25* |
| SB15 | 0-1000 | PBP/2003 | 0.08 | 0.08 | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.025* | *0.050* | *0.025* | *0.025* | *0.025* | *0.025* | 4.6 | *2.5* | *5* | *25* | *25* |

Notes

1. Datasets include an assortment of Total Organic Matter (TOM) and Total Organic Carbon (TOC) results. All data has been converted to TOC using the following conversion - TOM x 0.58 = TOC
2. -- No sample collected or no data available
3. *italics* - Numbers in italics are those reported as Non Detected and are included as 1/2 PQL for statistical purpose
4. * guideline value nomalised to 1% TOC

## VISUAL CORE DESCRIPTIONS – SOUTH BANK – SOUTH ARM HUNTER RIVER

| CORE (*depth mm) | DESCRIPTION |
|---|---|
| | |
| | |
| **Core SB1** | |
| 0-1050 | black mud. Strong odour. Greasy |
| 1050-2430 | sand/mud intercalations |
| 2430-2590 | shell in sand matrix |
| 2590-3000 | dark grey silty sand |
| | |
| | |
| **Core SB2** | |
| 0-1150 | black oily mud. Some naphthalene odour. Greasy |
| 1150-1840 | grey mud |
| 1840-3520 | dark grey silty sand |
| | |
| **Core SB3** | |
| 0-840 | black oily mud. Strong naphthalene odour |
| 840-1020 | brown mud |
| 1020-1550 | black mud |
| 1550-2340 | grey mud |
| 2340-3408 | grey sand |
| | |
| **Core SB4** | |
| 0-550 | mud with shell |
| 550-1000 | grey mud/sand intercalations with layers of dense shell |
| 1000-1230 | sand |
| 1230-1410 | mud |
| 1410-1520 | sand |
| 1520-1600 | mud |
| 1600-1720 | shells in mud |
| 1720-2650 | sand with shell |
| 2650-3100 | dense shell in sand |
| | |
| **Core SB5** | |
| 0-620 | grey black mud |
| 620-2630 | mud sand intercalations |
| 2630-2800 | shell |
| 2800-2840 | large shell |
| | |
| **Core SB6** | |
| 0-1430 | brown, grey mud sand intercalations, predominantly mud |
| 1430-1750 | large shell fragments (Ø 30mm) in dark grey matrix |
| 1750-1980 | grey brown sand |
| 1980-2270 | grey, brown sand with shell |

| | |
|---|---|
| **Core SB7** | |
| 0-700 | dark grey mud |
| 700-2800 | dark grey silty sand with dense layers of shell |
| | |
| **Core SB8** | |
| 0-180 | dark grey sand |
| 180-550 | light grey sand |
| 550-940 | dark grey mud |
| 940-1770 | shells in dark grey sand matrix |
| 1770-2480 | light grey sand |
| | |
| **Core SB9** | |
| 0-400 | black mud |
| 400-1160 | grey mud |
| 1160-3140 | grey sand shell intercalation |
| | |
| **Core SB10** | |
| 0-560 | dark grey silty sand |
| 560-700 | grey clay, stiff |
| 700-840 | dark grey silty sand with shell |
| 840-1530 | light grey sand |
| 1530-1820 | shell in light grey sand matrix |
| | |
| **Core SB11** | |
| 0-940 | light grey sand with shells predominantly in upper 400 |
| | |
| **Core SB12** | |
| 0-1330 | light grey silty sand with some shell |
| | |
| **Core SB13** | |
| 0-1860 | light grey silty sand with shell |
| | |
| **Core SB14** | |
| 0-240 | shell fragments, grey brown clay |
| 240-310 | shell |
| 310-1540 | grey sand with shell |
| | |
| **Core SB15** | |
| 0-2680 | brown grey mud with large shells (Ø 30mm) |
| 2680-3160 | grey sand with shell (Ø 10mm) |
| 3160-3220 | grey sand |
| | |

**Note: depths as measured in the core, no correction for compaction*

CORE STATISTICS - NEWCASTLE HARBOUR, SOUTH BANK

| CORE | WATER DEPTH mm | PENETRATION mm | RECOVERY mm | COMPACTION mm | COMPACTION % | TD RATIO | DATE-TIME (JAN 2003) | REMARKS (m from flag) |
|---|---|---|---|---|---|---|---|---|
| **SB1** | 300 | 4000 | 3000 | 1000 | 25.0 | 1.3 | 14/01-1436 | 25 |
| **SB2** | 370 | 4090 | 3250 | 570 | 13.9 | 1.3 | 14/01-1512 | 10 |
| **SB3** | 400 | 3960 | 3460 | 500 | 12.6 | 1.1 | 14/01-1549 | 1 |
| **SB4** | 1500 | 4060 | 3090 | 970 | 23.9 | 1.3 | 15/01-1706 | 10 |
| **SB5** | 900 | 3750 | 2850 | 900 | 24.0 | 1.3 | 14/01-1647 | 6 |
| **SB6** | 850 | 3000 | 2260 | 740 | 24.7 | 1.3 | 14/01-1729 | 5 |
| **SB7** | 900 | 3300 | 2800 | 500 | 15.2 | 1.2 | 14/01-1755 | 5 |
| **SB8** | 400 | 3180 | 2480 | 700 | 22.0 | 1.3 | 15/01-1348 | 30 |
| **SB9** | 700 | 3830 | 3130 | 700 | 18.3 | 1.2 | 15/01-1428 | 1 |
| **SB10** | 1000 | 2670 | 1820 | 850 | 31.8 | 1.5 | 15/01-1509 | 2 |
| **SB11** | 1900 | 1470 | 950 | 520 | 35.4 | 1.5 | 15/01-1556 | 2 |
| **SB12** | 3400 | 1820 | 1320 | 500 | 27.5 | 1.4 | 15/01-1240 | 20 |
| **SB13** | 1500 | 2660 | 1860 | 800 | 30.1 | 1.4 | 15/01-1151 | 5 |
| **SB14** | 1650 | 2400 | 1550 | 850 | 35.4 | 1.5 | 15/01-1115 | 3 |
| **SB15** | 1400 | 3830 | 3230 | 600 | 15.7 | 1.2 | 15/01-1033 | 25 |

**TD Ratio = True Depth Ratio - eg if sample taken at 1000mm and TDR is 1.1, then the true depth of the sample in the sediment pile is 1100mm.**

## SEDIMENT TEXTURE - NEWCASTLE SOUTH BANK

| SAMPLE | GRAVEL % | SAND % | MUD % |
|---|---|---|---|
| **Core SB1** | | | |
| 0-1050 | 0 | 37.5 | 62.5 |
| 1050-2000 | 2.2 | 70.7 | 27.1 |
| **Core SB2** | | | |
| 1150-1840 | 0 | 4.5 | 95.5 |
| **Core SB3** | | | |
| 1550-2340 | 0 | 1.86 | 98.14 |
| 2340-3480 | 0.6 | 78.28 | 21.16 |
| **Core SB4** | | | |
| 0-1999 | 2.4 | 78.6 | 19.0 |
| 1000-2000 | 3.3 | 58.2 | 38.4 |
| **Core SB5** | | | |
| 0-620 | 0 | 21.5 | 78.5 |
| 620-1600 | 0.9 | 65.2 | 33.9 |
| **Core SB6** | | | |
| 0-1000 | 0 | 23.4 | 76.6 |
| 1000-1980 | 0.5 | 97.7 | 1.7 |
| **Core SB7** | | | |
| 0-700 | 0 | 8.8 | 91.2 |
| 700-1700 | 0.1 | 91.5 | 8.4 |
| **Core SB8** | | | |
| 0-550 | 4.2 | 91.8 | 4.0 |
| 550-940 | 0 | 30.4 | 69.6 |
| **Core SB9** | | | |
| 0-1160 | 0 | 39.4 | 60.6 |
| 1160-2000 | 0.2 | 91.7 | 8.2 |

| | | | |
|---|---|---|---|
| **Core SB10** | | | |
| 0-560 | 0.5 | 83.6 | 15.9 |
| 840-1530 | 0 | 98.4 | 1.6 |
| | | | |
| **Core SB11** | | | |
| 0-940 | 2.2 | 97.8 | 0 |
| | | | |
| **Core SB12** | | | |
| 0-1000 | 2.1 | 95.5 | 2.4 |
| 1840-2830 | 1.5 | 76.4 | 22.2 |
| | | | |
| **Core SB13** | | | |
| 0-1000 | 1.9 | 96.7 | 1.4 |
| | | | |
| **Core SB14** | | | |
| 0-520 | 15.8 | 50.9 | 33.3 |
| 520-1540 | 2.5 | 95.1 | 2.3 |
| | | | |
| **Core SB15** | | | |
| 0-1000 | 20.5 | 39.3 | 40.2 |
| | | | |
| **HEC** | 1.4 | 27.3 | 71.3 |
| **HEPC** | 1.0 | 21.3 | 77.7 |
| **LEC** | 3.0 | 90.0 | 7.0 |
| **LEPC** | 3.4 | 88.1 | 8.5 |
| **MEC** | 2.5 | 38.0 | 59.5 |
| **MEPC** | 4.7 | 50.9 | 44.3 |

## NEWCASTLE HARBOUR SOUTH BANK– SEDIMENT DESCRIPTION

| SAMPLE | GRAVEL | SAND | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| | | Rel. Size | Shape | Sorting | Shell % | Quartz % | Others# | $d_{50}$ mics | |
| **Core SB1** | | | | | | | | | |
| 0-1050 | - | Fine | a | Poor | - | - | 100(co) | 140 | Sand is fine coal |
| 1050-2000 | Shell to 10mm, RF | Medium | sr | Moderate | 1 | 99 | - | 310 | - |
| **Core SB2** | | | | | | | | | |
| 1150-1840 | - | Fine | sr | Moderate | - | 100 | - | - | - |
| **Core SB3** | | | | | | | | | |
| 1550-2340 | Shell to 5mm | Very fine | sr | Moderate | - | 100 | - | - | - |
| 2340-3480 | Shell to 7mm | Medium – fine | sa - sr | Moderate - well | 1 | 99 | - | 280 | - |
| **Core SB4** | | | | | | | | | |
| 0-1000 | - | Medium – fine | sa - sr | Poor | 2 | 95 | 3(RF) | 200 | - |
| 1000-2000 | Shell to 15mm | Fine | sa | Moderate | 1 | 80 | 19(RF) | 190 | - |
| **Core SB5** | | | | | | | | | |
| 0-620 | - | Medium – fine | a | Very poor | - | 1 | 99(co) | 210 | Sand is coal and slag |
| 620-1600 | Shell to 5mm | Medium | sa sr | Well | 2 | 98 | - | 300 | - |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Core SB6** | | | | | | | | | |
| 0-1000 | - | Fine | sa | Poor | - | 95 | 5(sl) | 240 | Slag in coarser sand fraction |
| 1000-1980 | Shell to 5mm | Medium | sa - sr | Well | 1 | 94 | 4(RF) | 320 | - |
| **Core SB7** | | | | | | | | | |
| 0-700 | - | Very fine | sa? | ? | - | 100 | - | - | Small amount of very fine quartz sand |
| 700-1700 | Shell to 5mm | Fine | sa - sr | Moderate - well | - | 100 | - | 150 | - |
| **Core SB8** | | | | | | | | | |
| 0-550 | RF to 15mm, shell | Medium | sa - sr | Well | - | 98 | 2(RF, co) | 350 | - |
| 550-940 | Shell to 5mm | Medium – fine | sa - sr | Poor | - | 100 | - | 120 | - |
| **Core SB9** | | | | | | | | | |
| 0-1160 | - | Fine | sa - sr | Poor | - | 100 | - | 150 | - |
| 1160-2000 | - | Fine | sa - sr | Well | 5 | 95 | - | 190 | - |
| **Core SB10** | | | | | | | | | |
| 0-560 | Shell to 5mm, coal | Fine | sa - sr | Moderate – poor | - | 100 | - | 170 | - |
| 840-1530 | - | Medium | sa - sr | Well | - | 100 | - | 290 | - |
| **Core SB11** | | | | | | | | | |
| 0-940 | Shell to 10mm, RF | Medium | sa - sr | Moderate - well | - | 100 | - | 420 | - |

only recovered 1320?!

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Core SB12** | | | | | | | | | |
| 0-1000 | Shell to 15mm | Medium | sa - sr | Moderate | 1 | 99 | - | 320 | - |
| 1840-2830 | Shell to 7mm | Medium | sa - sr | Moderate | 1 | 99 | - | 320 | - |
| **Core SB13** | | | | | | | | | |
| 0-1000 | Shell to 10mm, RF | Medium | sa - sr | Moderate | - | 100 | - | 310 | - |
| **Core SB14** | | | | | | | | | |
| 0-520 | Shell, RF to 20mm | Medium | sa - sr | Poor | 2 | 98 | - | 220 | - |
| 520-1540 | Shell to 10mm | Medium | sa - sr | Moderate - well | 2 | 98 | - | 250 | - |
| **Core SB15** | | | | | | | | | |
| 0-1000 | Shell to 25mm | Coarse - medium | a | Very poor | 20 | 70 | 10(fp) | 370 | - |

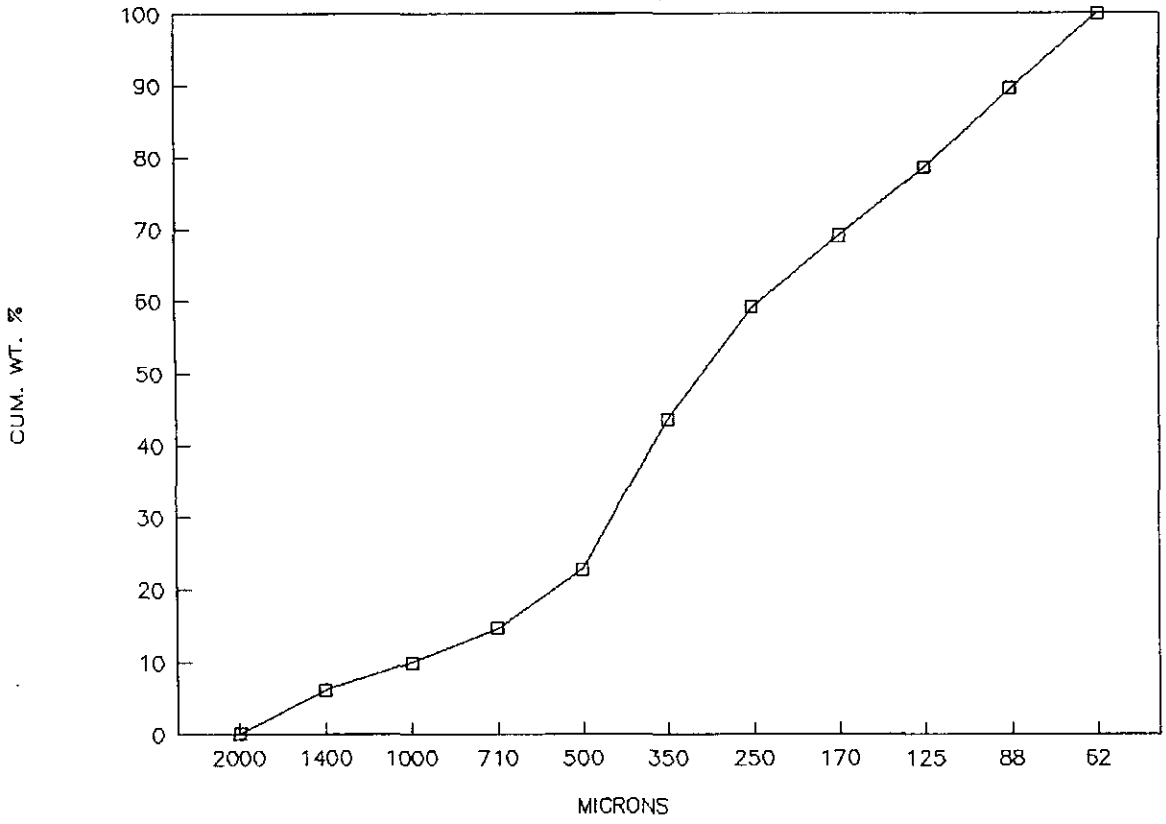
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **HEC** | Shell, coal, RF to 10mm | Coarse - medium | a | Very poor | - | 10 | 90 (co) | 250 | Sand is dominated by coal (coarse) and some 'slag' |
| **HEPC** | Shell, coal, RF to 7mm | medium | a | Very poor | - | 10 | 90 (co) (brick) | 210 | Sand is dominated by coal a some slag (coarse), little bric |
| **LEC** | Shell, coal to 10mm | medium | a (sr q) | moderate | 2 | 40 | 58 (co) | 400 | Sand is angular 'fresh' coal (coarse) and sub-rounded quartz |
| **LEPC** | Shell, coal to 15mm | medium | a (sr q) | Moderate | - | 60 | 40 (co) | 390 | Sand is sub-rounded quartz and angular 'fresh' coal (coarse) |
| **MEC** | Shell, coal to 15mm | Coarse - medium | a (sr q) | Very poor | - | 10 | 90 (co) | 300 | Sand dominated by coal an slag (coarse) |
| **MEPC** | Shell, coal to 15mm | Coarse - medium | sr(q), a | Very poor | - | 70 | 30 (co) | 310 | Sand is sub-rounded quartz with coal and slag in finer fractions |

LEGEND
In all instances shape factors and to a certain extent size factors apply to the terrigenous fraction of the sands. Shell is usually found in the coarser fractions and is generally angular mollusc..

RF – rock fragment
fp – faecal pellet
sl – furnace? ash
anthro – anthropogenic material including glass, paint, metal, plastic, fibro etc
co - coal
a - angular
sa – sub-angular
sr – sub-rounded
r – rounded
mod – moderately
v – very
Fe – iron oxide stained
* - samples that have been analysed for grain-size distribution, $\mathbf{d_{50}}$ has been calculated for these sediments
- - indicate absence of component

