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# McNeil Island: Intertidal Screening Survey for Toxic Chemicals in Water, Sediment, and Clam Tissue

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## ABSTRACT

Priority pollutant metals and organics concentrations were measured in freshwater discharges, intertidal sediments, and clam tissues from McNeil Island to determine if contamination documented on the island has migrated into Puget Sound. The level of chemical contamination was found to be generally low and in the range of values typically reported for reference (background) areas of Puget Sound. An exception was sediment from the outlet of Eden Creek Reservoir which contained elevated concentrations of arsenic, chromium, lead, and polyaromatic hydrocarbons. Chromium and polyaromatic hydrocarbon concentrations in sediments from this site exceeded the 90th percentile level reported for sediments from urban areas of Puget Sound.


## INTRODUCTION

McNeil Island which occupies an area of approximately seven square miles in southern Puget Sound, was the site of a federal penitentiary between 1873 and 1981. In 1981 the island was acquired by the Washington State Department of Corrections which currently operates it as a state correctional facility, housing approximately 1,000 inmates. In support of the penitentiary, a number of activities have taken place including shipbuilding, cannery operations, furniture refinishing, motor vehicle maintenance and repair, dairy and agricultural farming, electrical power generation, and landfill waste disposal. As a result of these activities and associated disposal practices, contamination of soil and ground water on the island with a variety of organic compounds and metals has occurred (Hart Crowser, 1987). However, the extent to which these contaminants have migrated off the island into Puget Sound has not been adequately investigated. The Toxics Investigations and Ground Water Monitoring Section (TIGWMS) was therefore requested by Ecology's Southwest Regional Office (SWRO) to conduct a study aimed at characterizing the occurrence of toxic chemicals in the nearshore marine environment around McNeil Island, specifically below drainage from contaminated areas. The data generated from this investigation will be used in conjunction with information from the McNeil Island Preliminary Site Assessment: Phase II being conducted by Hart Crowser, Inc., to prioritize areas requiring further characterization work or cleanup activities.

## METHODS

### Sampling

Water, sediment, and clam sampling was conducted April 18-19, 1988, by Art Johnson and Dale Norton from TIGWMS, and Toby Michelena of the SWRO. Sampling locations are shown in Figure 1.

Water - Water samples were collected as grabs by directly filling sample containers at the point where drains/creeks discharged to the beach. Containers used were as

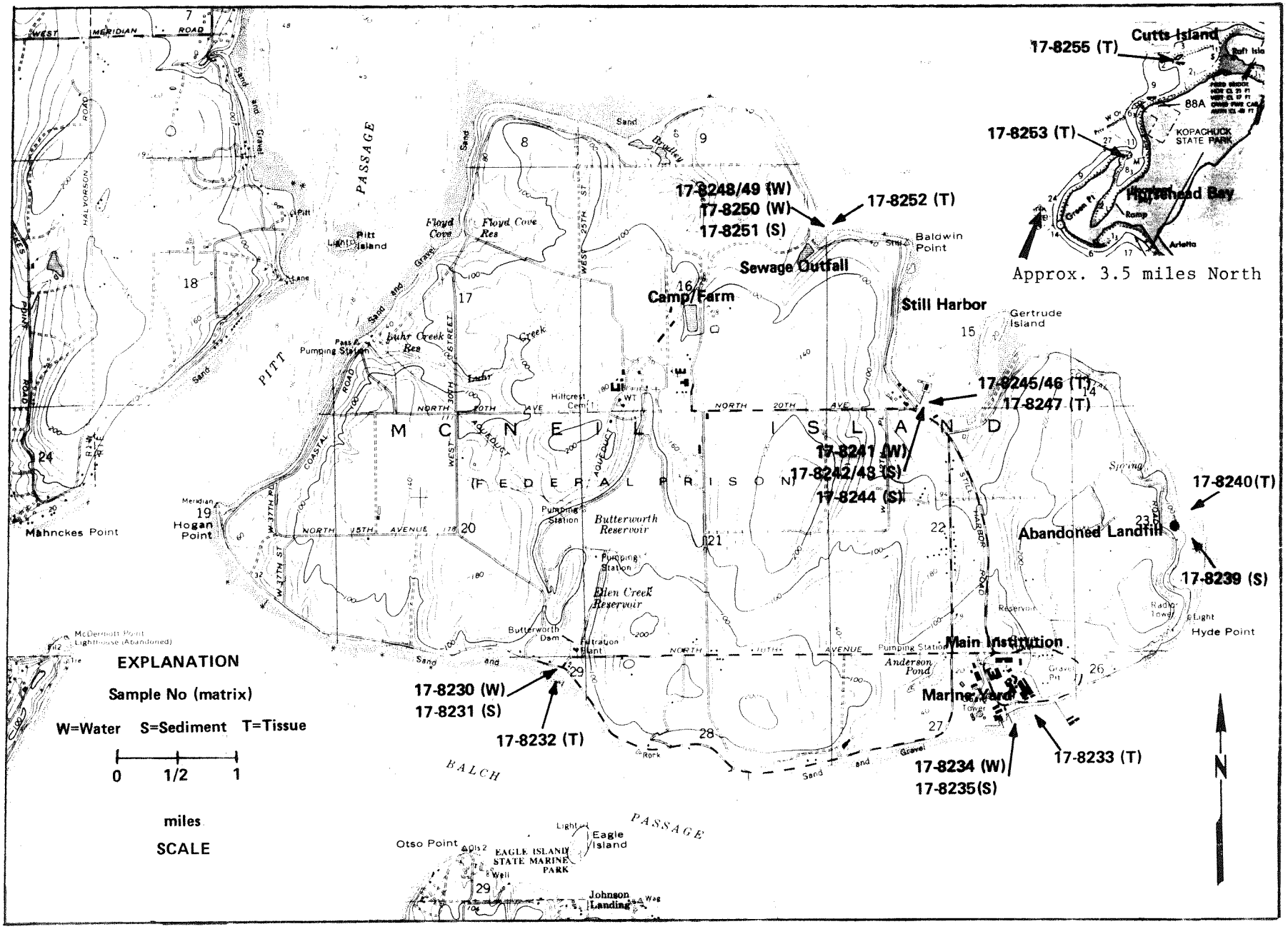


Figure 1: McNeil Island site map and station locations.

follows: total suspended solids, 500 mL polyethylene; total organic carbon, 40 mL glass vials with 1 mL $H_2SO_4$ added as preservative; and volatile organics, 40 mL glass vials with teflon septa obtained from I-Chem, Hayward, California. Flow was measured with a Marsh-McBirney magnetic flow meter and top-setting rod.

Sediment - Intertidal sediments were collected at low tide immediately below the point of discharge of drains/creeks, using 1.5-inch ID stainless steel core tubes. Fine-grained materials were preferentially selected when available. To characterize each location, the top 2 cm layer only from several cores was composited into a stainless steel beaker and homogenized by stirring with a stainless steel spoon. Sub-samples for total organic carbon, percent moisture, metals, and organics analyses were then placed in priority pollutant-cleaned 8-oz. glass jars with teflon lined lids obtained from I-Chem, Hayward, California. Aliquots for grain size analysis were placed in Whirl-pack bags.

Tissue - Clam samples were dug with a shovel, as close to specific discharges as possible. Only undamaged clams were retained for analysis. These were first rinsed in on-site seawater and then allowed to depurate for 24 hours in 5-gallon plastic buckets filled with on-site seawater. At the end of the depuration period the clams were removed, wrapped in aluminum foil, placed in plastic bags, and frozen overnight pending dissection the following day at the Ecology/EPA Manchester Environmental Laboratory. For each sample, the clams were partially thawed, measured, all soft tissues removed, composited, and homogenized in a Waring blender. The homogenized tissue was then placed in 8-oz. glass jars (previously described) and stored at $4^{o}C$ until analyzed. Information on clams collected at each location is summarized in Table 1.

Immediately after collection, all water and sediment samples were wrapped in plastic bags and stored on ice for transport to the Ecology/EPA Manchester Environmental Laboratory. All equipment used in sampling and dissection (i.e., core tubes, spoons, beakers, dissection tools, and blenders) was precleaned with sequential washes of liquinox detergent/hot tap water, 10 percent nitric acid, distilled/dieonized water, pesticide-grade methylene chloride, and pesticide-grade acetone.

Analysis

Target chemicals, analytical methods, and laboratories used in this investigation are listed in Table 2. Quality of the data set was evaluated through the use of blanks, spiked samples, duplicates, and analysis of a standard reference material.

Metals- Metals data for sediment and tissue samples were considered acceptable without qualifications, being within precision and accuracy goals of +/- 20 percent established for this project, for all target metals except arsenic, lead, and copper in tissue. Results of the Manchester Laboratory's analysis of Japan's National Institute of Environmental Studies (NEIS) certified reference material No. 6 (mussel tissue) are summarized in Table 3. Arsenic values for tissue are reported in Table 5 as estimates due to low matrix spike recoveries (50 percent) and low accuracy obtained (30 percent) on analysis of the NEIS certified reference material. Lead concentrations in tissue are

Table 1. Data on clams collected by Ecology April 18-19, 1988 for the McNeil Island screening investigation.

| Location | Sample Number | Species+ (number) | Size (mm) Mean (range) |
|---|---|---|---|
| Eden Creek Res. @ Outlet | 17-8232 | Butter (15) | 65 (58-78) |
| Main Institution | 17-8233 | Butter (15) | 68 (57-85) |
| Hyde Point | 17-8240 | Butter (8) | 86 (64-98) |
| Still Harbor (duplicate) | 17-8245/46 | Native Littleneck (37) | 52 (40-62) |
| " " (replicate) | 17-8247 | Native Littleneck (35) | 53 (43-63) |
| Camp/Farm Sewage Outlet | 17-8252 | Native Littleneck (20) | 57 (46-67) |
| Horsehead Bay (control) | 17-8253 | Native Littleneck (25) | 57 (52-63) |
| Cutts Island (control) | 17-8255 | Butter (8) | 83 (75-89) |

+ = Butter = *Saxidomus giganteus*
Native Littleneck = *Protothaca staminea*

Table 2. Field and analytical methods for McNeil Island Screening Investigation.

| Analysis | Method | Reference | Laboratory |
|---|---|---|---|
| | | -WATER- | |
| Flow | Marsh-McBirney | -- | Field |
| Temperature | Precision Thermometer | -- | " |
| pH | Beckman model 21 | -- | " |
| Specific Conductance | Beckman model RB-5 | -- | " |
| Total Suspended Solids | Dry @ 103-105°C | APHA, 1985 | Ecology/EPA Manchester Lab |
| Total Organic Carbon | Persulfate-UV Oxidation | | Manchester, Wa. |
| Volatile Organics | Purge and Trap/GC-MS/ method 624 | EPA, 1984a | Analytical Resources, Inc. Seattle, Wa. |
| | | -SEDIMENT- | |
| Percent Moisture | Dry @ 105°C | APHA, 1985 | Laucks Testing Laboratories |
| Total Organic Carbon | Combustion $CO_2$ measurement | in-house | Seattle, Wa. |
| Grain Size | Seive and pipet | Holme, 1971 | " " |
| As, Hg, Pb | Atomic absorption spectroscopy | EPA contract lab program SOW | Ecology/EPA Manchester Lab Manchester, Wa. |
| Cd, Cr, Cu, Zn | Inductively coupled plasma | No. 785 July, 1985a | " " |
| Semivolatile Organics | Stable isotope dilution/GC-MS method 1625c | EPA, 1988 | Analytical Resources, Inc. Seattle, Wa. |
| Pesticide/PCB | GC-ECD method 8080 | EPA, 1984b | " " |
| | | -TISSUE- | |
| Percent Moisture | Dry @ 105°C | APHA, 1985 | Analytical Resources, Inc. |
| Percent Lipids | Grammetric | EPA, 1980a | Seattle, Wa. |
| As, Hg, Pb | Atomic absorption spectroscopy | EPA contract lab program SOW | Ecology/EPA Manchester Lab Manchester, Wa. |
| Cd, Cr, Cu, Zn | Inductively coupled plasma | No. 785 July, 1985a | " " |
| Semivolatile Organics | GC-MS method 625 | EPA, 1984a | Analytical Resources, Inc. |
| Pesticide/PCB | GC-ECD method 8080 | EPA, 1984b | Seattle, Wa. |

Table 3. Results of analysis of NEIS Certified Reference Material No. 6 (Mussel Tissue). (results expressed in mg/kg, dry weight)

| Metal | Certified Value | Acceptable Range-1 | Reported Values+ AA | ICP |
|---|---|---|---|---|
| Arsenic | 9.2 ± 0.5 | 7.0-12 | 6.4 | -- |
| Cadmium | 0.82 ± 0.03 | 0.63-1.0 | -- | 0.92 |
| Chromium | 0.63 ± 0.07 | 0.45-0.84 | -- | 0.81 |
| Copper | 4.9 ± 0.3 | 3.7-6.2 | -- | 4.5 |
| Lead | 0.91 ± 0.04 | 0.70-1.1 | 0.22 | -- |
| Mercury* | 0.05 | 0.04-0.06 | 0.04 | -- |
| Zinc | 106 ± 6.0 | 80-136 | -- | 95 |

1 = Accuracy goal of ± 20 percent established for this project.
+ = Reported as mean of duplicate analysis.
* = Reference value not certified; analyzed by atomic absorption spectroscopy:cold vapor method.

not reported due to poor precision on duplicate analyses (relative percent difference = 120 percent) and extremely low accuracy results (75 percent) obtained on analysis of the NEIS reference material. Copper results for tissue are flagged as estimates due to method blank contamination.

Organics- Quality assurance review of semivolatiles data on sediments was performed by Roger McGinnis of Ecology and Environment, Inc., Seattle, Washington. Roy Araki of the Ecology/EPA Manchester Environmental Laboratory reviewed all other organics results (i.e., volatiles, semivolatiles and pesticide/PCB). In the opinion of the reviewers, no major problems were encountered in the analyses of these samples, and, consequently, the data set is considered acceptable with the following qualifications. Methylene chloride and acetone, common laboratory contaminants, were detected at low levels in method blanks; as a result, all detected values for these two compounds have been flagged. Based on calibration results, detection limits for several semivolatile compounds in sediments should be considered estimates and have also been flagged where appropriate. Laboratory precision estimated from duplicate analyses, was excellent for all organics being within +/- 20 percent. Accuracy of the organics analyses was evaluated through the use of labeled compound recoveries. Recoveries were acceptable for all organics analyses except semivolatiles in tissue. In several instances matrix spike recoveries for semivolatile organics in tissue exceeded quality control (QC) limits established by the EPA contract laboratory program for a soil/sediment matrix. While no QC limits exist for a tissue matrix, these results suggest that if concentrations of target compounds were reported above detection limits, they could overestimate actual environmental levels. This is not expected to impact the data set since no semivolatiles were detected in tissue samples. Detection limits for semivolatiles in tissue were in the range of 70-350 ug/kg (i.e., ppb) wet weight. Results for semivolatile organic compounds in sediment have been recovery corrected.

## RESULTS

### Water and Sediment

The results of analysis of water and sediment samples collected by Ecology April 18-19, 1988, from McNeil Island freshwater discharges are summarized in Table 4. A complete list of all organic compounds analyzed and associated detection limits are shown in Appendix 1.

Good agreement was seen between analysis of replicate (two individual samples collected at the same locations: water - Camp/Farm sewage outlet; sediment - Still Harbor) samples, suggesting that single grabs of water and sediment were representative of the conditions present at the time of sampling. Conventionals data on water samples can be summarized as follows. Flow in individual discharges ranged from 0.03 - 0.18 cfs. pH was consistent ranging from 7.3 - 7.5. Specific conductivity measurements indicate that all discharges except the Marine Yard storm drain were flushed of saltwater at the time of sampling. Total suspended solids concentrations

Table 4. Summary of chemicals detected in water/sediment samples collected by Ecology 4/18-19/1988 from McNeil Island freshwater discharges. (metals - mg/kg; organics - ug/kg, dry weight basis unless otherwise indicated)

| Location | Eden Creek Res. @ Outlet | | Marine Yard Storm Drain | | Hyde Point Landfill | Still Harbor | | | Camp/Farm Sewage Outlet | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Matrix | Water | Sediment | Water | Sediment | Sediment | Water | Sediment | Sediment | Water | Water | Sediment |
| Sample No. 17- | 8230 | 8231 | 8234 | 8235 | 8239 | 8241 | 8242/43+ | 8244 | 8248/49+ | 8250 | 8251 |
| Flow (cfs) | 0.15 | -- | 0.18 | -- | -- | 0.03 | -- | -- | -- | -- | -- |
| Temperature (°C) | 11.7 | -- | 13.1 | -- | -- | 8.6 | -- | -- | 10.9 | -- | -- |
| pH (S.U.) | 7.3 | -- | 7.3 | -- | -- | 7.4 | -- | -- | 7.5 | 7.5 | -- |
| Spec. Cond. (umhos/cm) | 260 | -- | 3400 | -- | -- | 85 | -- | -- | 385 | 380 | -- |
| TSS (mg/L) | 3 | -- | 4 | -- | -- | 1 | -- | -- | 15 | 14 | -- |
| TOC | | | | | | | | | | | |
| Water (mg/L) | 6.8 | -- | 17 | -- | -- | 18 | -- | -- | 27 | 25 | -- |
| Sediment (%) | -- | 7.8 | -- | 0.6 | 0.7 | -- | 0.8 | 0.6 | -- | -- | 0.5 |
| Moisture (%) | -- | 92.8 | -- | 18.1 | 29.4 | -- | 19.3 | 18.6 | -- | -- | 18.6 |
| Grain Size (%) | | | | | | | | | | | |
| Gravel (>2mm) | -- | <2 | -- | <2 | <2 | -- | <2 | <2 | -- | -- | <2 |
| Sand (2mm-62um) | -- | 14.2 | -- | 97.2 | 91 | -- | 95 | 93 | -- | -- | 83.8 |
| Silt (62um-4um) | -- | 24.4 | -- | 1.9 | 6.0 | -- | 4.0 | 5.5 | -- | -- | 14.3 |
| Clay (<4um) | -- | 61.4 | -- | 0.9 | 3.0 | -- | 1.5 | 1.5 | -- | -- | 1.9 |
| Metals | | | | | | | | | | | |
| Arsenic | -- | **22** | -- | **0.4** | **2.3** | -- | **0.7** | **0.8** | -- | -- | **1.2** |
| Cadmium | -- | 0.2U | -- | 0.5U | **0.6** | -- | 0.5U | 0.5U | -- | -- | 0.5U |
| Chromium | -- | **70** | -- | **12** | **14** | -- | **12** | **14** | -- | -- | **13** |
| Copper | -- | **28** | -- | **13** | **11** | -- | **9.2** | **8.4** | -- | -- | **16** |
| Lead | -- | **22** | -- | **2.8** | **4.2** | -- | **3.5** | **4.0** | -- | -- | **6.9** |
| Mercury* | -- | **0.03** | -- | **0.03** | **0.03** | -- | **0.02** | **0.03** | -- | -- | **0.03** |
| Zinc | -- | **58** | -- | **40** | **30** | -- | **39** | **41** | -- | -- | **40** |
| Volatiles (ug/L) | | | | | | | | | | | |
| Methylene Chloride | **2.0B** | -- | **1.3B** | -- | -- | **0.5JB** | -- | -- | **3.6B** | **0.7JB** | -- |
| Acetone | 0.6U | -- | 0.6U | -- | -- | 0.6U | -- | -- | **6.6B** | **5.1B** | -- |
| Chloroform | **0.5J** | -- | **2.1** | -- | -- | **0.4J** | -- | -- | **24** | **21** | -- |
| Bromodichloromethane | 0.2U | -- | 0.2U | -- | -- | 0.2U | -- | -- | **2.2** | **2.3** | -- |
| Tetrachloroethene | 0.6U | -- | **0.6J** | -- | -- | 0.6U | -- | -- | 0.6U | 0.6U | -- |
| Toluene | 0.6U | -- | 0.6U | -- | -- | 0.6U | -- | -- | **4.7** | **4.1** | -- |
| Semivolatiles | | | | | | | | | | | |
| Phenol | -- | 360U | -- | 26U | **60** | -- | **16J** | **36** | -- | -- | 24U |
| 4-Methylphenol | -- | 360U | -- | 26U | **33** | -- | **41** | **46** | -- | -- | **17J** |
| Bis (2-ethylhexyl) phthalate | -- | **420** | -- | 83UJ | 57UJ | -- | 39UJ | 44UJ | -- | -- | 34UJ |
| Di-n-Buthylphthalate | -- | 360U | -- | **54** | 21U | -- | 26U | 23U | -- | -- | 24U |
| Carbazole | -- | **1100** | -- | 26U | 21U | -- | 20U | 23U | -- | -- | 24U |
| Anthracene | -- | **360** | -- | 26U | 21U | -- | **50J** | **65** | - | -- | 24U |
| Phenanthrene | -- | **6400** | -- | **39** | 21U | -- | **110** | **66** | -- | -- | 24U |
| Sum LPAH | -- | **6800** | -- | **39** | -- | -- | **160J** | **130** | -- | -- | -- |
| Fluoranthene | -- | **20000** | -- | **83** | 23UJ | -- | **220** | **150** | -- | -- | 20UJ |
| Benzo (a) Anthracene | -- | **1700** | -- | 26U | 21U | -- | **120** | **140** | -- | -- | 24U |
| Chrysene | -- | **5600** | -- | **29** | **13J** | -- | **190** | **190** | -- | -- | 24U |
| Pyrene | -- | **14000** | -- | 50UJ | 15UJ | -- | **220** | **250** | -- | -- | 18UJ |
| Benzo (b) Fluoranthene | -- | **3600** | -- | 24UJ | 21U | -- | 100UJ | **140** | -- | -- | 24U |
| Benzo (k) Fluoranthene | -- | **3100** | -- | 18UJ | 21U | -- | 97UJ | **120** | -- | -- | 24U |
| Benzo (a) Pyrene | -- | **1600** | -- | 26U | 21U | -- | 89UJ | **110** | -- | -- | 24U |
| Dibenzo (a,h) Anthracene | -- | **350J** | -- | 26U | 21U | -- | 26U | **11J** | -- | -- | 24U |
| Indeno (1,2,3-cd) Pyrene | -- | **1500** | -- | 26U | 21U | -- | 26U | **39** | -- | -- | 24U |
| Benzo (ghi) Perylene | -- | **1500** | -- | 13UJ | 12UJ | -- | 22U | 34UJ | -- | -- | 24U |
| Sum HPAH | -- | **53000J** | | **110** | **13J** | -- | **750** | **1200** | -- | -- | -- |
| Pesticide/PCB | | | | | | | | | | | |
| Pesticides | -- | ND | -- | ND | ND | -- | ND | ND | -- | -- | ND |
| Arochlor 1254 | -- | 400U | -- | 40U | 40U | -- | 40U | 40U | -- | -- | **25J** |

-- = Not Analyzed
ND = Not detected, see appendix one for complete list of analytes.
* = Reported on wet weight basis
+ = Reported as mean of duplicate analysis

U = Not detected at detection limit shown
J = Estimated conc.; see quality assurance section for details
B = Analyte found in blank as well as sample

were relatively low ranging from 1 - 15 mg/L (i.e., ppm). Total organic carbon ranged from 6.8 - 27 mg/L, with the highest values occurring in the Camp/Farm sewage outlet.

Six volatile organic compounds were detected in discharges targeted for sampling. As previously mentioned, detection of methylene chloride and acetone in these samples is the result of laboratory contamination. Chloroform was detected in all five discharges at concentrations between 0.5 and 24 ug/L (i.e., ppb). The highest levels were present in the Camp/Farm sewage outlet, as would be expected since chloroform and other trihalomethanes are commonly produced when freshwater is disinfected with chlorine (EPA, 1980b). The highest concentrations of bromodichloromethane, another trihalomethane, and toluene, a volatile aromatic hydrocarbon, were also detected in the Camp/Farm sewage outlet at approximately 2 and 4 ug/L, respectively. Tetrachloroethene was present at an estimated concentration of 0.6 ug/L in the Marine Yard storm drain.

Intertidal sediments, with the exception of sample no. 17-8231 from the outlet of Eden Creek Reservoir, can be characterized as sandy with low total organic carbon concentrations in the range of 0.5 - 0.8 percent and a moisture content of 18 - 29 percent. This is in contrast to sediments from the outlet of Eden Creek Reservoir which were primarily fine material with a total organic carbon concentration of 7.8 percent and a moisture content of 93 percent. A similar pattern was seen with respect to metals and organics data in that the chemical composition of sediments from the outlet of Eden Creek Reservoir was quite different from that of the other sites. The highest sediment concentrations of arsenic (22 mg/kg; i.e., ppm), chromium (70 mg/kg), copper (28 mg/kg), lead (22 mg/kg) and zinc (58 mg/kg) were present at the outlet of Eden Creek Reservoir. Concentrations of metals in the remaining sediment samples were relatively low. Difference in grain size between sites is no doubt one of the primary reasons for the apparent metals patterns.

A total of 20 organic compounds were detected in sediments from the five sampling sites. Again, the highest concentrations of most constituents (primarily polyaromatic hydrocarbons [PAH]) occurred in sediments from the outlet of Eden Creek Reservoir. As noted earlier this is probably a function of grain size as well as total organic carbon content. A number of PAHs were also detected in sediment from Still Harbor (total PAH = 1300 ug/kg). In addition, Still Harbor sediments contained the highest concentration of 4-methylphenol (46 ug/kg). Phenol was detected at 60 ug/kg in sediment below the abandoned landfill at Hyde Point. Arochlor 1254 was detected at an estimated concentration of 25 ug/kg at the Camp/Farm sewage outlet.

Tissue

Summarized in Table 5 are the results of metals and organics analyses of clam tissue samples collected by Ecology April 18-19, 1988, from McNeil Island and control stations on Horsehead Bay and Cutts Island.

Table 5. Summary of compounds detected in clam tissue samples collected by Ecology April 18-19, 1988, from McNeil Island, WA. (metals - mg/kg; organics - ug/kg, wet weight basis)

| | McNEIL ISLAND | | | | | | CONTROL | |
|---|---|---|---|---|---|---|---|---|
| Location | Eden Creek Res. Outlet | Main Inst. | Hyde Pt. | Still Harbor | | Camp/ Farm | Horsehead Bay | Cutts Island |
| Species | BC | BC | BC | LN | LN | LN | LN | BC |
| Sample No. 17- | 8232 | 8233 | 8240 | 8245/46+ | 8247 | 8252 | 8253 | 8255 |
| Moisture (%) | 12.5 | 13.5 | 15 | 10.6 | 11.0 | 11.3 | 10.7 | 15.3 |
| Lipids (%) | 4.7 | 5.2 | 4.2 | 3.8 | 3.9 | 4.3 | 4.4 | 4.0 |
| Metals | | | | | | | | |
| Arsenic | 1.9J | 2.2J | 1.7J | 1.4J | 1.1J | 1.3J | 1.4J | 2.4J |
| Cadmium | 0.06 | 0.13 | 0.09 | 0.34 | 0.29 | 0.31 | 0.35 | 0.16 |
| Chromium | 0.54 | 0.40 | 0.93 | 0.27 | 0.1U | 0.22 | 0.23 | 0.47 |
| Copper | 2.0J | 2.5J | 1.7J | 0.96J | 0.68J | 0.99J | 0.75J | 2.3J |
| Mercury | 0.012 | 0.0097 | 0.0079 | 0.011 | 0.011 | 0.0097 | 0.012 | 0.0097 |
| Zinc | 9.2 | 12.0 | 8.5 | 15.0 | 16.0 | 13.0 | 10.0 | 9.4 |
| Organics | | | | | | | | |
| Semivolatiles | ND | ND | ND | ND | ND | ND | ND | ND |
| Pesticides/PCB | ND | ND | ND | ND | ND | ND | ND | ND |
| Miscellaneous | | | | | | | | |
| Benzoic Acid | 260M | ND | ND | 700M | 380M | 460M | ND | ND |

LN = Native Littleneck (*Protothaca staminea*)
BC = Butter clams (*Saxidomus giganteus*)
\+ = Reported as mean of duplicate analysis
ND = Not detected; see appendix one for complete list of analytes and detection limits
M = Estimated value of analyte, confirmed by analyst but has low spectral match
U = Not detected at detection limit shown
J = Estimated value, see quality assurance section for details

Lipids content of the clam samples ranged between 3.8 and 5.2 percent. Metals concentrations were fairly consistent in all clams from McNeil Island, ranging between a factor of 2 to 9 for individual metals. Compared to control samples from Horsehead Bay (native littlenecks) and Cutts Island (butters), metals concentrations in clams from McNeil Island do not appear to be substantially elevated, with the possible exception of chromium in butter clams from Hyde Point (factor of 2).

No semivolatile organic or pesticide/PCB compounds were detected in clams from any of the collection areas with the following detection limits: semivolatiles, 70-350 ug/kg wet weight; Pesticide/PCB, 2-40 ug/kg wet weight; except toxaphene 200 ug/kg wet weight. Estimated concentrations of benzoic acid in the range of 250-700 ug/kg were seen in 50 percent of the tissue samples.

## DISCUSSION

Table 6 compares concentrations of volatile organics detected in freshwater discharges (primarily the Camp/Farm sewage outlet) from McNeil Island with data on effluents from municipal wastewater treatment plants in the U.S. and available EPA water quality criteria for the protection of saltwater aquatic life. As previously mentioned, the Camp/Farm sewage outlet contained the highest concentrations of chloroform (24 ug/L), bromodichloromethane (2.3 ug/L), and toluene (4.7 ug/L) measured during the present study. These concentrations fall in the lower end of values seen in effluents from municipal treatment plants across the U.S.. In addition, no dilution would be required for the levels of chloroform, bromodichloromethane, tetrachloroethene, or toluene measured in any of the discharges sampled from McNeil Island to meet EPA criteria for the protection of saltwater aquatic life.

To place intertidal sediment results from this investigation into perspective, representative metals and organics concentrations reported in Puget Sound sediments are summarized in Table 7. Also included in Table 7 are "apparent effects threshold" (AET) values developed for Puget Sound sediments in an attempt to estimate contaminant concentrations above which deleterious effects would be observed in marine benthic communities (PTI, 1988). These data indicate that metals concentrations measured in McNeil Island intertidal sediments during the present investigation fall in the range of values typically reported in sediments from Puget Sound reference (i.e., background) areas, with the exception of arsenic, chromium, and lead in sediments from the outlet of Eden Creek Reservoir. Arsenic (22 mg/kg), chromium (70 mg/kg), and lead (22 mg/kg) concentrations in sediments at the outlet of Eden Creek Reservoir are above the 90th percentile level reported for Puget Sound reference areas. In addition, arsenic is above the median value reported for non-reference areas (i.e., urban bays) while chromium is above the 90th percentile level for non-reference areas. None of the sediment metals concentrations measured during this investigation exceeded AET values.

Table 6. Comparison of volatile organics detected in McNeil Island freshwater discharges with concentrations measured in effluents from publicly owned U.S. treatment plants and available water quality criteria. (concentrations reported in ug/L)

| | | U.S. Public Treatment Plant Effluents | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | Concentration | | EPA Saltwater Criteria | |
| Compound | McNeil Island median (range) | Number of Samples | Percent Detected | Minimum | Maximum | Acute | Chronic |
| Chloroform | 2.1 (0.4J-24) | 302 | 82 | 1 | 87 | 620* | 1400* |
| Bromodichloromethane | 0.2U (0.2U-2.3) | 302 | 16 | 1 | 6 | 12000+ | 6400+ |
| Tetrachloroethene | 0.6U (0.6U-0.6J) | -- | -- | -- | -- | 10200 | 450 |
| Toluene | 0.6U (0.6U-4.7) | 302 | 53 | 1 | 1100 | 6300 | 5000 |

* = Calculated using water quality screening assessment methodology
+ = Criteria for halomethanes
U = Not detected at detection limit shown
J = Estimated concentration, see quality assurance section for details

References:
EPA, 1985b. "Water Quality Screening Assessment"
EPA, 1986. "Quality Criteria for Water"

Table 7. Comparison of metals and organics data on McNeil Island intertidal sediments with concentrations reported in other Puget Sound sediments. (metals - mg/kg; organics - ug/kg, dry weight basis)

| | McNeil Island median (range) | Reference Areas-1 | | | Non-Reference Areas-2 | | | Apparent Effects Thresholds-3 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Minimum | Median | 90 % | Minimum | Median | 90 % | Amphipod | Benthic |
| Metals | | | | | | | | | |
| Arsenic | 1.0 (0.4-22) | 1.9 | 5.6 | 20 | 1.2 | 11 | 39 | 93 | 57 |
| Cadmium | 0.5U (0.2u-0.6) | 0.1 | 0.7 | 1.5 | 0.01U | 0.62 | 3.2 | 6.7 | 5.1 |
| Chromium | 14 (12-70) | 9.6 | 40 | 67 | 5.4 | 31 | 66 | 270 | 260 |
| Copper | 12 (8.4-28) | 3.6 | 33 | 57 | 3.8 | 55 | 90 | 1300 | 530 |
| Lead | 4.1 (2.8-22) | 0.1U | 9.6 | 20 | 4.4 | 48 | 220 | 660 | 450 |
| Mercury | 0.03 (0.02-0.04) | 0.016 | 0.055 | 0.11 | 0.01 | 0.23 | 1.1 | 2.1 | 2.1 |
| Zinc | 40 (30-58) | 15 | 76 | 95 | 18 | 100 | 320 | 960 | 410 |
| Semivolatiles | | | | | | | | | |
| Phenol | 36 (16J-60) | 4.3U | -- | -- | 1.7 | 130 | 500 | 1200 | 1200 |
| 4-Methylphenol | 37 (17J-46) | 10U | -- | -- | 10 | 180 | 760 | 3600 | 1800 |
| Bis (2-ethylhexyl) phthalate | 51UJ (34UJ-420) | -- | -- | -- | -- | -- | -- | >3100 | 1300 |
| Di-n-Buthylphthalate | 24U (21U-54) | -- | -- | -- | -- | -- | -- | 1400 | >5100 |
| Carbazole | 24U (20U-1100) | -- | -- | -- | -- | -- | -- | -- | -- |
| Anthracene | 38UJ (21U-360) | 2.7 | 6 | -- | 1U | 110 | 530 | 13000 | 4400 |
| Phenanthrene | 53 (21U-6400) | 2.6 | 14 | -- | 1U | 290 | 1300 | 6900 | 5400 |
| Sum LPAH | 150J (39-6800) | 2.5 | 24 | 160 | 1.3 | 850 | 4400 | 24000 | 13000 |
| Fluoranthene | 120 (20UJ-20000) | 9.6 | 24 | 91 | 1U | 530 | 2300 | 30000 | 24000 |
| Benzo (a) Anthracene | 73U (21U-1700) | 2.6 | 5.5 | -- | 1U | 530 | 2300 | 5100 | 5100 |
| Chrysene | 110 (13J-5600) | 3.9 | 10 | -- | 1U | 420 | 2000 | 9200 | 9200 |
| Pyrene | 140UJ (15UJ-14000) | 11 | 22 | 114 | 1U | 630 | 2300 | 16000 | 16000 |
| Total benzofluoranthenes | 120UJ (21U-6700) | 9.1 | 18 | -- | 2.6 | 710 | 3600 | 7800 | 9900 |
| Benzo (a) Pyrene | 58UJ (21U-1600) | 4.1 | 8.4 | -- | 1U | 350 | 1700 | 3000 | 3600 |
| Dibenzo (a,h) Anthracene | 25U (11J-350J) | 3.3U | -- | -- | 1U | 52 | 450 | 540 | 970 |
| Indeno (1,2,3-cd) Pyrene | 26U (21U-1500) | 6.6 | -- | -- | 1.6 | 170 | 840 | 1800 | 2600 |
| Benzo (ghi) Perylene | 23U (12UJ-1500) | 4.0 | 7.6 | -- | 1U | 180 | 1300 | 1400 | 2600 |
| Sum HPAH | 750 (13J-53000J) | 22 | 76 | 200 | 1.3 | 3400 | 4400 | 69000 | 69000 |
| Total PCBs | -- (25J) | 2.7 | 8.6 | -- | 0.5U | 120 | 1200 | 3100 | 1000 |

Source: Tetra Tech, 1986. Users Manual for the Pollutants of Concern Matrix.

1-Reference Areas - Sites within Puget Sound considered to be relatively pristine
2-Non-Reference Areas - All sites within Puget Sound that do not meet reference area definition
3-PTI, 1988
Amphipod: based on bioassay with marine amphipod Rhepoxynius abronius
Benthic: based on analysis of benthic infaunal communities

U = Not detected at detection limit shown
J = Estimated concentration; see quality assurance section for details
- = No data

While the concentrations of arsenic, chromium, and lead in sediments at the outlet of Eden Creek Reservoir are not expected to cause adverse effects on benthic communities, they do appear to be higher than would be expected. Water discharged at this location consists primarily of overflow from Eden Creek Reservoir and filter backwash from the islands drinking water treatment plant (Hart Crowser, 1987).

Data from other parts of Puget Sound suggest that priority pollutant organics levels in McNeil Island intertidal sediments are in the range of concentrations reported for relatively clean areas of Puget Sound, with the exception of low molecular weight PAH (LPAH) and high molecular weight PAH (HPAH) in samples from the outlet of Eden Creek Reservoir and Still Harbor. At the outlet of Eden Creek Reservoir, LPAH and HPAH levels are above the 90th percentile of concentrations measured in Puget Sound urban areas. Still Harbor LPAH and HPAH concentrations, while not as high as those reported in urban areas, are higher than the 90th percentile of concentrations for clean areas of Puget Sound. Potentially higher concentrations of PAH compounds than reported during this investigation could exist in Still Harbor sediments if a nearby sink for fine-grained material is present. Priority pollutant organics in intertidal sediments from McNeil Island did not exceed levels considered deleterious to benthic communities (as indicated by AETs).

To place results of metals analysis of McNeil Island clam samples into perspective, typical values for Puget Sound shellfish are summarized in Table 8. These data indicate that metals concentrations measured in clams during the present investigation are in relatively good agreement with previous studies of McNeil Island shellfish conducted in 1987 by the Washington State Department of Natural Resources (DNR) except for arsenic. However, as previously explained, Ecology's arsenic measurements are probably 50 percent low. Comparing metals concentrations in McNeil Island shellfish with values from other parts of Puget Sound indicates that clams from McNeil Island contain metals concentrations in the range of values typically seen in other parts of Puget Sound. Incidentally, based on the limited amount of data presented here, metals concentrations measured in butter- and native littleneck clams throughout Puget Sound appear to be relatively consistent.

Also shown in Table 8 is a summary of legal limits for hazardous metals in fish and fishery products compiled by the Food and Agricultural Organization of the United Nations from 29 countries. Arsenic and cadmium were the only metals in McNeil Island clams that exceeded criteria listed for countries other than the U.S. No U.S criteria exist for arsenic and cadmium in fishery products.

Elevated levels of arsenic are commonly seen in shellfish due to their ability to concentrate it from seawater. It is generally agreed that for most marine species arsenic exists as arsenobetaine, a water-soluble organoarsenical. The potential risks associated with consumption of seafoods containing arsenobetaine seem to be minor (Eisler, 1988). In addition, Floyd Frost an epidemiologist with the Washington State Department of Social and Health Services (DSHS), reviewed the data on arsenic in McNeil Island clams and concluded that the observed levels did not pose a human

Table 8. Comparison of metals concentrations in clams collected by Ecology April 18-19, 1988 from McNeil Island with other data on Puget Sound shellfish. (mg/kg, wet weight)

| Location | McNeil Island | | Puget Sound Ranges-1 | | Legal Limits-2 |
|---|---|---|---|---|---|
| | Ecology, 1988 | Jamison, 1987 | Reference | Non-reference | |
| Metal | mean (range) No. Samples | mean (range) No. Samples | mean (range) No. Samples | mean (range) No. Samples | mean (range) |
| Arsenic | 1.6 (1.1J-2.2J)[6] | 3.9 (2.1-9.0)[9] | 2.7 (1.9-3.7)[18] | 2.9 (1.3-4.8)[44] | 2.3 (0.1-10) |
| Cadmium | 0.20 (0.06-0.34)[6] | 0.38 (0.07-0.61)[9] | 0.22 (0.09-0.40)[20] | 0.25 (0.04-0.56)[49] | 0.91 (0-5.5) |
| Chromium | 0.41 (0.1U-0.93)[6] | -- | -- (0.55)[1] | 0.50 (0.08-0.82)[7] | 1.0 (1.0) |
| Copper | 1.5 (0.68J-2.5J)[6] | 2.0 (1.1-7.4)[9] | 1.4 (0.38-2.8)[18] | 1.6 (0.6-4.2)[37] | 18 (10-100) |
| Mercury | 0.01 (0.0079-0.012)[6] | 0.02U (0.02U-0.022)[9] | 0.02 (0.012-0.02)[13] | 0.02 (0.01-0.068)[38] | 0.75 (0.1-1.0) |
| Zinc | 12 (9.2-16)[6] | 15 (14-16)[9] | 15 (12-18)[20] | 15 (12-21)[49] | 160 (30-1000) |

1 -Reference- areas considered to be relatively pristine

-Non-reference - all other areas that don't meet reference definition

2 -Compiled by Food and Agricultural Organization of the United Nations

U = Not detected at detection limit shown

J = Estimated concentration, see quality assurance section for details

- = No data

Jamison, 1987-*Saxidomus giganteus*, *Protothaca staminea*.