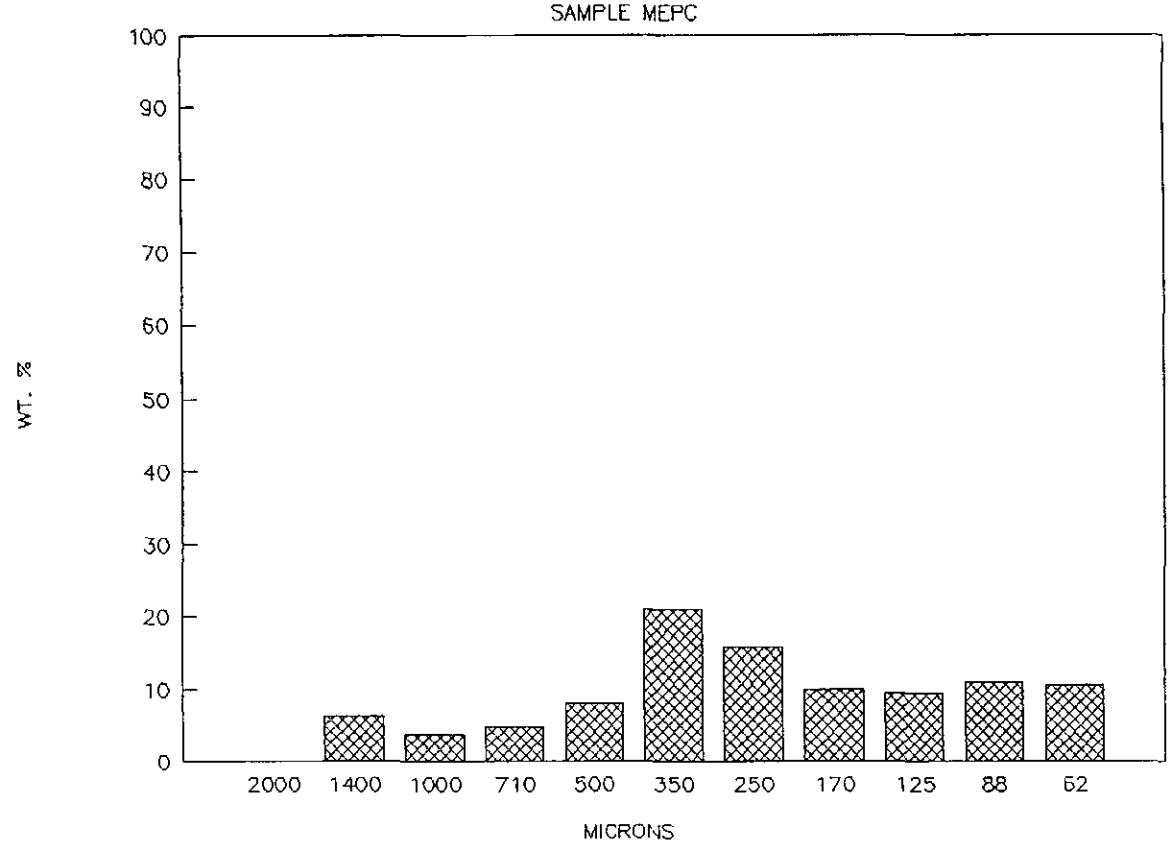
# NEWCASTLE HARBOUR SOUTH BANK

SAMPLE MEPC



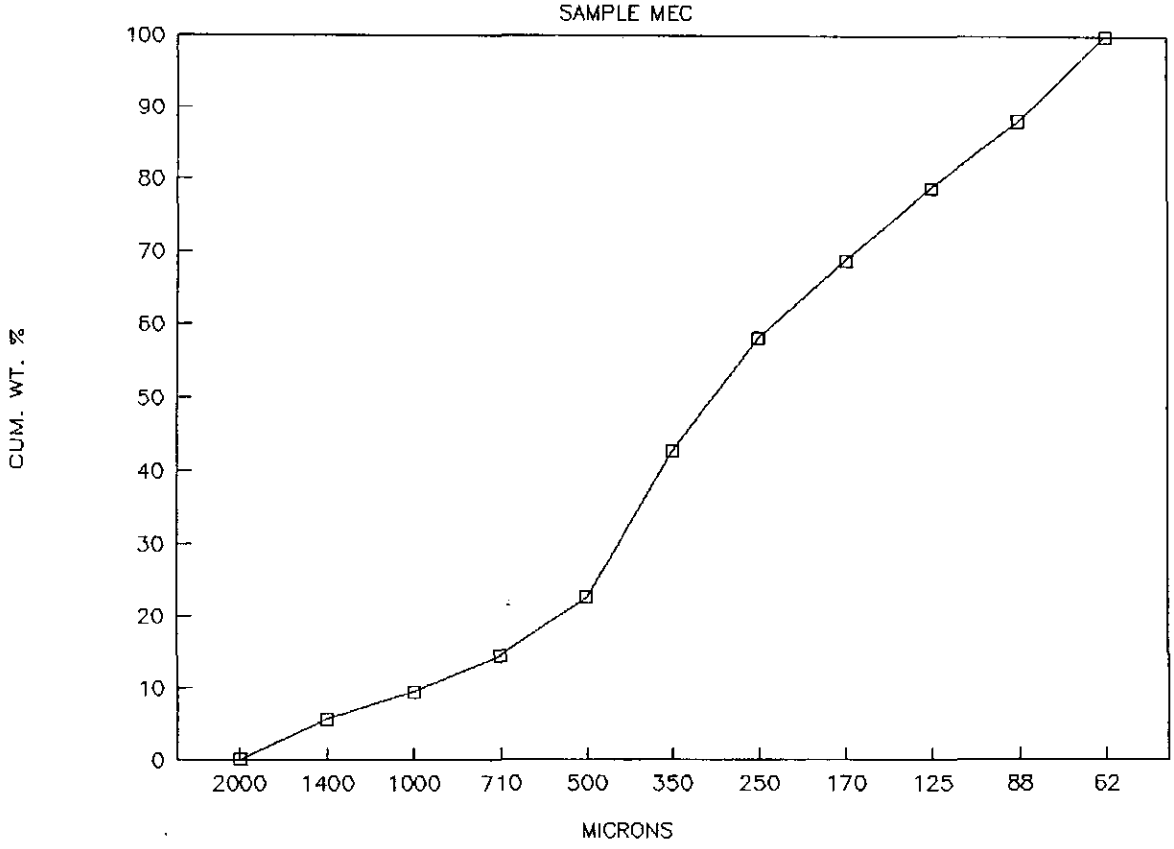

# NEWCASTLE HARBOUR SOUTH BANK

SAMPLE MEPC



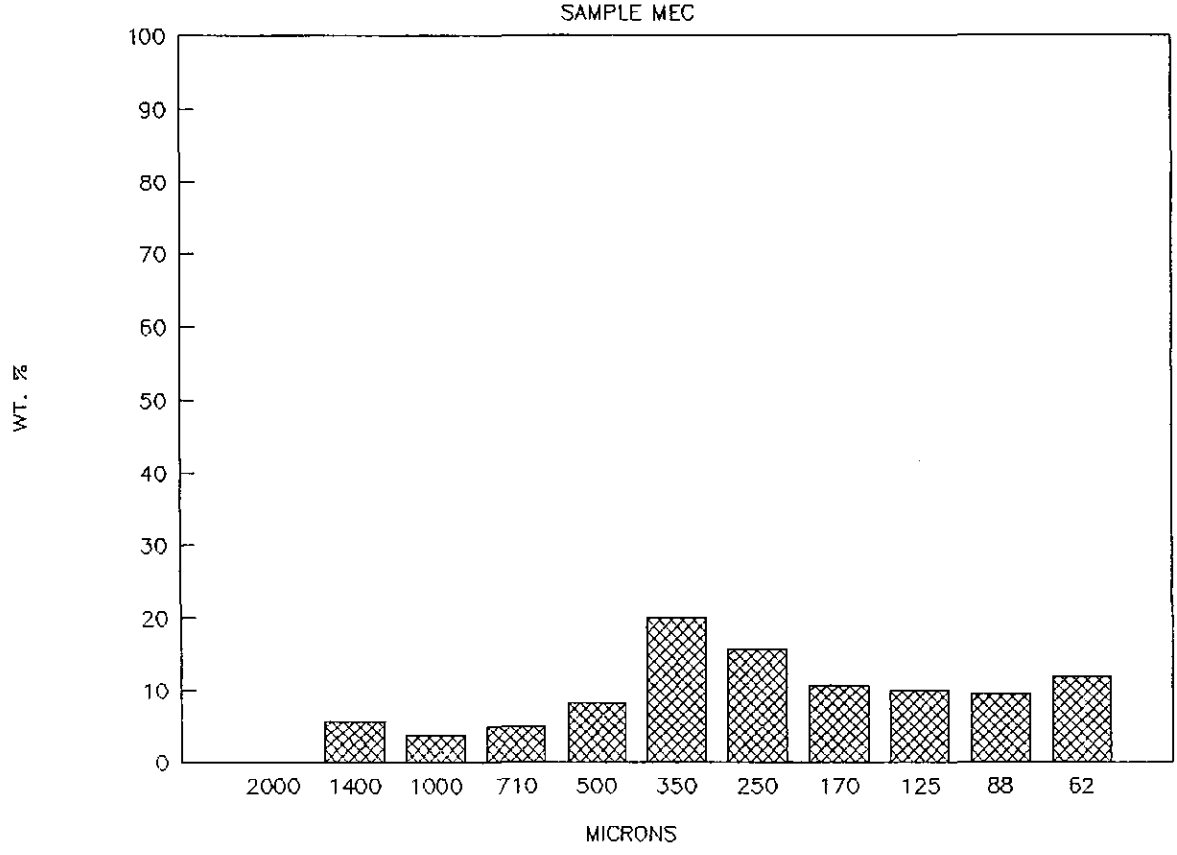
# NEWCASTLE HARBOUR SOUTH BANK

SAMPLE MEC



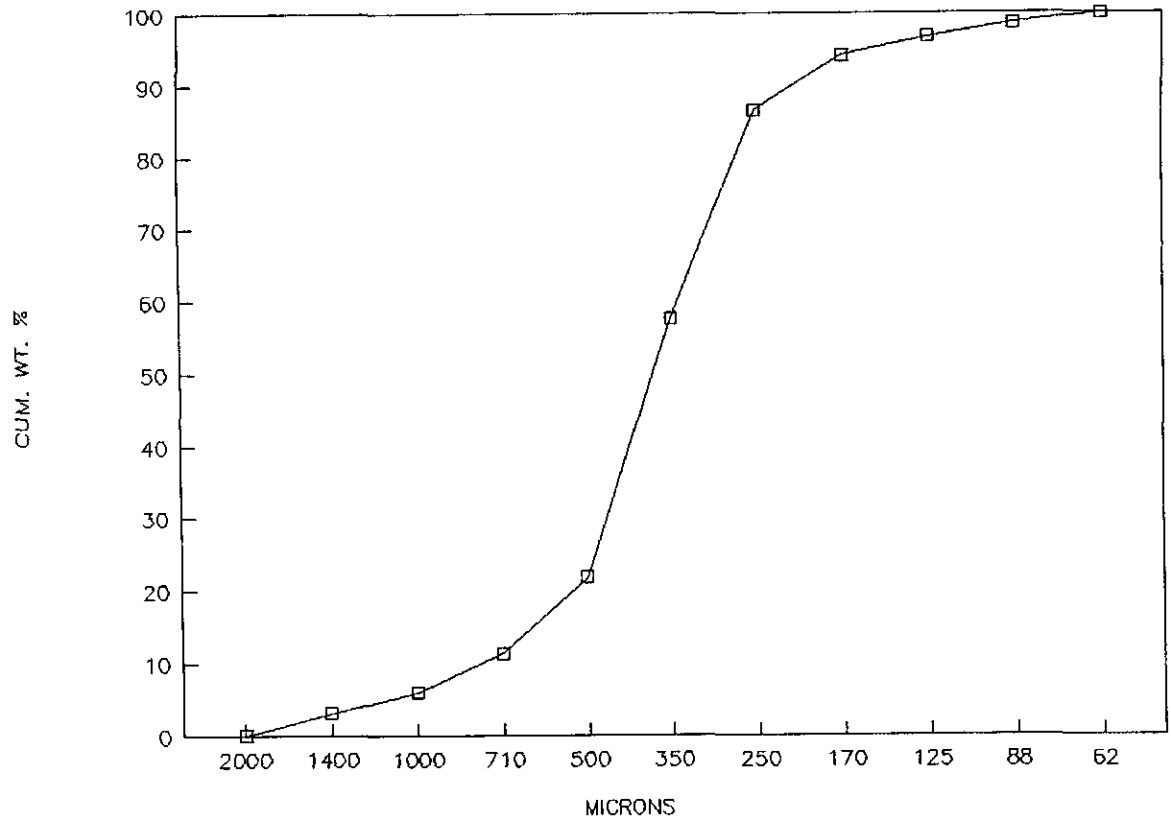

# NEWCASTLE HARBOUR SOUTH BANK

SAMPLE MEC



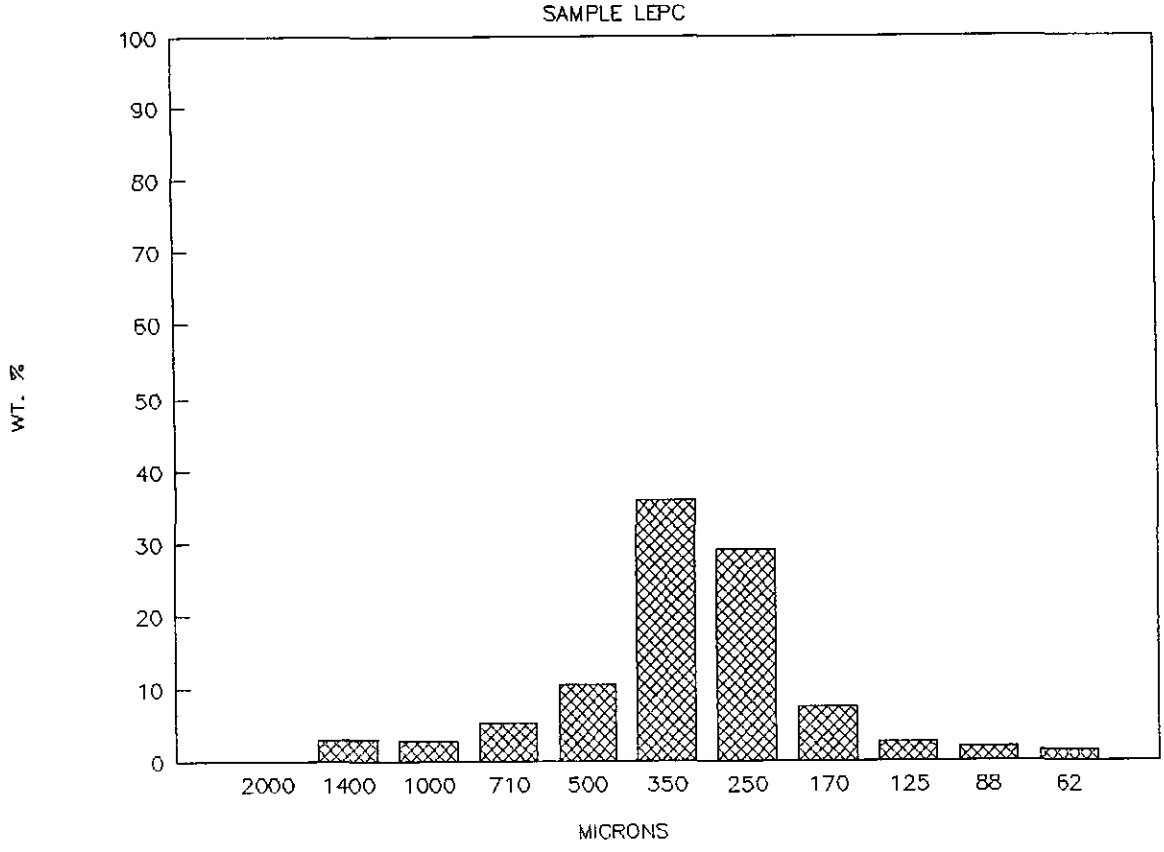
# NEWCASTLE HARBOUR SOUTH BANK

SAMPLE LEPC



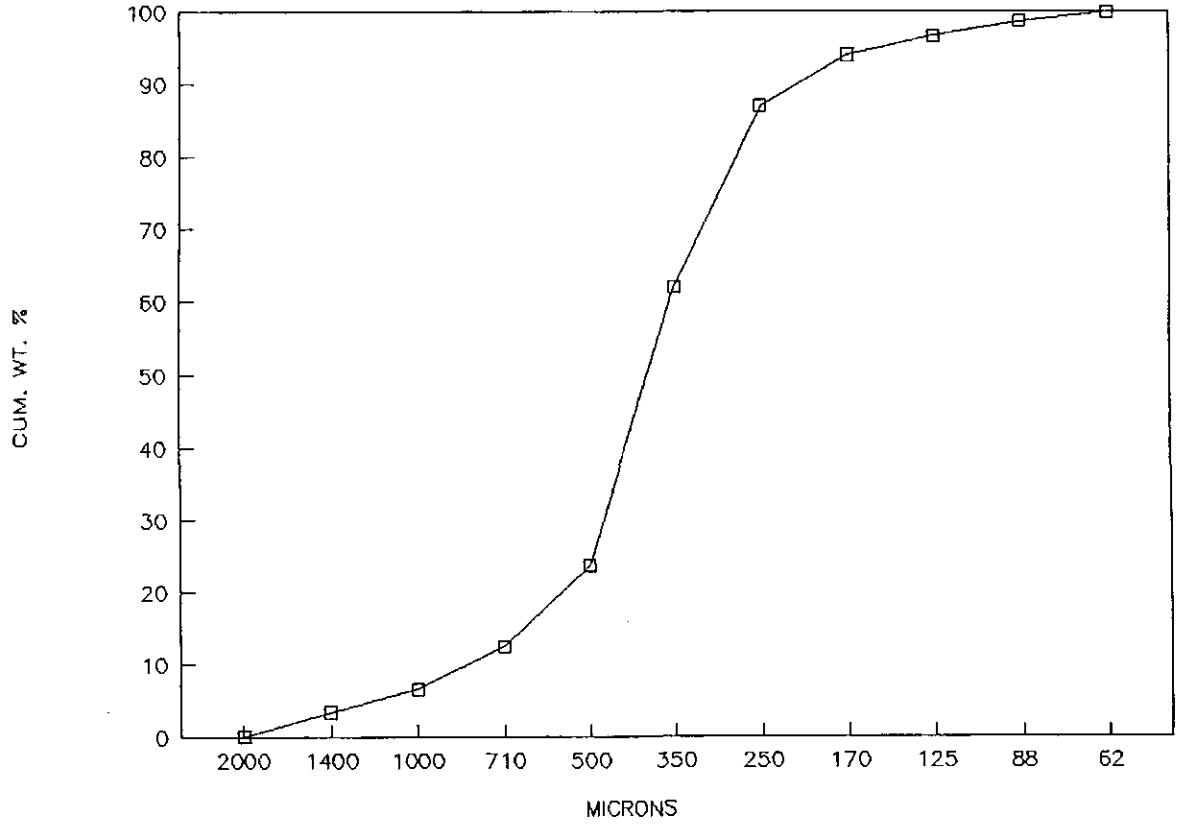

# NEWCASTLE HARBOUR SOUTH BANK

SAMPLE LEPC



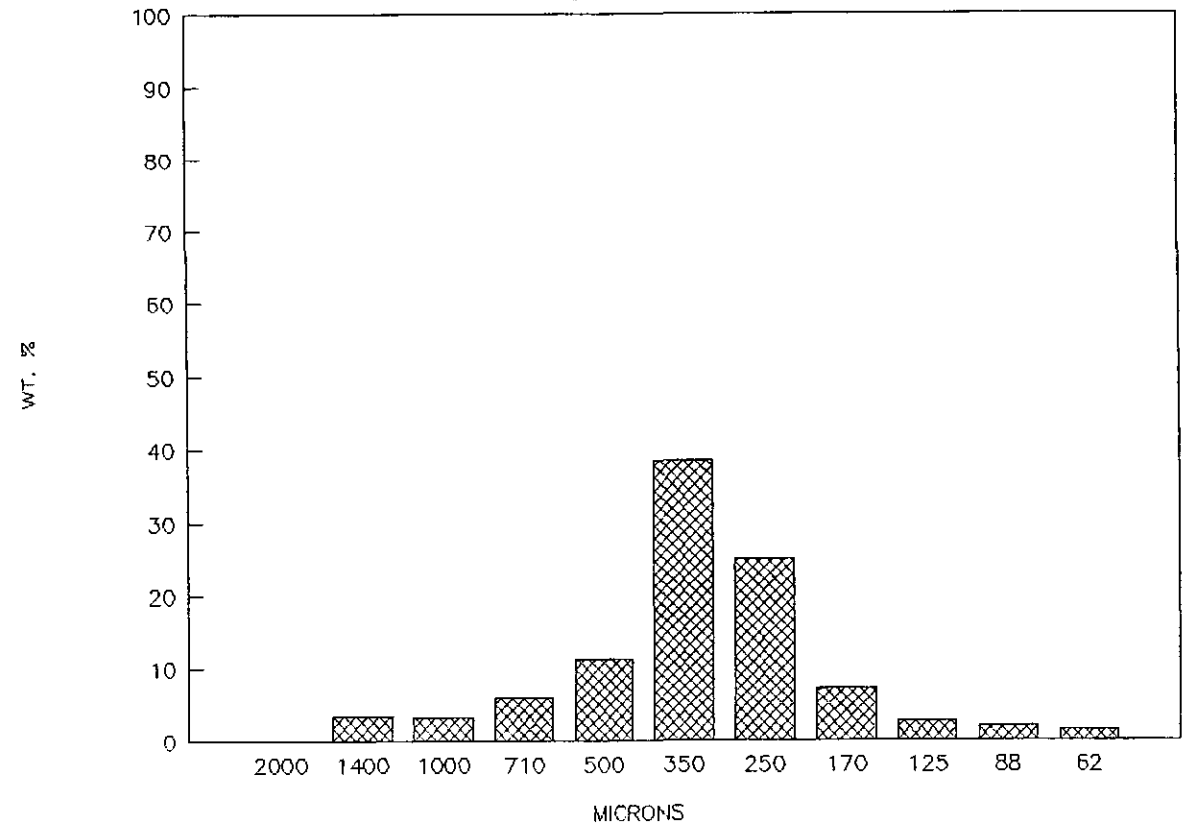
# NEWCASTLE HARBOUR SOUTH BANK

SAMPLE LEC



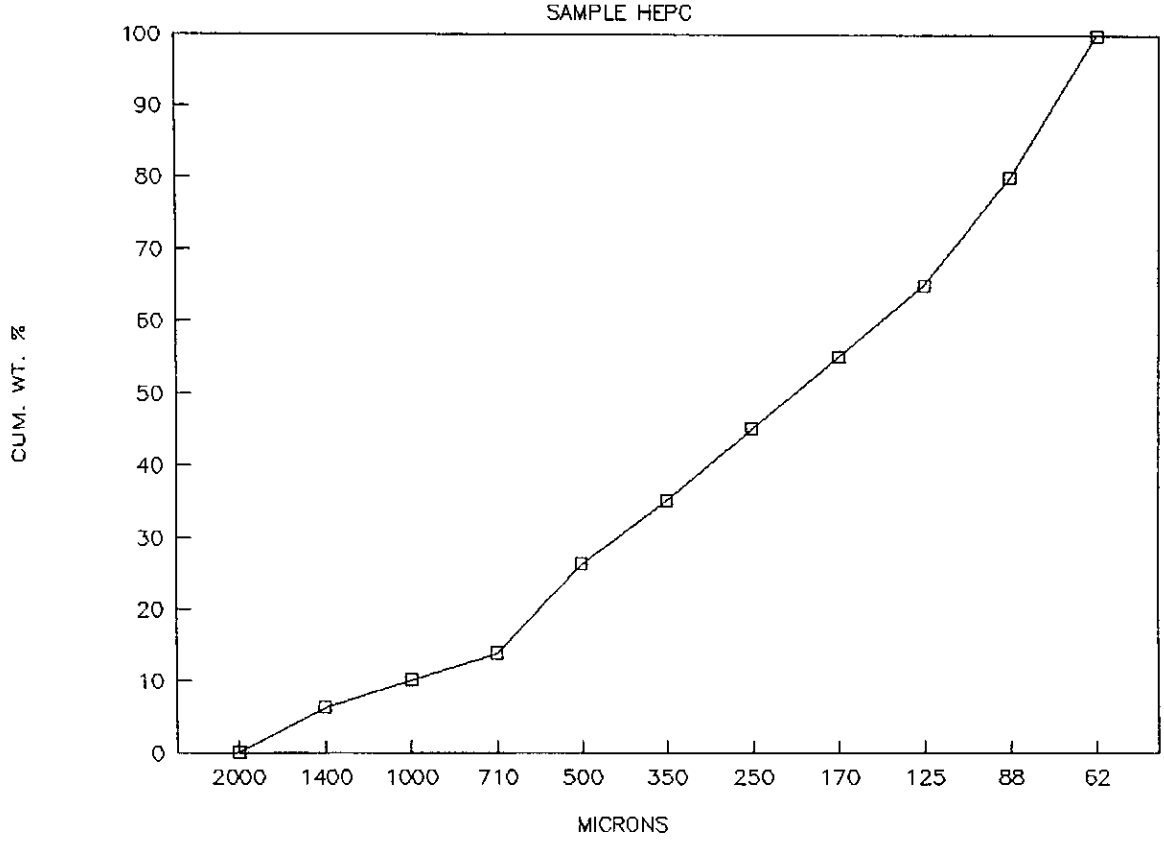

# NEWCASTLE HARBOUR SOUTH BANK

SAMPLE LEC



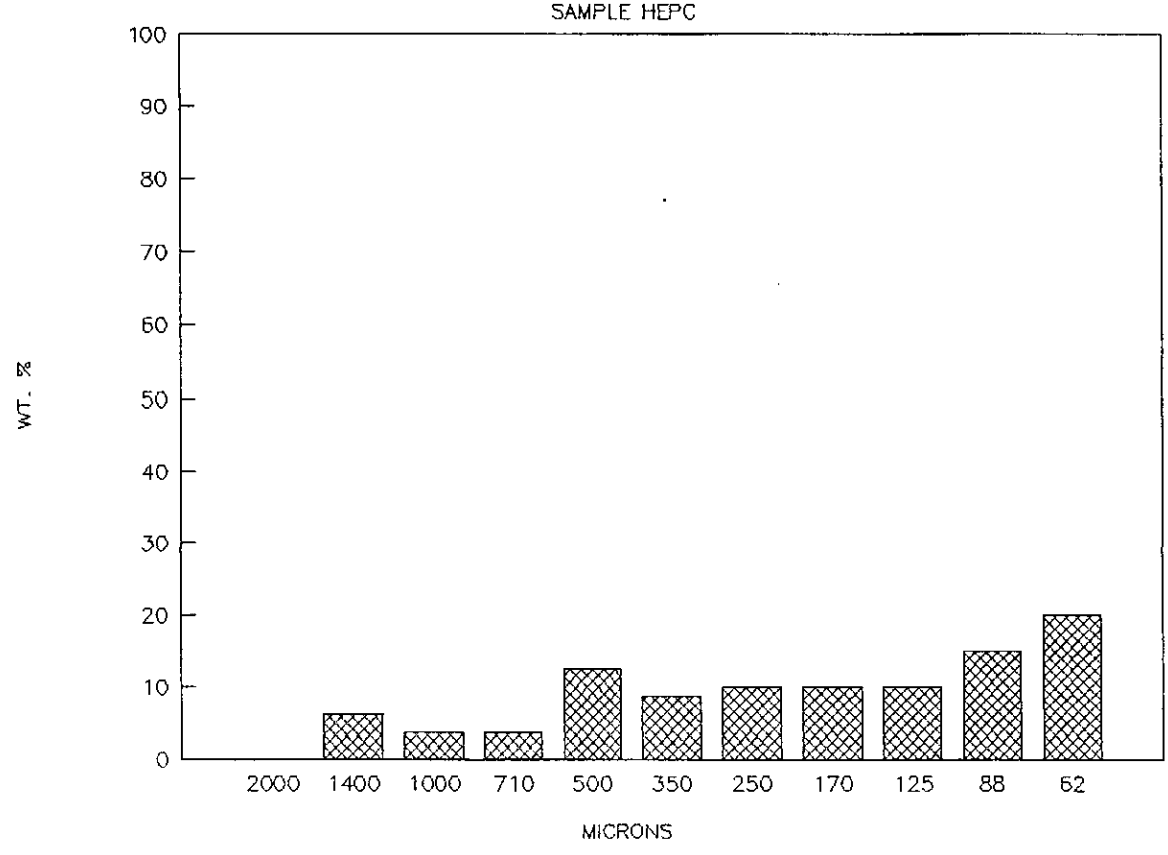
# NEWCASTLE HARBOUR SOUTH BANK

SAMPLE HEPC



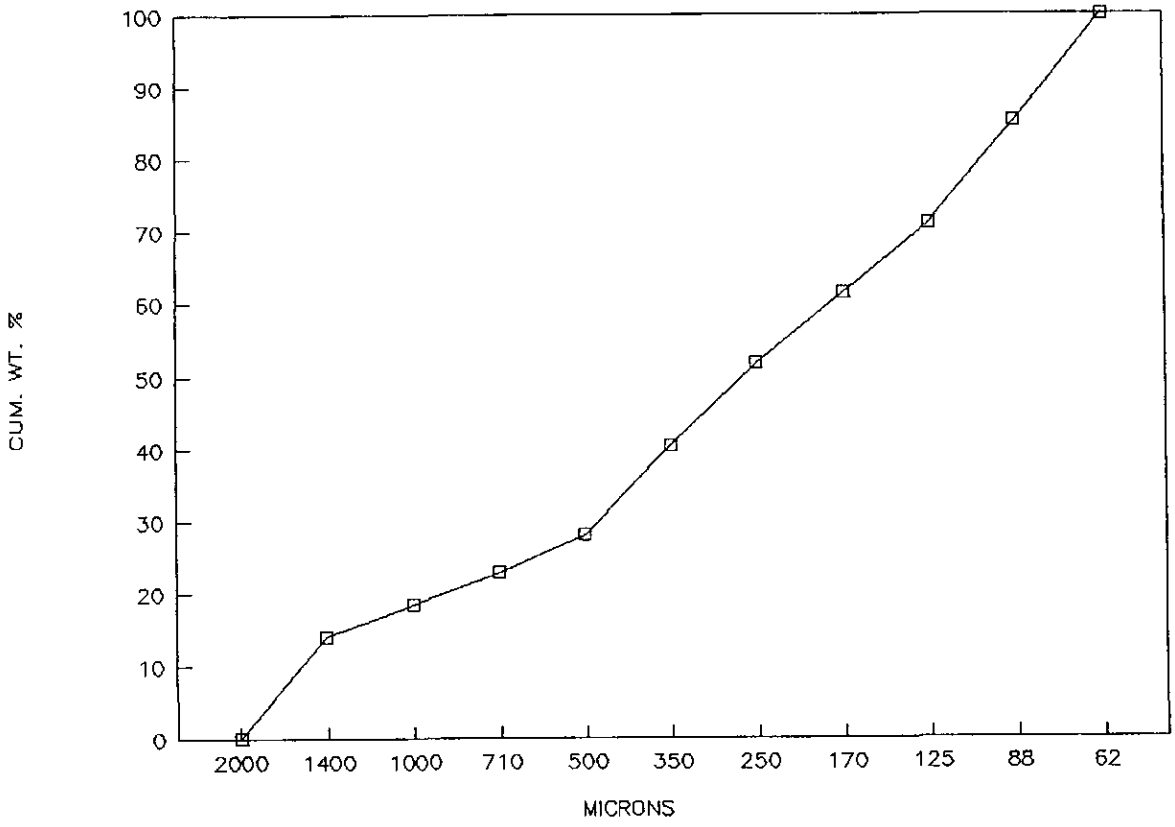

# NEWCASTLE HARBOUR SOUTH BANK

SAMPLE HEPC



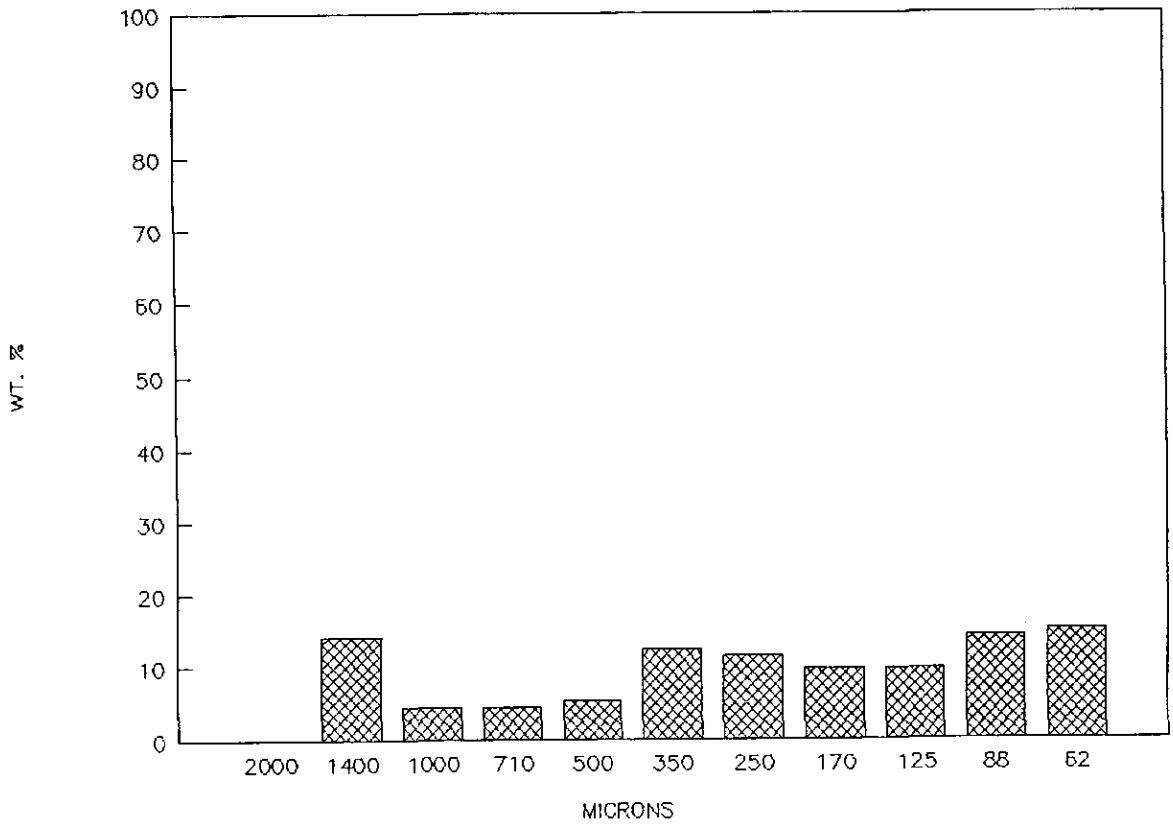
# NEWCASTLE HARBOUR SOUTH BANK

SAMPLE HEC



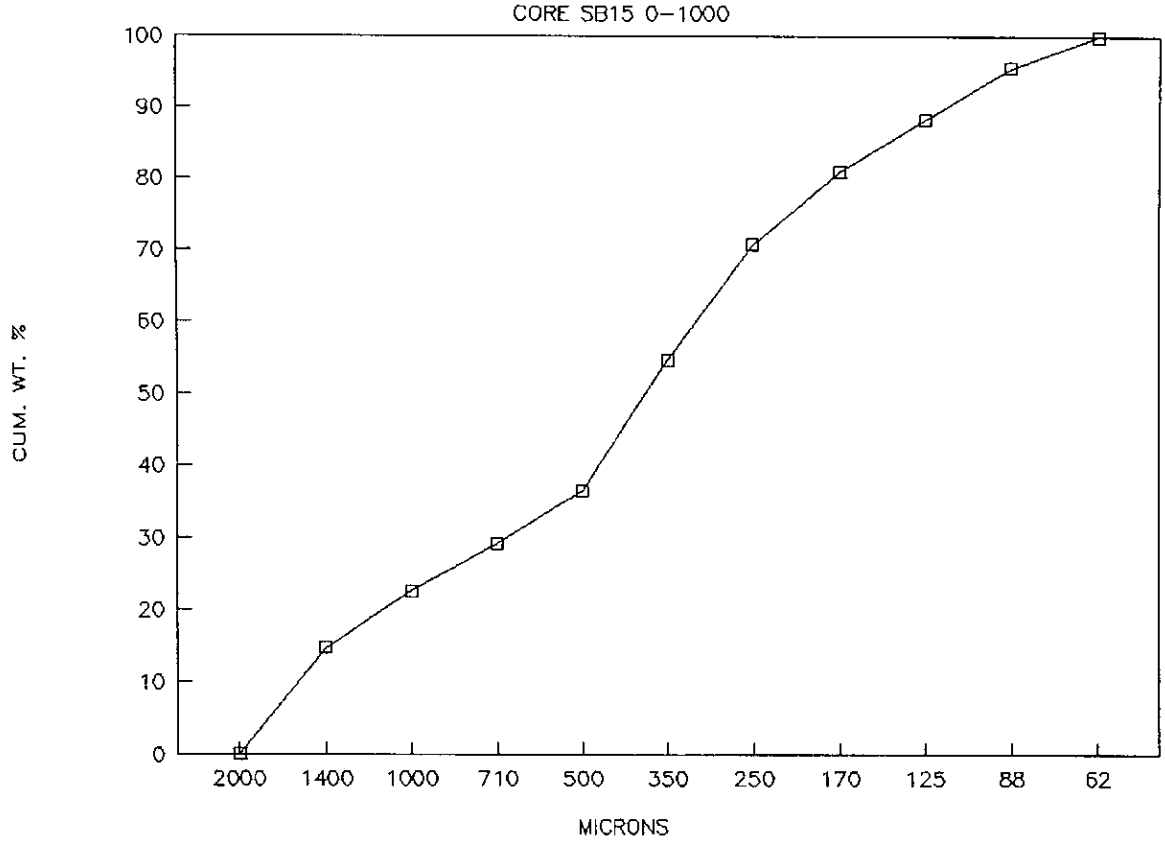

# NEWCASTLE HARBOUR SOUTH BANK

SAMPLE HEC



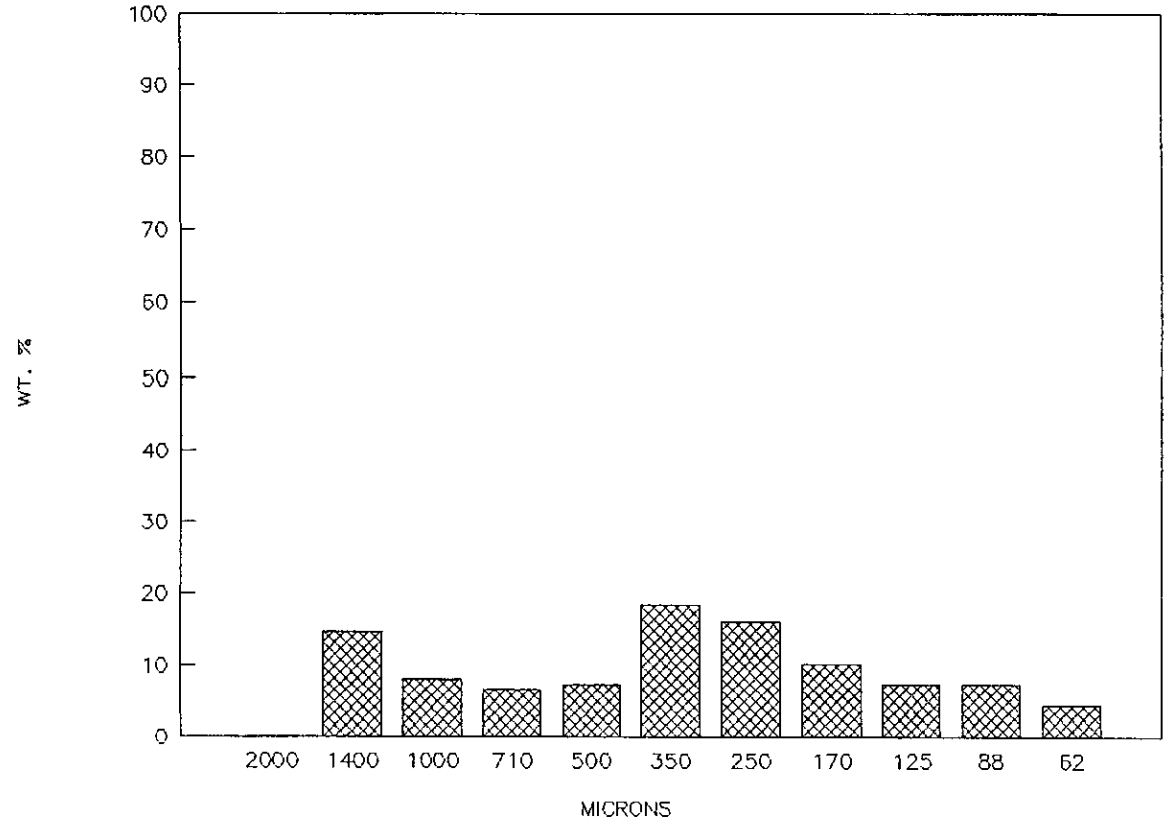
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB15 0–1000



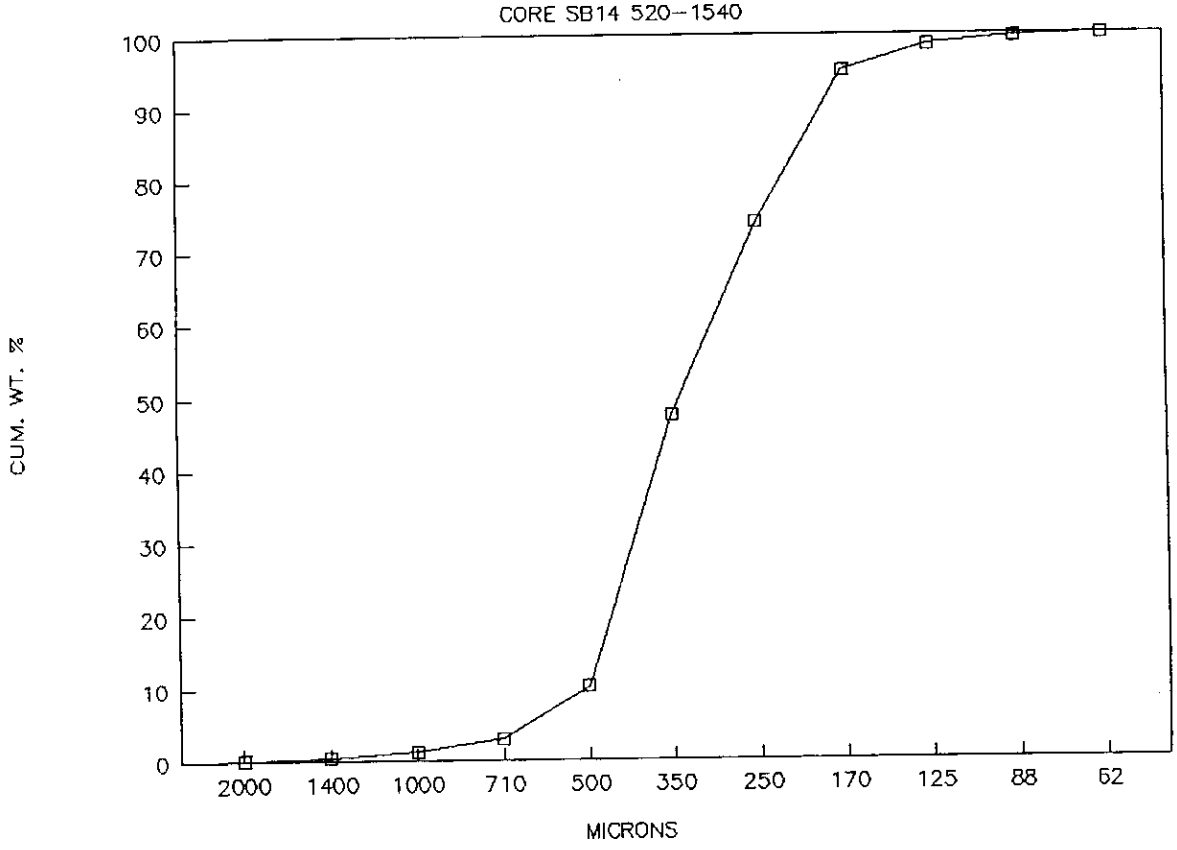

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB15 0–1000



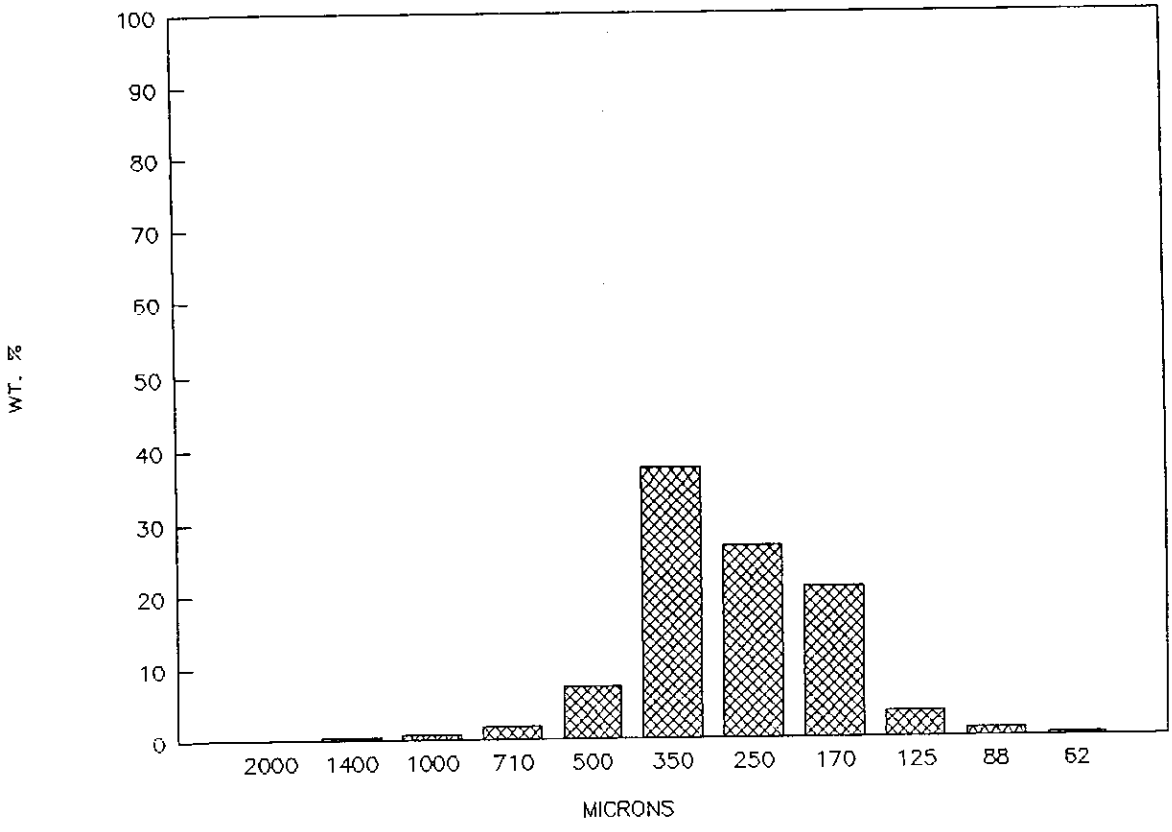
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB14 520–1540



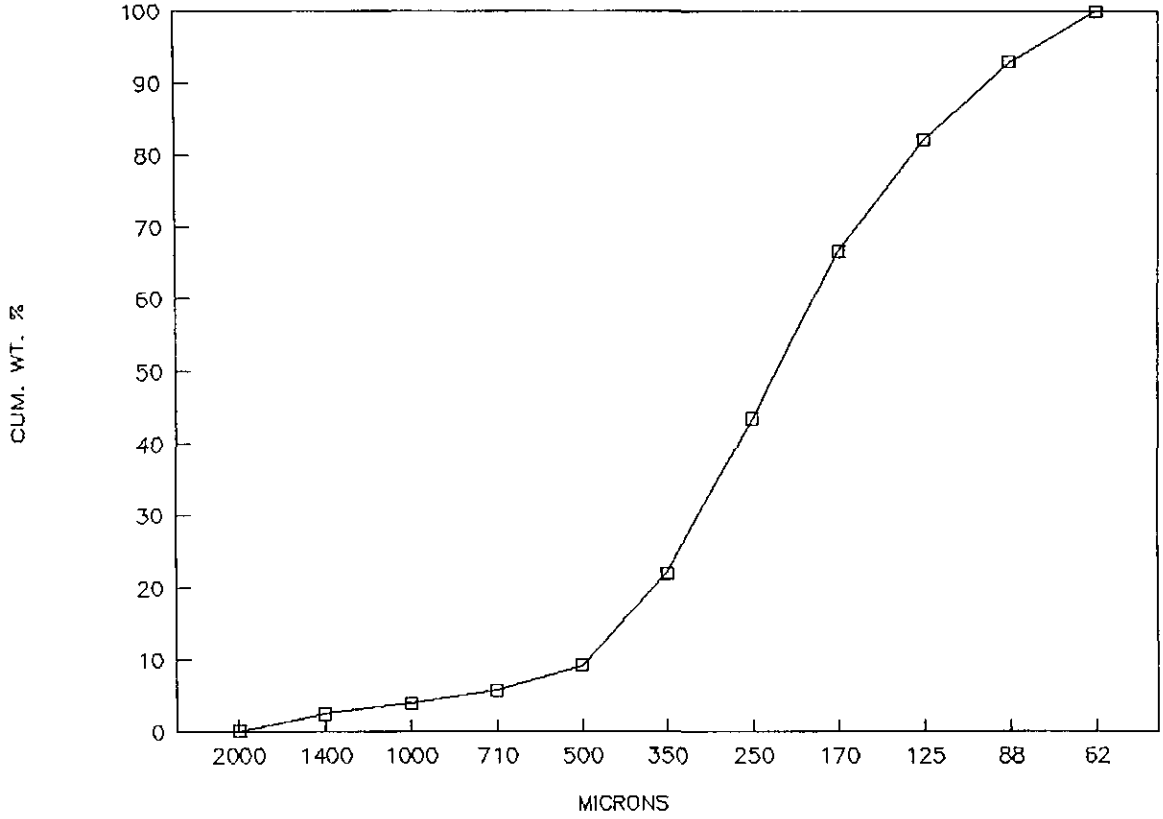

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB14 520–1540



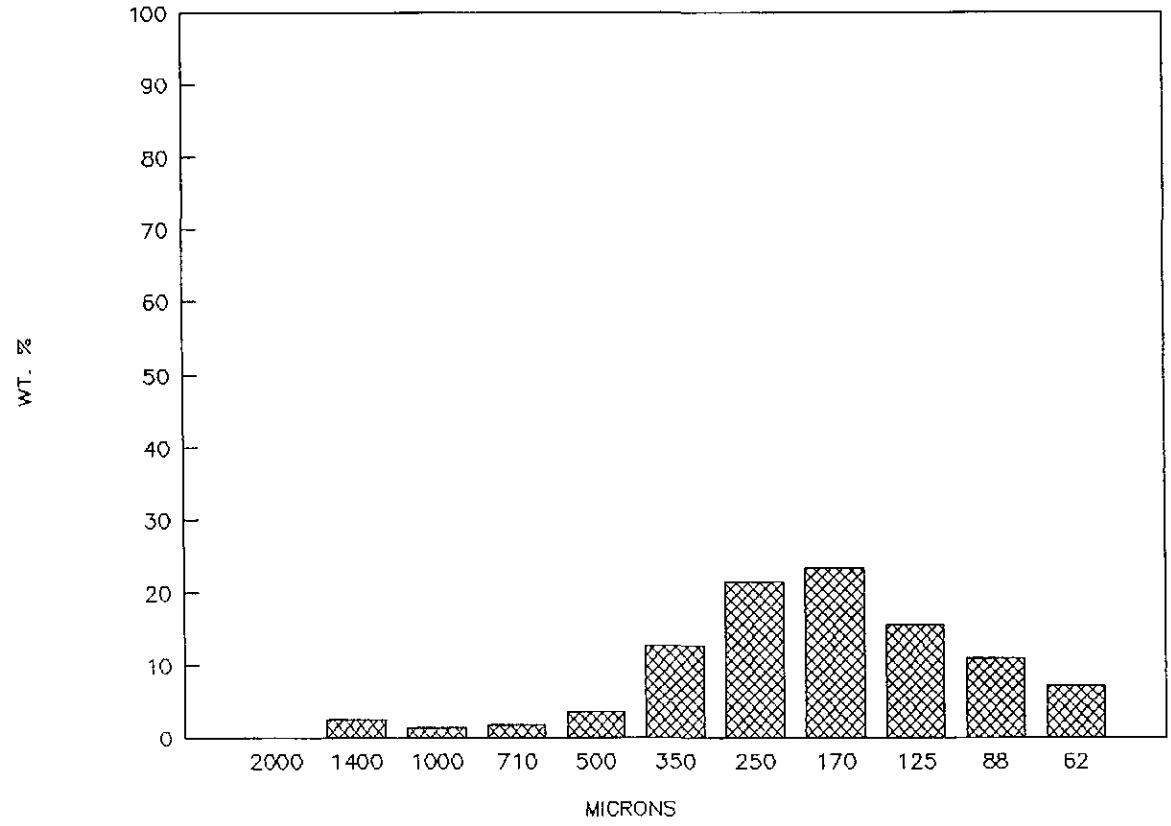
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB14 0–520



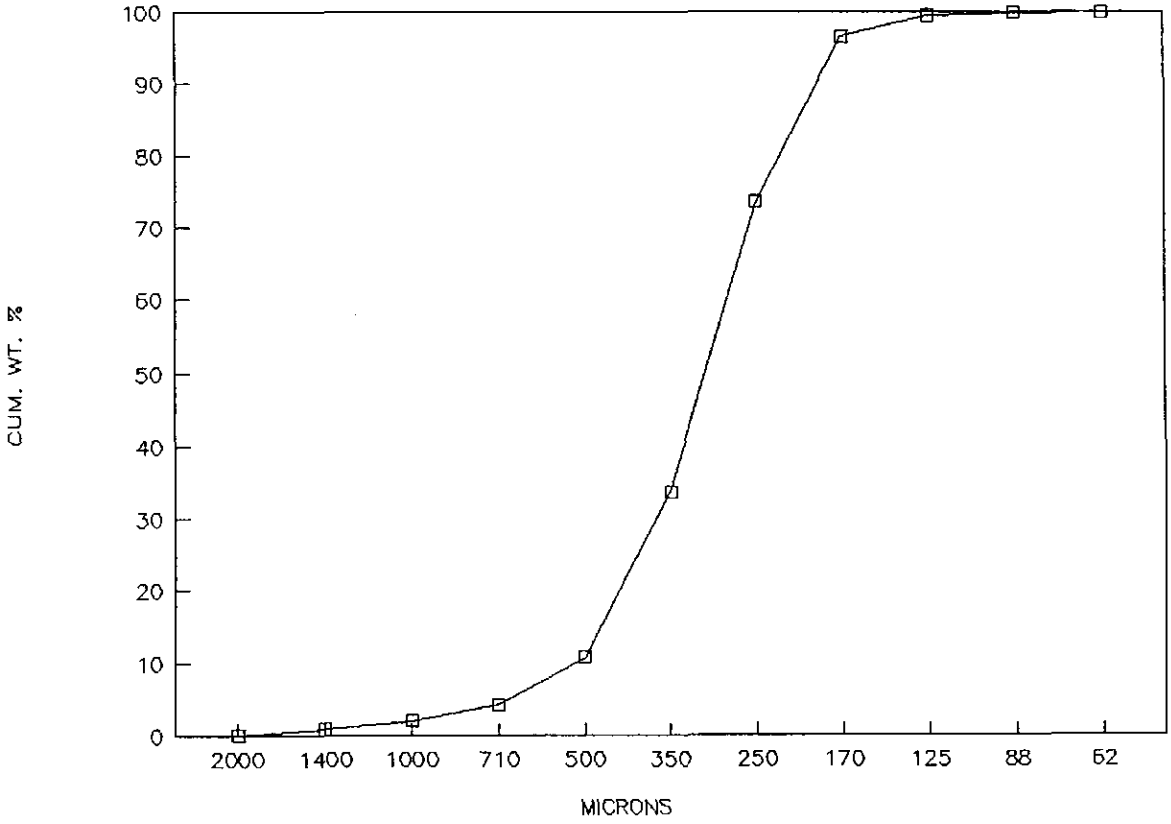

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB14 0–520



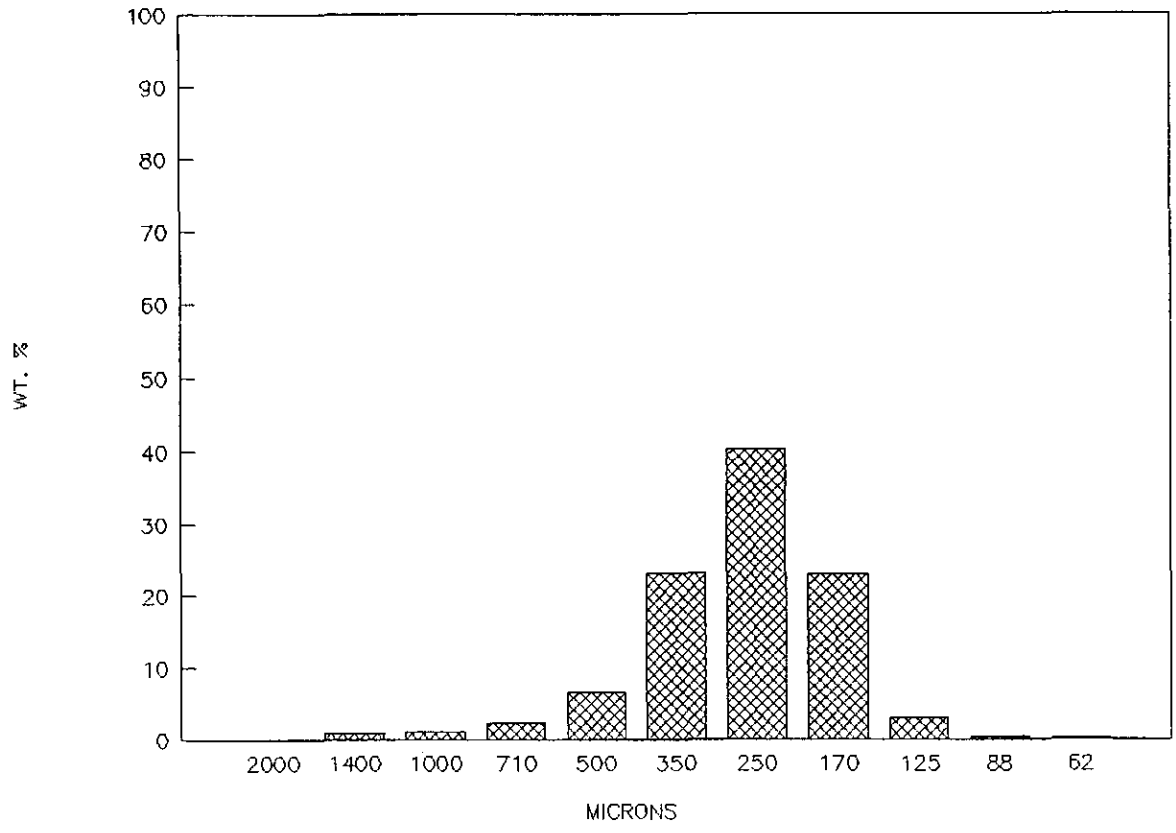
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB13 0–1000