Faigenblum, 1987-*Saxidomus giganteus*, *Protothaca staminea*.

Yake *et al.*, 1984-*Saxidomus giganteus*, *Protothaca staminea*.

health hazard (Frost, 1987). While the relationship between tissue-cadmium concentrations and hazards to the organism or its consumer are not well documented, the available data suggest that consumption of organisms with tissue concentrations of 13-15 mg/kg wet weight represents a significant hazard to animals of higher trophic levels (Eisler, 1985). The highest concentrations of cadmium (0.61 mg/kg) measured in McNeil Island clams are over 20 times lower than this level.

## SUMMARY

Based on the results of this investigation, it appears that current discharges from McNeil Island are having little impact on nearshore concentrations of priority pollutant metals and organics in intertidal sediments and clam tissues. An exception to this general finding are sediments from the outlet of Eden Creek Reservoir which contained concentrations of chromium and polyaromatic hydrocarbon that were above the 90th percentile level reported for sediments from urban areas of Puget Sound. Arsenic and lead concentrations also appeared to be enriched at this location. Concentrations of priority pollutant metals and organics in the remainder of intertidal sediment and tissue samples from McNeil Island fall into the range of values typically seen in clean areas of Puget Sound.

## RECOMMENDATIONS

- Additional sampling should be conducted at the outlet of Eden Creek Reservoir to determine the extent of arsenic, chromium, lead and polyaromatic hydrocarbon contamination at this location. This sampling should also attempt to ascertain if on-going sources of these compounds are present.

- If a nearby sink of fine-grained material exists in the vicinity of the Still Harbor loading dock, sediment samples should be obtained and analyzed for priority pollutant PAH compounds.

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# APPENDIX

ANALYTICAL
RESOURCES
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nalytical
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Eden Creek @ Outlet (water)

**ORGANICS ANALYSIS DATA SHEET - METHOD 624**

**Sample No: 178230**

Lab Sample ID: 1504A
Sample Matrix: Waters

QC Report No: 1504-WDOE
Project No: McNeil
Date Received: 04/21/88

Data Release Authorized: Brian R. Dobe

Instrument: FINN III
Date Analyzed: 04/28/88

Amount Analyzed: 5 mls
Conc/Dil: 1 to 1

| CAS Number | | µg/L |
|---|---|---|
| 74-87-3 | Chloromethane | 2.9 U |
| 74-83-9 | Bromomethane | 0.9 U |
| 75-01-4 | Vinyl Chloride | 1.1 U |
| 75-00-3 | Chloroethane | 0.9 U |
| **75-09-2** | **Methylene Chloride** | **2.0 B** |
| 67-64-1 | Acetone | 0.6 U |
| 75-15-0 | Carbon Disulfide | 2.0 U |
| 75-35-4 | 1,1-Dichloroethene | 1.3 U |
| 75-34-3 | 1,1-Dichloroethane | 1.1 U |
| 156-60-5 | Trans-1,2-Dichloroethene | 1.1 U |
| 156-59-2 | Cis-1,2-Dichloroethene | 1.2 U |
| **67-66-3** | **Chloroform** | **0.5 J** |
| 107-06-2 | 1,2-Dichloroethane | 0.6 U |
| 78-93-3 | 2-Butanone | 1.0 U |
| 71-55-6 | 1,1,1-Trichloroethane | 1.0 U |
| 56-23-5 | Carbon Tetrachloride | 0.5 U |
| 108-05-4 | Vinyl Acetate | 1.7 U |
| 75-27-4 | Bromodichloromethane | 0.2 U |

| CAS Number | | µg/L |
|---|---|---|
| 78-87-5 | 1,2-Dichloropropane | 0.6 U |
| 10061-01-5 | cis-1,3-Dichloropropene | 0.5 U |
| 79-01-6 | Trichloroethene | 0.8 U |
| 124-48-1 | Dibromochloromethane | 0.9 U |
| 79-00-5 | 1,1,2-Trichloroethane | 0.3 U |
| 71-43-2 | Benzene | 0.4 U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 0.6 U |
| 110-75-8 | 2-Chloroethylvinylether | 1.5 U |
| 75-25-2 | Bromoform | 0.3 U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1.8 U |
| 591-78-6 | 2-Hexanone | 1.3 U |
| 127-18-4 | Tetrachloroethene | 0.6 U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.6 U |
| 108-88-3 | Toluene | 0.6 U |
| 108-90-7 | Chlorobenzene | 0.6 U |
| 100-41-4 | Ethylbenzene | 1.0 U |
| 100-42-5 | Styrene | 0.5 U |
| | Total Xylenes | 1.5 U |

***Volatile Organic Surrogate Recoveries**

| | |
|---|---|
| d8-Toluene | 104% |
| Bromofluorobenzene | 108% |
| d4-1,2-Dichloroethane | 101% |

*Surrogate recoveries indicate the validity of a given analysis

*Report prepared 04/29/88 - MAC:B*

Data Reporting Qualifiers

| | |
|---|---|
| Value | If the result is a value greater than or equal to the detection limit, report the value. |
| U | Indicates compound was analyzed for but not detected at the given detection limit. |
| M | Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters. |
| B | This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination. |
| K | This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run. |
| J | Indicates an estimated value when result is less than specified detection limit. |

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# ORGANICS ANALYSIS DATA SHEET - METHOD 1625

**Sample No: 178231**

Lab Sample ID No: 1504G
Sample Matrix: Soils/Sediments

QC Report No: 1504-WDOE
Project No: McNeil Island
Date Received: 04/21/88

Date Release Authorized: [signature]

Amount extracted: 2.8 gm (Dry Weight)
Percent Moisture: 93.4%
pH: 6.6
Conc/Dilution: 2 to 1 after GPC (total 1 to 1)

Date extracted: 04/29/88
Date Analyzed: 05/14/88
GPC Clean-up: YES (1 of 2)

| CAS Number | | µg/Kg | Rec |
|---|---|---|---|
| 108-95-2 | Phenol | 360 U | 74.1% |
| 111-44-4 | bis(2-Chloroethyl)Ether | 360 U | 55.5% |
| 95-57-8 | 2-Chlorophenol | 360 U | 67.4% |
| 541-73-1 | 1,3-Dichlorobenzene | 360 U | 59.3% |
| 106-46-7 | 1,4-Dichlorobenzene | 360 U | 61.9% |
| 100-51-6 | Benzyl Alcohol | 1800 U | IS |
| 95-50-1 | 1,2-Dichlorobenzene | 360 U | 60.2% |
| 95-48-7 | 2-Methylphenol | 360 U | 82.4% |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 570 U | 64.6% |
| 106-44-5 | 4-Methylphenol | 360 U | 82.4% |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 360 U | IS |
| 67-72-1 | Hexachloroethane | 390 UC | 50.9% |
| 98-95-3 | Nitrobenzene | 360 U | 67.8% |
| 78-59-1 | Isophorone | 360 U | 119% |
| 88-75-5 | 2-Nitrophenol | 360 U | 69.6% |
| 105-67-9 | 2,4-Dimethylphenol | 360 UC | 86.1% |
| 65-85-0 | Benzoic Acid | 3600 U | IS |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 360 U | 74.5% |
| 120-83-2 | 2,4-Dichlorophenol | 360 U | 83.2% |
| 120-82-1 | 1,2,4-Trichlorobenzene | 360 U | 66.2% |
| 87-61-6 | 1,2,3-Trichlorobenzene | 360 U | 71.7% |
| 91-20-3 | Naphthalene | 360 U | 73.5% |
| 106-47-8 | 4-Chloroaniline | 1100 U | IS |
| 87-68-3 | Hexachlorobutadiene | 390 U | 66.3% |
| 59-50-7 | 4-Chloro-3-Methylphenol | 360 UC | 93.8% |
| 91-57-6 | 2-Methylnaphthalene | 360 U | IS |
| 77-47-4 | Hexachlorocyclopentadiene | 360 UR | 0.0% |
| 88-06-2 | 2,4,6-Trichlorophenol | 360 U | 76.6% |
| 95-95-4 | 2,4,5-Trichlorophenol | 360 U | 78.5% |
| 91-58-7 | 2-Chloronaphthalene | 360 U | 88.2% |
| 88-74-4 | 2-Nitroaniline | 1800 U | IS |
| 131-11-3 | Dimethyl Phthalate | 360 U | 99.0% |
| 208-96-8 | Acenaphthylene | 360 U | 89.4% |
| 99-09-2 | 3-Nitroaniline | 1800 U | IS |
| 83-32-9 | Acenaphthene | 360 U | 88.7% |

| CAS Number | | µg/Kg | Rec |
|---|---|---|---|
| 51-28-5 | 2,4-Dinitrophenol | 890 U | 74.5% |
| 100-02-7 | 4-Nitrophenol | 430 U | 105% |
| 132-64-9 | Dibenzofuran | 360 U | IS |
| 121-14-2 | 2,4-Dinitrotoluene | 360 U | 114% |
| 606-20-2 | 2,6-Dinitrotoluene | 360 UJ | 58.4% |
| 84-66-2 | Diethylphthalate | 360 U | 93.5% |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 360 U | 97.1% |
| 86-73-7 | Fluorene | 360 U | 91.9% |
| 100-01-6 | 4-Nitroaniline | 1800 U | IS |
| 534-52-1 | 4,6-dinitro-2-methylphenol | 360 U | 99.4% |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 360 U | 91.2% |
| 122-39-4 | Diphenylamine | 360 U | 107% |
| 122-66-7 | 1,2-Diphenylhydrazine * | 360 U | 99.0% |
| 101-55-3 | 4-Bromophenyl-phenylether | 360 U | 93.2% |
| 118-74-1 | Hexachlorobenzene | 360 U | 115% |
| 87-86-5 | Pentachlorophenol | 570 U | 44.9% |
| 85-01-8 | **Phenanthrene** | **6400** | 94.8% |
| 120-12-7 | **Anthracene** | **360** | 78.7% |
| 86-74-8 | **Carbazole *** | **1100** | 89.1% |
| 84-74-2 | Di-n-Butylphthalate | 360 U | 91.0% |
| **206-44-0** | **Fluoranthene** | **20000** | 91.4% |
| **129-00-0** | **Pyrene** | **14000** | 88.9% |
| 85-68-7 | Butylbenzylphthalate | 360 U | 95.5% |
| 91-94-1 | 3,3'-Dichlorobenzidine | 360 U | 20.8% |
| 56-55-3 | **Benzo(a)Anthracene** | **1700** | 83.7% |
| **117-81-7** | **bis(2-Ethylhexyl)Phthal** | **420** | 88.8% |
| 218-01-9 | **Chrysene** | **5600** | 88.1% |
| 117-84-0 | Di-n-Octyl Phthalate | 360 U | 81.3% |
| **205-99-2** | **Benzo(b)Fluoranthene** | **3600** | 80.6% |
| **207-08-9** | **Benzo(k)Fluoranthene** | **3100** | 89.1% |
| **50-32-8** | **Benzo(a)Pyrene** | **1600** | 79.5% |
| 193-39-5 | **Indeno(1,2,3-cd)Pyrene** | **1500** | 85.7% |
| 53-70-3 | **Dibenz(a,h)Anthracene** | **350 T** | 85.7% |
| **191-24-2** | **Benzo(ghi)Perylene** | **1500** | 86.6% |

60 ppm Total PAH

IS Value relative to 2-Fluorobiphenyl Internal Std
* Value calculated from 1:1 response to labeled analog
T Less than DL but considered real by analyst
C Corrected for analog contribution to quant ion
(1) Cannot be separated from diphenylamine
** Labeled Dibenz(a,h) anthracene used for surrogate
B Analyte found in the blank as well as sample
Values not corrected for analog recoveries

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Eden Creek @ Outlet (sediment)

## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 1782 31**

Lab Sample ID: 1504 G
Matrix: Soil
VTSR: 4/21/88

Date Extracted: 04/25/88
Date Analyzed: 04/30/88
Conc/Dil Factor: 1:10
Dry Weight Extracted: 2.59

QC Report No.: 1504-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: Peter M. Ziegler

| CAS Number | | ug/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 20 U |
| 319-85-7 | Beta-BHC | 20 U |
| 319-86-8 | Delta-BHC | 20 U |
| 58-89-9 | Gamma-BHC (Lindane) | 20 U |
| 76-44-8 | Heptachlor | 20 U |
| 309-00-2 | Aldrin | 20 U |
| 1024-57-3 | Heptachlor Epoxide | 20 U |
| 959-98-8 | Endosulfan I | 20 U |
| 60-57-1 | Dieldrin | 40 U |
| 72-55-9 | 4,4'-DDE | 40 U |
| 72-20-8 | Endrin | 40 U |
| 33212-65-9 | Endosulfan II | 40 U |
| 72-54-8 | 4,4'-DDD | 40 U |
| 1031-07-8 | Endosulfan Sulfate | 40 U |
| 50-29-3 | 4,4'-DDT | 40 U |
| 72-43-5 | Methoxychlor | 40 U |
| 53494-70-5 | Endrin Ketone | 40 U |
| 57-74-9 | Chlordane | 200 U |
| 8001-35-2 | Toxaphene | 2000 U |
| 12674-11-2 | Aroclor-1016 | 400 U |
| 53469-21-9 | Aroclor-1242 | 400 U |
| 12672-29-6 | Aroclor-1248 | 400 U |
| 11097-69-1 | Aroclor-1254 | 400 U |
| 11096-82-5 | Aroclor-1260 | 400 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| **Dibutylchlorendate** | **89%** |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

Eden Creek @ Outlet (clams)

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## ORGANICS ANALYSIS DATA SHEET - METHOD 625

**Sample No: 178232**

Lab Sample ID: 1524A
Sample Matrix: Clam Tissues

QC Report No: 1524-WDOE
Project No: [Araki]
Date Received: 04/28/88

Date Release Authorized: Brian W. Culver

Date extracted: 05/04/88
Date Analyzed: 05/11/88
GPC Clean-up: YES ( 1 of 2)

Amount extracted: 57.0 gm ( Wet Weight Equivalent)
Percent Moisture: NA
pH: NA
Conc/Dilution: 1 to 2 after GPC ( 1 to 4 total)

| CAS Number | | µg/Kg |
|---|---|---|
| 108-95-2 | Phenol | 70 U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 70 U |
| 95-57-8 | 2-Chlorophenol | 70 U |
| 541-73-1 | 1,3-Dichlorobenzene | 70 U |
| 106-46-7 | 1,4-Dichlorobenzene | 70 U |
| 100-51-6 | Benzyl Alcohol | 350 U |
| 95-50-1 | 1,2-Dichlorobenzene | 70 U |
| 95-48-7 | 2-Methylphenol | 70 U |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 70 U |
| 106-44-5 | 4-Methylphenol | 70 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 70 U |
| 67-72-1 | Hexachloroethane | 140 U |
| 98-95-3 | Nitrobenzene | 70 U |
| 78-59-1 | Isophorone | 70 U |
| 88-75-5 | 2-Nitrophenol | 350 U |
| 105-67-9 | 2,4-Dimethylphenol | 140 U |
| **65-85-0** | **Benzoic Acid** | **260 M** |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 70 U |
| 120-83-2 | 2,4-Dichlorophenol | 210 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 70 U |
| 91-20-3 | Naphthalene | 70 U |
| 106-47-8 | 4-Chloroaniline | 210 U |
| 87-68-3 | Hexachlorobutadiene | 140 U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 140 U |
| 91-57-6 | 2-Methylnaphthalene | 70 U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 350 U |
| 91-58-7 | 2-Chloronaphthalene | 70 U |
| 88-74-4 | 2-Nitroaniline | 350 U |
| 131-11-3 | Dimethyl Phthalate | 70 U |
| 208-96-8 | Acenaphthylene | 70 U |
| 99-09-2 | 3-Nitroaniline | 350 U |

| CAS Number | | µg/Kg |
|---|---|---|
| 83-32-9 | Acenaphthene | 70 U |
| 51-28-5 | 2,4-Dinitrophenol | 700 U |
| 100-02-7 | 4-Nitrophenol | 350 U |
| 132-64-9 | Dibenzofuran | 70 U |
| 121-14-2 | 2,4-Dinitrotoluene | 350 U |
| 606-20-2 | 2,6-Dinitrotoluene | 350 U |
| 84-66-2 | Diethylphthalate | 70 U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 70 U |
| 86-73-7 | Fluorene | 70 U |
| 100-01-6 | 4-Nitroaniline | 350 U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 700 U |
| 86-30-6 | N-Nitrosodiphenylamine( 1) | 70 U |
| 101-55-3 | 4-Bromophenyl-phenylether | 70 U |
| 118-74-1 | Hexachlorobenzene | 70 U |
| 87-86-5 | Pentachlorophenol | 350 U |
| 85-01-8 | Phenanthrene | 70 U |
| 120-12-7 | Anthracene | 70 U |
| 84-74-2 | Di-n-Butylphthalate | 70 U |
| 206-44-0 | Fluoranthene | 70 U |
| 129-00-0 | Pyrene | 70 U |
| 85-68-7 | Butylbenzylphthalate | 70 U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 U |
| 56-55-3 | Benzo(a)Anthracene | 70 U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 70 U |
| 218-01-9 | Chrysene | 70 U |
| 117-84-0 | Di-n-Octyl Phthalate | 70 U |
| 205-99-2 | Benzo(b)Fluoranthene | 70 U |
| 207-08-9 | Benzo(k)Fluoranthene | 70 U |
| 50-32-8 | Benzo(a)Pyrene | 70 U |
| 193-39-5 | Indeno( 1,2,3-cd)Pyrene | 70 U* |
| 53-70-3 | Dibenz(a,h)Anthracene | 70 U |
| 191-24-2 | Benzo(ghi)Perylene | 70 U |

( 1) Cannot be separated from diphenylamine

U* Interference from non-HSL (steroid) compound

*Report prepared 05/12/88 MAC:B*

***Base/neutral surrogate recoveries**

| | |
|---|---|
| d5-Nitrobenzene | 76.1% |
| 2-Fluorobiphenyl | 83.1% |
| d14-p-Terphenyl | 90.3% |

***Acid surrogate recoveries**

| | |
|---|---|
| d5-Phenol | 80.1% |
| 2-Fluorophenol | 52.2% |
| 2,4,6-Tribromophenol | 89.5% |

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Eden Creek @ Outlet (clams)

## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 178232**

Lab Sample ID: 1524 A
Matrix: Tissue
VTSR: 4/28/88

Date Extracted: 05/04/88
Date Analyzed: 05/10/88
Conc/Dil Factor: 1:20
Wet Weight Extracted: 61.67

QC Report No.: 1524-WDOE
Project No.: NA
GPC Cleanup: YES
Alumina Cleanup: YES

Data Release Authorized: Peter M. Kepler

| CAS Number | | ug/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| **Dibutylchlorendate** | **109%** |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

Marine Yard storm drain (water)

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Analytical Chemists & Consultants

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## ORGANICS ANALYSIS DATA SHEET - METHOD 624

**Sample No: 178234**

Lab Sample ID: 1504RB
Sample Matrix: Waters

QC Report No: 1504-WDOE
Project No: McNeil
Date Received: 04/21/88

Data Release Authorized: _____

Instrument: FINN III
Date Analyzed: 04/28/88

Amount Analyzed: 5 mls
Conc/Dil: 1 to 1

| CAS Number | | µg/L |
|---|---|---|
| 74-87-3 | Chloromethane | 2.9 U |
| 74-83-9 | Bromomethane | 0.9 U |
| 75-01-4 | Vinyl Chloride | 1.1 U |
| 75-00-3 | Chloroethane | 0.9 U |
| **75-09-2** | **Methylene Chloride** | **1.3 B** |
| 67-64-1 | Acetone | 0.6 U |
| 75-15-0 | Carbon Disulfide | 2.0 U |
| 75-35-4 | 1,1-Dichloroethene | 1.3 U |
| 75-34-3 | 1,1-Dichloroethane | 1.1 U |
| 156-60-5 | Trans-1,2-Dichloroethene | 1.1 U |
| 156-59-2 | Cis-1,2-Dichloroethene | 1.2 U |
| **67-66-3** | **Chloroform** | **2.1** |
| 107-06-2 | 1,2-Dichloroethane | 0.6 U |
| 78-93-3 | 2-Butanone | 1.0 U |
| 71-55-6 | 1,1,1-Trichloroethane | 1.0 U |
| 56-23-5 | Carbon Tetrachloride | 0.5 U |
| 108-05-4 | Vinyl Acetate | 1.7 U |
| 75-27-4 | Bromodichloromethane | 0.2 U |

| CAS Number | | µg/L |
|---|---|---|
| 78-87-5 | 1,2-Dichloropropane | 0.6 U |
| 10061-01-5 | cis-1,3-Dichloropropene | 0.5 U |
| 79-01-6 | Trichloroethene | 0.8 U |
| 124-48-1 | Dibromochloromethane | 0.9 U |
| 79-00-5 | 1,1,2-Trichloroethane | 0.3 U |
| 71-43-2 | Benzene | 0.4 U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 0.6 U |
| 110-75-8 | 2-Chloroethylvinylether | 1.5 U |
| 75-25-2 | Bromoform | 0.3 U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1.8 U |
| 591-78-6 | 2-Hexanone | 1.3 U |
| **127-18-4** | **Tetrachloroethene** | **0.6 J** |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.6 U |
| 108-88-3 | Toluene | 0.6 U |
| 108-90-7 | Chlorobenzene | 0.6 U |
| 100-41-4 | Ethylbenzene | 1.0 U |
| 100-42-5 | Styrene | 0.5 U |
| | Total Xylenes | 1.5 U |

***Volatile Organic Surrogate Recoveries**

| | |
|---|---|
| d8-Toluene | 98.5% |
| Bromofluorobenzene | 102% |
| d4-1,2-Dichloroethane | 95.2% |

*Surrogate recoveries indicate the validity of a given analysis

*Report prepared 04/29/88 - MAC:B*

Data Reporting Qualifiers

| | |
|---|---|
| Value | If the result is a value greater than or equal to the detection limit, report the value. |
| U | Indicates compound was analyzed for but not detected at the given detection limit. |
| M | Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters. |
| B | This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination. |
| K | This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run. |
| J | Indicates an estimated value when result is less than specified detection limit. |

Marine Yard storm drain (sediment)

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## ORGANICS ANALYSIS DATA SHEET - METHOD 1625

**Sample No: 178235**

Lab Sample ID No: 1504H
Sample Matrix: Soils/Sediments

QC Report No: 1504-WDOE
Project No: McNeil Island
Date Received: 04/21/88

Date Release Authorized: [signature]

Amount extracted: 38.4 gm (Dry Weight)
Percent Moisture: 24.3%
pH: 6.5
Conc/Dilution: 2 to 1 after GPC (total 1 to 1)

Date extracted: 04/29/88
Date Analyzed: 05/14/88
GPC Clean-up: YES (1 of 2)

| CAS Number | | µg/Kg | Rec |
|---|---|---|---|
| 108-95-2 | Phenol | 26 U | 85.2% |
| 111-44-4 | bis(2-Chloroethyl)Ether | 26 U | 74.2% |
| 95-57-8 | 2-Chlorophenol | 26 U | 83.2% |
| 541-73-1 | 1,3-Dichlorobenzene | 26 U | 85.9% |
| 106-46-7 | 1,4-Dichlorobenzene | 26 U | 87.4% |
| 100-51-6 | Benzyl Alcohol | 130 U | IS |
| 95-50-1 | 1,2-Dichlorobenzene | 26 U | 84.2% |
| 95-48-7 | 2-Methylphenol | 26 U | 90.4% |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 42 U | 84.4% |
| 106-44-5 | 4-Methylphenol | 26 U | 90.4% |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 26 U | IS |
| 67-72-1 | Hexachloroethane | 29 UC | 71.6% |
| 98-95-3 | Nitrobenzene | 26 U | 90.4% |
| 78-59-1 | Isophorone | 26 U | 151% |
| 88-75-5 | 2-Nitrophenol | 26 U | 82.3% |
| 105-67-9 | 2,4-Dimethylphenol | 26 UC | 94.5% |
| 65-85-0 | Benzoic Acid | 260 U | IS |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 26 U | 92.1% |
| 120-83-2 | 2,4-Dichlorophenol | 26 U | 87.5% |
| 120-82-1 | 1,2,4-Trichlorobenzene | 26 U | 80.1% |
| 87-61-6 | 1,2,3-Trichlorobenzene | 26 U | 86.9% |
| 91-20-3 | Naphthalene | 26 U | 90.5% |
| 106-47-8 | 4-Chloroaniline | 78 U | IS |
| 87-68-3 | Hexachlorobutadiene | 29 U | 79.9% |
| 59-50-7 | 4-Chloro-3-Methylphenol | 26 UC | 94.8% |
| 91-57-6 | 2-Methylnaphthalene | 26 U | IS |
| 77-47-4 | Hexachlorocyclopentadiene | 26 UR | 0.0% |
| 88-06-2 | 2,4,6-Trichlorophenol | 26 U | 71.0% |
| 95-95-4 | 2,4,5-Trichlorophenol | 26 U | 82.8% |
| 91-58-7 | 2-Chloronaphthalene | 26 U | 96.1% |
| 88-74-4 | 2-Nitroaniline | 130 U | IS |
| 131-11-3 | Dimethyl Phthalate | 26 U | 91.4% |
| 208-96-8 | Acenaphthylene | 26 U | 95.3% |
| 99-09-2 | 3-Nitroaniline | 130 U | IS |
| 83-32-9 | Acenaphthene | 26 U | 92.2% |

| CAS Number | | µg/Kg | Rec |
|---|---|---|---|
| 51-28-5 | 2,4-Dinitrophenol | 65 U | 66.2% |
| 100-02-7 | 4-Nitrophenol | 31 U | 91.7% |
| 132-64-9 | Dibenzofuran | 26 U | IS |
| 121-14-2 | 2,4-Dinitrotoluene | 26 U | 121% |
| 606-20-2 | 2,6-Dinitrotoluene | 26 UJ | 63.1% |
| 84-66-2 | Diethylphthalate | 26 U | 118% |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 26 U | 98.6% |
| 86-73-7 | Fluorene | 26 U | 96.5% |
| 100-01-6 | 4-Nitroaniline | 130 U | IS |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 26 U | 95.0% |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 26 U | 94.2% |
| 122-39-4 | Diphenylamine | 26 U | 114% |
| 122-66-7 | 1,2-Diphenylhydrazine * | 26 U | 94.5% |
| 101-55-3 | 4-Bromophenyl-phenylether | 26 U | 93.1% |
| 118-74-1 | Hexachlorobenzene | 26 U | 112% |
| 87-86-5 | Pentachlorophenol | 42 U | 48.8% |
| 85-01-8 | **Phenanthrene** | **39** | 91.1% |
| 120-12-7 | Anthracene | 26 U | 90.1% |
| 86-74-8 | Carbazole * | 26 U | 88.1% |
| 84-74-2 | **Di-n-Butylphthalate** | **54** | 95.8% |
| **206-44-0** | **Fluoranthene** | **83** | 93.2% |
| **129-00-0** | **Pyrene** | **50** UJ | 87.6% |
| 85-68-7 | Butylbenzylphthalate | 26 U | 95.0% |
| 91-94-1 | 3,3'-Dichlorobenzidine | 26 U | 53.9% |
| 56-55-3 | Benzo(a)Anthracene | 26 U | 85.9% |
| **117-81-7** | **bis(2-Ethylhexyl)Phthala** | **83** UJ | 88.6% |
| 218-01-9 | **Chrysene** | **29** | 93.4% |
| 117-84-0 | Di-n-Octyl Phthalate | 26 U | 85.4% |
| **205-99-2** | **Benzo(b)Fluoranthene** | **24** UJ | 80.5% |
| **207-08-9** | **Benzo(k)Fluoranthene** | **18** UJ | 98.7% |
| 50-32-8 | Benzo(a)Pyrene | 26 U | 85.9% |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene ** | 26 U | 98.2% |
| 53-70-3 | Dibenz(a,h)Anthracene | 26 U | 98.2% |
| **191-24-2** | **Benzo(ghi)Perylene** | **13** UJ | 101% |

IS Value relative to 2-Fluorobiphenyl Internal Std
* Value calculated from 1:1 response to labeled analog
T Less than DL but considered real by analyst
C Corrected for analog contribution to quant ion

(1) Cannot be separated from diphenylamine
** Labeled Dibenz(a,h) anthracene used for surrogate
B Analyte found in the blank as well as sample
Values not corrected for analog recoveries

Marine Yard storm drain (sediment)

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## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 1782 35**

Lab Sample ID: 1504 H
Matrix: Soil
VTSR: 4/21/88

Date Extracted: 04/25/88
Date Analyzed: 04/30/88
Conc/Dil Factor: 1:10
Dry Weight Extracted: 28.27

QC Report No.. 1504-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized

| CAS Number | | ug/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| **Dibutylchlorendate** | **100%** |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

Main Inst. (clams)

**ANALYTICAL RESOURCES INCORPORATED**

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## ORGANICS ANALYSIS DATA SHEET - METHOD 625

**Sample No: 178233**

Lab Sample ID: 1524B
Sample Matrix: Clam Tissues

QC Report No: 1524-WDOE
Project No: [Aroki]
Date Received: 04/28/88

Date Release Authorized: Allan R. Bebe

Amount extracted: 61.7 gm (Wet Weight Equivalent)
Percent Moisture: NA
pH: NA
Conc/Dilution: 1 to 2 after GPC (1 to 4 total)

Date extracted: 05/04/88
Date Analyzed: 05/11/88
GPC Clean-up: YES (1 of 2)

| CAS Number | | µg/Kg |
|---|---|---|
| 108-95-2 | Phenol | 65 U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 65 U |
| 95-57-8 | 2-Chlorophenol | 65 U |
| 541-73-1 | 1,3-Dichlorobenzene | 65 U |
| 106-46-7 | 1,4-Dichlorobenzene | 65 U |
| 100-51-6 | Benzyl Alcohol | 320 U |
| 95-50-1 | 1,2-Dichlorobenzene | 65 U |
| 95-48-7 | 2-Methylphenol | 65 U |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 65 U |
| 106-44-5 | 4-Methylphenol | 65 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 65 U |
| 67-72-1 | Hexachloroethane | 130 U |
| 98-95-3 | Nitrobenzene | 65 U |
| 78-59-1 | Isophorone | 65 U |
| 88-75-5 | 2-Nitrophenol | 320 U |
| 105-67-9 | 2,4-Dimethylphenol | 130 U |
| 65-85-0 | Benzoic Acid | 650 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 65 U |
| 120-83-2 | 2,4-Dichlorophenol | 190 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 65 U |
| 91-20-3 | Naphthalene | 65 U |
| 106-47-8 | 4-Chloroaniline | 190 U |
| 87-68-3 | Hexachlorobutadiene | 130 U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 130 U |
| 91-57-6 | 2-Methylnaphthalene | 65 U |
| 77-47-4 | Hexachlorocyclopentadiene | 320 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 320 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 320 U |
| 91-58-7 | 2-Chloronaphthalene | 65 U |
| 88-74-4 | 2-Nitroaniline | 320 U |
| 131-11-3 | Dimethyl Phthalate | 65 U |
| 208-96-8 | Acenaphthylene | 65 U |
| 99-09-2 | 3-Nitroaniline | 320 U |

| CAS Number | | µg/Kg |
|---|---|---|
| 83-32-9 | Acenaphthene | 65 U |
| 51-28-5 | 2,4-Dinitrophenol | 650 U |
| 100-02-7 | 4-Nitrophenol | 320 U |
| 132-64-9 | Dibenzofuran | 65 U |
| 121-14-2 | 2,4-Dinitrotoluene | 320 U |
| 606-20-2 | 2,6-Dinitrotoluene | 320 U |
| 84-66-2 | Diethylphthalate | 65 U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 65 U |
| 86-73-7 | Fluorene | 65 U |
| 100-01-6 | 4-Nitroaniline | 320 U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 650 U |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 65 U |
| 101-55-3 | 4-Bromophenyl-phenylether | 65 U |
| 118-74-1 | Hexachlorobenzene | 65 U |
| 87-86-5 | Pentachlorophenol | 320 U |
| 85-01-8 | Phenanthrene | 65 U |
| 120-12-7 | Anthracene | 65 U |
| 84-74-2 | Di-n-Butylphthalate | 65 U |
| 206-44-0 | Fluoranthene | 65 U |
| 129-00-0 | Pyrene | 65 U |
| 85-68-7 | Butylbenzylphthalate | 65 U* |
| 91-94-1 | 3,3'-Dichlorobenzidine | 320 U |
| 56-55-3 | Benzo(a)Anthracene | 65 U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 65 U |
| 218-01-9 | Chrysene | 65 U |
| 117-84-0 | Di-n-Octyl Phthalate | 65 U |
| 205-99-2 | Benzo(b)Fluoranthene | 65 U |
| 207-08-9 | Benzo(k)Fluoranthene | 65 U |
| 50-32-8 | Benzo(a)Pyrene | 65 U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 65 U* |
| 53-70-3 | Dibenz(a,h)Anthracene | 65 U |
| 191-24-2 | Benzo(ghi)Perylene | 65 U |

(1) Cannot be separated from diphenylamine

U* Interference from non-HSL (steroid) compound

*Report prepared 05/12/88 MAC:B*

***Base/neutral surrogate recoveries**

| | |
|---|---|
| d5-Nitrobenzene | 49.6% |
| 2-Fluorobiphenyl | 67.4% |
| d14-p-Terphenyl | 127% |

***Acid surrogate recoveries**

| | |
|---|---|
| d5-Phenol | 77.3% |
| 2-Fluorophenol | 69.3% |
| 2,4,6-Tribromophenol | 92.1% |

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Main Inst. (clams)

## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 178233**

Lab Sample ID: 1524 B
Matrix: Tissue
VTSR: 4/28/88

Date Extracted: 05/04/88
Date Analyzed: 05/10/88
Conc/Dil Factor: 1:20
Wet Weight Extracted: 59.07

QC Report No.: 1524-WDOE
Project No.: NA
GPC Cleanup: YES
Alumina Cleanup: YES

Data Release Authorized: Peter M Kyle

| CAS Number | | µg/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| Dibutylchlorendate | 146% |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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Hyde Point (sediment)

## ORGANICS ANALYSIS DATA SHEET - METHOD 1625

**Sample No: 178239**

Lab Sample ID No: 15041
Sample Matrix: Soils/Sediments

QC Report No: 1504-WDOE
Project No: McNeil Island
Date Received: 04/21/88

Date Release Authorized: Brian N. Beber

Amount extracted: 48.5 gm (Dry Weight)
Percent Moisture: 32.5%
pH: 6.9
Conc/Dilution: 2 to 1 after GPC (total 1 to 1)

Date extracted: 04/29/88
Date Analyzed: 05/14/88
GPC Clean-up: YES (1 of 2)

| CAS Number | | µg/Kg | Rec |
|---|---|---|---|
| 108-95-2 | **Phenol** | **60** | 88.0% |
| 111-44-4 | bis(2-Chloroethyl)Ether | 21 U | 67.9% |
| 95-57-8 | 2-Chlorophenol | 21 U | 84.4% |
| 541-73-1 | 1,3-Dichlorobenzene | 21 U | 76.0% |
| 106-46-7 | 1,4-Dichlorobenzene | 21 U | 75.9% |
| 100-51-6 | Benzyl Alcohol | 100 U | IS |
| 95-50-1 | 1,2-Dichlorobenzene | 21 U | 74.7% |
| 95-48-7 | 2-Methylphenol | 21 U | 96.8% |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 33 U | 78.7% |
| 106-44-5 | **4-Methylphenol** | **33** | 96.8% |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 21 U | IS |
| 67-72-1 | Hexachloroethane | 23 UC | 57.4% |
| 98-95-3 | Nitrobenzene | 21 U | 85.3% |
| 78-59-1 | Isophorone | 21 U | 143% |
| 88-75-5 | 2-Nitrophenol | 21 U | 87.8% |
| 105-67-9 | 2,4-Dimethylphenol | 21 UC | 101% |
| 65-85-0 | Benzoic Acid | 210 U | IS |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 21 U | 87.7% |
| 120-83-2 | 2,4-Dichlorophenol | 21 U | 95.0% |
| 120-82-1 | 1,2,4-Trichlorobenzene | 21 U | 78.9% |
| 87-61-6 | 1,2,3-Trichlorobenzene | 21 U | 84.6% |
| 91-20-3 | Naphthalene | 21 U | 85.9% |
| 106-47-8 | 4-Chloroaniline | 62 U | IS |
| 87-68-3 | Hexachlorobutadiene | 23 UR | 78.3% |
| 59-50-7 | 4-Chloro-3-Methylphenol | 21 UC | 99.1% |
| 91-57-6 | 2-Methylnaphthalene | 21 U | IS |
| 77-47-4 | Hexachlorocyclopentadiene | 21 U | 0.0% |
| 88-06-2 | 2,4,6-Trichlorophenol | 21 U | 88.0% |
| 95-95-4 | 2,4,5-Trichlorophenol | 21 U | 71.4% |
| 91-58-7 | 2-Chloronaphthalene | 21 U | 96.4% |
| 88-74-4 | 2-Nitroaniline | 100 U | IS |
| 131-11-3 | Dimethyl Phthalate | 21 U | 93.9% |
| 208-96-8 | Acenaphthylene | 21 U | 96.5% |
| 99-09-2 | 3-Nitroaniline | 100 U | IS |
| 83-32-9 | Acenaphthene | 21 U | 95.3% |

| CAS Number | | µg/Kg | Rec |
|---|---|---|---|
| 51-28-5 | 2,4-Dinitrophenol | 52 U | 55.8% |
| 100-02-7 | 4-Nitrophenol | 25 U | 87.9% |
| 132-64-9 | Dibenzofuran | 21 U | IS |
| 121-14-2 | 2,4-Dinitrotoluene | 21 U | 120% |
| 606-20-2 | 2,6-Dinitrotoluene | 21 UJ | 46.3% |
| 84-66-2 | Diethylphthalate | 21 U | 92.7% |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 21 U | 102% |
| 86-73-7 | Fluorene | 21 U | 96.2% |
| 100-01-6 | 4-Nitroaniline | 100 U | IS |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 21 U | 81.2% |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 21 U | 71.8% |
| 122-39-4 | Diphenylamine | 21 U | 85.3% |
| 122-66-7 | 1,2-Diphenylhydrazine * | 21 U | 96.3% |
| 101-55-3 | 4-Bromophenyl-phenylether | 21 U | 74.0% |
| 118-74-1 | Hexachlorobenzene | 21 U | 93.2% |
| 87-86-5 | Pentachlorophenol | 33 U | 67.4% |
| 85-01-8 | Phenanthrene | 21 U | 95.6% |
| 120-12-7 | Anthracene | 21 U | 84.8% |
| 86-74-8 | Carbazole * | 21 U | 82.7% |
| 84-74-2 | Di-n-Butylphthalate | 21 U | 85.8% |
| **206-44-0** | **Fluoranthene** | **23 UJ** | 89.5% |
| **129-00-0** | **Pyrene** | **15 UJ** | 89.3% |
| 85-68-7 | Butylbenzylphthalate | 21 U | 96.2% |
| 91-94-1 | 3,3'-Dichlorobenzidine | 21 U | 23.7% |
| 56-55-3 | Benzo(a)Anthracene | 21 U | 93.9% |
| **117-81-7** | **bis(2-Ethylhexyl)Phthala** | **57 UJ** | 87.8% |
| **218-01-9** | **Chrysene** | **13 T** | 93.9% |
| 117-84-0 | Di-n-Octyl Phthalate | 21 U | 89.7% |
| 205-99-2 | Benzo(b)Fluoranthene | 21 U | 80.4% |
| 207-08-9 | Benzo(k)Fluoranthene | 21 U | 99.0% |
| 50-32-8 | Benzo(a)Pyrene | 21 U | 87.9% |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene ** | 21 U | 93.1% |
| 53-70-3 | Dibenz(a,h)Anthracene | 21 U | 93.1% |
| **191-24-2** | **Benzo(ghi)Perylene** | **12 UJ** | 87.4% |

IS Value relative to 2-Fluorobiphenyl Internal Std
* Value calculated from 1:1 response to labeled analog
T Less than DL but considered real by analyst
C Corrected for analog contribution to quant ion

(1) Cannot be separated from diphenylamine
** Labeled Dibenz(a,h) anthracene used for surrogate
B Analyte found in the blank as well as sample
Values not corrected for analog recoveries

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Hyde Point (sediment)

## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 1782 39**

Lab Sample ID: 15041
Matrix: Soil
VTSR: 4/21/88

Date Extracted: 04/25/88
Date Analyzed: 04/30/88
Conc/Dil Factor: 1:10
Dry Weight Extracted: 22.88

QC Report No.: 1504-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: Peter M. Kegler

| CAS Number | | ug/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| **Dibutylchlorendate** | **100%** |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

Hyde Point (clams)

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## ORGANICS ANALYSIS DATA SHEET - METHOD 625