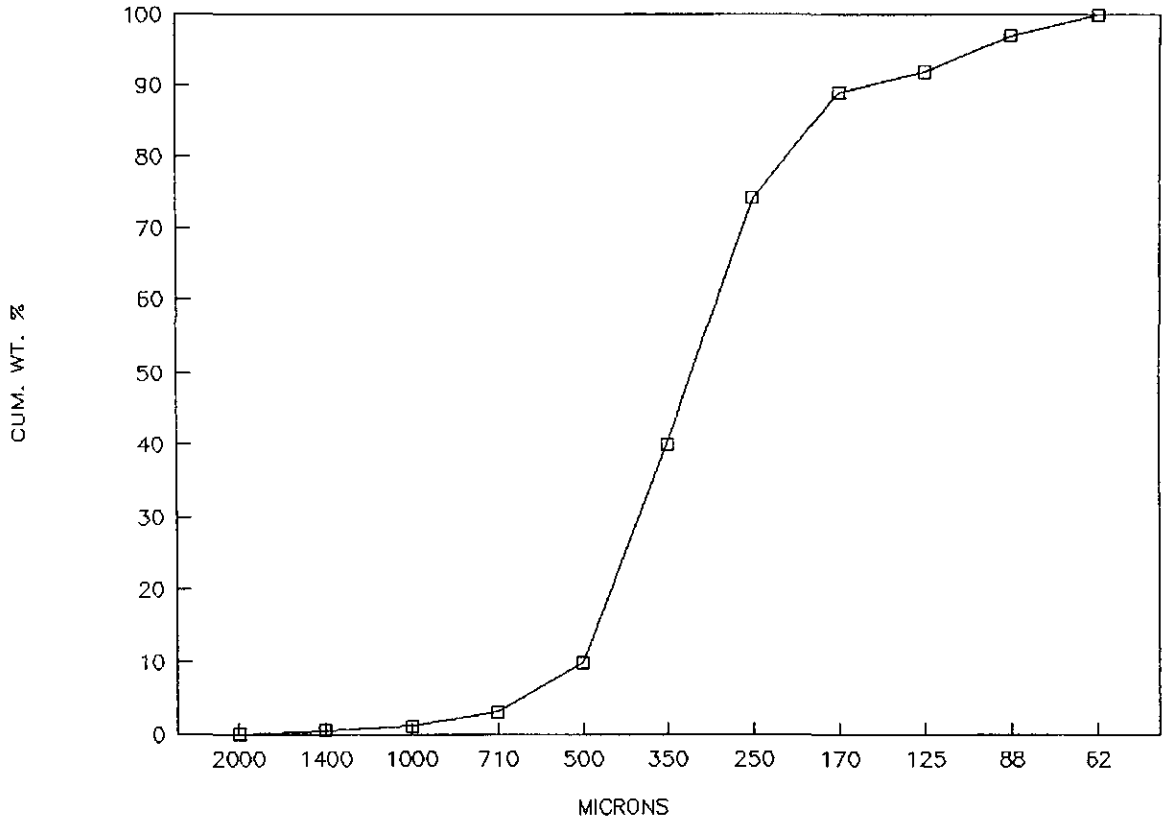

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB13 0–1000



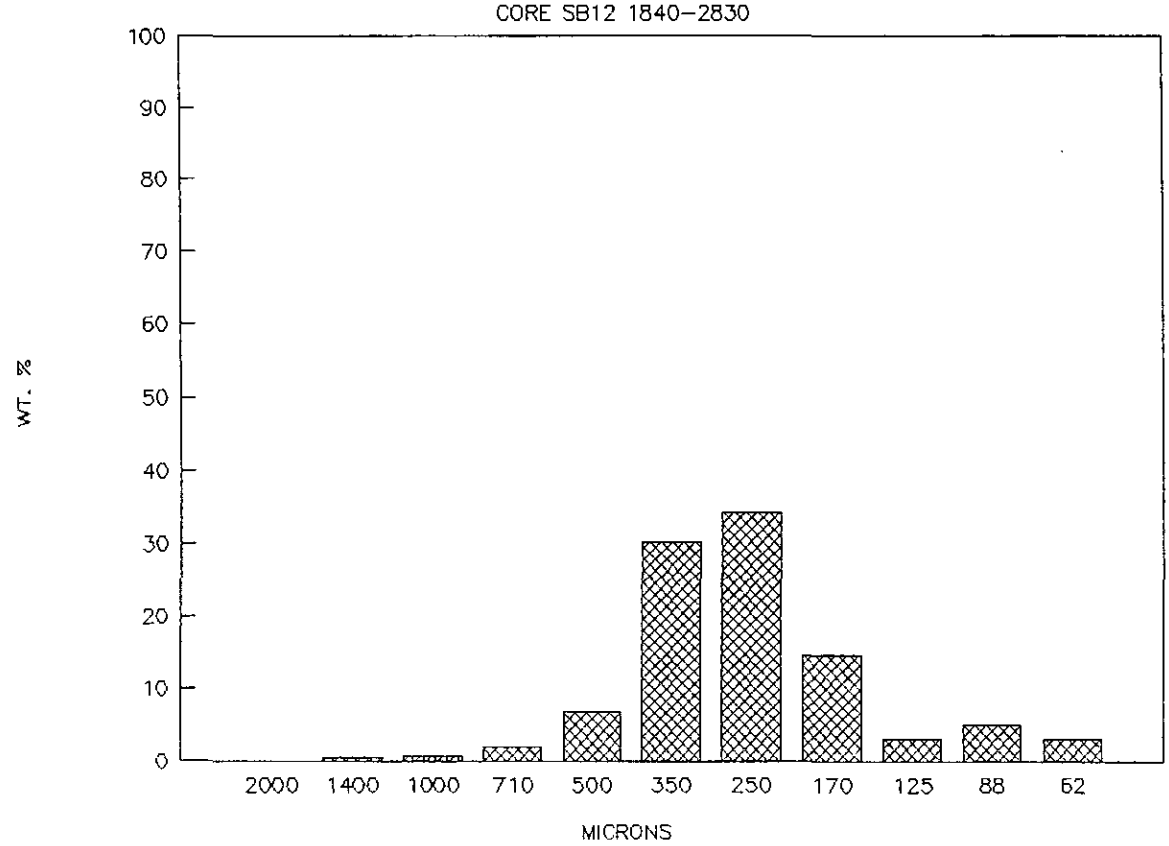
# NEWCASTLE HARBOUR SOUTH BANK

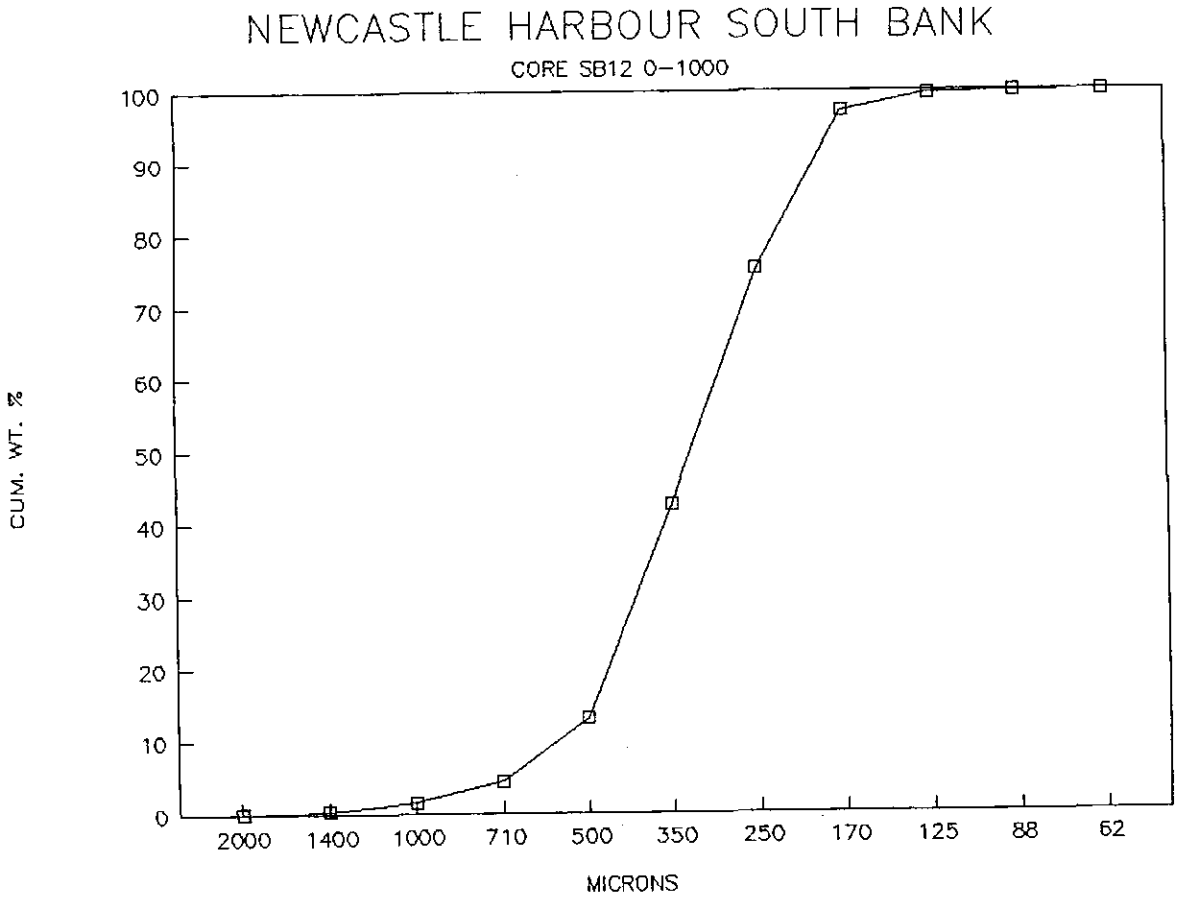
CORE SB12 1840–2830

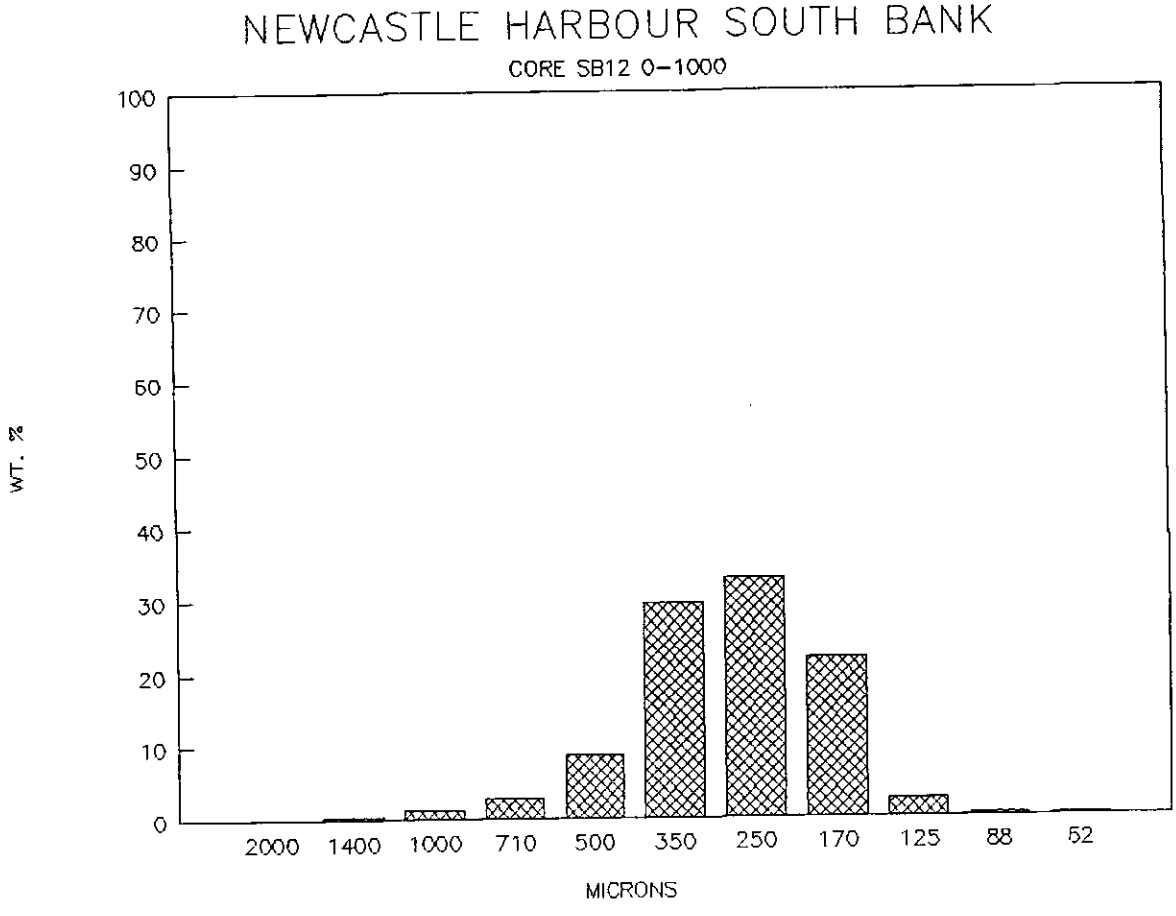



# NEWCASTLE HARBOUR SOUTH BANK

CORE SB12 1840–2830

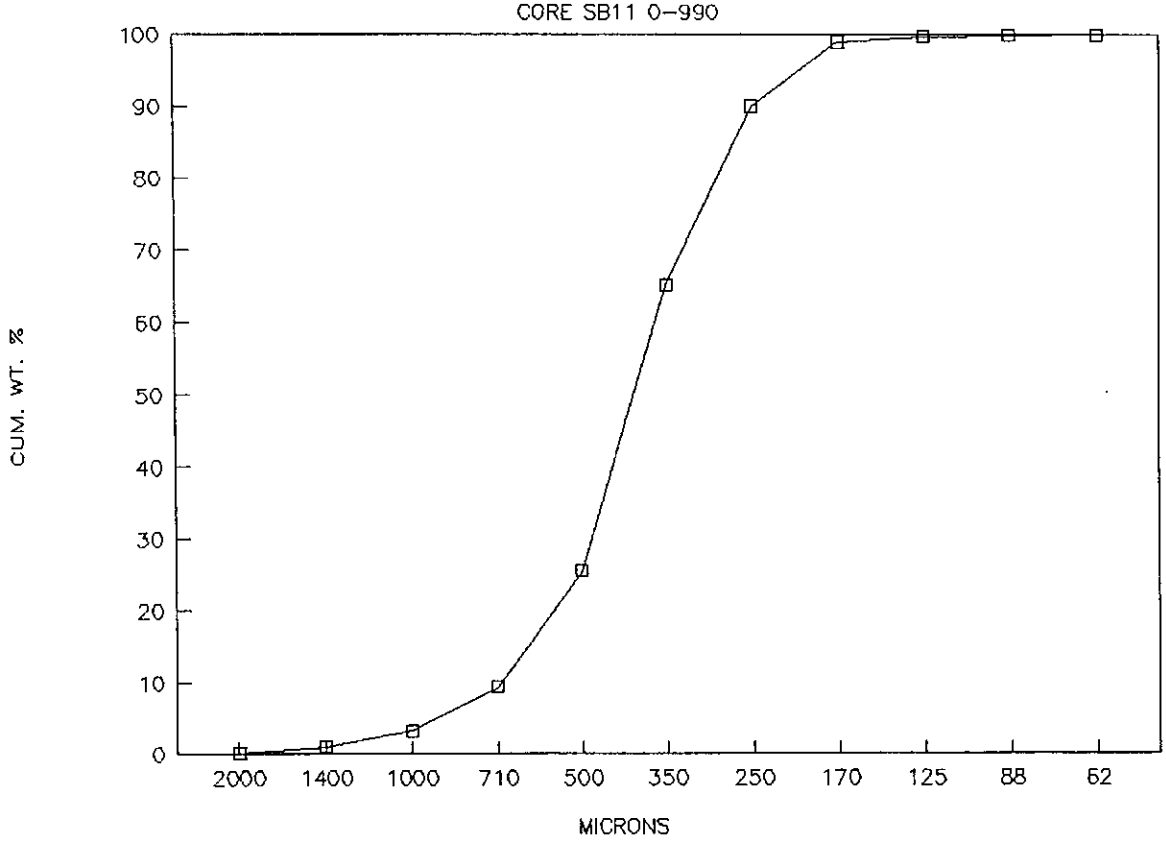



NEWCASTLE HARBOUR SOUTH BANK
CORE SB12 0-1000
CUM. WT. %
100
90
80
70
60
50
40
30
20
10
0
2000
1400
1000
710
500
350
250
170
125
88
62
MICRONS


NEWCASTLE HARBOUR SOUTH BANK
CORE SB12 0-1000
WT. %
100
90
80
70
60
50
40
30
20
10
0
2000
1400
1000
710
500
350
250
170
125
88
62
MICRONS

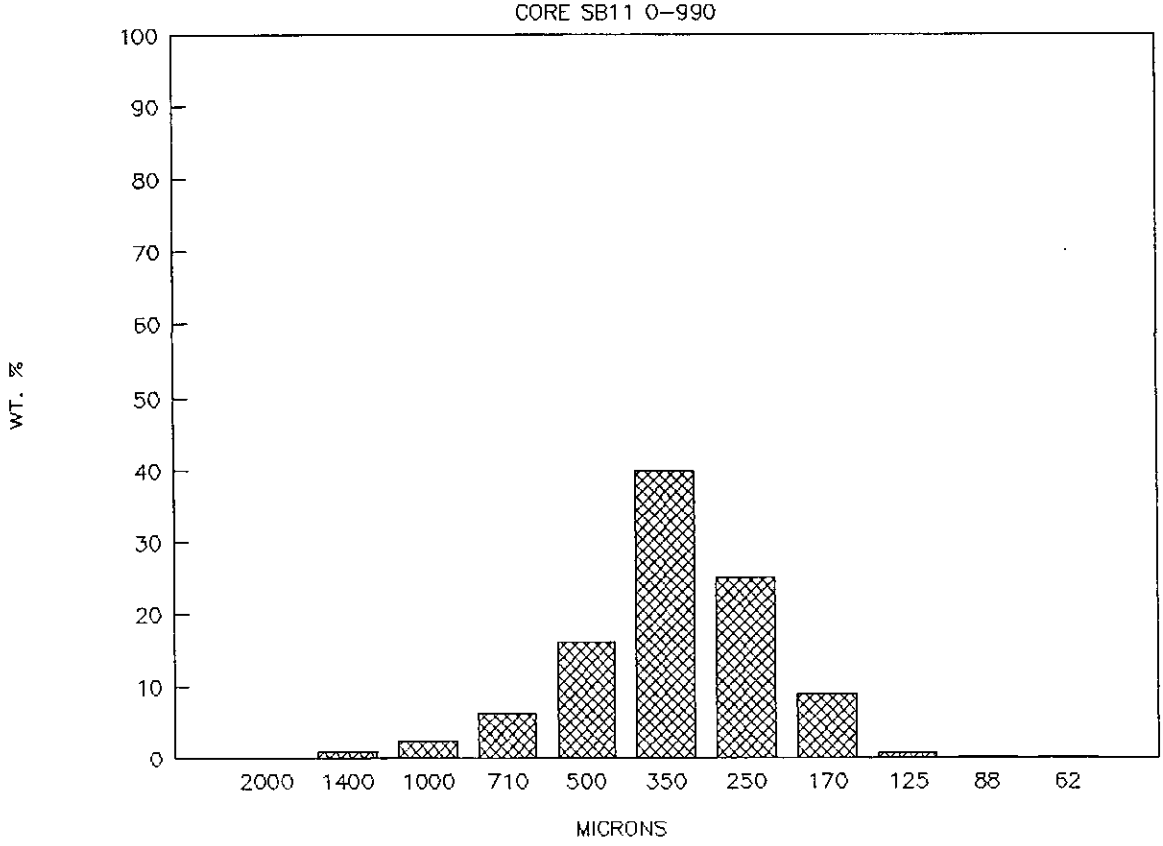
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB11 0-990



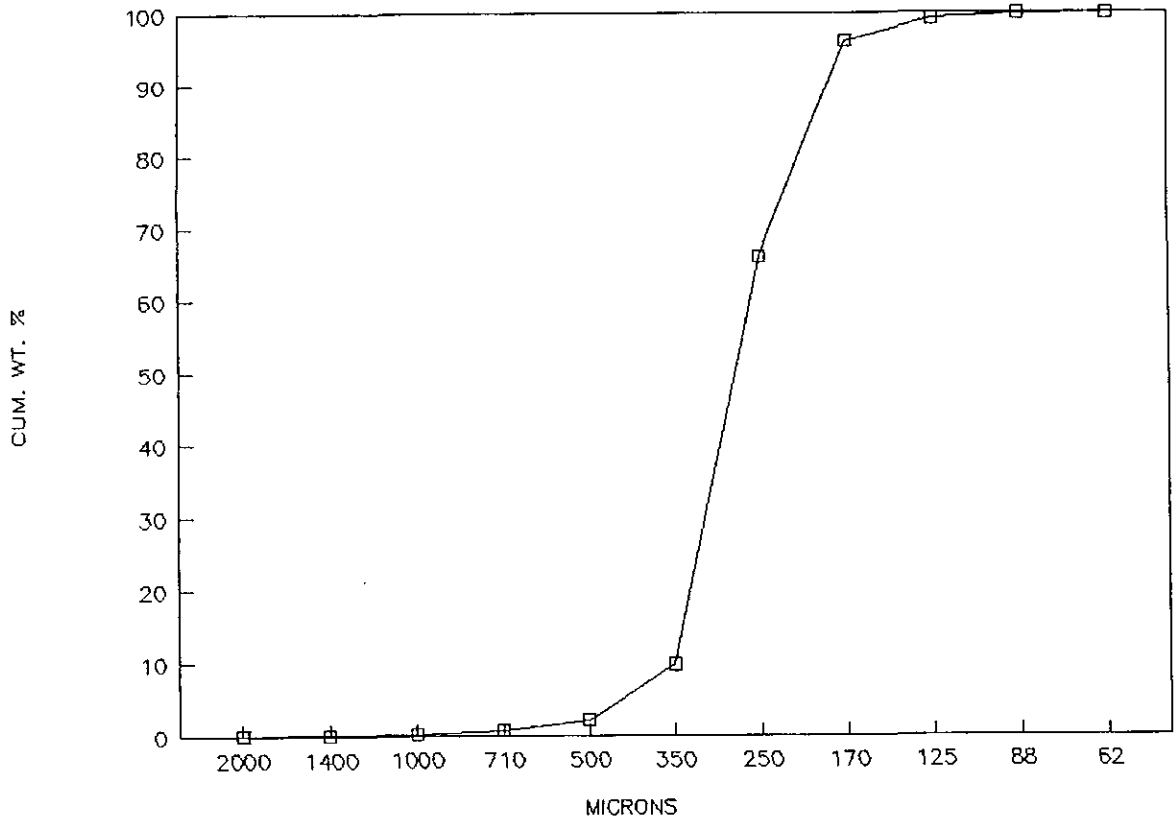

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB11 0-990



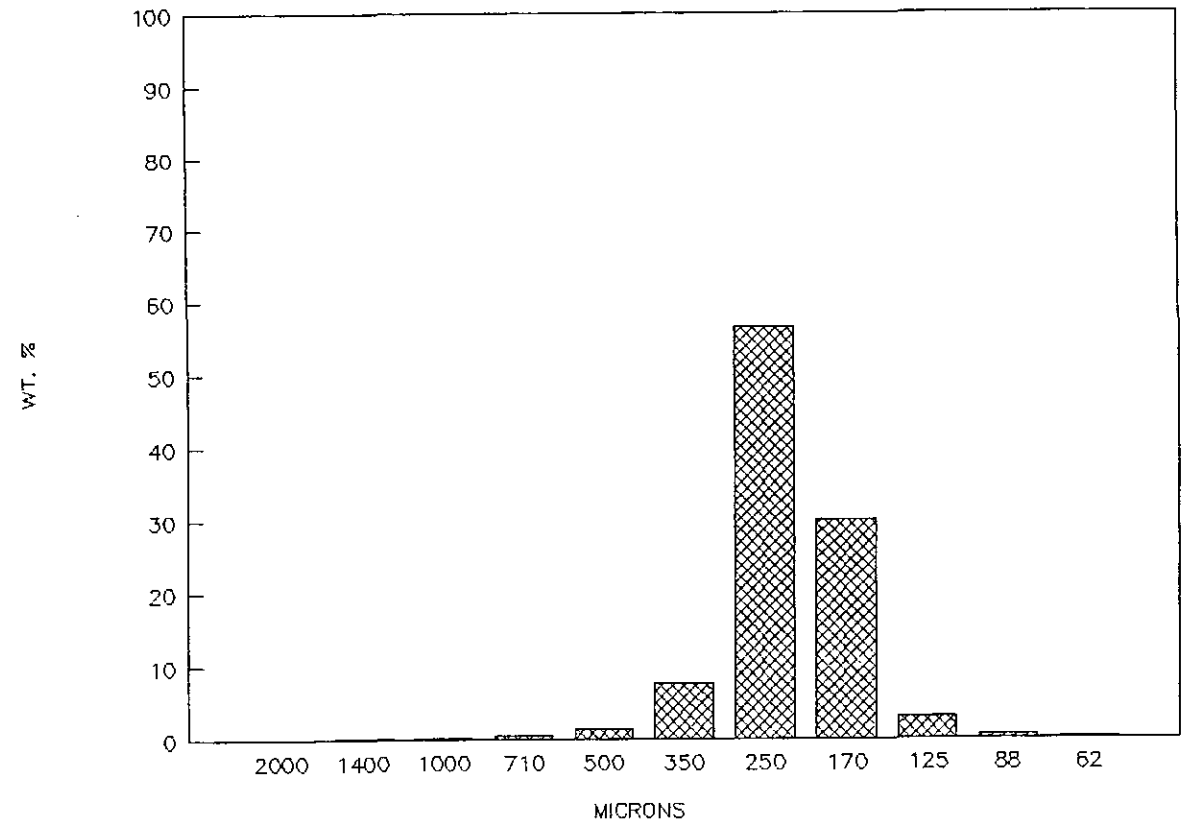
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB10 840–1530