**Sample No: 178240**

Lab Sample ID: 1524C
Sample Matrix: Clam Tissues

Date Release Authorized: _____

QC Report No: 1524-WDOE
Project No: [Aroki]
Date Received: 04/28/88

Date extracted: 05/04/88
Date Analyzed: 05/11/88
GPC Clean-up: YES (1 of 2)

Amount extracted: 57.0 gm (Wet Weight Equivalent)
Percent Moisture: NA
pH: NA
Conc/Dilution: 1 to 2 after GPC (1 to 4 total)

| CAS Number | | µg/Kg |
|---|---|---|
| 108-95-2 | Phenol | 70 U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 70 U |
| 95-57-8 | 2-Chlorophenol | 70 U |
| 541-73-1 | 1,3-Dichlorobenzene | 70 U |
| 106-46-7 | 1,4-Dichlorobenzene | 70 U |
| 100-51-6 | Benzyl Alcohol | 350 U |
| 95-50-1 | 1,2-Dichlorobenzene | 70 U |
| 95-48-7 | 2-Methylphenol | 70 U |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 70 U |
| 106-44-5 | 4-Methylphenol | 70 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 70 U |
| 67-72-1 | Hexachloroethane | 140 U |
| 98-95-3 | Nitrobenzene | 70 U |
| 78-59-1 | Isophorone | 70 U |
| 88-75-5 | 2-Nitrophenol | 350 U |
| 105-67-9 | 2,4-Dimethylphenol | 140 U |
| 65-85-0 | Benzoic Acid | 700 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 70 U |
| 120-83-2 | 2,4-Dichlorophenol | 210 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 70 U |
| 91-20-3 | Naphthalene | 70 U |
| 106-47-8 | 4-Chloroaniline | 210 U |
| 87-68-3 | Hexachlorobutadiene | 140 U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 140 U |
| 91-57-6 | 2-Methylnaphthalene | 70 U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 350 U |
| 91-58-7 | 2-Chloronaphthalene | 70 U |
| 88-74-4 | 2-Nitroaniline | 350 U |
| 131-11-3 | Dimethyl Phthalate | 70 U |
| 208-96-8 | Acenaphthylene | 70 U |
| 99-09-2 | 3-Nitroaniline | 350 U |

| CAS Number | | µg/Kg |
|---|---|---|
| 83-32-9 | Acenaphthene | 70 U |
| 51-28-5 | 2,4-Dinitrophenol | 700 U |
| 100-02-7 | 4-Nitrophenol | 350 U |
| 132-64-9 | Dibenzofuran | 70 U |
| 121-14-2 | 2,4-Dinitrotoluene | 350 U |
| 606-20-2 | 2,6-Dinitrotoluene | 350 U |
| 84-66-2 | Diethylphthalate | 70 U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 70 U |
| 86-73-7 | Fluorene | 70 U |
| 100-01-6 | 4-Nitroaniline | 350 U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 700 U |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 70 U |
| 101-55-3 | 4-Bromophenyl-phenylether | 70 U |
| 118-74-1 | Hexachlorobenzene | 70 U |
| 87-86-5 | Pentachlorophenol | 350 U |
| 85-01-8 | Phenanthrene | 70 U |
| 120-12-7 | Anthracene | 70 U |
| 84-74-2 | Di-n-Butylphthalate | 70 U |
| 206-44-0 | Fluoranthene | 70 U |
| 129-00-0 | Pyrene | 70 U |
| 85-68-7 | Butylbenzylphthalate | 70 U* |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 U |
| 56-55-3 | Benzo(a)Anthracene | 70 U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 70 U* |
| 218-01-9 | Chrysene | 70 U |
| 117-84-0 | Di-n-Octyl Phthalate | 70 U |
| 205-99-2 | Benzo(b)Fluoranthene | 70 U |
| 207-08-9 | Benzo(k)Fluoranthene | 70 U |
| 50-32-8 | Benzo(a)Pyrene | 70 U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 70 U* |
| 53-70-3 | Dibenz(a,h)Anthracene | 70 U |
| 191-24-2 | Benzo(ghi)Perylene | 70 U |

(1) Cannot be separated from diphenylamine

U* Interference from non-HSL (steroid) compound

*Report prepared 05/12/88 MAC:B*

***Base/neutral surrogate recoveries**

| | |
|---|---|
| d5-Nitrobenzene | 58.6% |
| 2-Fluorobiphenyl | 77.6% |
| d14-p-Terphenyl | 149% |

***Acid surrogate recoveries**

| | |
|---|---|
| d5-Phenol | 82.4% |
| 2-Fluorophenol | 38.4% |
| 2,4,6-Tribromophenol | 156% |

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## ORGANICS ANALYSIS DATA SHEET - Method 8080

Hyde Point (clams)

**Sample No: 178240**

Lab Sample ID: 1524 C
Matrix: Tissue
VTSR: 4/28/88

Date Extracted: 05/04/88
Date Analyzed: 05/10/88
Conc/Dil Factor: 1:20
Wet Weight Extracted: 56.97

QC Report No.: 1524-WDOE
Project No.: NA
GPC Cleanup: YES
Alumina Cleanup: YES

Data Release Authorized: Peter M. Cagle

| CAS Number | | µg/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| Dibutylchlorendate | 72% |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

Still Harbor (water)

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**ORGANICS ANALYSIS DATA SHEET - METHOD 624**

**Sample No: 178241**

Lab Sample ID: 1504C
Sample Matrix: Waters

QC Report No: 1504-WDOE
Project No: McNeil
Date Received: 04/21/88

Data Release Authorized: Brian N. Bebe

Instrument: FINN III
Date Analyzed: 04/28/88

Amount Analyzed: 5 mls
Conc/Dil: 1 to 1

| CAS Number | | µg/L |
|---|---|---|
| 74-87-3 | Chloromethane | 2.9 U |
| 74-83-9 | Bromomethane | 0.9 U |
| 75-01-4 | Vinyl Chloride | 1.1 U |
| 75-00-3 | Chloroethane | 0.9 U |
| **75-09-2** | **Methylene Chloride** | **0.5 JB** |
| 67-64-1 | Acetone | 0.6 U |
| 75-15-0 | Carbon Disulfide | 2.0 U |
| 75-35-4 | 1,1-Dichloroethene | 1.3 U |
| 75-34-3 | 1,1-Dichloroethane | 1.1 U |
| 156-60-5 | Trans-1,2-Dichloroethene | 1.1 U |
| 156-59-2 | Cis-1,2-Dichloroethene | 1.2 U |
| **67-66-3** | **Chloroform** | **0.4 J** |
| 107-06-2 | 1,2-Dichloroethane | 0.6 U |
| 78-93-3 | 2-Butanone | 1.0 U |
| 71-55-6 | 1,1,1-Trichloroethane | 1.0 U |
| 56-23-5 | Carbon Tetrachloride | 0.5 U |
| 108-05-4 | Vinyl Acetate | 1.7 U |
| 75-27-4 | Bromodichloromethane | 0.2 U |

| CAS Number | | µg/L |
|---|---|---|
| 78-87-5 | 1,2-Dichloropropane | 0.6 U |
| 10061-01-5 | cis-1,3-Dichloropropene | 0.5 U |
| 79-01-6 | Trichloroethene | 0.8 U |
| 124-48-1 | Dibromochloromethane | 0.9 U |
| 79-00-5 | 1,1,2-Trichloroethane | 0.3 U |
| 71-43-2 | Benzene | 0.4 U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 0.6 U |
| 110-75-8 | 2-Chloroethylvinylether | 1.5 U |
| 75-25-2 | Bromoform | 0.3 U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1.8 U |
| 591-78-6 | 2-Hexanone | 1.3 U |
| 127-18-4 | Tetrachloroethene | 0.6 U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.6 U |
| 108-88-3 | Toluene | 0.6 U |
| 108-90-7 | Chlorobenzene | 0.6 U |
| 100-41-4 | Ethylbenzene | 1.0 U |
| 100-42-5 | Styrene | 0.5 U |
| | Total Xylenes | 1.5 U |

***Volatile Organic Surrogate Recoveries**

| | |
|---|---|
| d8-Toluene | 99.3% |
| Bromofluorobenzene | 101% |
| d4-1,2-Dichloroethane | 95.5% |

*Surrogate recoveries indicate the validity of a given analysis

*Report prepared 04/29/88 - MAC:B*

Data Reporting Qualifiers

| | |
|---|---|
| Value | If the result is a value greater than or equal to the detection limit, report the value. |
| U | Indicates compound was analyzed for but not detected at the given detection limit. |
| M | Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters. |
| B | This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination. |
| K | This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run. |
| J | Indicates an estimated value when result is less than specified detection limit. |

Still Harbor (sediment)

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## ORGANICS ANALYSIS DATA SHEET - METHOD 1625

**Sample No: 178242**

Lab Sample ID No: 1504J
Sample Matrix: Soils/Sediments

QC Report No: 1504-WDOE
Project No: McNeil Island
Date Received: 04/21/88

Date Release Authorized: [signature]

Date extracted: 04/29/88
Date Analyzed: 05/14/88
GPC Clean-up: YES (1 of 2)

Amount extracted: 37.9 gm (Dry Weight)
Percent Moisture: 24.4%
pH: 6.9
Conc/Dilution: 2 to 1 after GPC (total 1 to 1)

| CAS Number | | µg/Kg | Rec |
|---|---|---|---|
| **108-95-2** | **Phenol** | **17 T** | 92.1% |
| 111-44-4 | bis(2-Chloroethyl)Ether | 26 U | 75.6% |
| 95-57-8 | 2-Chlorophenol | 26 U | 90.1% |
| 541-73-1 | 1,3-Dichlorobenzene | 26 U | 82.9% |
| 106-46-7 | 1,4-Dichlorobenzene | 26 U | 83.6% |
| 100-51-6 | Benzyl Alcohol | 130 U | IS |
| 95-50-1 | 1,2-Dichlorobenzene | 26 U | 81.7% |
| 95-48-7 | 2-Methylphenol | 26 U | 101% |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 42 U | 86.6% |
| 106-44-5 | **4-Methylphenol** | **26** | 101% |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 26 U | IS |
| 67-72-1 | Hexachloroethane | 29 UC | 63.6% |
| 98-95-3 | Nitrobenzene | 26 U | 89.4% |
| 78-59-1 | Isophorone | 26 U | 147% |
| 88-75-5 | 2-Nitrophenol | 26 U | 92.8% |
| 105-67-9 | 2,4-Dimethylphenol | 26 UC | 101% |
| 65-85-0 | Benzoic Acid | 260 U | IS |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 26 U | 90.6% |
| 120-83-2 | 2,4-Dichlorophenol | 26 U | 96.7% |
| 120-82-1 | 1,2,4-Trichlorobenzene | 26 U | 77.8% |
| 87-61-6 | 1,2,3-Trichlorobenzene | 26 U | 85.1% |
| 91-20-3 | Naphthalene | 26 U | 87.3% |
| 106-47-8 | 4-Chloroaniline | 79 U | IS |
| 87-68-3 | Hexachlorobutadiene | 29 U | 79.1% |
| 59-50-7 | 4-Chloro-3-Methylphenol | 26 UC | 97.4% |
| 91-57-6 | 2-Methylnaphthalene | 26 U | IS |
| 77-47-4 | Hexachlorocyclopentadiene | 26 UR | 0.0% |
| 88-06-2 | 2,4,6-Trichlorophenol | 26 U | 71.1% |
| 95-95-4 | 2,4,5-Trichlorophenol | 26 U | 80.3% |
| 91-58-7 | 2-Chloronaphthalene | 26 U | 92.8% |
| 88-74-4 | 2-Nitroaniline | 130 U | IS |
| 131-11-3 | Dimethyl Phthalate | 26 U | 81.5% |
| 208-96-8 | Acenaphthylene | 26 U | 90.9% |
| 99-09-2 | 3-Nitroaniline | 130 U | IS |
| 83-32-9 | Acenaphthene | 26 U | 86.2% |

| CAS Number | | µg/Kg | Rec |
|---|---|---|---|
| 51-28-5 | 2,4-Dinitrophenol | 66 U | 71.1% |
| 100-02-7 | 4-Nitrophenol | 32 U | 92.0% |
| 132-64-9 | Dibenzofuran | 26 U | IS |
| 121-14-2 | 2,4-Dinitrotoluene | 26 U | 107% |
| 606-20-2 | 2,6-Dinitrotoluene | 26 UJ | 58.0% |
| 84-66-2 | Diethylphthalate | 26 U | 96.8% |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 26 U | 86.8% |
| **86-73-7** | **Fluorene** | **21 T** | 84.5% |
| 100-01-6 | 4-Nitroaniline | 130 U | IS |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 26 U | 84.0% |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 26 U | 83.0% |
| 122-39-4 | Diphenylamine | 26 U | 87.4% |
| 122-66-7 | 1,2-Diphenylhydrazine * | 26 U | 82.1% |
| 101-55-3 | 4-Bromophenyl-phenylether | 26 U | 79.6% |
| 118-74-1 | Hexachlorobenzene | 26 U | 97.1% |
| 87-86-5 | Pentachlorophenol | 42 U | 34.3% |
| 85-01-8 | **Phenanthrene** | **130** | 79.0% |
| 120-12-7 | **Anthracene** | **79** | 83.3% |
| 86-74-8 | **Carbazole** | **27** | 79.9% |
| 84-74-2 | Di-n-Butylphthalate | 26 U | 81.9% |
| **206-44-0** | **Fluoranthene** | **250** | 86.4% |
| **129-00-0** | **Pyrene** | **300** | 82.0% |
| 85-68-7 | Butylbenzylphthalate | 26 U | 85.3% |
| 91-94-1 | 3,3'-Dichlorobenzidine | 26 U | 33.0% |
| 56-55-3 | **Benzo(a)Anthracene** | **160** | 78.4% |
| **117-81-7** | **bis(2-Ethylhexyl)Phthalate** | **49** UJ | 79.8% |
| 218-01-9 | **Chrysene** | **240** | 79.3% |
| 117-84-0 | Di-n-Octyl Phthalate | 26 U | 74.9% |
| **205-99-2** | **Benzo(b)Fluoranthene** | **140** | 65.8% |
| **207-08-9** | **Benzo(k)Fluoranthene** | **130** | 87.1% |
| **50-32-8** | **Benzo(a)Pyrene** | **120** | 74.3% |
| 193-39-5 | **Indeno(1,2,3-cd)Pyrene**** | **38** | 81.3% |
| 53-70-3 | Dibenz(a,h)Anthracene | 26 U | 81.3% |
| **191-24-2** | **Benzo(ghi)Perylene** | **30** UJ | 81.2% |

IS Value relative to 2-Fluorobiphenyl Internal Std
* Value calculated from 1:1 response to labeled analog
T Less than DL but considered real by analyst
C Corrected for analog contribution to quant ion

(1) Cannot be separated from diphenylamine
** Labeled Dibenz(a,h) anthracene used for surrogate
B Analyte found in the blank as well as sample
Values not corrected for analog recoveries

**ANALYTICAL RESOURCES INCORPORATED**

Analytical Chemists & Consultants

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## ORGANICS ANALYSIS DATA SHEET - Method 8080

Still Harbor (sediment)

**Sample No: 1782 42**

Lab Sample ID: 1504 J
Matrix: Soil
VTSR: 4/21/88

Date Extracted: 04/25/88
Date Analyzed: 04/30/88
Conc/Dil Factor: 1:10
Dry Weight Extracted: 28.12

QC Report No.: 1504-WDOE
Project No: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: Peter M. Kaplan

| CAS Number | | ug/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| **Dibutylchlorendate** | **96%** |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

Still Harbor (sediment)- duplicate

**ANALYTICAL RESOURCES INCORPORATED**

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## ORGANICS ANALYSIS DATA SHEET - METHOD 1625

**Sample No: 178243**

Lab Sample ID No: 1504K
Sample Matrix: Soils/Sediments

QC Report No: 1504-WDOE
Project No: McNeil Island
Date Received: 04/21/88

Date Release Authorized: Susan N. Peterson

Amount extracted: 38.6 gm (Dry Weight)
Percent Moisture: 22.5%
pH: 7.5
Conc/Dilution: 2 to 1 after GPC (total 1 to 1)

Date extracted: 04/29/88
Date Analyzed: 05/14/88
GPC Clean-up: YES (1 of 2)

| CAS Number | | µg/Kg | Rec |
|---|---|---|---|
| **108-95-2** | **Phenol** | **14 T** | 91.0% |
| 111-44-4 | bis(2-Chloroethyl)Ether | 26 U | 76.2% |
| 95-57-8 | 2-Chlorophenol | 26 U | 89.0% |
| 541-73-1 | 1,3-Dichlorobenzene | 26 U | 85.7% |
| 106-46-7 | 1,4-Dichlorobenzene | 26 U | 87.9% |
| 100-51-6 | Benzyl Alcohol | 130 U | IS |
| 95-50-1 | 1,2-Dichlorobenzene | 26 U | 85.9% |
| 95-48-7 | 2-Methylphenol | 26 U | 97.5% |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 42 U | 91.0% |
| 106-44-5 | **4-Methylphenol** | **56** | 97.5% |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 26 U | IS |
| 67-72-1 | Hexachloroethane | 29 UC | 64.5% |
| 98-95-3 | Nitrobenzene | 26 U | 92.2% |
| 78-59-1 | Isophorone | 26 U | 149% |
| 88-75-5 | 2-Nitrophenol | 26 U | 91.6% |
| 105-67-9 | 2,4-Dimethylphenol | 26 UC | 100% |
| 65-85-0 | Benzoic Acid | 260 U | IS |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 26 U | 92.3% |
| 120-83-2 | 2,4-Dichlorophenol | 26 U | 97.0% |
| 120-82-1 | 1,2,4-Trichlorobenzene | 26 U | 82.3% |
| 87-61-6 | 1,2,3-Trichlorobenzene | 26 U | 88.7% |
| 91-20-3 | Naphthalene | 26 U | 93.6% |
| 106-47-8 | 4-Chloroaniline | 78 U | IS |
| 87-68-3 | Hexachlorobutadiene | 29 U | 82.9% |
| 59-50-7 | 4-Chloro-3-Methylphenol | 26 UC | 105% |
| 91-57-6 | 2-Methylnaphthalene | 26 U | IS |
| 77-47-4 | Hexachlorocyclopentadiene | 26 UR | 0.0% |
| 88-06-2 | 2,4,6-Trichlorophenol | 26 U | 80.9% |
| 95-95-4 | 2,4,5-Trichlorophenol | 26 U | 81.9% |
| 91-58-7 | 2-Chloronaphthalene | 26 U | 96.0% |
| 88-74-4 | 2-Nitroaniline | 130 U | IS |
| 131-11-3 | Dimethyl Phthalate | 26 U | 91.5% |
| 208-96-8 | Acenaphthylene | 26 U | 101% |
| 99-09-2 | 3-Nitroaniline | 130 U | IS |
| 83-32-9 | Acenaphthene | 26 U | 96.5% |

| CAS Number | | µg/Kg | Rec |
|---|---|---|---|
| 51-28-5 | 2,4-Dinitrophenol | 65 U | 91.9% |
| 100-02-7 | 4-Nitrophenol | 31 U | 110% |
| 132-64-9 | Dibenzofuran | 26 U | IS |
| 121-14-2 | 2,4-Dinitrotoluene | 26 U | 131% |
| 606-20-2 | 2,6-Dinitrotoluene | 26 UJ | 64.5% |
| **84-66-2** | **Diethylphthalate** | **12 T** | 110% |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 26 U | 102% |
| 86-73-7 | Fluorene | 26 U | 103% |
| 100-01-6 | 4-Nitroaniline | 130 U | IS |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 26 U | 116% |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 26 U | 94.2% |
| 122-39-4 | Diphenylamine | 26 U | 117% |
| 122-66-7 | 1,2-Diphenylhydrazine * | 26 U | 97.3% |
| 101-55-3 | 4-Bromophenyl-phenylether | 26 U | 101% |
| 118-74-1 | Hexachlorobenzene | 26 U | 130% |
| 87-86-5 | Pentachlorophenol | 42 U | 49.0% |
| 85-01-8 | **Phenanthrene** | **82** | 102% |
| 120-12-7 | **Anthracene** | **20 T** | 99.6% |
| 86-74-8 | Carbazole * | 26 U | 94.7% |
| 84-74-2 | Di-n-Butylphthalate | 26 U | 105% |
| **206-44-0** | **Fluoranthene** | **180** | 105% |
| **129-00-0** | **Pyrene** | **140** | 98.8% |
| 85-68-7 | Butylbenzylphthalate | 26 U | 105% |
| 91-94-1 | 3,3'-Dichlorobenzidine | 26 U | 50.1% |
| 56-55-3 | **Benzo(a)Anthracene** | **76** | 99.3% |
| **117-81-7** | **bis(2-Ethylhexyl)Phthala** | **29** UJ | 88.2% |
| 218-01-9 | **Chrysene** | **130** | 104% |
| 117-84-0 | Di-n-Octyl Phthalate | 26 U | 91.6% |
| **205-99-2** | **Benzo(b)Fluoranthene** | **65** UJ | 96.3% |
| **207-08-9** | **Benzo(k)Fluoranthene** | **63** UJ | 95.7% |
| **50-32-8** | **Benzo(a)Pyrene** | **58** UJ | 95.6% |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene ** | 26 U | 97.3% |
| 53-70-3 | Dibenz(a,h)Anthracene | 26 U | 97.3% |
| 191-24-2 | Benzo(ghi)Perylene | 26 U | 94.5% |