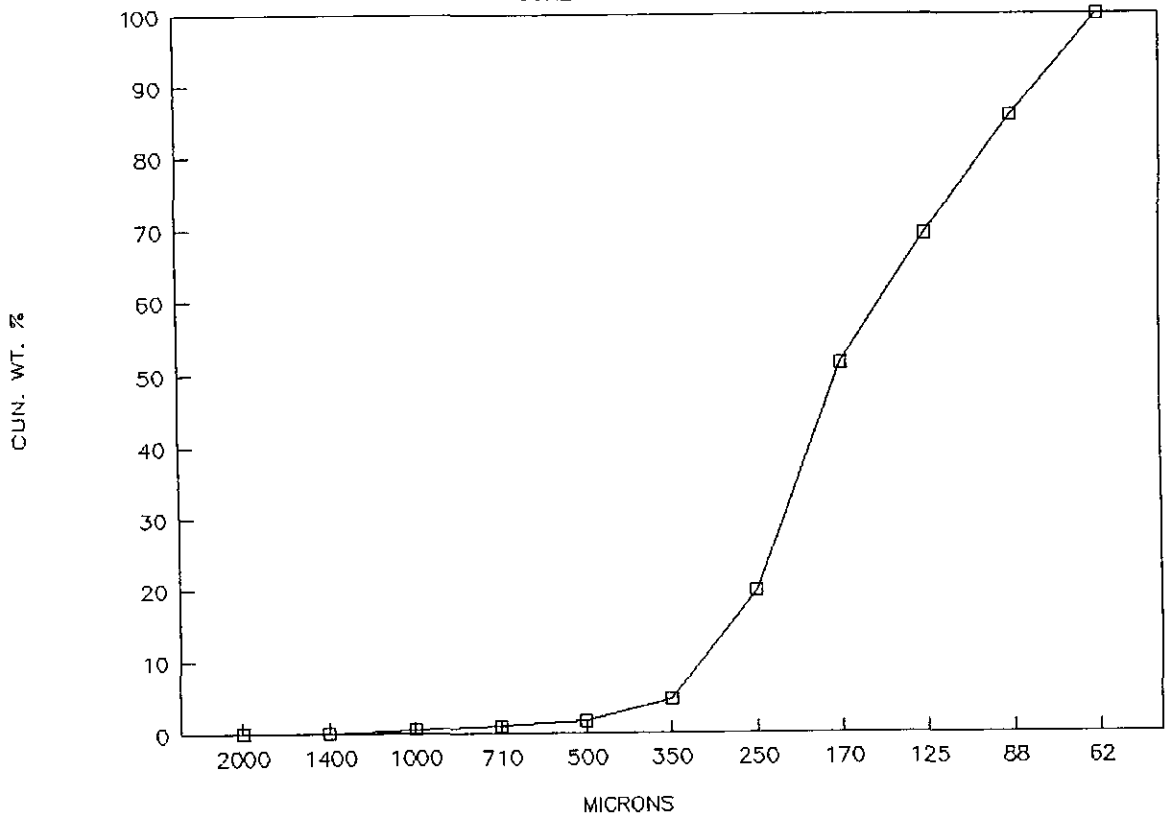

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB10 840–1530



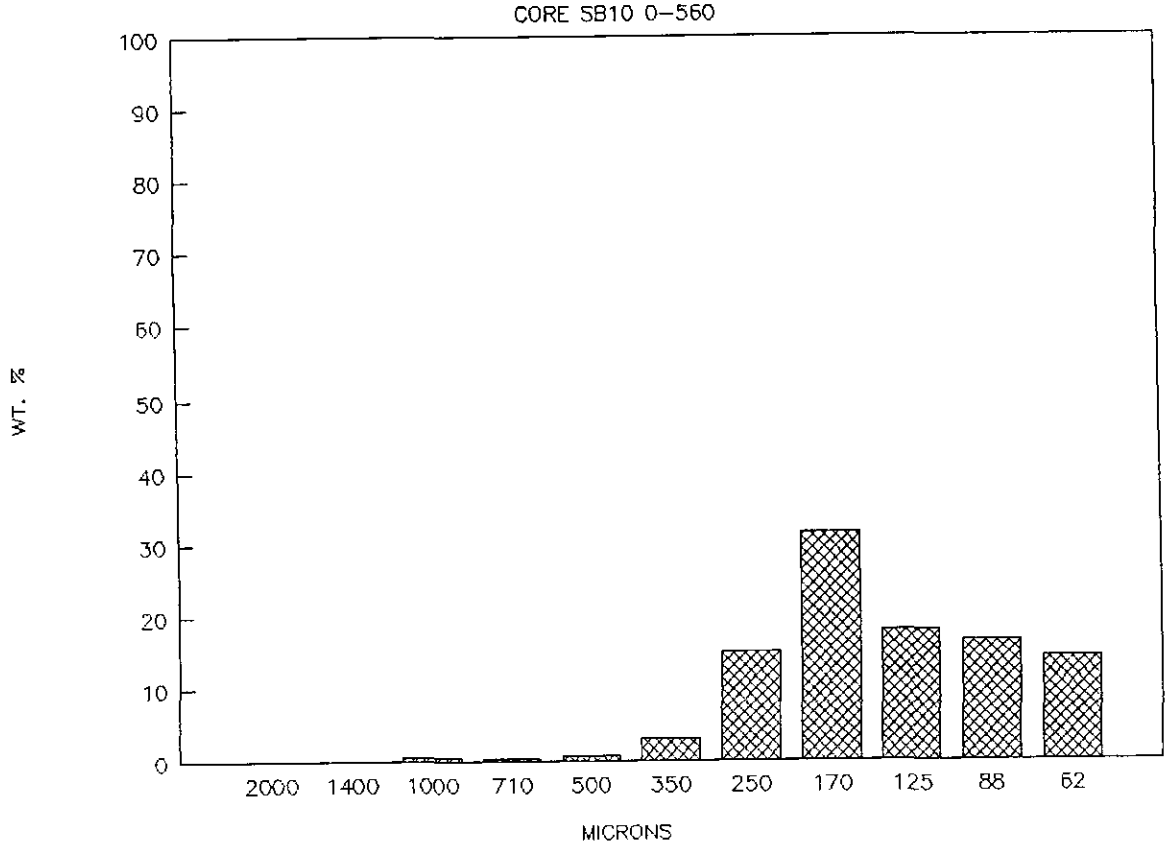
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB10 0-560



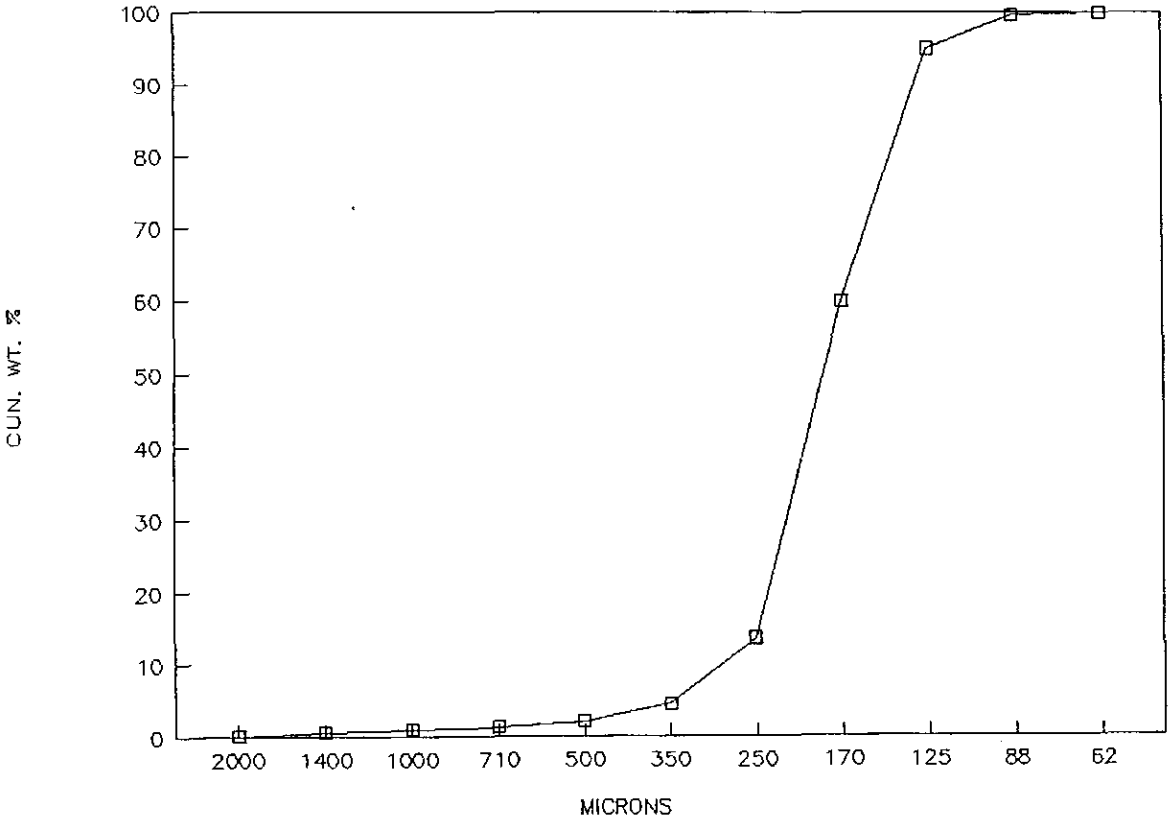

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB10 0-560



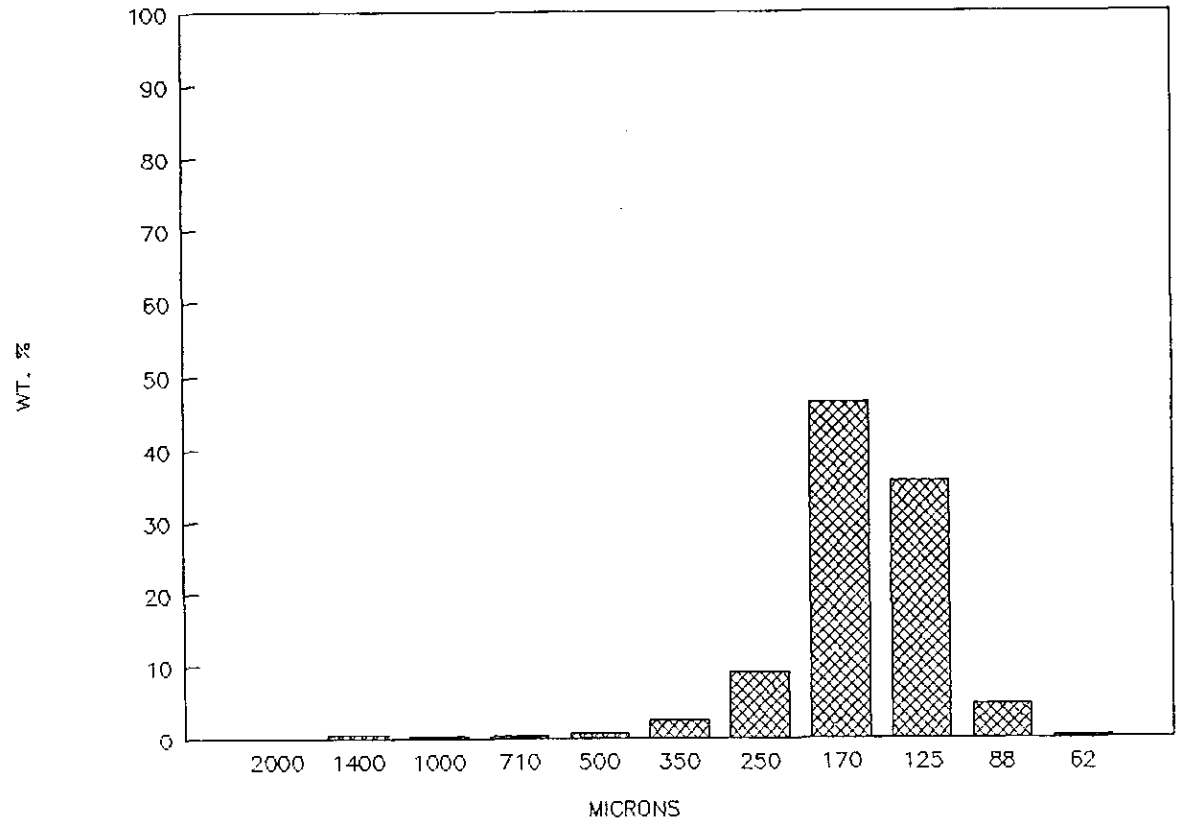
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB9 1150–2000



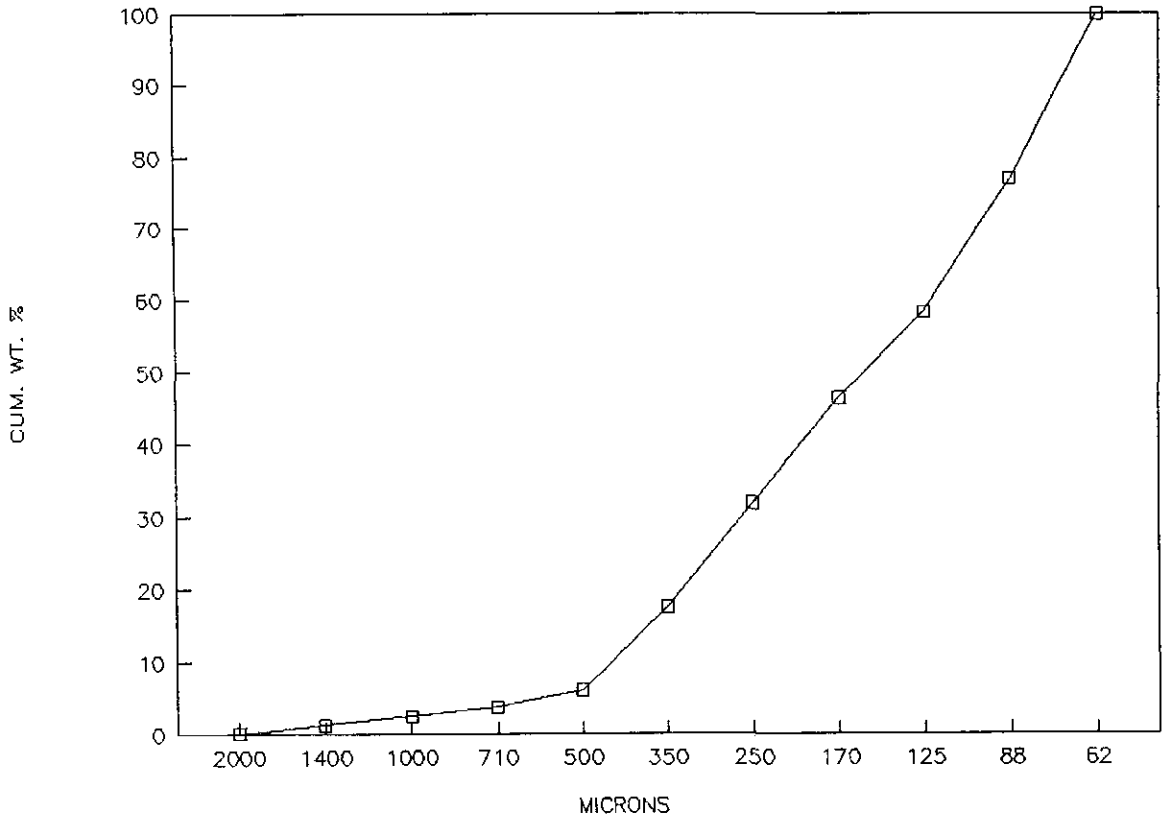

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB9 1150–2000



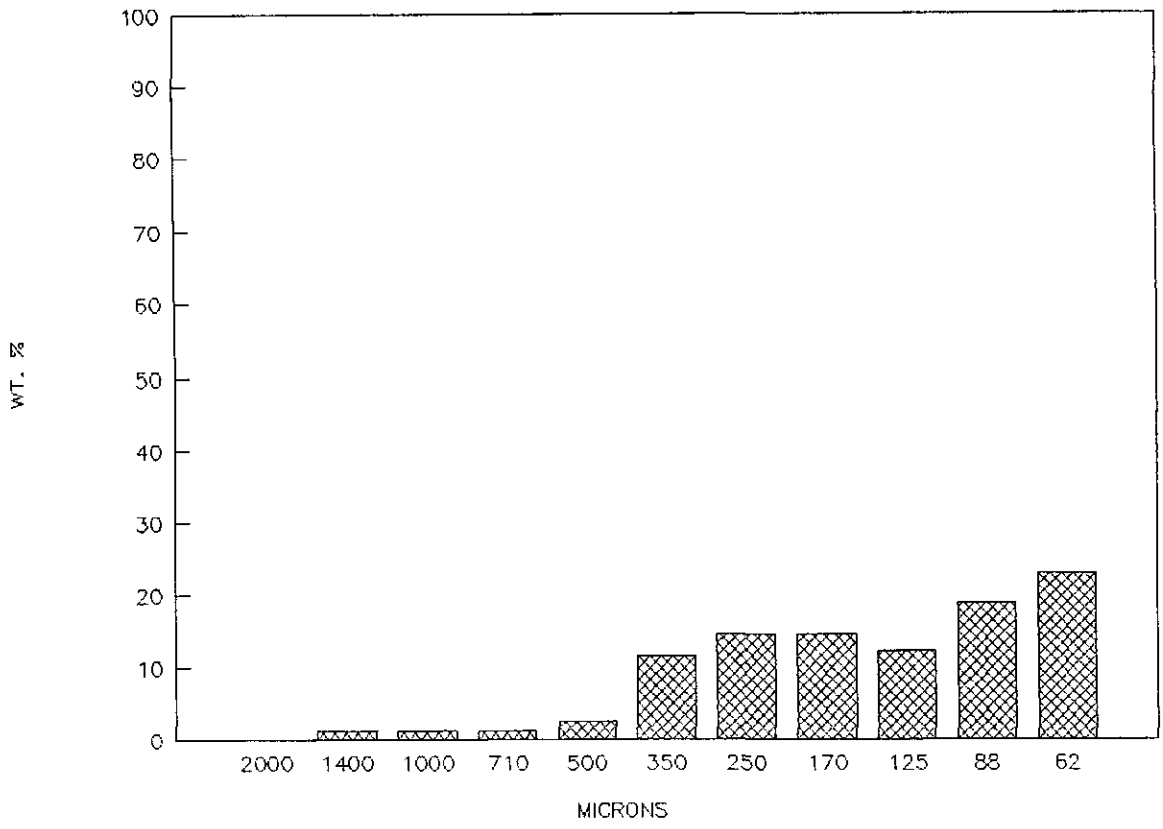
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB9 0-1160



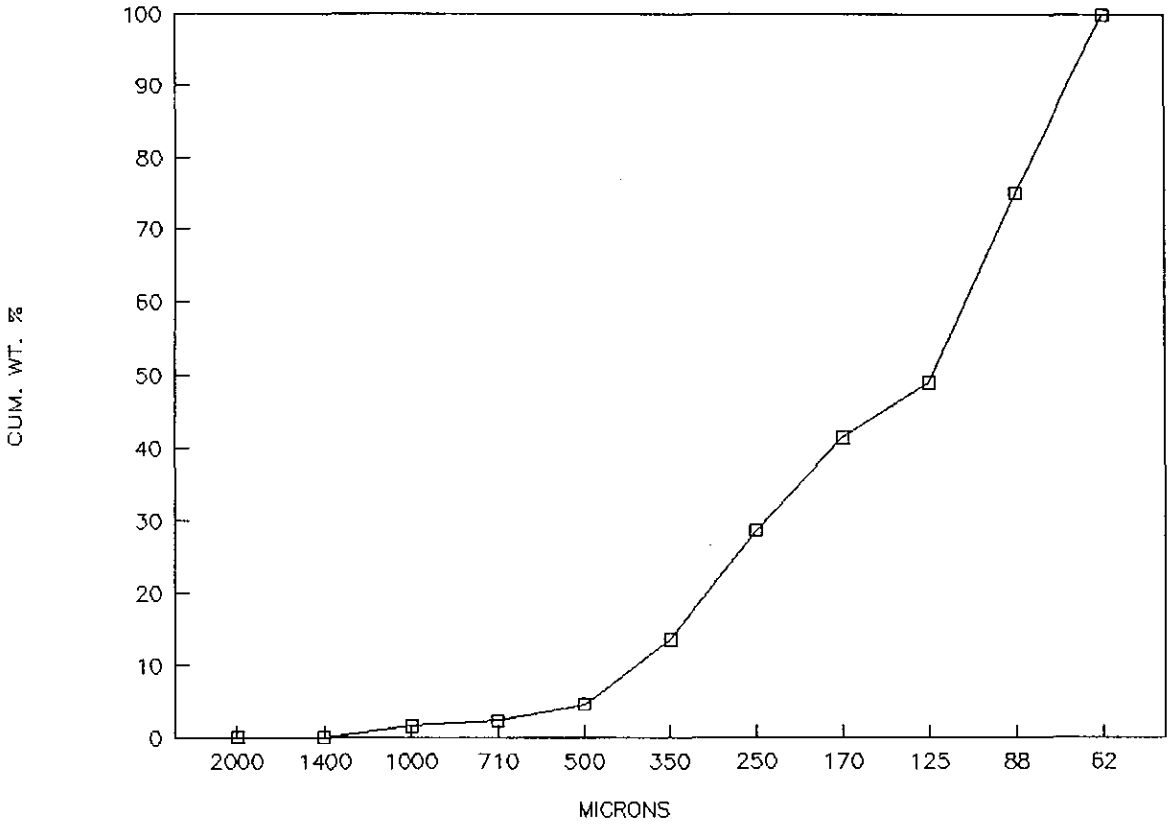

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB9 0-1160



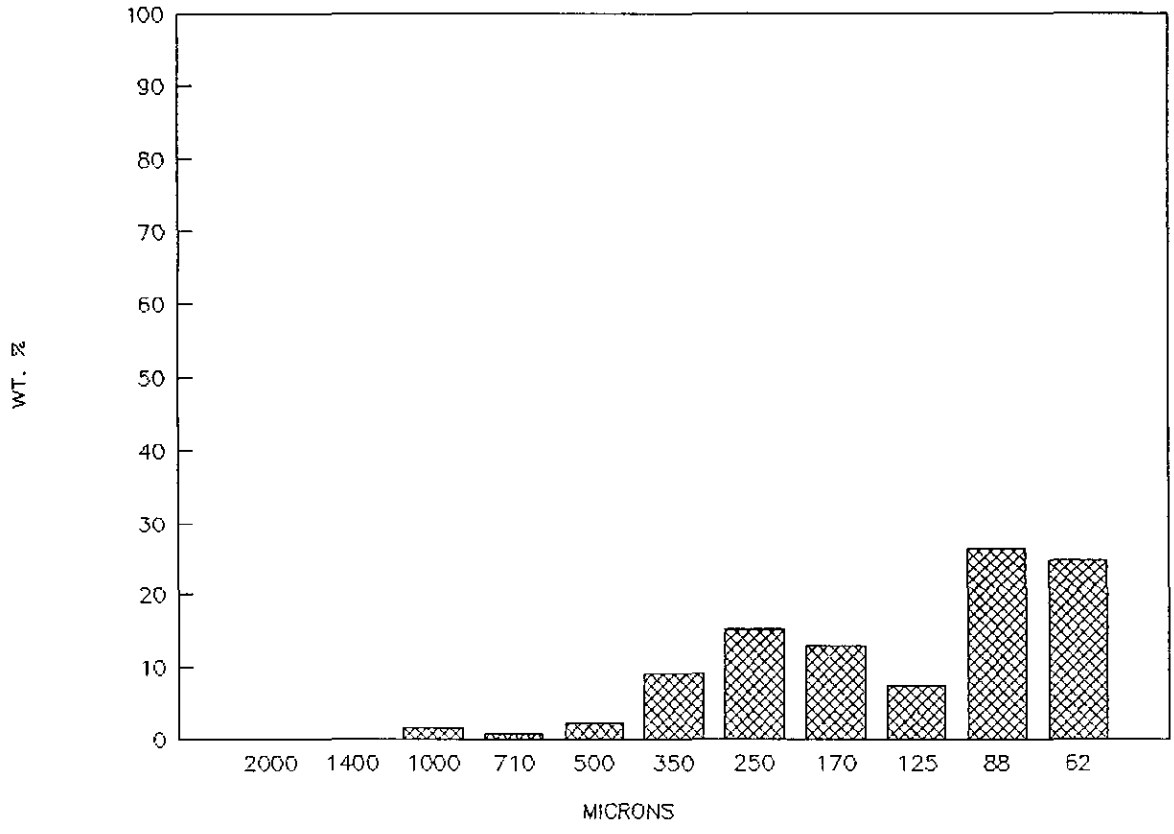
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB8 550–940