IS Value relative to 2-Fluorobiphenyl Internal Std
* Value calculated from 1:1 response to labeled analog
T Less than DL but considered real by analyst
C Corrected for analog contribution to quant ion

(1) Cannot be separated from diphenylamine
** Labeled Dibenz(a,h) anthracene used for surrogate
B Analyte found in the blank as well as sample
Values not corrected for analog recoveries

Still Harbor (sediment)- duplicate

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## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 1782 43**

Lab Sample ID: 1504 K
Matrix: Soil
VTSR: 4/21/88

Date Extracted: 04/25/88
Date Analyzed: 04/30/88
Conc/Dil Factor: 1:10
Dry Weight Extracted: 30.14

QC Report No.: 1504-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: [signature]

| CAS Number | | ug/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| **Dibutylchlorendate** | **97%** |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

Still Harbor (sediment)- replicate

**ANALYTICAL RESOURCES INCORPORATED**

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## ORGANICS ANALYSIS DATA SHEET - METHOD 1625

**Sample No: 178244**

Lab Sample ID No: 1504L
Sample Matrix: Soils/Sediments

QC Report No: 1504-WDOE
Project No: McNeil Island
Date Received: 04/21/88

Date Release Authorized: Brian N. Beber

Date extracted: 04/29/88
Date Analyzed: 05/14/88
GPC Clean-up: YES (1 of 2)

Amount extracted: 44.4 gm (Dry Weight)
Percent Moisture: 19.6%
pH: 7.9
Conc/Dilution: 2 to 1 after GPC (total 1 to 1)

| CAS Number | | µg/Kg | Rec |
|---|---|---|---|
| 108-95-2 | **Phenol** | **36** | 98.2% |
| 111-44-4 | bis(2-Chloroethyl)Ether | 23 U | 80.4% |
| 95-57-8 | 2-Chlorophenol | 23 U | 93.1% |
| 541-73-1 | 1,3-Dichlorobenzene | 23 U | 89.2% |
| 106-46-7 | 1,4-Dichlorobenzene | 23 U | 90.3% |
| 100-51-6 | Benzyl Alcohol | 110 U | IS |
| 95-50-1 | 1,2-Dichlorobenzene | 23 U | 87.9% |
| 95-48-7 | 2-Methylphenol | 23 U | 103% |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 36 U | 90.7% |
| 106-44-5 | **4-Methylphenol** | **46** | 103% |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 23 U | IS |
| 67-72-1 | Hexachloroethane | 25 UC | 70.0% |
| 98-95-3 | Nitrobenzene | 23 U | 91.1% |
| 78-59-1 | Isophorone | 23 U | 151% |
| 88-75-5 | 2-Nitrophenol | 23 U | 92.5% |
| 105-67-9 | 2,4-Dimethylphenol | 23 UC | 103% |
| 65-85-0 | Benzoic Acid | 230 U | IS |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 23 U | 93.7% |
| 120-83-2 | 2,4-Dichlorophenol | 23 U | 96.0% |
| 120-82-1 | 1,2,4-Trichlorobenzene | 23 U | 83.6% |
| 87-61-6 | 1,2,3-Trichlorobenzene | 23 U | 88.2% |
| 91-20-3 | Naphthalene | 23 U | 92.2% |
| 106-47-8 | 4-Chloroaniline | 68 U | IS |
| 87-68-3 | Hexachlorobutadiene | 25 U | 82.5% |
| 59-50-7 | 4-Chloro-3-Methylphenol | 23 UC | 102% |
| 91-57-6 | 2-Methylnaphthalene | 23 U | IS |
| 77-47-4 | Hexachlorocyclopentadiene | 23 UR | 0.0% |
| 88-06-2 | 2,4,6-Trichlorophenol | 23 U | 73.7% |
| 95-95-4 | 2,4,5-Trichlorophenol | 23 U | 84.5% |
| 91-58-7 | 2-Chloronaphthalene | 23 U | 93.7% |
| 88-74-4 | 2-Nitroaniline | 110 U | IS |
| 131-11-3 | Dimethyl Phthalate | 23 U | 85.6% |
| 208-96-8 | Acenaphthylene | 23 U | 95.7% |
| 99-09-2 | 3-Nitroaniline | 110 U | IS |
| 83-32-9 | Acenaphthene | 23 U | 90.7% |

| CAS Number | | µg/Kg | Rec |
|---|---|---|---|
| 51-28-5 | 2,4-Dinitrophenol | 56 U | 67.0% |
| 100-02-7 | 4-Nitrophenol | 27 U | 97.4% |
| 132-64-9 | Dibenzofuran | 23 U | IS |
| 121-14-2 | 2,4-Dinitrotoluene | 23 U | 116% |
| 606-20-2 | 2,6-Dinitrotoluene | 23 UJ | 63.2% |
| 84-66-2 | Diethylphthalate | 23 U | 104% |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 23 U | 94.7% |
| 86-73-7 | Fluorene | 23 U | 92.3% |
| 100-01-6 | 4-Nitroaniline | 110 U | IS |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 23 U | 85.6% |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 23 U | 85.6% |
| 122-39-4 | Diphenylamine | 23 U | 110% |
| 122-66-7 | 1,2-Diphenylhydrazine * | 23 U | 91.4% |
| 101-55-3 | 4-Bromophenyl-phenylether | 23 U | 89.0% |
| 118-74-1 | Hexachlorobenzene | 23 U | 110% |
| 87-86-5 | Pentachlorophenol | 36 U | 41.7% |
| 85-01-8 | **Phenanthrene** | **66** | 82.2% |
| 120-12-7 | **Anthracene** | **65** | 86.4% |
| 86-74-8 | Carbazole * | 23 U | 82.6% |
| 84-74-2 | Di-n-Butylphthalate | 23 U | 85.1% |
| **206-44-0** | **Fluoranthene** | **150** | 91.4% |
| **129-00-0** | **Pyrene** | **250** | 86.6% |
| 85-68-7 | Butylbenzylphthalate | 23 U | 93.1% |
| 91-94-1 | 3,3'-Dichlorobenzidine | 23 U | 42.3% |
| 56-55-3 | **Benzo(a)Anthracene** | **140** | 88.6% |
| **117-81-7** | **bis(2-Ethylhexyl)Phthalate** | **44** UJ | 81.4% |
| 218-01-9 | **Chrysene** | **190** | 92.6% |
| 117-84-0 | Di-n-Octyl Phthalate | 23 U | 82.2% |
| **205-99-2** | **Benzo(b)Fluoranthene** | **140** | 80.8% |
| **207-08-9** | **Benzo(k)Fluoranthene** | **120** | 97.9% |
| **50-32-8** | **Benzo(a)Pyrene** | **110** | 88.5% |
| 193-39-5 | **Indeno(1,2,3-cd)pyrene**** | **39** | 95.2% |
| **53-70-3** | **Dibenz(a,h)Anthracene** | **11 T** | 95.2% |
| **191-24-2** | **Benzo(ghi)Perylene** | **34** UJ | 95.1% |

IS Value relative to 2-Fluorobiphenyl Internal Std
* Value calculated from 1:1 response to labeled analog
T Less than DL but considered real by analyst
C Corrected for analog contribution to quant ion

(1) Cannot be separated from diphenylamine
** Labeled Dibenz(a,h) anthracene used for surrogate
B Analyte found in the blank as well as sample
Values not corrected for analog recoveries

Still Harbor (sediment)- replicate

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## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 1782 44**

Lab Sample ID: 1504 L
Matrix: Soil
VTSR: 4/21/88

Date Extracted: 04/25/88
Date Analyzed: 04/30/88
Conc/Dil Factor: 1:10
Dry Weight Extracted: 29.31

QC Report No.: 1504-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: Peter M. Ayler

| CAS Number | | ug/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| **Dibutylchlorendate** | **98%** |

Data Qualifiers

U Indicates compound was analyzed for but not detected at the given detection limit.

J Indicates a hit below the calculated detection limit but considered real by the analyst.

Still Harbor (clams)

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## ORGANICS ANALYSIS DATA SHEET - METHOD 625

**Sample No: 178245**

Lab Sample ID: 1524D
Sample Matrix: Clam Tissues

QC Report No: 1524-WDOE
Project No: [Aroki]
Date Received: 04/28/88

Date Release Authorized: _____

Amount extracted: 57.4 gm (Wet Weight Equivalent)
Percent Moisture: NA
pH: NA
Conc/Dilution: 1 to 2 after GPC (1 to 4 total)

Date extracted: 05/04/88
Date Analyzed: 05/11/88
GPC Clean-up: YES (1 of 2)

| CAS Number | | µg/Kg |
|---|---|---|
| 108-95-2 | Phenol | 70 U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 70 U |
| 95-57-8 | 2-Chlorophenol | 70 U |
| 541-73-1 | 1,3-Dichlorobenzene | 70 U |
| 106-46-7 | 1,4-Dichlorobenzene | 70 U |
| 100-51-6 | Benzyl Alcohol | 350 U |
| 95-50-1 | 1,2-Dichlorobenzene | 70 U |
| 95-48-7 | 2-Methylphenol | 70 U |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 70 U |
| 106-44-5 | 4-Methylphenol | 70 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 70 U |
| 67-72-1 | Hexachloroethane | 140 U |
| 98-95-3 | Nitrobenzene | 70 U |
| 78-59-1 | Isophorone | 70 U |
| 88-75-5 | 2-Nitrophenol | 350 U |
| 105-67-9 | 2,4-Dimethylphenol | 140 U |
| **65-85-0** | **Benzoic Acid** | **640 M** |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 70 U |
| 120-83-2 | 2,4-Dichlorophenol | 210 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 70 U |
| 91-20-3 | Naphthalene | 70 U |
| 106-47-8 | 4-Chloroaniline | 210 U |
| 87-68-3 | Hexachlorobutadiene | 140 U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 140 U |
| 91-57-6 | 2-Methylnaphthalene | 70 U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 350 U |
| 91-58-7 | 2-Chloronaphthalene | 70 U |
| 88-74-4 | 2-Nitroaniline | 350 U |
| 131-11-3 | Dimethyl Phthalate | 70 U |
| 208-96-8 | Acenaphthylene | 70 U |
| 99-09-2 | 3-Nitroaniline | 350 U |

| CAS Number | | µg/Kg |
|---|---|---|
| 83-32-9 | Acenaphthene | 70 U |
| 51-28-5 | 2,4-Dinitrophenol | 700 U |
| 100-02-7 | 4-Nitrophenol | 350 U |
| 132-64-9 | Dibenzofuran | 70 U |
| 121-14-2 | 2,4-Dinitrotoluene | 350 U |
| 606-20-2 | 2,6-Dinitrotoluene | 350 U |
| 84-66-2 | Diethylphthalate | 70 U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 70 U |
| 86-73-7 | Fluorene | 70 U |
| 100-01-6 | 4-Nitroaniline | 350 U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 700 U |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 70 U |
| 101-55-3 | 4-Bromophenyl-phenylether | 70 U |
| 118-74-1 | Hexachlorobenzene | 70 U |
| 87-86-5 | Pentachlorophenol | 350 U |
| 85-01-8 | Phenanthrene | 70 U |
| 120-12-7 | Anthracene | 70 U |
| 84-74-2 | Di-n-Butylphthalate | 70 U |
| 206-44-0 | Fluoranthene | 70 U |
| 129-00-0 | Pyrene | 70 U |
| 85-68-7 | Butylbenzylphthalate | 70 U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 U |
| 56-55-3 | Benzo(a)Anthracene | 70 U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 70 U |
| 218-01-9 | Chrysene | 70 U |
| 117-84-0 | Di-n-Octyl Phthalate | 70 U |
| 205-99-2 | Benzo(b)Fluoranthene | 70 U |
| 207-08-9 | Benzo(k)Fluoranthene | 70 U |
| 50-32-8 | Benzo(a)Pyrene | 70 U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 70 U |
| 53-70-3 | Dibenz(a,h)Anthracene | 70 U |
| 191-24-2 | Benzo(ghi)Perylene | 70 U |

(1) Cannot be separated from diphenylamine

U* Interference from non-HSL (steroid) compound

*Report prepared 05/12/88 MAC:B*

***Base/neutral surrogate recoveries**

| | |
|---|---|
| d5-Nitrobenzene | 87.5% |
| 2-Fluorobiphenyl | 82.7% |
| d14-p-Terphenyl | 74.6% |

***Acid surrogate recoveries**

| | |
|---|---|
| d5-Phenol | 79.0% |
| 2-Fluorophenol | 53.5% |
| 2,4,6-Tribromophenol | 123% |

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Still Harbor (clams)

## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 178245**

Lab Sample ID: 1524 D
Matrix: Tissue
VTSR: 4/28/88

Date Extracted: 05/04/88
Date Analyzed: 05/10/88
Conc/Dil Factor: 1:20
Wet Weight Extracted: 57.43

QC Report No.: 1524-WDOE
Project No.: NA
GPC Cleanup: YES
Alumina Cleanup: YES

Data Release Authorized: Peter M. Kuyper

| CAS Number | | µg/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| Dibutylchlorendate | 105% |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

Still Harbor (clams)- duplicate

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## ORGANICS ANALYSIS DATA SHEET - METHOD 625

**Sample No: 178246**

Lab Sample ID: 1524E
Sample Matrix: Clam Tissues

QC Report No: 1524-WDOE
Project No: [Aroki]
Date Received: 04/28/88

Date Release Authorized: _____

Amount extracted: 60.7 gm (Wet Weight Equivalent)
Percent Moisture: NA
pH: NA
Conc/Dilution: 1 to 2 after GPC (1 to 4 total)

Date extracted: 05/04/88
Date Analyzed: 05/11/88
GPC Clean-up: YES (1 of 2)

| CAS Number | | µg/Kg |
|---|---|---|
| 108-95-2 | Phenol | 66 U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 66 U |
| 95-57-8 | 2-Chlorophenol | 66 U |
| 541-73-1 | 1,3-Dichlorobenzene | 66 U |
| 106-46-7 | 1,4-Dichlorobenzene | 66 U |
| 100-51-6 | Benzyl Alcohol | 330 U |
| 95-50-1 | 1,2-Dichlorobenzene | 66 U |
| 95-48-7 | 2-Methylphenol | 66 U |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 66 U |
| 106-44-5 | 4-Methylphenol | 66 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 66 U |
| 67-72-1 | Hexachloroethane | 130 U |
| 98-95-3 | Nitrobenzene | 66 U |
| 78-59-1 | Isophorone | 66 U |
| 88-75-5 | 2-Nitrophenol | 330 U |
| 105-67-9 | 2,4-Dimethylphenol | 130 U |
| **65-85-0** | **Benzoic Acid** | **750 M** |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 66 U |
| 120-83-2 | 2,4-Dichlorophenol | 200 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 66 U |
| 91-20-3 | Naphthalene | 66 U |
| 106-47-8 | 4-Chloroaniline | 200 U |
| 87-68-3 | Hexachlorobutadiene | 130 U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 130 U |
| 91-57-6 | 2-Methylnaphthalene | 66 U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 330 U |
| 91-58-7 | 2-Chloronaphthalene | 66 U |
| 88-74-4 | 2-Nitroaniline | 330 U |
| 131-11-3 | Dimethyl Phthalate | 66 U |
| 208-96-8 | Acenaphthylene | 66 U |
| 99-09-2 | 3-Nitroaniline | 330 U |

| CAS Number | | µg/Kg |
|---|---|---|
| 83-32-9 | Acenaphthene | 66 U |
| 51-28-5 | 2,4-Dinitrophenol | 660 U |
| 100-02-7 | 4-Nitrophenol | 330 U |
| 132-64-9 | Dibenzofuran | 66 U |
| 121-14-2 | 2,4-Dinitrotoluene | 330 U |
| 606-20-2 | 2,6-Dinitrotoluene | 330 U |
| 84-66-2 | Diethylphthalate | 66 U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 66 U |
| 86-73-7 | Fluorene | 66 U |
| 100-01-6 | 4-Nitroaniline | 330 U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 660 U |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 66 U |
| 101-55-3 | 4-Bromophenyl-phenylether | 66 U |
| 118-74-1 | Hexachlorobenzene | 66 U |
| 87-86-5 | Pentachlorophenol | 330 U |
| 85-01-8 | Phenanthrene | 66 U |
| 120-12-7 | Anthracene | 66 U |
| 84-74-2 | Di-n-Butylphthalate | 66 U |
| 206-44-0 | Fluoranthene | 66 U |
| 129-00-0 | Pyrene | 66 U |
| 85-68-7 | Butylbenzylphthalate | 66 U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 330 U |
| 56-55-3 | Benzo(a)Anthracene | 66 U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 66 U* |
| 218-01-9 | Chrysene | 66 U |
| 117-84-0 | Di-n-Octyl Phthalate | 66 U |
| 205-99-2 | Benzo(b)Fluoranthene | 66 U |
| 207-08-9 | Benzo(k)Fluoranthene | 66 U |
| 50-32-8 | Benzo(a)Pyrene | 66 U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 66 U |
| 53-70-3 | Dibenz(a,h)Anthracene | 66 U |
| 191-24-2 | Benzo(ghi)Perylene | 66 U |

(1) Cannot be separated from diphenylamine

U* Interference from non-HSL (steroid) compound

*Report prepared 05/12/88 MAC:B*

***Base/neutral surrogate recoveries**

| | |
|---|---|
| d5-Nitrobenzene | 90.1% |
| 2-Fluorobiphenyl | 82.3% |
| d14-p-Terphenyl | 87.7% |

***Acid surrogate recoveries**

| | |
|---|---|
| d5-Phenol | 81.5% |
| 2-Fluorophenol | 58.1% |
| 2,4,6-Tribromophenol | 124% |

Still Harbor (clams)- duplicate

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## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 178246**

Lab Sample ID: 1524 E
Matrix: Tissue
VTSR: 4/28/88

Date Extracted: 05/04/88
Date Analyzed: 05/10/88
Conc/Dil Factor: 1:20
Wet Weight Extracted: 60.71

QC Report No.: 1524-WDOE
Project No.: NA
GPC Cleanup: YES
Alumina Cleanup: YES

Data Release Authorized: Peter M. Kepler

| CAS Number | | µg/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| Dibutylchlorendate | 105% |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

nc146

Still Harbor (clams)- replicate

ANALYTICAL RESOURCES INCORPORATED

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**ORGANICS ANALYSIS DATA SHEET - METHOD 625**

**Sample No: 178247**

Lab Sample ID: 1524F
Sample Matrix: Clam Tissues

QC Report No: 1524-WDOE
Project No: [Aroki]
Date Received: 04/28/88

Date Release Authorized: Brian M. Beber

Date extracted: 05/04/88
Date Analyzed: 05/11/88
GPC Clean-up: YES ( 1 of 2)