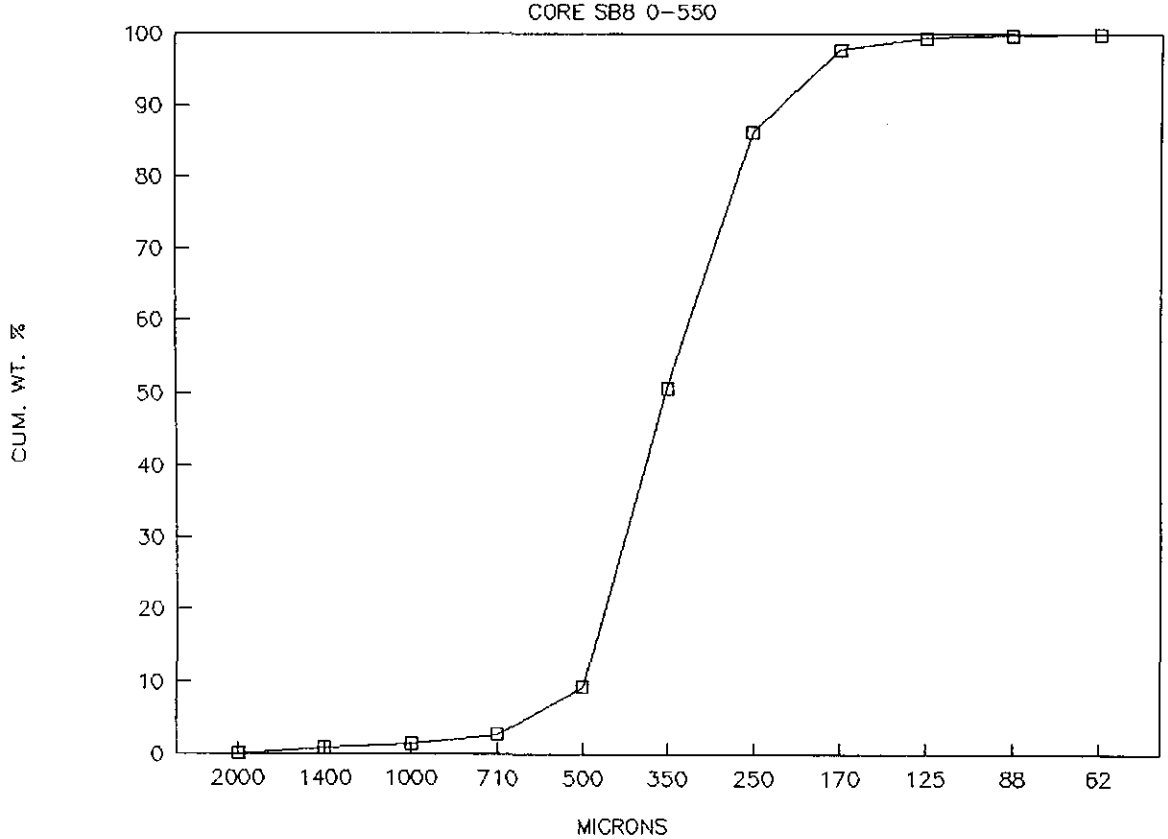

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB8 550–940



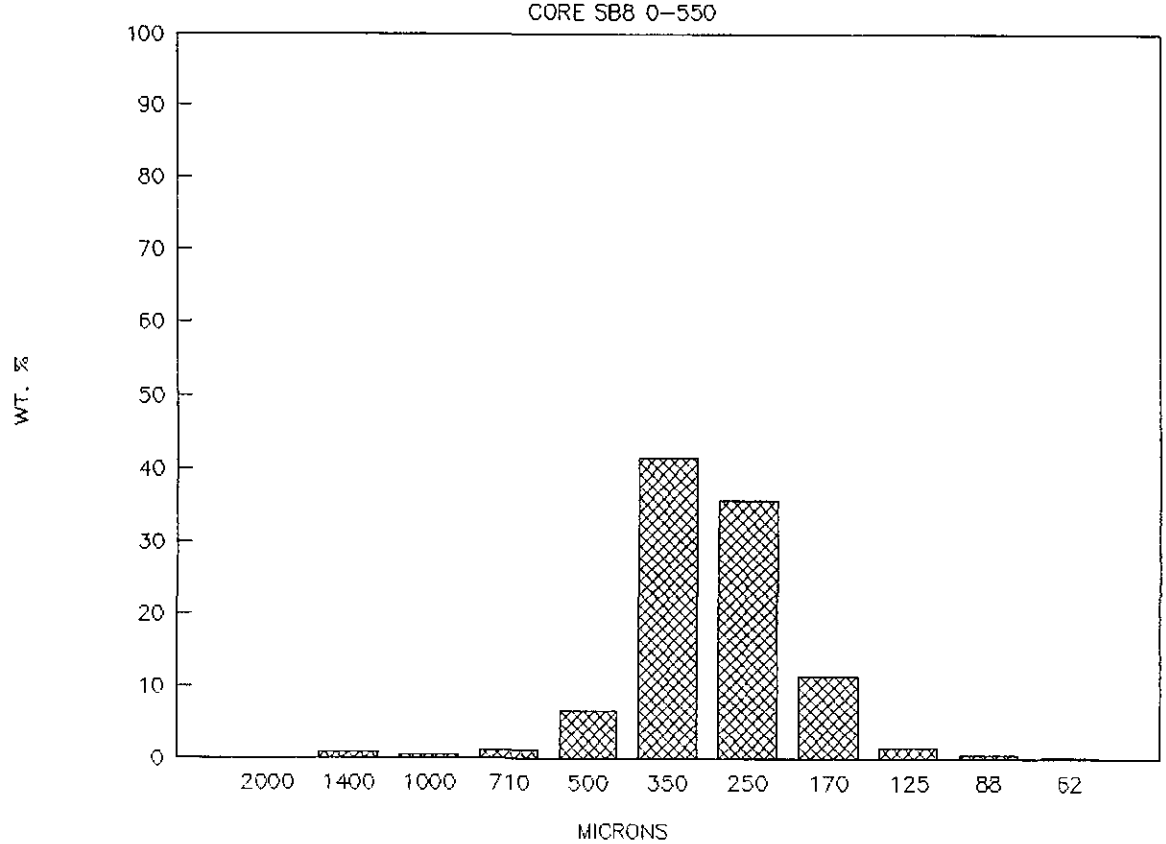
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB8 0-550



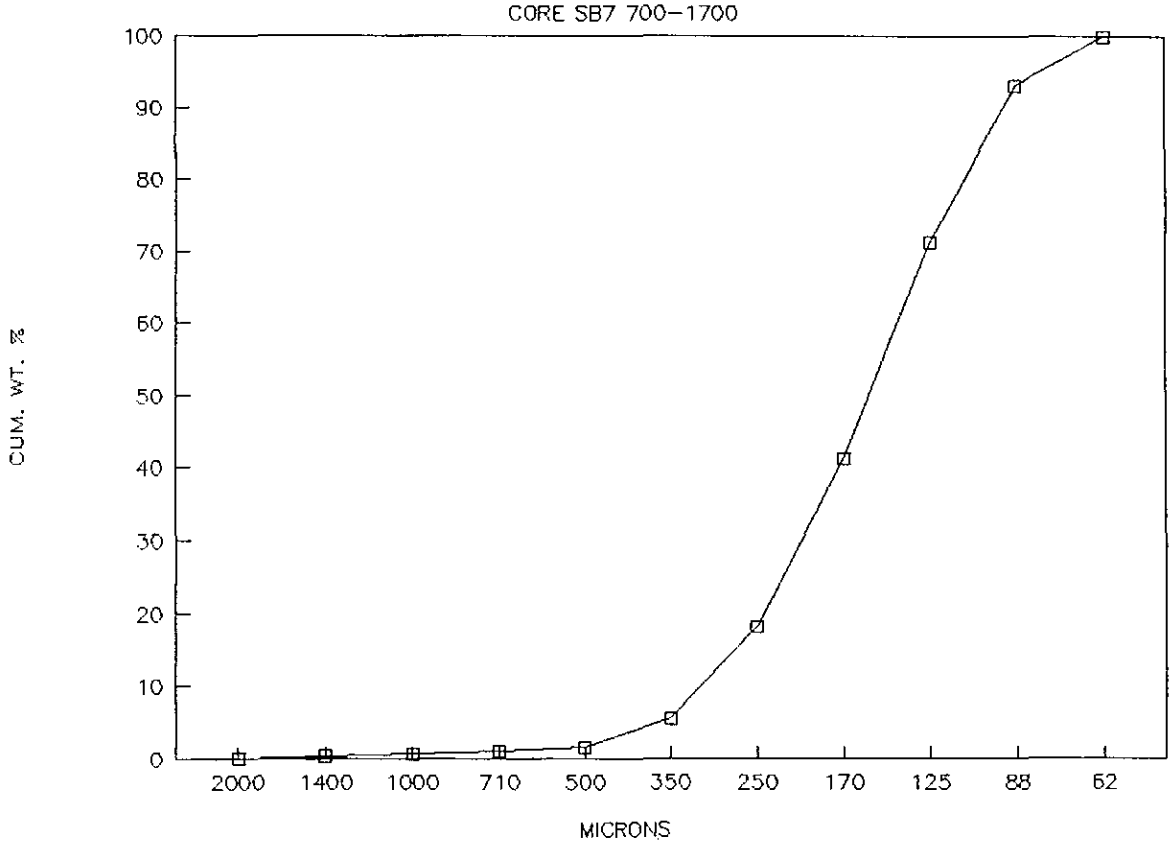

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB8 0-550



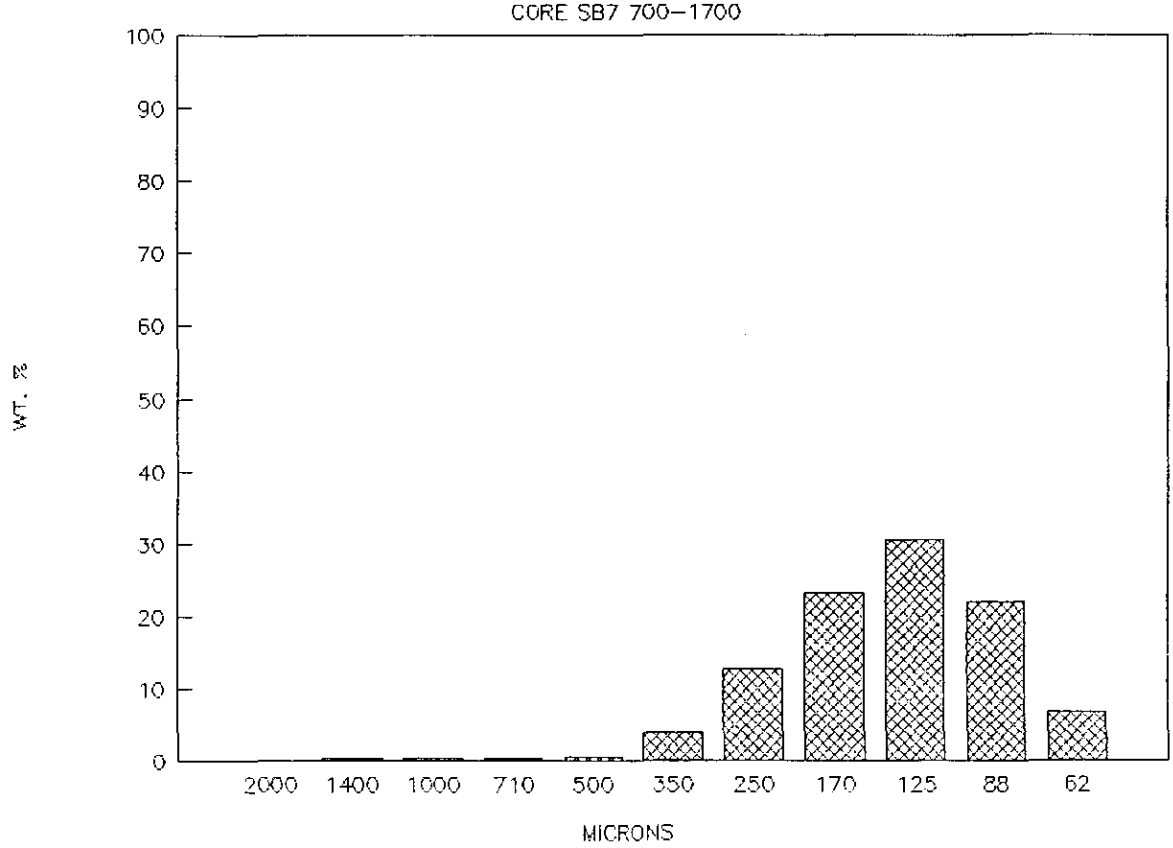
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB7 700–1700

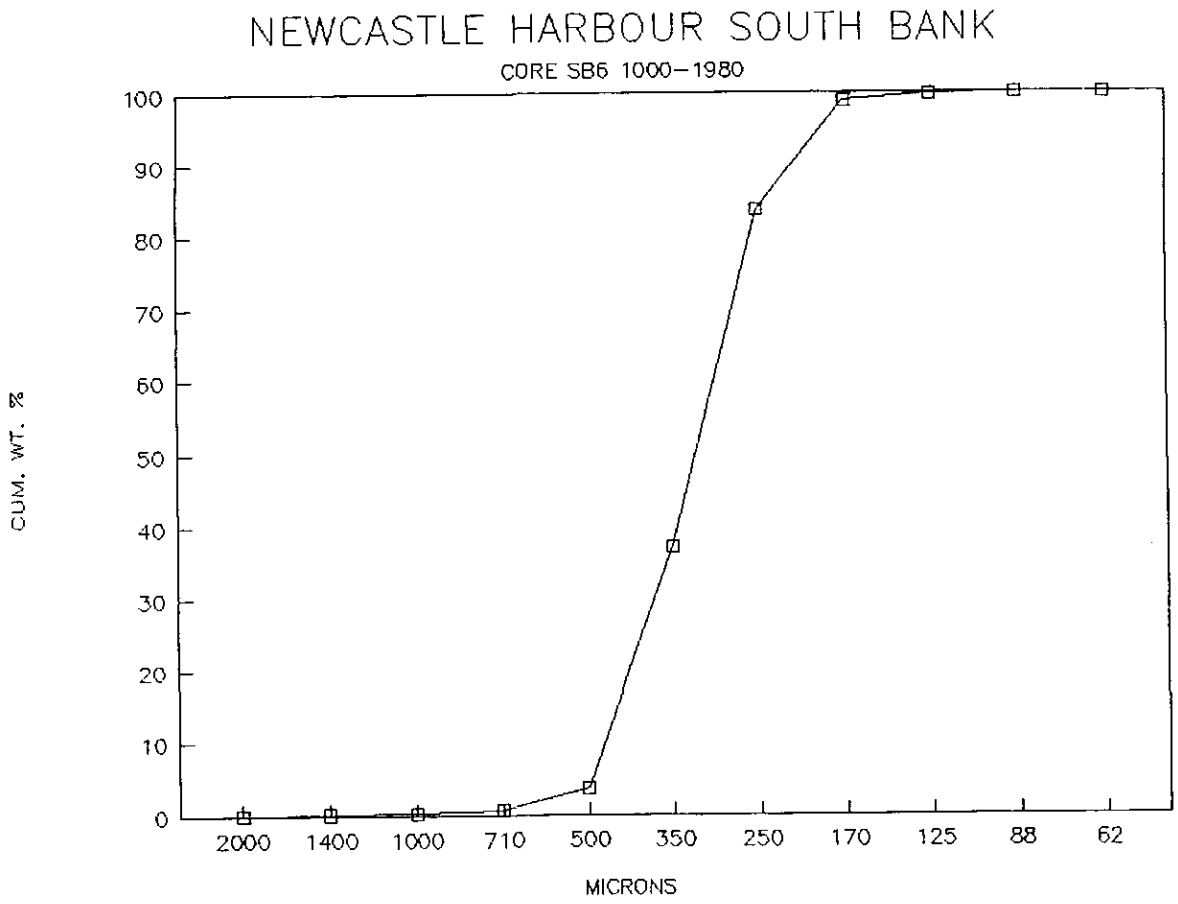


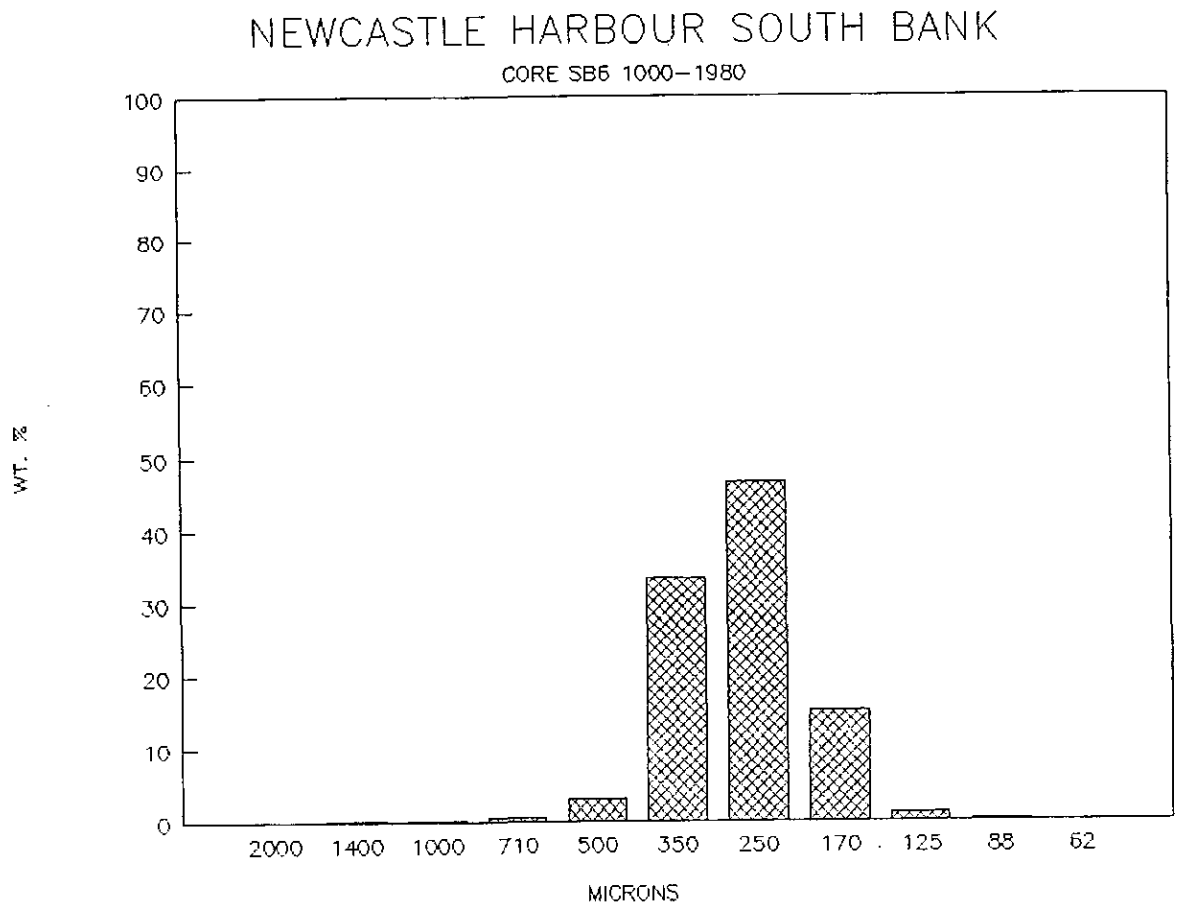

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB7 700–1700



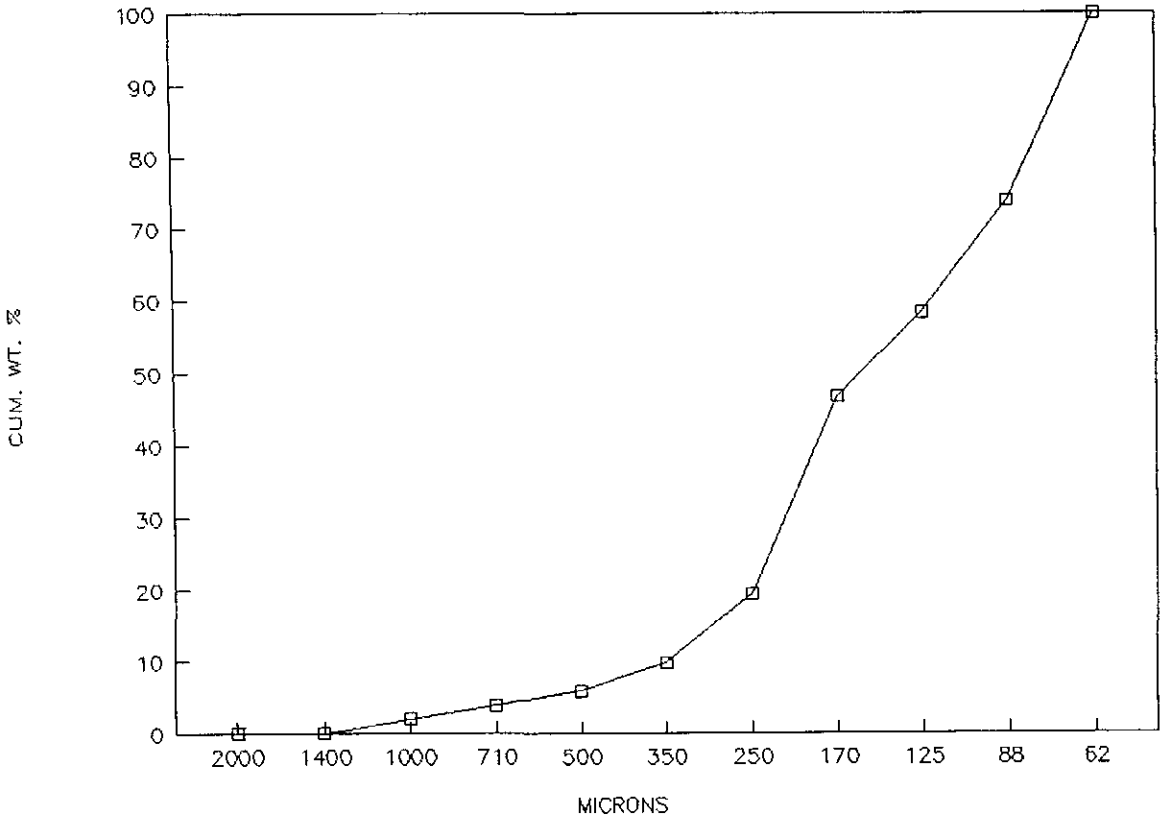
SAND FRACTION IN SAMPLE FROM
CORE SB7 0-700
TOO SMALL TO PROCESS FOR GRAIN SIZE DISTRIBUTION


NEWCASTLE HARBOUR SOUTH BANK
CORE SB6 1000-1980
CUM. WT. %
100
90
80
70
60
50
40
30
20
10
0
2000
1400
1000
710
500
350
250
170
125
88
62
MICRONS


NEWCASTLE HARBOUR SOUTH BANK
CORE SB6 1000-1980
WT. %
100
90
80
70
60
50
40
30
20
10
0
2000
1400
1000
710
500
350
250
170
125
88
62
MICRONS

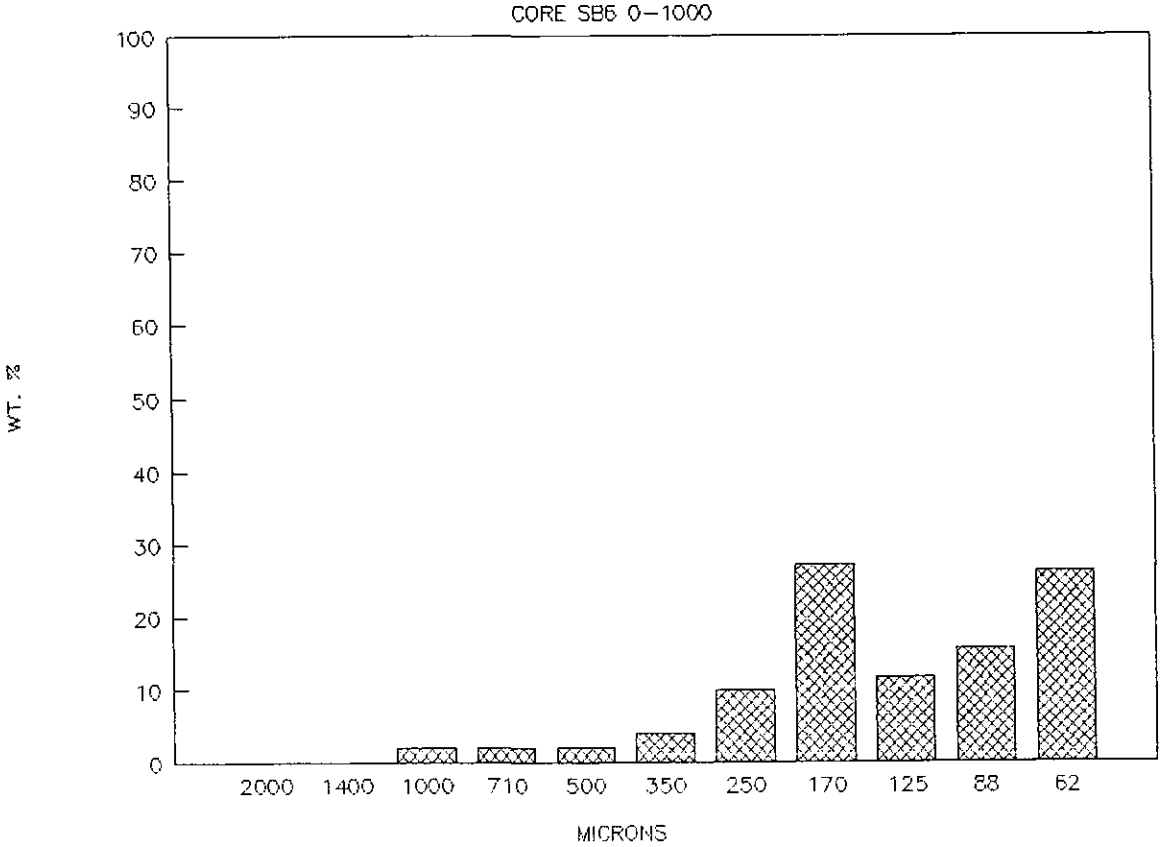
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB6 0-1000



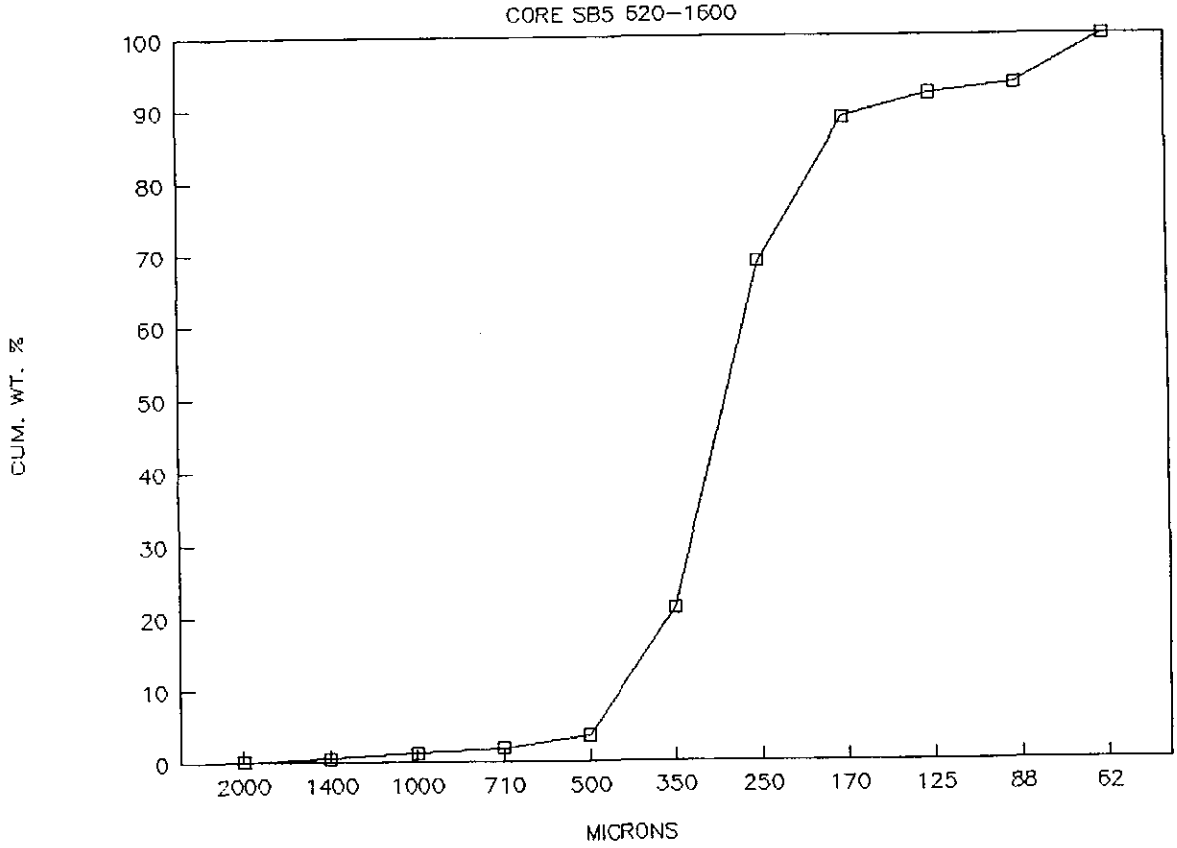

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB6 0-1000



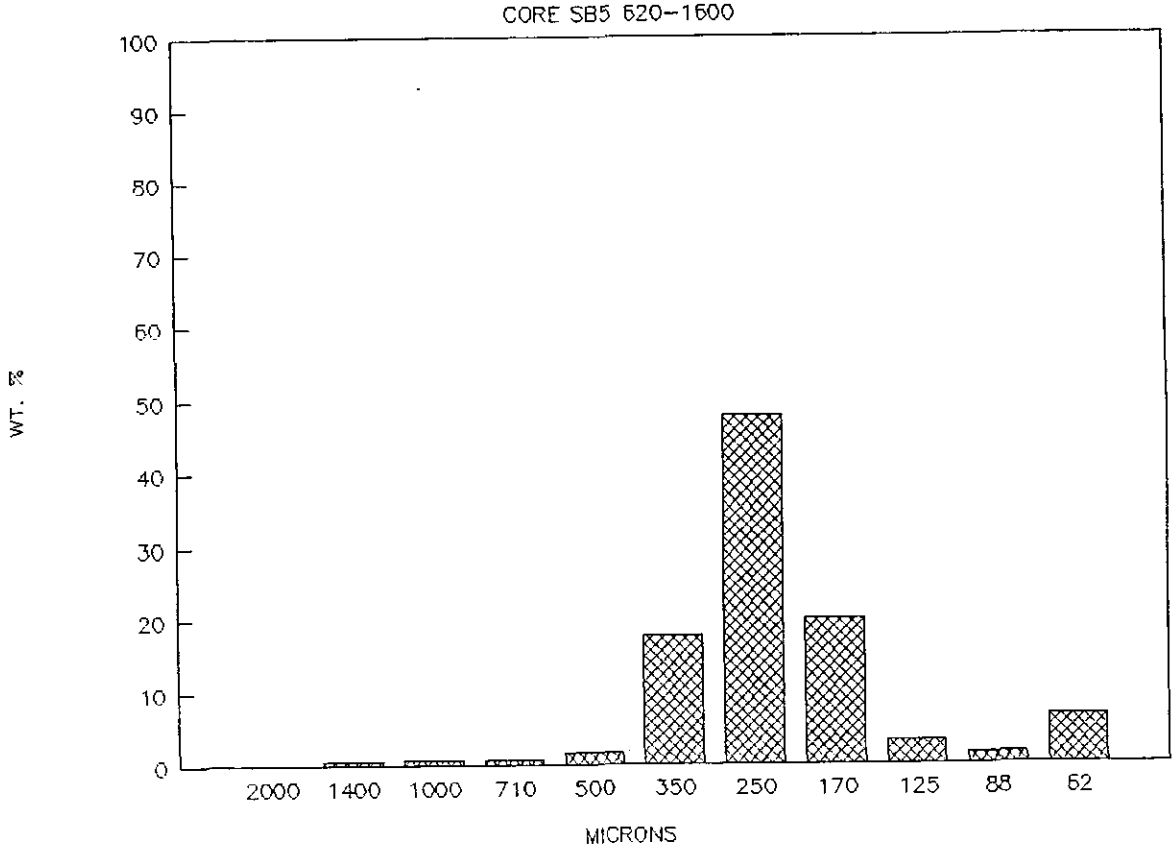
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB5 520–1600



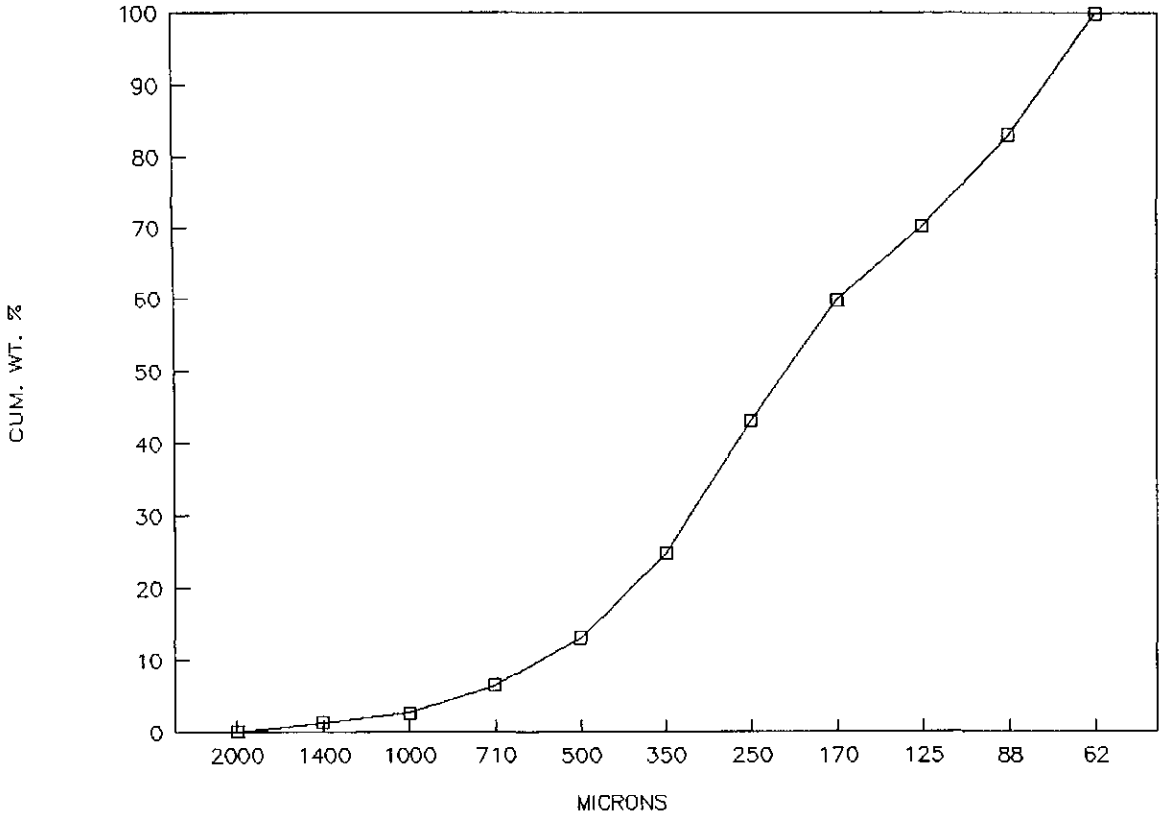

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB5 520–1600



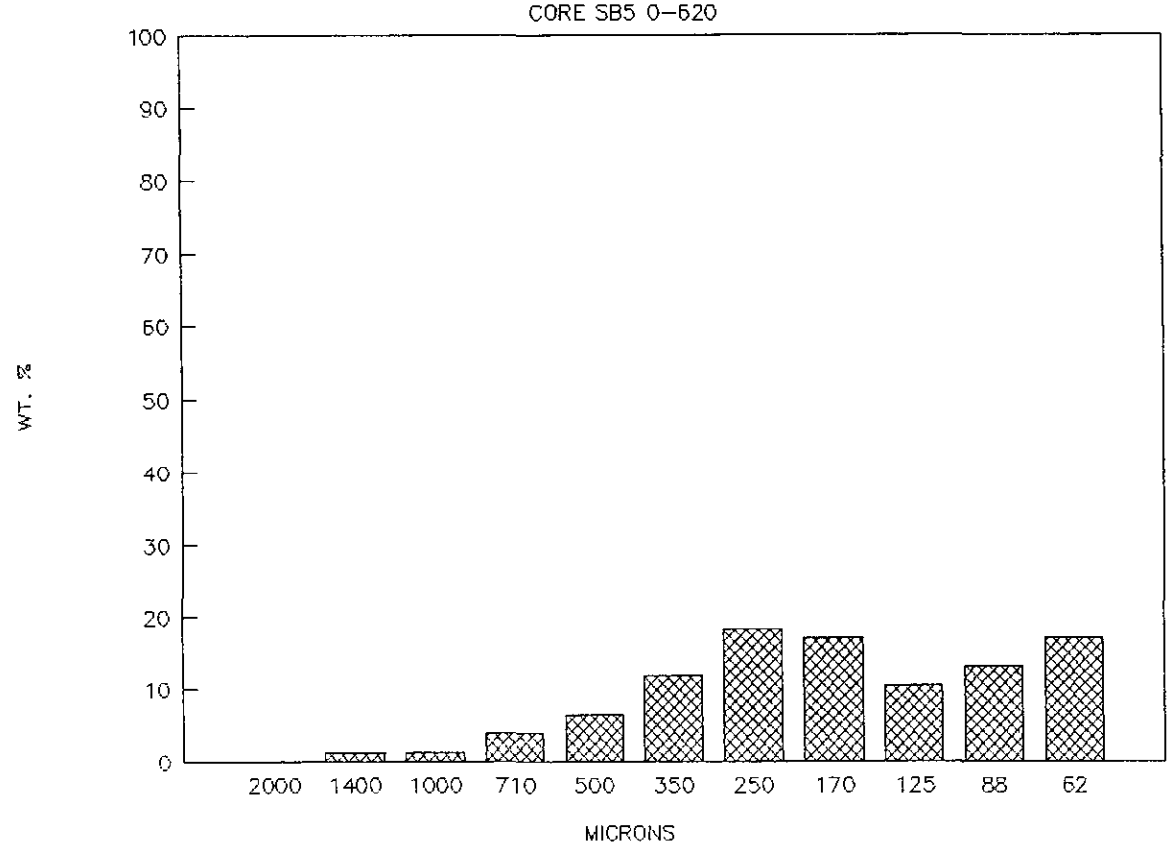
# NEWCASTLE HARBOUR SOUTH BANK

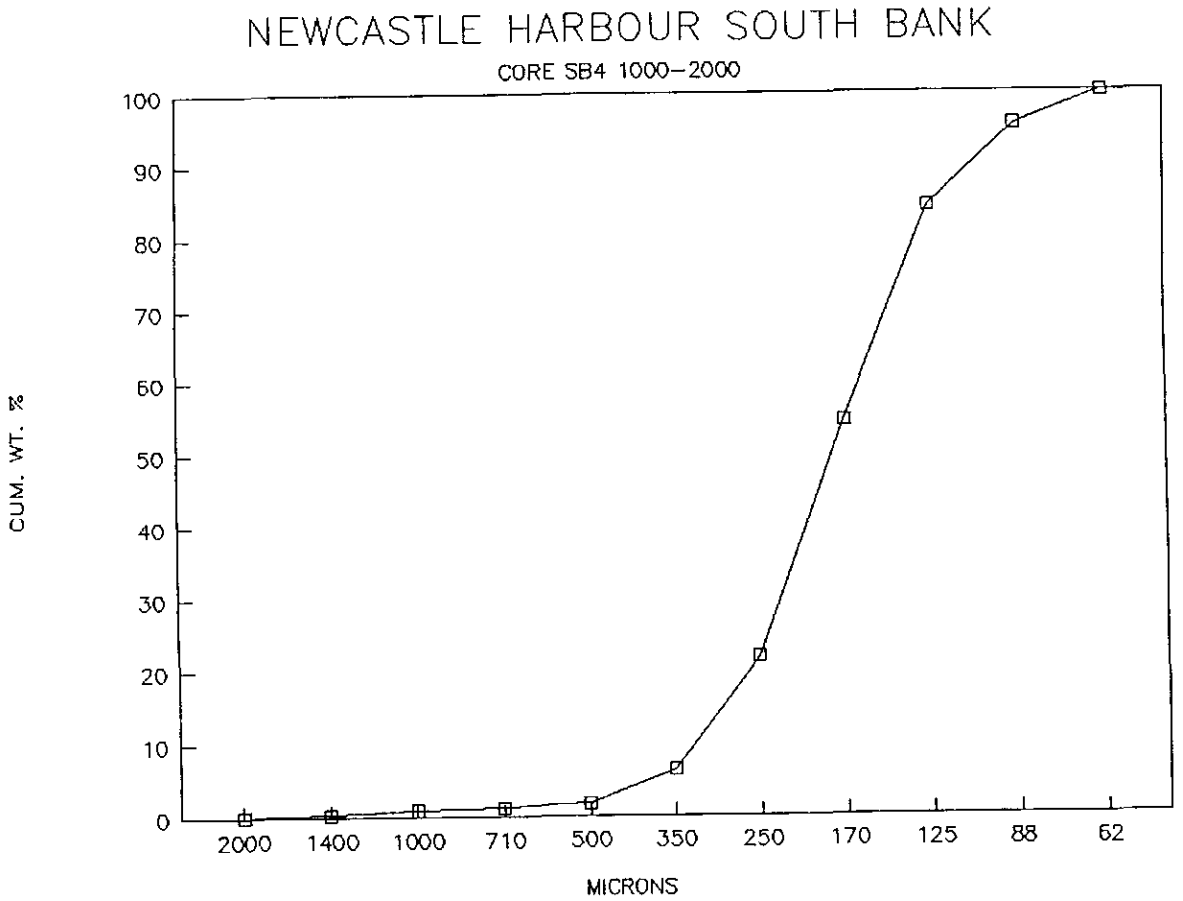
CORE SB5 0–620

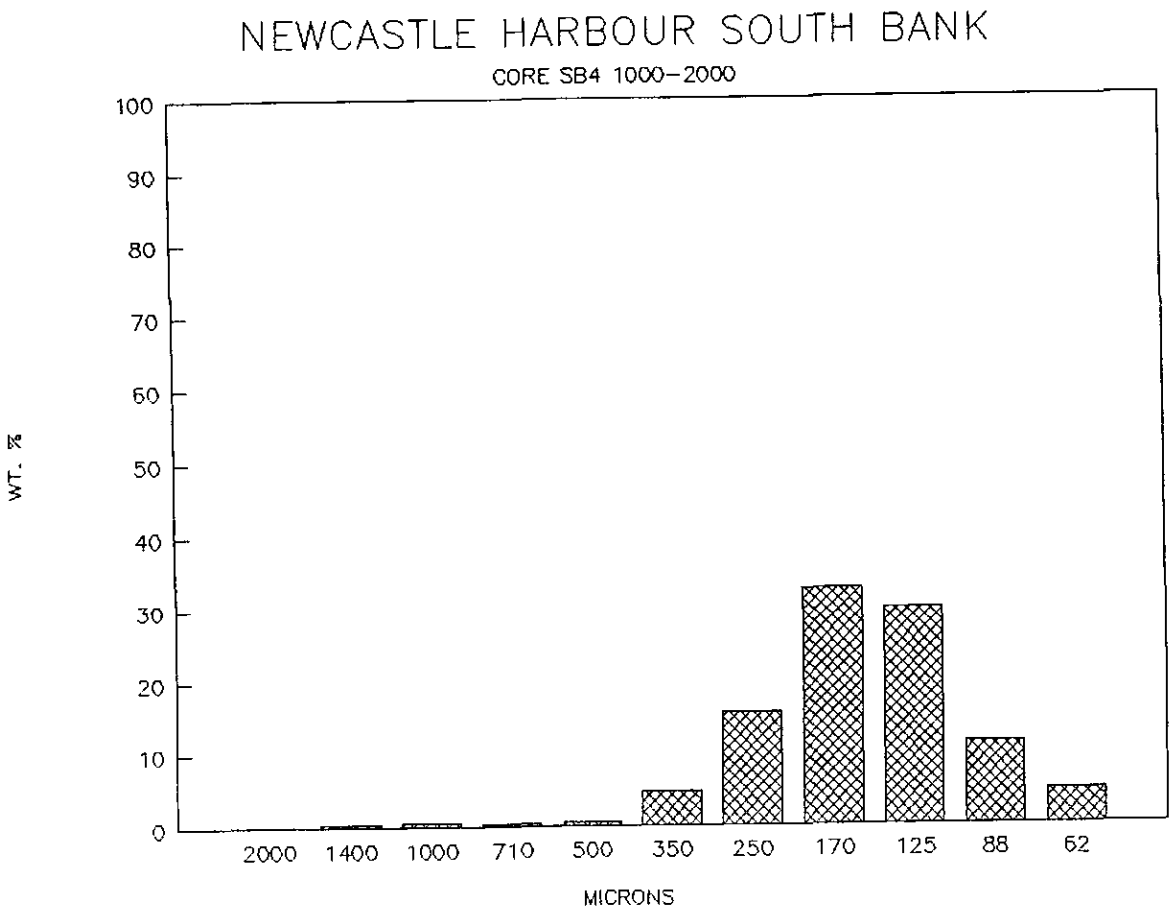



# NEWCASTLE HARBOUR SOUTH BANK

CORE SB5 0–620

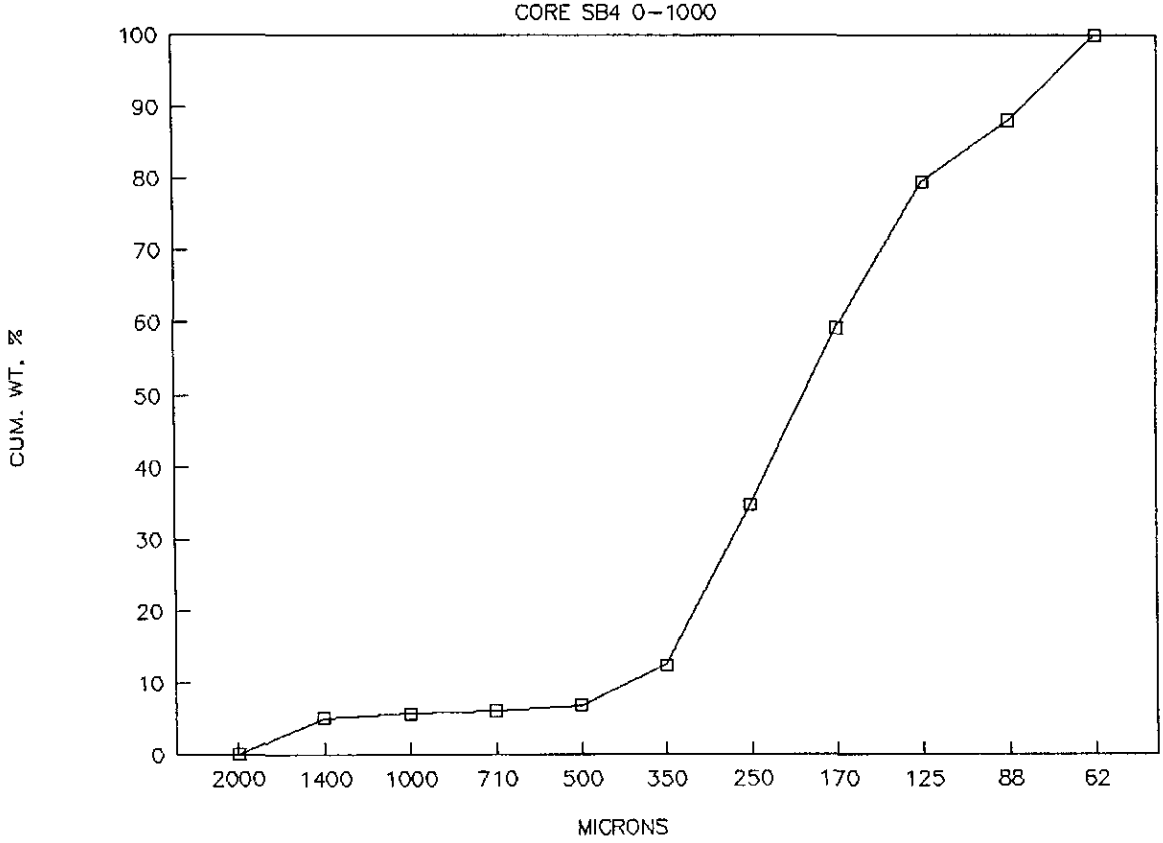



NEWCASTLE HARBOUR SOUTH BANK
CORE SB4 1000–2000
CUM. WT. %
100
90
80
70
60
50
40
30
20
10
0
2000
1400
1000
710
500
350
250
170
125
88
62
MICRONS


NEWCASTLE HARBOUR SOUTH BANK
CORE SB4 1000–2000
WT. %
100
90
80
70
60
50
40
30
20
10
0
2000
1400
1000
710
500
350
250
170
125
88
62
MICRONS

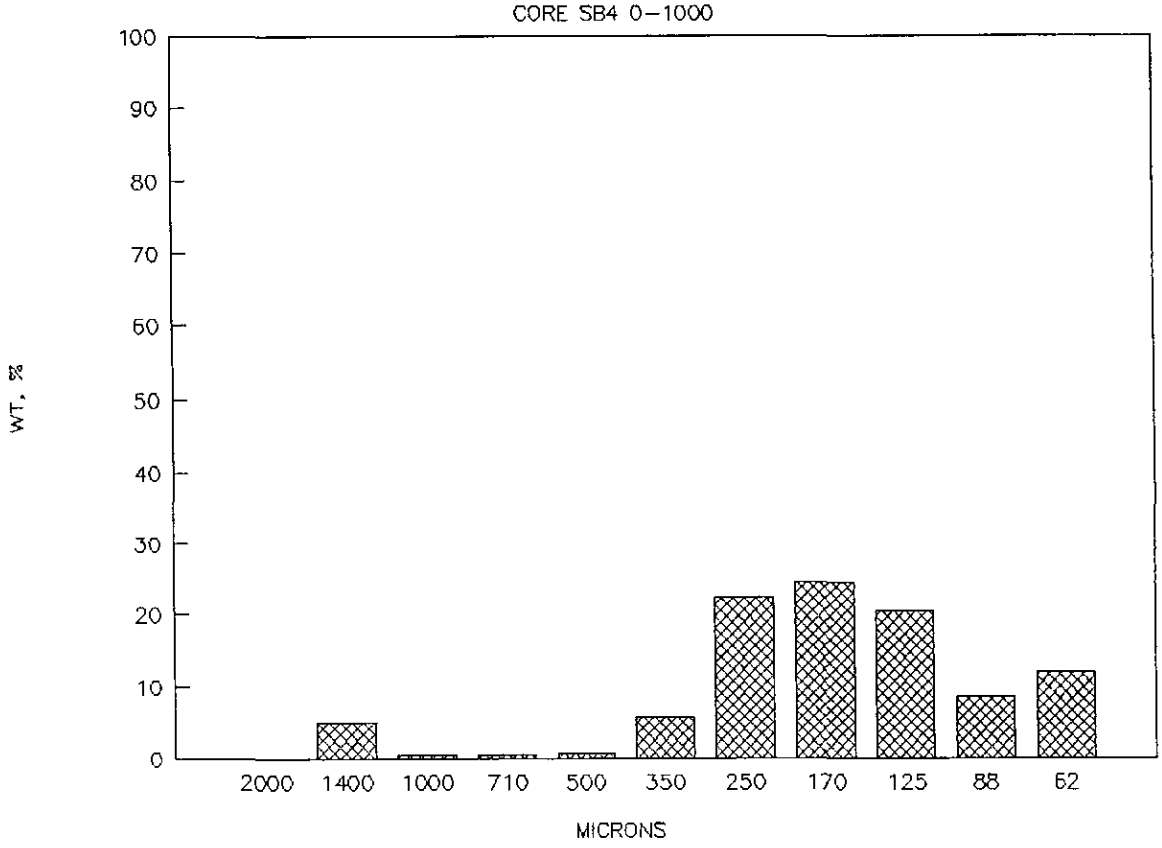
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB4 0–1000