Amount extracted: 55.2 gm ( Wet Weight Equivalent)
Percent Moisture: NA
pH: NA
Conc/Dilution: 1 to 2 after GPC ( 1 to 4 total)

| CAS Number | | µg/Kg |
|---|---|---|
| 108-95-2 | Phenol | 73 U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 73 U |
| 95-57-8 | 2-Chlorophenol | 73 U |
| 541-73-1 | 1,3-Dichlorobenzene | 73 U |
| 106-46-7 | 1,4-Dichlorobenzene | 73 U |
| 100-51-6 | Benzyl Alcohol | 360 U |
| 95-50-1 | 1,2-Dichlorobenzene | 73 U |
| 95-48-7 | 2-Methylphenol | 73 U |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 73 U |
| 106-44-5 | 4-Methylphenol | 73 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 73 U |
| 67-72-1 | Hexachloroethane | 140 U |
| 98-95-3 | Nitrobenzene | 73 U |
| 78-59-1 | Isophorone | 73 U |
| 88-75-5 | 2-Nitrophenol | 360 U |
| 105-67-9 | 2,4-Dimethylphenol | 140 U |
| **65-85-0** | **Benzoic Acid** | **380 M** |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 73 U |
| 120-83-2 | 2,4-Dichlorophenol | 220 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 73 U |
| 91-20-3 | Naphthalene | 73 U |
| 106-47-8 | 4-Chloroaniline | 220 U |
| 87-68-3 | Hexachlorobutadiene | 140 U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 140 U |
| 91-57-6 | 2-Methylnaphthalene | 73 U |
| 77-47-4 | Hexachlorocyclopentadiene | 360 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 360 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 360 U |
| 91-58-7 | 2-Chloronaphthalene | 73 U |
| 88-74-4 | 2-Nitroaniline | 360 U |
| 131-11-3 | Dimethyl Phthalate | 73 U |
| 208-96-8 | Acenaphthylene | 73 U |
| 99-09-2 | 3-Nitroaniline | 360 U |

| CAS Number | | µg/Kg |
|---|---|---|
| 83-32-9 | Acenaphthene | 73 U |
| 51-28-5 | 2,4-Dinitrophenol | 720 U |
| 100-02-7 | 4-Nitrophenol | 360 U |
| 132-64-9 | Dibenzofuran | 73 U |
| 121-14-2 | 2,4-Dinitrotoluene | 360 U |
| 606-20-2 | 2,6-Dinitrotoluene | 360 U |
| 84-66-2 | Diethylphthalate | 73 U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 73 U |
| 86-73-7 | Fluorene | 73 U |
| 100-01-6 | 4-Nitroaniline | 360 U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 720 U |
| 86-30-6 | N-Nitrosodiphenylamine( 1) | 73 U |
| 101-55-3 | 4-Bromophenyl-phenylether | 73 U |
| 118-74-1 | Hexachlorobenzene | 73 U |
| 87-86-5 | Pentachlorophenol | 360 U |
| 85-01-8 | Phenanthrene | 73 U |
| 120-12-7 | Anthracene | 73 U |
| 84-74-2 | Di-n-Butylphthalate | 73 U |
| 206-44-0 | Fluoranthene | 73 U |
| 129-00-0 | Pyrene | 73 U |
| 85-68-7 | Butylbenzylphthalate | 73 U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 360 U |
| 56-55-3 | Benzo(a)Anthracene | 73 U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 73 U |
| 218-01-9 | Chrysene | 73 U |
| 117-84-0 | Di-n-Octyl Phthalate | 73 U |
| 205-99-2 | Benzo(b)Fluoranthene | 73 U |
| 207-08-9 | Benzo(k)Fluoranthene | 73 U |
| 50-32-8 | Benzo(a)Pyrene | 73 U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 73 U* |
| 53-70-3 | Dibenz(a,h)Anthracene | 73 U |
| 191-24-2 | Benzo(ghi)Perylene | 73 U |

( 1) Cannot be separated from diphenylamine

U* Interference from non-HSL (steroid) compound

*Report prepared 05/12/88 MAC:B*

***Base/neutral surrogate recoveries**

| | |
|---|---|
| d5-Nitrobenzene | 90.9% |
| 2-Fluorobiphenyl | 79.5% |
| d14-p-Terphenyl | 81.6% |

***Acid surrogate recoveries**

| | |
|---|---|
| d5-Phenol | 78.1% |
| 2-Fluorophenol | 57.6% |
| 2,4,6-Tribromophenol | 127% |

Still Harbor (clams)- replicate

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## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 178247**

Lab Sample ID: 1524 F
Matrix: Tissue
VTSR: 4/28/88

Date Extracted: 05/04/88
Date Analyzed: 05/11/88
Conc/Dil Factor: 1:20
Wet Weight Extracted: 55.18

QC Report No.: 1524-WDOE
Project No.: NA
GPC Cleanup: YES
Alumina Cleanup: YES

Data Release Authorized: Peter M. Kaplan

| CAS Number | | µg/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| Dibutylchlorendate | 126% |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

Camp/Farm (water)

**ANALYTICAL RESOURCES INCORPORATED**

Analytical Chemists & Consultants

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## ORGANICS ANALYSIS DATA SHEET - METHOD 624

**Sample No: 178248**

Lab Sample ID: 1504D
Sample Matrix: Waters

QC Report No: 1504-WDOE
Project No: McNeil
Date Received: 04/21/88

Data Release Authorized: Brian N. Bebee

Instrument: FINN III
Date Analyzed: 04/28/88

Amount Analyzed: 5 mls
Conc/Dil: 1 to 1

| CAS Number | | µg/L | |
|---|---|---|---|
| 74-87-3 | Chloromethane | 2.9 U | |
| 74-83-9 | Bromomethane | 0.9 U | |
| 75-01-4 | Vinyl Chloride | 1.1 U | |
| 75-00-3 | Chloroethane | 0.9 U | |
| **75-09-2** | **Methylene Chloride** | **1.8 B** | |
| **67-64-1** | **Acetone** | **7.7** | B |
| 75-15-0 | Carbon Disulfide | 2.0 U | |
| 75-35-4 | 1,1-Dichloroethene | 1.3 U | |
| 75-34-3 | 1,1-Dichloroethane | 1.1 U | |
| 156-60-5 | Trans-1,2-Dichloroethene | 1.1 U | |
| 156-59-2 | Cis-1,2-Dichloroethene | 1.2 U | |
| **67-66-3** | **Chloroform** | **22** | |
| 107-06-2 | 1,2-Dichloroethane | 0.6 U | |
| 78-93-3 | 2-Butanone | 1.0 U | |
| 71-55-6 | 1,1,1-Trichloroethane | 1.0 U | |
| 56-23-5 | Carbon Tetrachloride | 0.5 U | |
| 108-05-4 | Vinyl Acetate | 1.7 U | |
| **75-27-4** | **Bromodichloromethane** | **2.5** | |

| CAS Number | | µg/L |
|---|---|---|
| 78-87-5 | 1,2-Dichloropropane | 0.6 U |
| 10061-01-5 | cis-1,3-Dichloropropene | 0.5 U |
| 79-01-6 | Trichloroethene | 0.8 U |
| 124-48-1 | Dibromochloromethane | 0.9 U |
| 79-00-5 | 1,1,2-Trichloroethane | 0.3 U |
| 71-43-2 | Benzene | 0.4 U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 0.6 U |
| 110-75-8 | 2-Chloroethylvinylether | 1.5 U |
| 75-25-2 | Bromoform | 0.3 U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1.8 U |
| 591-78-6 | 2-Hexanone | 1.3 U |
| 127-18-4 | Tetrachloroethene | 0.6 U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.6 U |
| **108-88-3** | **Toluene** | **4.7** |
| 108-90-7 | Chlorobenzene | 0.6 U |
| 100-41-4 | Ethylbenzene | 1.0 U |
| 100-42-5 | Styrene | 0.5 U |
| | Total Xylenes | 1.5 U |

***Volatile Organic Surrogate Recoveries**

| | |
|---|---|
| d8-Toluene | 103% |
| Bromofluorobenzene | 91.1% |
| d4-1,2-Dichloroethane | 99.2% |

*Surrogate recoveries indicate the validity of a given analysis

*Report prepared 04/29/88 - MAC:B*

Data Reporting Qualifiers

| | |
|---|---|
| Value | If the result is a value greater than or equal to the detection limit, report the value. |
| U | Indicates compound was analyzed for but not detected at the given detection limit. |
| M | Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters. |
| B | This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination. |
| K | This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run. |
| J | Indicates an estimated value when result is less than specified detection limit. |

Camp/Farm (water)- duplicate

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Analytical Chemists & Consultants

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## ORGANICS ANALYSIS DATA SHEET - METHOD 624

**Sample No: 178248 Matrix Spike**

Lab Sample ID: 1504DMS
Sample Matrix: Waters

QC Report No: 1504-WDOE
Project No: McNeil
Date Received: 04/21/88

Data Release Authorized: Brian N. Silver

Instrument: FINN III
Date Analyzed: 04/29/88

Amount Analyzed: 5 mls
Conc/Dil: 1 to 1

| CAS Number | | µg/L | |
|---|---|---|---|
| 74-87-3 | Chloromethane | 2.9 U | |
| 74-83-9 | Bromomethane | 0.9 U | |
| 75-01-4 | Vinyl Chloride | 1.1 U | |
| 75-00-3 | Chloroethane | 0.9 U | |
| **75-09-2** | **Methylene Chloride** | **4.1 B** | |
| **67-64-1** | **Acetone** | **5.4** | B |
| 75-15-0 | Carbon Disulfide | 2.0 U | |
| 75-35-4 | 1,1-Dichloroethene | - | |
| 75-34-3 | 1,1-Dichloroethane | 1.1 U | |
| 156-60-5 | Trans-1,2-Dichloroethene | 1.1 U | |
| 156-59-2 | Cis-1,2-Dichloroethene | 1.2 U | |
| **67-66-3** | **Chloroform** | **25** | |
| 107-06-2 | 1,2-Dichloroethane | 0.6 U | |
| 78-93-3 | 2-Butanone | 1.0 U | |
| 71-55-6 | 1,1,1-Trichloroethane | 1.0 U | |
| 56-23-5 | Carbon Tetrachloride | 0.5 U | |
| 108-05-4 | Vinyl Acetate | 1.7 U | |
| **75-27-4** | **Bromodichloromethane** | **2.2** | |

| CAS Number | | µg/L |
|---|---|---|
| 78-87-5 | 1,2-Dichloropropane | 0.6 U |
| 10061-01-5 | cis-1,3-Dichloropropene | 0.5 U |
| 79-01-6 | Trichloroethene | - |
| 124-48-1 | Dibromochloromethane | 0.9 U |
| 79-00-5 | 1,1,2-Trichloroethane | 0.3 U |
| 71-43-2 | Benzene | - |
| 10061-02-6 | Trans-1,3-Dichloropropene | 0.6 U |
| 110-75-8 | 2-Chloroethylvinylether | 1.5 U |
| 75-25-2 | Bromoform | 0.3 U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1.8 U |
| 591-78-6 | 2-Hexanone | 1.3 U |
| 127-18-4 | Tetrachloroethene | 0.6 U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.6 U |
| 108-88-3 | Toluene | - |
| 108-90-7 | Chlorobenzene | - |
| 100-41-4 | Ethylbenzene | 1.0 U |
| 100-42-5 | Styrene | 0.5 U |
| | Total Xylenes | 1.5 U |

***Volatile Organic Surrogate Recoveries**

| | |
|---|---|
| d8-Toluene | 101% |
| Bromofluorobenzene | 101% |
| d4-1,2-Dichloroethane | 104% |

*Surrogate recoveries indicate the validity of a given analysis

*Report prepared 04/29/88 - MAC:B*

Data Reporting Qualifiers

| | |
|---|---|
| Value | If the result is a value greater than or equal to the detection limit, report the value. |
| U | Indicates compound was analyzed for but not detected at the given detection limit. |
| M | Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters. |
| B | This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination. |
| K | This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run. |
| J | Indicates an estimated value when result is less than specified detection limit. |

Camp/Farm (water)- duplicate

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## ORGANICS ANALYSIS DATA SHEET - METHOD 624

**Sample No: 178248 Spike Duplicate**

Lab Sample ID: 1504DMSD
Sample Matrix: Waters

QC Report No: 1504-WDOE
Project No: McNeil
Date Received: 04/21/88

Data Release Authorized: Ryan N. Bolce

Instrument: FINN III
Date Analyzed: 04/29/88

Amount Analyzed: 5 mls
Conc/Dil: 1 to 1

| CAS Number | | µg/L |
|---|---|---|
| 74-87-3 | Chloromethane | 2.9 U |
| 74-83-9 | Bromomethane | 0.9 U |
| 75-01-4 | Vinyl Chloride | 1.1 U |
| 75-00-3 | Chloroethane | 0.9 U |
| **75-09-2** | **Methylene Chloride** | **5.0 B** |
| 67-64-1 | Acetone | 0.6 U |
| 75-15-0 | Carbon Disulfide | 2.0 U |
| 75-35-4 | 1,1-Dichloroethene | - |
| 75-34-3 | 1,1-Dichloroethane | 1.1 U |
| 156-60-5 | Trans-1,2-Dichloroethene | 1.1 U |
| 156-59-2 | Cis-1,2-Dichloroethene | 1.2 U |
| **67-66-3** | **Chloroform** | **24** |
| 107-06-2 | 1,2-Dichloroethane | 0.6 U |
| 78-93-3 | 2-Butanone | 1.0 U |
| 71-55-6 | 1,1,1-Trichloroethane | 1.0 U |
| 56-23-5 | Carbon Tetrachloride | 0.5 U |
| 108-05-4 | Vinyl Acetate | 1.7 U |
| **75-27-4** | **Bromodichloromethane** | **2.0** |

| CAS Number | | µg/L |
|---|---|---|
| 78-87-5 | 1,2-Dichloropropane | 0.6 U |
| 10061-01-5 | cis-1,3-Dichloropropene | 0.5 U |
| 79-01-6 | Trichloroethene | - |
| 124-48-1 | Dibromochloromethane | 0.9 U |
| 79-00-5 | 1,1,2-Trichloroethane | 0.3 U |
| 71-43-2 | Benzene | - |
| 10061-02-6 | Trans-1,3-Dichloropropene | 0.6 U |
| 110-75-8 | 2-Chloroethylvinylether | 1.5 U |
| 75-25-2 | Bromoform | 0.3 U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1.8 U |
| 591-78-6 | 2-Hexanone | 1.3 U |
| 127-18-4 | Tetrachloroethene | 0.6 U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.6 U |
| 108-88-3 | Toluene | - |
| 108-90-7 | Chlorobenzene | - |
| 100-41-4 | Ethylbenzene | 1.0 U |
| 100-42-5 | Styrene | 0.5 U |
| | Total Xylenes | 1.5 U |

***Volatile Organic Surrogate Recoveries**

| | |
|---|---|
| d8-Toluene | 97.8% |
| Bromofluorobenzene | 96.2% |
| d4-1,2-Dichloroethane | 100% |

*Surrogate recoveries indicate the validity of a given analysis

*Report prepared 04/29/88 - MAC:B*

Data Reporting Qualifiers

| | |
|---|---|
| Value | If the result is a value greater than or equal to the detection limit, report the value. |
| U | Indicates compound was analyzed for but not detected at the given detection limit. |
| M | Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters. |
| B | This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination. |
| K | This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run. |
| J | Indicates an estimated value when result is less than specified detection limit. |

Camp/Farm (water)- replicate

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## ORGANICS ANALYSIS DATA SHEET - METHOD 624

**Sample No: 178250**

Lab Sample ID: 1504E
Sample Matrix: Waters

QC Report No: 1504-WDOE
Project No: McNeil
Date Received: 04/21/88

Data Release Authorized: Brian N Bohee

Instrument: FINN III
Date Analyzed: 04/28/88

Amount Analyzed: 5 mls
Conc/Dil: 1 to 1

| CAS Number | | µg/L |
|---|---|---|
| 74-87-3 | Chloromethane | 2.9 U |
| 74-83-9 | Bromomethane | 0.9 U |
| 75-01-4 | Vinyl Chloride | 1.1 U |
| 75-00-3 | Chloroethane | 0.9 U |
| **75-09-2** | **Methylene Chloride** | **0.7 JB** |
| **67-64-1** | **Acetone** | **5.1** B |
| 75-15-0 | Carbon Disulfide | 2.0 U |
| 75-35-4 | 1,1-Dichloroethene | 1.3 U |
| 75-34-3 | 1,1-Dichloroethane | 1.1 U |
| 156-60-5 | Trans-1,2-Dichloroethene | 1.1 U |
| 156-59-2 | Cis-1,2-Dichloroethene | 1.2 U |
| **67-66-3** | **Chloroform** | **21** |
| 107-06-2 | 1,2-Dichloroethane | 0.6 U |
| 78-93-3 | 2-Butanone | 1.0 U |
| 71-55-6 | 1,1,1-Trichloroethane | 1.0 U |
| 56-23-5 | Carbon Tetrachloride | 0.5 U |
| 108-05-4 | Vinyl Acetate | 1.7 U |
| **75-27-4** | **Bromodichloromethane** | **2.3** |

| CAS Number | | µg/L |
|---|---|---|
| 78-87-5 | 1,2-Dichloropropane | 0.6 U |
| 10061-01-5 | cis-1,3-Dichloropropene | 0.5 U |
| 79-01-6 | Trichloroethene | 0.8 U |
| 124-48-1 | Dibromochloromethane | 0.9 U |
| 79-00-5 | 1,1,2-Trichloroethane | 0.3 U |
| 71-43-2 | Benzene | 0.4 U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 0.6 U |
| 110-75-8 | 2-Chloroethylvinylether | 1.5 U |
| 75-25-2 | Bromoform | 0.3 U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1.8 U |
| 591-78-6 | 2-Hexanone | 1.3 U |
| 127-18-4 | Tetrachloroethene | 0.6 U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.6 U |
| **108-88-3** | **Toluene** | **4.1** |
| 108-90-7 | Chlorobenzene | 0.6 U |
| 100-41-4 | Ethylbenzene | 1.0 U |
| 100-42-5 | Styrene | 0.5 U |
| | Total Xylenes | 1.5 U |

***Volatile Organic Surrogate Recoveries**

| | |
|---|---|
| d8-Toluene | 98.9% |
| Bromofluorobenzene | 102% |
| d4-1,2-Dichloroethane | 96.4% |

*Surrogate recoveries indicate the validity of a given analysis

*Report prepared 04/29/88 - MAC:B*

Data Reporting Qualifiers

| | |
|---|---|
| Value | If the result is a value greater than or equal to the detection limit, report the value. |
| U | Indicates compound was analyzed for but not detected at the given detection limit. |
| M | Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters. |
| B | This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination. |
| K | This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run. |
| J | Indicates an estimated value when result is less than specified detection limit. |

Camp/Farm (sediment)

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## ORGANICS ANALYSIS DATA SHEET - METHOD 1625

**Sample No: 178251**

Lab Sample ID No: 1504M
Sample Matrix: Soils/Sediments

QC Report No: 1504-WDOE
Project No: McNeil Island
Date Received: 04/21/88

Date Release Authorized: [signature]

Date extracted: 04/29/88
Date Analyzed: 05/14/88
GPC Clean-up: YES (1 of 2)

Amount extracted: 41.7 gm (Dry Weight)
Percent Moisture: 21.5%
pH: 7.6
Conc/Dilution: 2 to 1 after GPC (total 1 to 1)

| CAS Number | | ug/Kg | Rec |
|---|---|---|---|
| 108-95-2 | Phenol | 24 U | 83.6% |
| 111-44-4 | bis(2-Chloroethyl)Ether | 24 U | 69.3% |
| 95-57-8 | 2-Chlorophenol | 24 U | 79.1% |
| 541-73-1 | 1,3-Dichlorobenzene | 24 U | 76.9% |
| 106-46-7 | 1,4-Dichlorobenzene | 24 U | 76.4% |
| 100-51-6 | Benzyl Alcohol | 120 U | IS |
| 95-50-1 | 1,2-Dichlorobenzene | 24 U | 74.8% |
| 95-48-7 | 2-Methylphenol | 24 U | 89.6% |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 38 U | 77.2% |
| **106-44-5** | **4-Methylphenol** | **17 T** | 89.6% |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 24 U | IS |
| 67-72-1 | Hexachloroethane | 26 UC | 58.7% |
| 98-95-3 | Nitrobenzene | 24 U | 82.9% |
| 78-59-1 | Isophorone | 24 U | 137% |
| 88-75-5 | 2-Nitrophenol | 24 U | 82.3% |
| 105-67-9 | 2,4-Dimethylphenol | 24 UC | 94.2% |
| 65-85-0 | Benzoic Acid | 240 U | IS |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 24 U | 83.0% |
| 120-83-2 | 2,4-Dichlorophenol | 24 U | 89.7% |
| 120-82-1 | 1,2,4-Trichlorobenzene | 24 U | 74.7% |
| 87-61-6 | 1,2,3-Trichlorobenzene | 24 U | 81.2% |
| 91-20-3 | Naphthalene | 24 U | 82.6% |
| 106-47-8 | 4-Chloroaniline | 72 U | IS |
| 87-68-3 | Hexachlorobutadiene | 26 U | 75.6% |
| 59-50-7 | 4-Chloro-3-Methylphenol | 24 UC | 103% |
| 91-57-6 | 2-Methylnaphthalene | 24 U | IS |
| 77-47-4 | Hexachlorocyclopentadiene | 24 UR | 0.0% |
| 88-06-2 | 2,4,6-Trichlorophenol | 24 U | 77.0% |
| 95-95-4 | 2,4,5-Trichlorophenol | 24 U | 83.6% |
| 91-58-7 | 2-Chloronaphthalene | 24 U | 93.0% |
| 88-74-4 | 2-Nitroaniline | 120 U | IS |
| 131-11-3 | Dimethyl Phthalate | 24 U | 88.8% |
| 208-96-8 | Acenaphthylene | 24 U | 95.5% |
| 99-09-2 | 3-Nitroaniline | 120 U | IS |
| 83-32-9 | Acenaphthene | 24 U | 91.3% |

| CAS Number | | ug/Kg | Re |
|---|---|---|---|
| 51-28-5 | 2,4-Dinitrophenol | 60 U | 69.6 |
| 100-02-7 | 4-Nitrophenol | 29 U | 100 |
| 132-64-9 | Dibenzofuran | 24 U | IS |
| 121-14-2 | 2,4-Dinitrotoluene | 24 U | 117 |
| 606-20-2 | 2,6-Dinitrotoluene | 24 UJ | 61.7 |
| 84-66-2 | Diethylphthalate | 24 U | 105 |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 24 U | 97.0 |
| 86-73-7 | Fluorene | 24 U | 92.7 |
| 100-01-6 | 4-Nitroaniline | 120 U | IS |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 24 U | 87.9 |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 24 U | 87.5 |
| 122-39-4 | Diphenylamine | 24 U | 91.2 |
| 122-66-7 | 1,2-Diphenylhydrazine * | 24 U | 91.7 |
| 101-55-3 | 4-Bromophenyl-phenylether | 24 U | 89.4 |
| 118-74-1 | Hexachlorobenzene | 24 U | 109 |
| 87-86-5 | Pentachlorophenol | 38 U | 61.8 |
| 85-01-8 | Phenanthrene | 24 U | 84.8 |
| 120-12-7 | Anthracene | 24 U | 87.8 |
| 86-74-8 | Carbazole * | 24 U | 87.4 |
| 84-74-2 | Di-n-Butylphthalate | 24 U | 85.8 |
| **206-44-0** | **Fluoranthene** | **20** UJ | 91.2 |
| **129-00-0** | **Pyrene** | **18** UJ | 88.5 |
| 85-68-7 | Butylbenzylphthalate | 24 U | 95.5 |
| 91-94-1 | 3,3'-Dichlorobenzidine | 24 U | 39.9 |
| 56-55-3 | Benzo(a)Anthracene | 24 U | 86.7 |
| **117-81-7** | **bis(2-Ethylhexyl)Phthalate** | **34** UJ | 87.3 |
| 218-01-9 | Chrysene | 24 U | 91.1 |
| 117-84-0 | Di-n-Octyl Phthalate | 24 U | 82.2 |
| 205-99-2 | Benzo(b)Fluoranthene | 24 U | 77.1 |
| 207-08-9 | Benzo(k)Fluoranthene | 24 U | 91.8 |
| 50-32-8 | Benzo(a)Pyrene | 24 U | 82.0 |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene ** | 24 U | 88.3 |
| 53-70-3 | Dibenz(a,h)Anthracene | 24 U | 88.3 |
| 191-24-2 | Benzo(ghi)Perylene | 24 U | 85.0 |

IS Value relative to 2-Fluorobiphenyl Internal Std
* Value calculated from 1:1 response to labeled analog
T Less than DL but considered real by analyst
C Corrected for analog contribution to quant ion

(1) Cannot be separated from diphenylamine
** Labeled Dibenz(a,h) anthracene used for surrogate
B Analyte found in the blank as well as sample
Values not corrected for analog recoveries

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Camp/Farm (sediment)

## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 1782 51**

Lab Sample ID: 1504 M
Matrix: Soil
VTSR: 4/21/88

Date Extracted: 04/25/88
Date Analyzed: 04/30/88
Conc/Dil Factor: 1:10
Dry Weight Extracted: 28.79

QC Report No.: 1504-WDOE
Project No NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: Peter M. Kegler

| CAS Number | | ug/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| **11097-69-** | **Aroclor-1254** | **25 J** |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| **Dibutylchlorendate** | **81%** |

Data Qualifiers

U Indicates compound was analyzed for but not detected at the given detection limit.

J Indicates a hit below the calculated detection limit but considered real by the analyst.

Camp/Farm (clams)

**ANALYTICAL RESOURCES INCORPORATED**

Analytical Chemists & Consultants

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## ORGANICS ANALYSIS DATA SHEET - METHOD 625

**Sample No: 178252**

Lab Sample ID: 1524G
Sample Matrix: Clam Tissues

QC Report No: 1524-WDOE
Project No: [Aroki]
Date Received: 04/28/88

Date Release Authorized: Allan R. Baker

Date extracted: 05/04/88
Date Analyzed: 05/11/88
GPC Clean-up: YES ( 1 of 2)

Amount extracted: 58.5 gm ( Wet Weight Equivalent)
Percent Moisture: NA
pH: NA
Conc/Dilution: 1 to 2 after GPC ( 1 to 4 total)

| CAS Number | | µg/Kg |
|---|---|---|
| 108-95-2 | Phenol | 68 U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 68 U |
| 95-57-8 | 2-Chlorophenol | 68 U |
| 541-73-1 | 1,3-Dichlorobenzene | 68 U |
| 106-46-7 | 1,4-Dichlorobenzene | 68 U |
| 100-51-6 | Benzyl Alcohol | 340 U |
| 95-50-1 | 1,2-Dichlorobenzene | 68 U |
| 95-48-7 | 2-Methylphenol | 68 U |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 68 U |
| 106-44-5 | 4-Methylphenol | 68 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 68 U |
| 67-72-1 | Hexachloroethane | 140 U |
| 98-95-3 | Nitrobenzene | 68 U |
| 78-59-1 | Isophorone | 68 U |
| 88-75-5 | 2-Nitrophenol | 340 U |
| 105-67-9 | 2,4-Dimethylphenol | 140 U |
| **65-85-0** | **Benzoic Acid** | **460 M** |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 68 U |
| 120-83-2 | 2,4-Dichlorophenol | 210 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 68 U |
| 91-20-3 | Naphthalene | 68 U |
| 106-47-8 | 4-Chloroaniline | 210 U |
| 87-68-3 | Hexachlorobutadiene | 140 U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 140 U |
| 91-57-6 | 2-Methylnaphthalene | 68 U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 340 U |
| 91-58-7 | 2-Chloronaphthalene | 68 U |
| 88-74-4 | 2-Nitroaniline | 340 U |
| 131-11-3 | Dimethyl Phthalate | 68 U |
| 208-96-8 | Acenaphthylene | 68 U |
| 99-09-2 | 3-Nitroaniline | 340 U |

| CAS Number | | µg/Kg |
|---|---|---|
| 83-32-9 | Acenaphthene | 68 U |
| 51-28-5 | 2,4-Dinitrophenol | 680 U |
| 100-02-7 | 4-Nitrophenol | 340 U |
| 132-64-9 | Dibenzofuran | 68 U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 U |
| 84-66-2 | Diethylphthalate | 68 U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 68 U |
| 86-73-7 | Fluorene | 68 U |
| 100-01-6 | 4-Nitroaniline | 340 U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 680 U |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 68 U |
| 101-55-3 | 4-Bromophenyl-phenylether | 68 U |
| 118-74-1 | Hexachlorobenzene | 68 U |
| 87-86-5 | Pentachlorophenol | 340 U |
| 85-01-8 | Phenanthrene | 68 U |
| 120-12-7 | Anthracene | 68 U |
| 84-74-2 | Di-n-Butylphthalate | 68 U |
| 206-44-0 | Fluoranthene | 68 U |
| 129-00-0 | Pyrene | 68 U |
| 85-68-7 | Butylbenzylphthalate | 68 U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 U |
| 56-55-3 | Benzo(a)Anthracene | 68 U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 68 U |
| 218-01-9 | Chrysene | 68 U |
| 117-84-0 | Di-n-Octyl Phthalate | 68 U |
| 205-99-2 | Benzo(b)Fluoranthene | 68 U |
| 207-08-9 | Benzo(k)Fluoranthene | 68 U |
| 50-32-8 | Benzo(a)Pyrene | 68 U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 68 U* |
| 53-70-3 | Dibenz(a,h)Anthracene | 68 U |
| 191-24-2 | Benzo(ghi)Perylene | 68 U |

(1) Cannot be separated from diphenylamine

U* Interference from non-HSL (steroid) compound

*Report prepared 05/12/88 MAC:B*

***Base/neutral surrogate recoveries**

| | |
|---|---|
| d5-Nitrobenzene | 86.5% |
| 2-Fluorobiphenyl | 79.9% |
| d14-p-Terphenyl | 76.1% |

***Acid surrogate recoveries**

| | |
|---|---|
| d5-Phenol | 77.7% |
| 2-Fluorophenol | 26.4% |
| 2,4,6-Tribromophenol | 82.9% |

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Camp/Farm (clams)

## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 178252**

Lab Sample ID: 1524 G
Matrix: Tissue
VTSR: 4/28/88

Date Extracted: 05/04/88
Date Analyzed: 05/11/88
Conc/Dil Factor: 1:20
Wet Weight Extracted: 58.47

QC Report No.: 1524-WDOE
Project No.: NA
GPC Cleanup: YES
Alumina Cleanup: YES

Data Release Authorized: Peter M. Kepler

| CAS Number | | µg/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| Dibutylchlorendate | 113% |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

Horsehead Bay (clams)

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## ORGANICS ANALYSIS DATA SHEET - METHOD 625

**Sample No: 178253**

Lab Sample ID: 1524H
Sample Matrix: Clam Tissues

QC Report No: 1524-WDOE
Project No: [Aroki]
Date Received: 04/28/88

Date Release Authorized: _____

Amount extracted: 59.4 gm (Wet Weight Equivalent)
Percent Moisture: NA
pH: NA
Conc/Dilution: 1 to 2 after GPC (1 to 4 total)

Date extracted: 05/04/88
Date Analyzed: 05/11/88
GPC Clean-up: YES (1 of 2)

| CAS Number | | µg/Kg |
|---|---|---|
| 108-95-2 | Phenol | 67 U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 67 U |
| 95-57-8 | 2-Chlorophenol | 67 U |
| 541-73-1 | 1,3-Dichlorobenzene | 67 U |
| 106-46-7 | 1,4-Dichlorobenzene | 67 U |
| 100-51-6 | Benzyl Alcohol | 340 U |
| 95-50-1 | 1,2-Dichlorobenzene | 67 U |
| 95-48-7 | 2-Methylphenol | 67 U |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 67 U |
| 106-44-5 | 4-Methylphenol | 67 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 67 U |
| 67-72-1 | Hexachloroethane | 130 U |
| 98-95-3 | Nitrobenzene | 67 U |
| 78-59-1 | Isophorone | 67 U |
| 88-75-5 | 2-Nitrophenol | 340 U |
| 105-67-9 | 2,4-Dimethylphenol | 130 U |
| 65-85-0 | Benzoic Acid | 670 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 67 U |
| 120-83-2 | 2,4-Dichlorophenol | 200 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 67 U |
| 91-20-3 | Naphthalene | 67 U |
| 106-47-8 | 4-Chloroaniline | 200 U |
| 87-68-3 | Hexachlorobutadiene | 130 U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 130 U |
| 91-57-6 | 2-Methylnaphthalene | 67 U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 340 U |
| 91-58-7 | 2-Chloronaphthalene | 67 U |
| 88-74-4 | 2-Nitroaniline | 340 U |
| 131-11-3 | Dimethyl Phthalate | 67 U |
| 208-96-8 | Acenaphthylene | 67 U |
| 99-09-2 | 3-Nitroaniline | 340 U |

| CAS Number | | µg/Kg |
|---|---|---|
| 83-32-9 | Acenaphthene | 67 U |
| 51-28-5 | 2,4-Dinitrophenol | 670 U |
| 100-02-7 | 4-Nitrophenol | 340 U |
| 132-64-9 | Dibenzofuran | 67 U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 U |
| 84-66-2 | Diethylphthalate | 67 U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 67 U |
| 86-73-7 | Fluorene | 67 U |
| 100-01-6 | 4-Nitroaniline | 340 U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 670 U |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 67 U |
| 101-55-3 | 4-Bromophenyl-phenylether | 67 U |
| 118-74-1 | Hexachlorobenzene | 67 U |
| 87-86-5 | Pentachlorophenol | 340 U |
| 85-01-8 | Phenanthrene | 67 U |
| 120-12-7 | Anthracene | 67 U |
| 84-74-2 | Di-n-Butylphthalate | 67 U |
| 206-44-0 | Fluoranthene | 67 U |
| 129-00-0 | Pyrene | 67 U |
| 85-68-7 | Butylbenzylphthalate | 67 U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 U |
| 56-55-3 | Benzo(a)Anthracene | 67 U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 67 U |
| 218-01-9 | Chrysene | 67 U |
| 117-84-0 | Di-n-Octyl Phthalate | 67 U |
| 205-99-2 | Benzo(b)Fluoranthene | 67 U |
| 207-08-9 | Benzo(k)Fluoranthene | 67 U |
| 50-32-8 | Benzo(a)Pyrene | 67 U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 67 U* |
| 53-70-3 | Dibenz(a,h)Anthracene | 67 U |
| 191-24-2 | Benzo(ghi)Perylene | 67 U |

(1) Cannot be separated from diphenylamine

U* Interference from non-HSL (steroid) compound

*Report prepared 05/12/88 MAC:B*

***Base/neutral surrogate recoveries**

| | |
|---|---|
| d5-Nitrobenzene | 105% |
| 2-Fluorobiphenyl | 93.4% |
| d14-p-Terphenyl | 76.4% |

***Acid surrogate recoveries**

| | |
|---|---|
| d5-Phenol | 88.3% |
| 2-Fluorophenol | 64.2% |
| 2,4,6-Tribromophenol | 128% |

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Horsehead Bay (clams)

## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 178253**

Lab Sample ID: 1524 H
Matrix: Tissue
VTSR: 4/28/88

Date Extracted: 05/04/88
Date Analyzed: 05/11/88
Conc/Dil Factor: 1:20
Wet Weight Extracted: 59.40

QC Report No.: 1524-WDOE
Project No.: NA
GPC Cleanup: YES
Alumina Cleanup: YES

Data Release Authorized: Peter M. Kepler

| CAS Number | | µg/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| Dibutylchlorendate | 150% |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

Cutts Island (clams)

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## ORGANICS ANALYSIS DATA SHEET - METHOD 625

**Sample No: 178255**

Lab Sample ID: 15241
Sample Matrix: Clam Tissues

QC Report No: 1524-WDOE
Project No: [Aroki]
Date Received: 04/28/88

Date Release Authorized: [signature]

Date extracted: 05/04/88
Date Analyzed: 05/11/88
GPC Clean-up: YES ( 1 of 2)

Amount extracted: 60.3 gm (Wet Weight Equivalent)
Percent Moisture: NA
pH: NA
Conc/Dilution: 1 to 2 after GPC ( 1 to 4 total)

| CAS Number | | µg/Kg |
|---|---|---|
| 108-95-2 | Phenol | 66 U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 66 U |
| 95-57-8 | 2-Chlorophenol | 66 U |
| 541-73-1 | 1,3-Dichlorobenzene | 66 U |
| 106-46-7 | 1,4-Dichlorobenzene | 66 U |
| 100-51-6 | Benzyl Alcohol | 330 U |
| 95-50-1 | 1,2-Dichlorobenzene | 66 U |
| 95-48-7 | 2-Methylphenol | 66 U |
| 39638-32-9 | bis(2-chloroisopropyl)Ether | 66 U |
| 106-44-5 | 4-Methylphenol | 66 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 66 U |
| 67-72-1 | Hexachloroethane | 130 U |
| 98-95-3 | Nitrobenzene | 66 U |
| 78-59-1 | Isophorone | 66 U |
| 88-75-5 | 2-Nitrophenol | 330 U |
| 105-67-9 | 2,4-Dimethylphenol | 130 U |
| 65-85-0 | Benzoic Acid | 660 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 66 U |
| 120-83-2 | 2,4-Dichlorophenol | 200 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 66 U |
| 91-20-3 | Naphthalene | 66 U |
| 106-47-8 | 4-Chloroaniline | 200 U |
| 87-68-3 | Hexachlorobutadiene | 130 U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 130 U |
| 91-57-6 | 2-Methylnaphthalene | 66 U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 330 U |
| 91-58-7 | 2-Chloronaphthalene | 66 U |
| 88-74-4 | 2-Nitroaniline | 330 U |
| 131-11-3 | Dimethyl Phthalate | 66 U |
| 208-96-8 | Acenaphthylene | 66 U |
| 99-09-2 | 3-Nitroaniline | 330 U |

| CAS Number | | µg/Kg |
|---|---|---|
| 83-32-9 | Acenaphthene | 66 U |
| 51-28-5 | 2,4-Dinitrophenol | 660 U |
| 100-02-7 | 4-Nitrophenol | 330 U |
| 132-64-9 | Dibenzofuran | 66 U |
| 121-14-2 | 2,4-Dinitrotoluene | 330 U |
| 606-20-2 | 2,6-Dinitrotoluene | 330 U |
| 84-66-2 | Diethylphthalate | 66 U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 66 U |
| 86-73-7 | Fluorene | 66 U |
| 100-01-6 | 4-Nitroaniline | 330 U |
| 534-52-1 | 4,6-Dinitro-2-Methylphenol | 660 U |
| 86-30-6 | N-Nitrosodiphenylamine(1) | 66 U |
| 101-55-3 | 4-Bromophenyl-phenylether | 66 U |
| 118-74-1 | Hexachlorobenzene | 66 U |
| 87-86-5 | Pentachlorophenol | 330 U |
| 85-01-8 | Phenanthrene | 66 U |
| 120-12-7 | Anthracene | 66 U |
| 84-74-2 | Di-n-Butylphthalate | 66 U* |
| 206-44-0 | Fluoranthene | 66 U |
| 129-00-0 | Pyrene | 66 U |
| 85-68-7 | Butylbenzylphthalate | 66 U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 330 U |
| 56-55-3 | Benzo(a)Anthracene | 66 U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 66 U |
| 218-01-9 | Chrysene | 66 U |
| 117-84-0 | Di-n-Octyl Phthalate | 66 U |
| 205-99-2 | Benzo(b)Fluoranthene | 66 U |
| 207-08-9 | Benzo(k)Fluoranthene | 66 U |
| 50-32-8 | Benzo(a)Pyrene | 66 U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 66 U* |
| 53-70-3 | Dibenz(a,h)Anthracene | 66 U |
| 191-24-2 | Benzo(ghi)Perylene | 66 U |

(1) Cannot be separated from diphenylamine

U* Interference from non-HSL (steroid) compound

*Report prepared 05/12/88 MAC:B*

***Base/neutral surrogate recoveries**

| | |
|---|---|
| d5-Nitrobenzene | 95.4% |
| 2-Fluorobiphenyl | 83.8% |
| d14-p-Terphenyl | 72.2% |

***Acid surrogate recoveries**

| | |
|---|---|
| d5-Phenol | 78.9% |
| 2-Fluorophenol | 50.8% |
| 2,4,6-Tribromophenol | 114% |

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Cutts Island (clams)

## ORGANICS ANALYSIS DATA SHEET - Method 8080

**Sample No: 178255**

Lab Sample ID: 1524 I
Matrix: Tissue
VTSR: 4/28/88

Date Extracted: 05/04/88
Date Analyzed: 05/11/88
Conc/Dil Factor: 1:20
Wet Weight Extracted: 60.28

QC Report No.: 1524-WDOE
Project No.: NA
GPC Cleanup: YES
Alumina Cleanup: YES

Data Release Authorized: Peter M. Kepler

| CAS Number | | µg/Kg |
|---|---|---|
| 319-84-6 | Alpha-BHC | 2 U |
| 319-85-7 | Beta-BHC | 2 U |
| 319-86-8 | Delta-BHC | 2 U |
| 58-89-9 | Gamma-BHC (Lindane) | 2 U |
| 76-44-8 | Heptachlor | 2 U |
| 309-00-2 | Aldrin | 2 U |
| 1024-57-3 | Heptachlor Epoxide | 2 U |
| 959-98-8 | Endosulfan I | 2 U |
| 60-57-1 | Dieldrin | 4 U |
| 72-55-9 | 4,4'-DDE | 4 U |
| 72-20-8 | Endrin | 4 U |
| 33212-65-9 | Endosulfan II | 4 U |
| 72-54-8 | 4,4'-DDD | 4 U |
| 1031-07-8 | Endosulfan Sulfate | 4 U |
| 50-29-3 | 4,4'-DDT | 4 U |
| 72-43-5 | Methoxychlor | 4 U |
| 53494-70-5 | Endrin Ketone | 4 U |
| 57-74-9 | Chlordane | 20 U |
| 8001-35-2 | Toxaphene | 200 U |
| 12674-11-2 | Aroclor-1016 | 40 U |
| 53469-21-9 | Aroclor-1242 | 40 U |
| 12672-29-6 | Aroclor-1248 | 40 U |
| 11097-69-1 | Aroclor-1254 | 40 U |
| 11096-82-5 | Aroclor-1260 | 40 U |

*** Pesticide Surrogate Recovery**

| | |
|---|---|
| Dibutylchlorendate | 121% |

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.