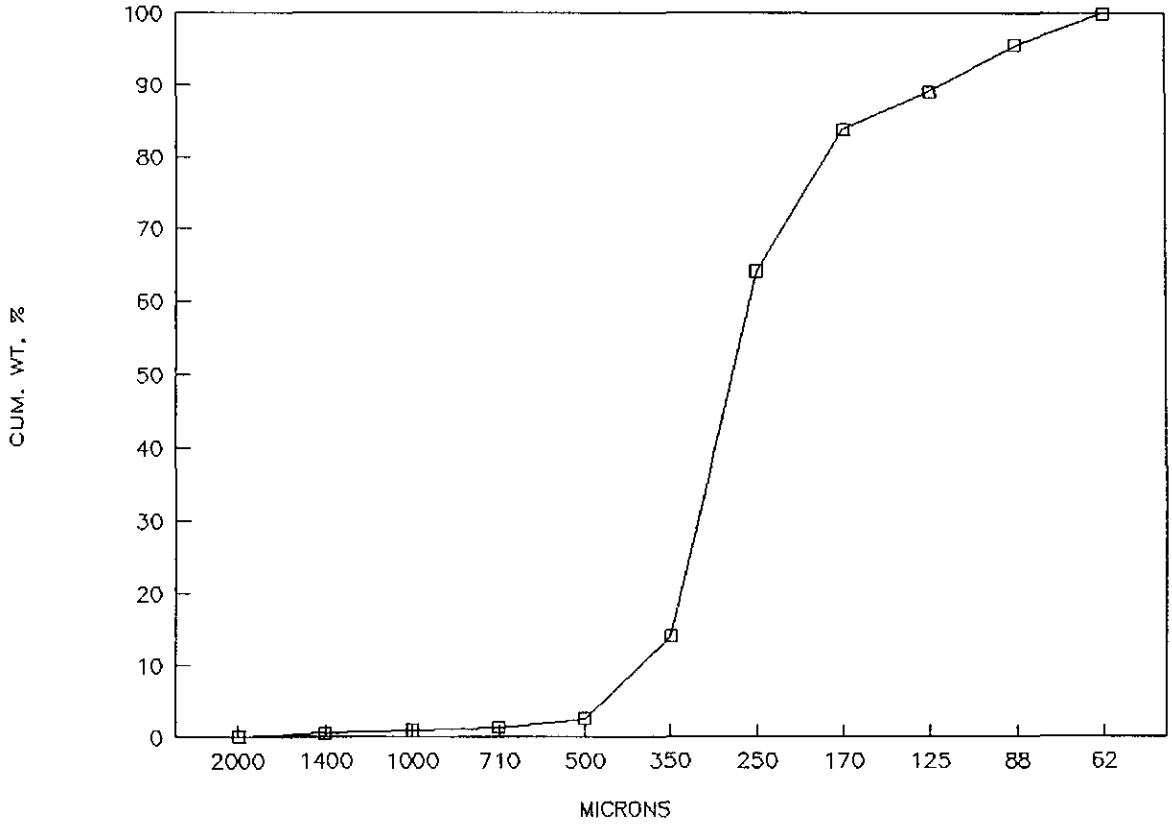

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB4 0–1000



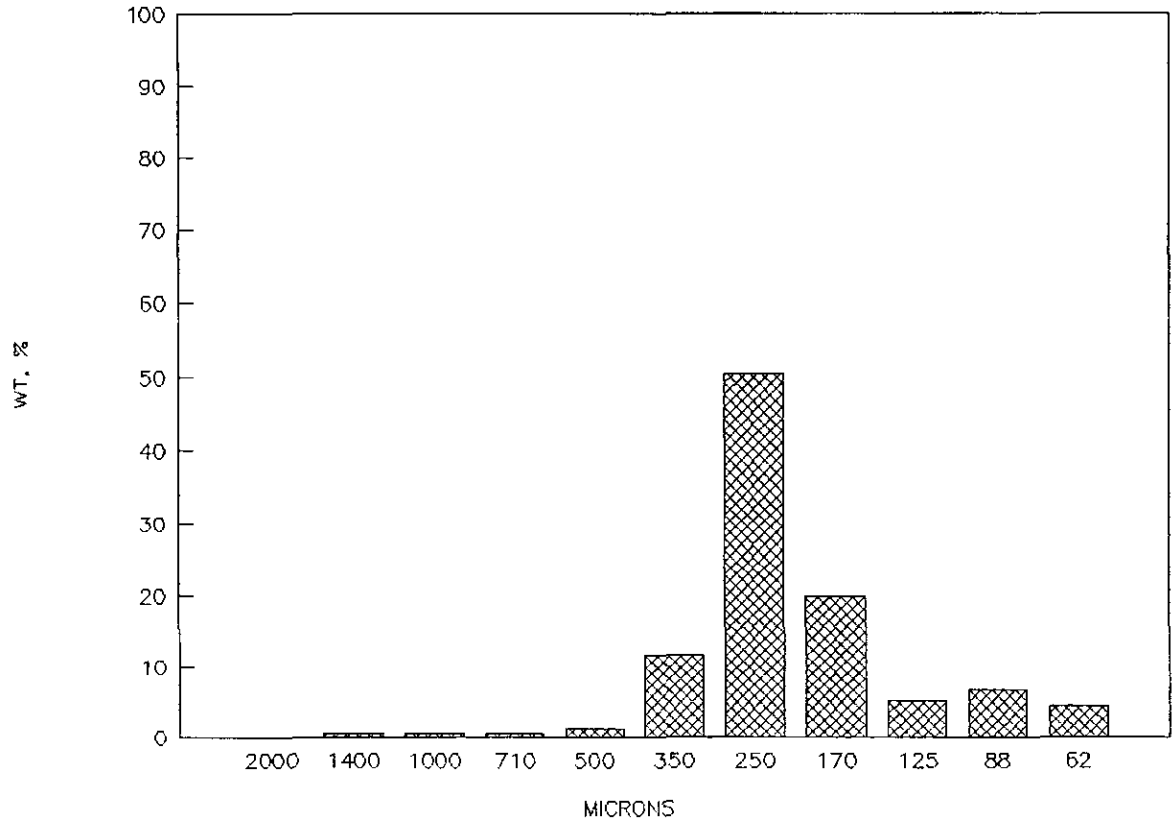
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB3 2340–3480




# NEWCASTLE HARBOUR SOUTH BANK

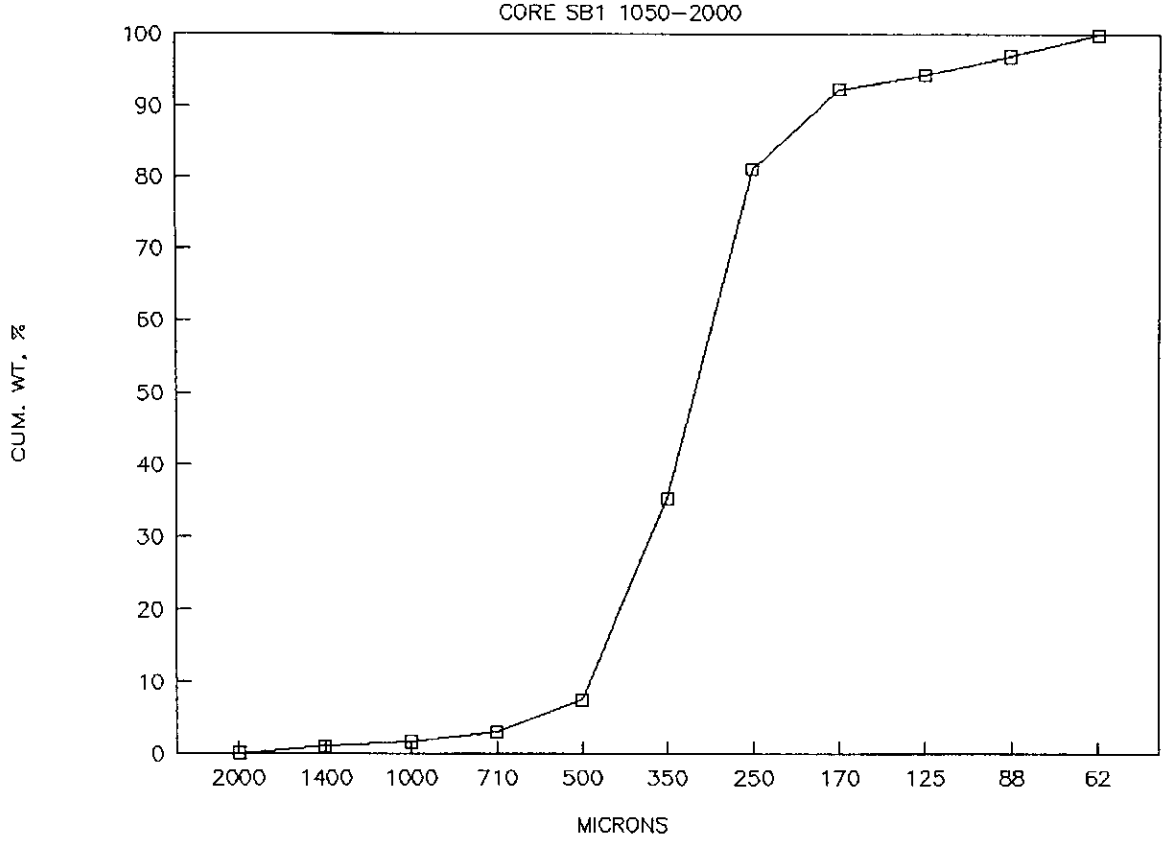
CORE SB3 2340–3480



SAND FRACTION IN SAMPLE FROM
CORE SB3 1550-2340
TOO SMALL TO PROCESS FOR GRAIN SIZE DISTRIBUTION

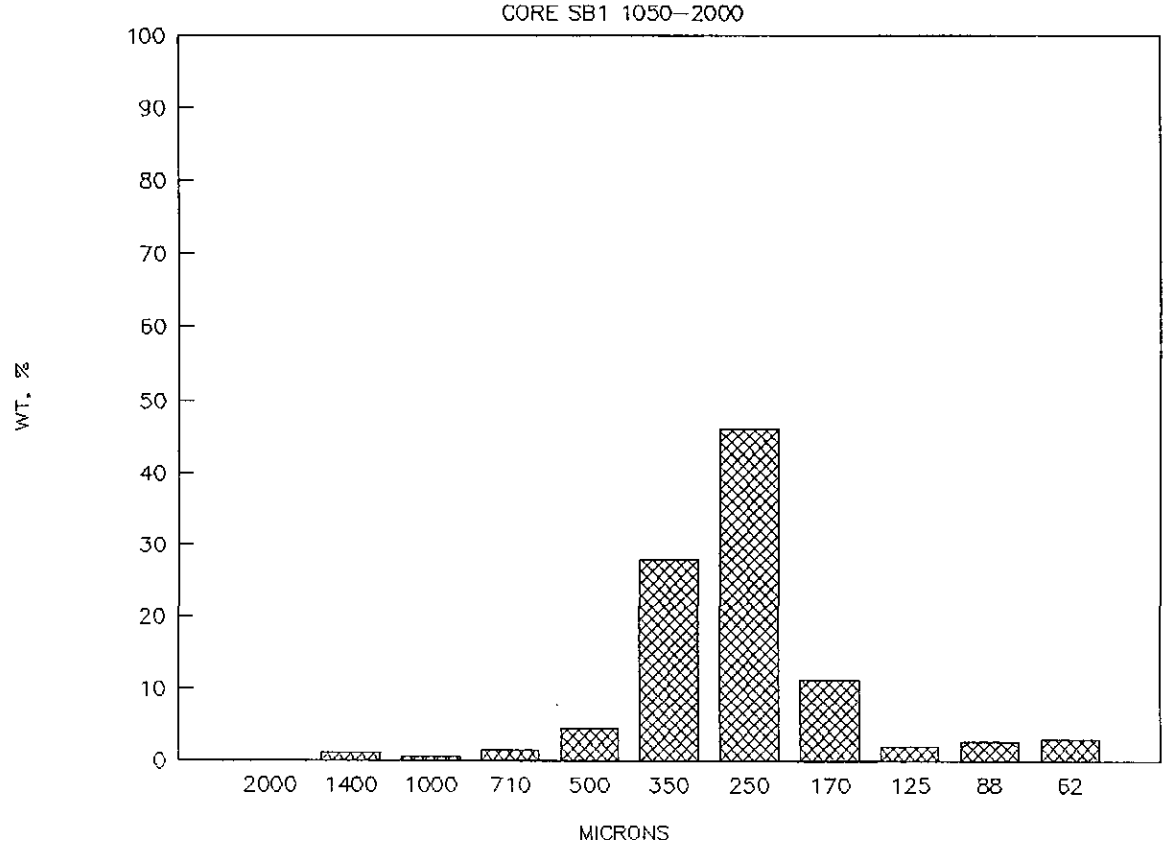
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB1 1050–2000



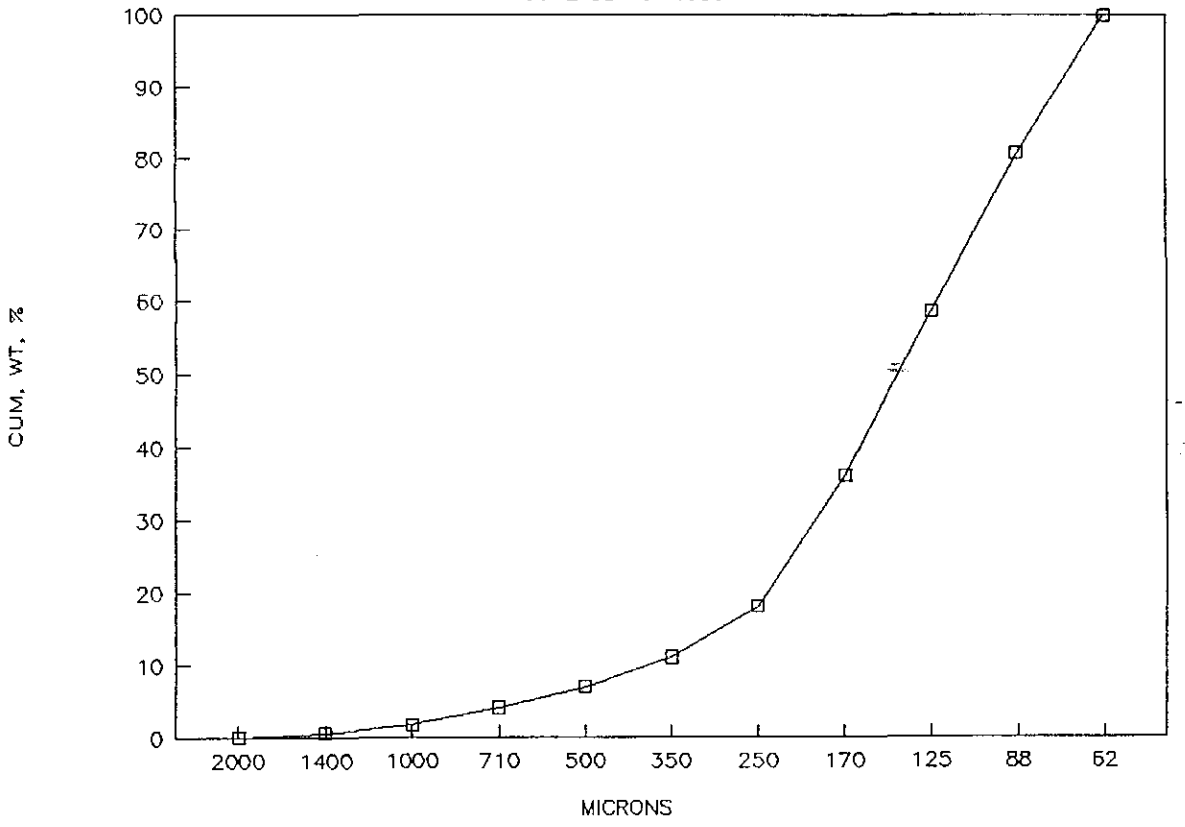

# NEWCASTLE HARBOUR SOUTH BANK

CORE SB1 1050–2000



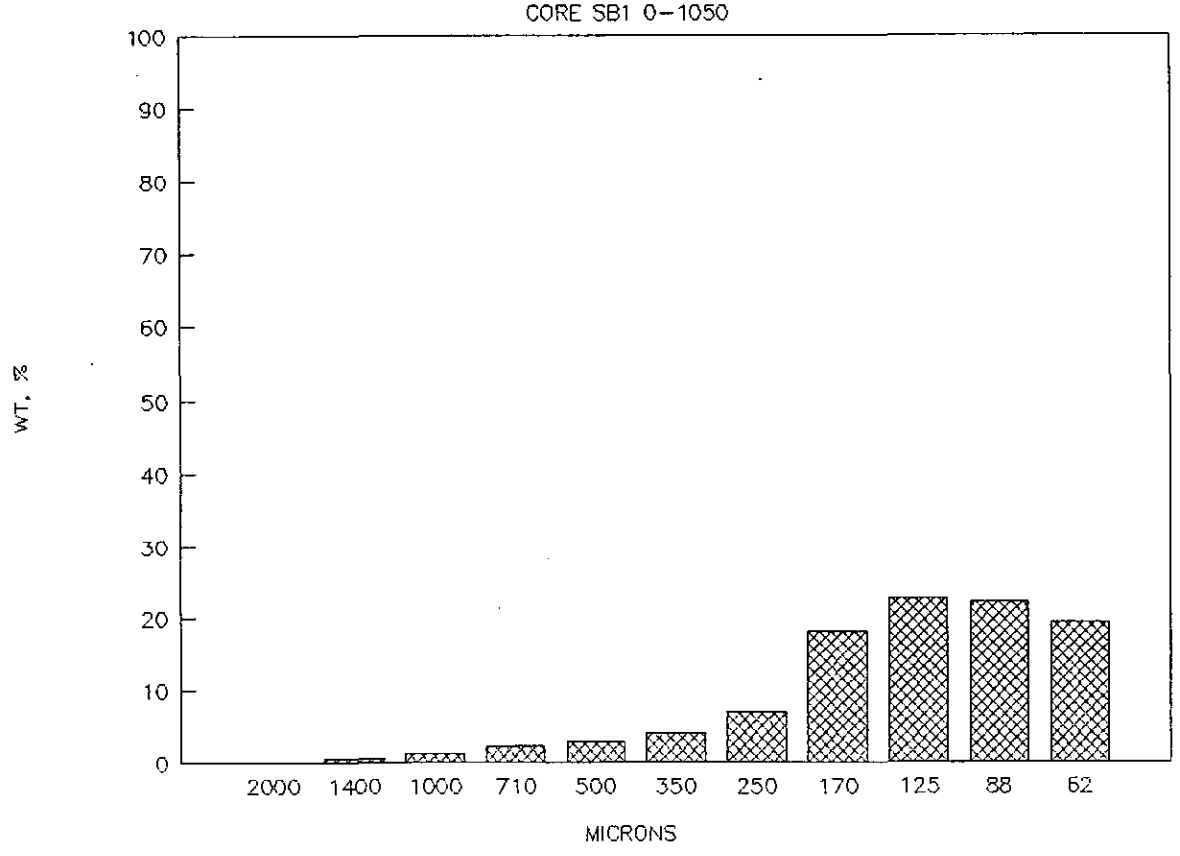
# NEWCASTLE HARBOUR SOUTH BANK

CORE SB1 0–1050




# NEWCASTLE HARBOUR SOUTH BANK

CORE SB1 0–1050



# ATTACHMENT 4

## ESTUARINE SAND DATA

| Sample | Depth | report / date | Total PAH | TOC | nickel | lead | zinc | mercury |
|---|---|---|---|---|---|---|---|---|
| | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| ANZECC Sediment Quality Guidelines - Low | | | 4* | -- | 21 | 50 | 200 | 0.15 |
| ANZECC Sediment Quality Guidelines - High | | | 45* | -- | 52 | 220 | 410 | 1 |
| PBP South Arm Dec 2000 | | | | | | | | |
| SA3 | 0-650 | PB/2000 | 2.92 | 0.7 | 15 | 43 | 200 | *0.025* |
| SA3 | bulked | PB/2000 | *0.025* | 0.3 | 6.2 | 1.6 | 11 | *0.025* |
| SA8 | 0-270 | PB/2000 | 3.79 | 0.5 | 5.6 | 18 | 140 | 0.08 |
| SA14a | bulked' | PB/2000 | 0.47 | 0.2 | 5.4 | 19 | 130 | 0.025 |
| SA17 | 1250-1500 | PB/2000 | *0.025* | 0.7 | 11 | 3.2 | 26 | *0.025* |
| SA24 | 2800-3280 | PB/2000 | 4.17 | 0.8 | 8.2 | 19 | 130 | 0.11 |
| RCA MPT July 2000 | | | | | | | | |
| DS1A | | RCA/2000 | 0.5 | 0.1 | 14 | *2.5* | 18 | -- |
| DS2B | | RCA/2000 | 0.25 | -- | 5 | *2.5* | 10 | -- |
| DS3A | | RCA/2000 | 0.25 | 0.2 | 14 | *2.5* | 24 | -- |
| DS4A | | RCA/2000 | 0.25 | 1.2 | 15 | *2.5* | 26 | -- |
| GHD-Lonmac July 2001 | | | | | | | | |
| JV 8 | 1.5-2.7 | GHD/2001 | *0.025* | | 3 | 3 | 6 | 0.3 |
| JV9 | 0-2 | CSIRO/2001 | 0.22 | 0.2 | 2 | 5 | 6 | 0.28 |
| JV9 | 2-2.3 | CSIRO/2001 | 4.83 | 1.6 | 7 | 62 | 422 | 0.01 |
| JV 11 | 0-1.5 | GHD/2001 | *0.025* | 0.4 | 6 | *3* | 15 | *0.03* |
| JV 11 | 1.5-3 | GHD/2001 | *0.025* | 0.2 | 5 | *3* | 11 | *0.03* |
| JV 11 | 3-4.5 | GHD/2001 | *0.025* | 0.4 | 6 | *3* | 11 | *0.03* |
| JV 12 | 2-2.8 | GHD/2001 | *0.025* | 0.4 | 9 | *3* | 16 | *0.03* |
| JV 12 | 3.4-5.2 | GHD/2001 | *0.025* | 0.1 | 3 | *3* | *3* | *0.03* |
| JV 14 | 2-3 | GHD/2001 | *0.025* | *0.1* | *3* | *3* | *3* | *0.03* |
| JV13 | 1-3 | CSIRO/2001 | *0.025* | 0.2 | 2 | *5* | 2 | *0.01* |
| JV15 | 0-1.5 | CSIRO/2001 | *0.025* | 0.24 | 2 | *5* | 10 | *0.03* |
| JV15 | 1.5-3 | CSIRO/2001 | *0.025* | 0.26 | 2 | *5* | 4 | 0.13 |
| JV M1 | 2.2-3.3 | CSIRO/2001 | *0.025* | 0.09 | 2 | *5* | 7 | -- |
| JV M3 | 0.9-1.5 | CSIRO/2001 | 0.85 | 0.07 | 3 | *10* | 3 | -- |
| JV M3 | 1.5-3.0 | CSIRO/2001 | *0.025* | 0.06 | 3 | *10* | 3 | -- |
| JVM6 | 1.5-3.0 | CSIRO/2001 | *0.025* | 0.06 | 12 | *11* | 100 | 0.03 |
| PBP South Arm Jan 2003 | | | | | | | | |
| SB3 | 2340-3480 | PBP/2003 | *0.025* | 1.6 | -- | -- | -- | -- |
| SB6 | 1750-1980 | PBP/2003 | 0.41 | 0.05 | -- | -- | -- | -- |
| SB10 | 840-1530 | PBP/2003 | *0.025* | 0.05 | -- | -- | -- | -- |
| SB11 | 0-940 | PBP/2003 | *0.025* | 0.05 | -- | -- | -- | -- |
| SB12 | 0-1000 | PBP/2003 | *0.025* | 0.05 | -- | -- | -- | -- |
| SB13 | 0-1000 | PBP/2003 | *0.025* | 0.05 | -- | -- | -- | -- |
| SB13 | 1000-1860 | PBP/2003 | *0.025* | 0.05 | -- | -- | -- | -- |
| SB14 | 520-1540 | PBP/2003 | *0.025* | 0.05 | -- | -- | -- | -- |
| GHD-Lonmac Dec 2002 | | | | | | | | |
| CD13 | 1.9-4.0 | GHD/2002 | *0.025* | 0.1 | -- | -- | -- | -- |
| CD17 (Dec) | 2.8 | GHD/2002 | *0.025* | 0.05 | -- | -- | -- | -- |
| CD19 (Dec) | 0.1 | GHD/2002 | *0.025* | 0.05 | -- | -- | -- | -- |
| CD20 (Dec) | 0.5 | GHD/2002 | *0.025* | 2.8 | -- | -- | -- | -- |
| CD24 (Dec) | 0.7 | GHD/2002 | *0.025* | 7.8 | -- | -- | -- | -- |
| CD24 (Dec) | 1.4 | GHD/2002 | *0.025* | 1.4 | -- | -- | -- | -- |
| CD26 (Dec) | 0.8 | GHD/2002 | *0.025* | 1.6 | -- | -- | -- | -- |
| CD26 (Dec) | 2 | GHD/2002 | *0.025* | 0.05 | -- | -- | -- | -- |
| CD27 (Dec) | 1.3 | GHD/2002 | *0.025* | 1.4 | -- | -- | -- | -- |
| CD28 (Dec) | 2 | GHD/2002 | *0.025* | 1.8 | -- | -- | -- | -- |
| CD29 (Dec) | 1 | GHD/2002 | *0.025* | 1.4 | -- | -- | -- | -- |

Notes

1. Datasets include an assortment of Total Organic Matter (TOM) and Total Organic Carbon (TOC) results. All data has been converted to TOC using the following conversion - TOM x 0.58 = TOC
2. -- No sample collected or no data available
3. *italics* - Numbers in italics are those reported as Non Detected and are included as 1/2 PQL for statistical purpose
4. * guideline value nomalised to 1% TOC