ENVIRONMENTAL PROTECTION AGENCY
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DENVER, COLORADO 80225

DATE November 26, 1980

TO: Environmental Chemistry Branch, Organic Section

FROM: B.A. Hughes

SUBJECT: Acquisition, Reduction, and Reporting of GC/MS Data

Attached is an outline of the steps to be used in acquiring, quantitating, and reporting GC/MS data. The outline is useful as a quick reference during daily operation. This outline is best utilized in conjunction with the NEIC Manual "Computer Assisted Evaluation of GC/MS Data". Sections 1-3 of the outline address calibration and standardization. Section 4 discusses VOA blank analysis. Sections 5-6 describe sample analysis. Sections 7-11 describe data summary and data report procedures.

1.0 Mass Assignment Calibration (FC43)

1.1 Criteria set by instrument manufacturer.

2.0 Mass Intensity Standardization (DFTPP/BFB)

2.1 Criteria listed in standard analytical methods 624 & 625.

2.1.1 The DFTPP/BFB run number should be entered in the FORMULA slot in ACQU on all standards, samples and blanks run that day.

3.0 Standard Reference Compound Mix and Internal Standard/Analysis

3.1 The Standard Mix run number should be entered in the SUBMITTED BY slot in ACQU on all samples and blanks run that day.

3.2 Use ISCHK to audit the retention times and peak areas of the internal standard, and to examine the peak shape of the internal standards.

3.2.1 If the IS peaks are not within ±10 scans of the standard retention times recorded in the priority pollutant library, reject the run and inject the standards again.

3.2.2 If the peak area ratios are not within the experimental limits established by the operator on previous acceptable runs, reject the standard mix.

3.2.3 If the peak area ratios are acceptable, but the peak area counts are less than 50% of previously acceptable runs, be aware of loss of sensitivity. If time permits correct the problem.

3.2.4 If the second internal standard (IS-QA) is calculated at a level outside of the range of 90-110% of the standard amount added to the standard mix, reject the standard, prepare the standard mix again, and reinject the mix.

3.2.5 If the peak shapes are skewed or have multiple spikes, reject the run and reinject the mix.

3.3 Process the Standard Mix run using EVALØQ.

3.3.1 Check the QUAN report to see if all of the standard reference compounds have been found and quantitated.

3.3.2 Check all compound spectra to determine if mass assignments and mass intensities agree with standard reference spectra.

3.3.3 If all of the compounds have not been found, locate the "NOT FOUND" manually if possible and determine the area of the compound peak using MQSA.

3.3.4 When all compounds have been found, update the retention times, relative retention times, and response factors using QUAN. DO NOT UPDATE A QUAN REPORT SHOWING "NOT FOUND" ENTRIES. Check the reference column on the QUAN report. The number "1" should be printed in the reference column for each compound. Do not update the QUAN report if any other number is printed in the reference column for any compound. If any number other than "1" was printed in the reference column for any compound, check that compound entry in the priority pollutant library to be sure that the correct reference peak was entered in the library for that compound.

3.3.5 Write the updated values to compound response lists using QUAN.

3.3.6 Initiate the procedure RFQUAL. RDQUAL audits the daily response factors stored in standard compound response lists. RFQUAL outputs a response list summary indicating the last response factor entered in the response list for each compound, and the average and standard deviation of up to fifty response factor values in the response list. The program calculates a CV% (coefficient of variation = std. dev. X 100/avg.) for each compound response factor. A compound will be flagged if the CV% is greater than or equal to 30%. If more than 10% of the compounds are flagged, rerun the standard mix. If less than 10% of the compounds are flagged, check the response factors of the compound flagged. If the response factor of any compound is outside the range of 90-110% of the average of three previously acceptable response factors for than compound, eliminate that compound from the list of priority pollutants standardized for that day and note that the compound was not standardized that day. If the compound is detected in samples that day, the compound must be confirmed and quantitated like a non-priority pollutant.

4.0 Laboratory Blank (VOA) / Analysis

4.1 Use ISCHK to audit the retention times and peak areas of the internal standard, and to examine the peak shape of the internal standards.

4.1.1 If the IS peaks are not within ±10 scans of the standard retention times recorded in the priority pollutant library, reject the run and inject the blank again.

4.1.2 If the peak area ratios are not within the experimental limits established by the operator on previous acceptable runs, reject the run and reinject the blank.

4.1.3 If the peak area ratios are acceptable, but the peak area counts are less than 50% of previously acceptable runs, be aware of loss of sensitivity. If time permits correct the problem.

4.1.4 If the second internal standard (IS-QA) is calculated at a level outside of the range of 90-110% of the standard amount added to the blank, reject the run, prepare the blank again, and reinject the blank.

4.1.5 If the peak shapes are skewed or have multiple spikes, reject the run and reinject the blank.

4.2 All compounds detected must be $\leq$10 ug/L.

4.2.1 Determination can be made on the basis of peak height for priority pollutants using multiple runs to make a correlation between calculated amount and peak height.

4.2.2 If any priority pollutant compound is detected in the blank at a level greater than 10 ug/L, rerun the laboratory blank until this criterium is met.

5.0 Sample and Internal Standard/Analysis/Priority Pollutant Identification and Quantitation.

5.1 Use ISCHK to audit the retention times and peak areas of the internal standards, and to examine the peak shape of the internal standards.

5.1.1 If the IS peaks are not within ±10 scans of the standard retention times recorded in the priority pollutant library, reject the run and inject the sample again.

5.1.2 If the peak area ratios are not within the experimental limits

established by the operator on previous acceptable runs, reject the run and reinject the sample.

5.1.3 If the peak area ratios are acceptable, but the peak area counts are less than 50% of previously acceptable runs, be aware of loss of sensitivity. If time permits correct the problem.

5.1.4 If the second internal standard (IS-QA) is calculated at a level outside of the range of 90-100% of the standard amount added to the sample, reject the run, prepare the sample again, and reinject.

5.1.5 If the peak shapes are skewed or have multiple spikes, reject the run and reinject the sample.

5.2 Process the sample run using the priority pollutant library and procedure EVALØ (EVAL2). Elect to print compound spectra and/or to search the NBS library of spectra for spectral matches for the non-priority pollutant compounds.

5.2.1 Check the identification report and the compound spectra to see that a spectrum was printed for all priority pollutant compounds detected with a FIT value greater than or equal to 700. (A FIT of 1000 represents a perfect match of the sample compound spectrum to the standard compound spectrum for the ions in the standard spectrum.) Compare the sample spectrum to the standard spectrum. The sample compound identification is confirmed if three characteristic ions maximize in the spectrum and if the ratios of the ion intensities (peak heights) of these three ions agree within ±20% to those ratios in the standard spectra. The ratio of the ions in the sample cannot always be determined by examining the graphic output of the spectrum. Output the ion/intensity list for the spectrum and calculate the ratios of the intensities. If the sample spectrum printed cannot be confirmed when compared to the standard spectrum, draw a line diagonally across the sample spectrum, draw a line across the scan number in the Identification Report, draw a line across the compound name and the quantitation results in the QUAN report.

5.2.2 Check the QUAN report to see if a compound name and quantitation results have been printed more than once. Extraneous entries for a compound can be eliminated after checking the identification report for the scan number pinpointed while searching the chromatographic run for priority pollutant compounds. The correct scan number for the priority pollutant should be shown on the sample compound spectrum and with the quantitation results for the compound. Draw a line through extraneous printings of the compound name and quantitation results.

5.3 Record the quantitation results on the orange "Quantitation Worksheets" to four significant figures. Each "Quantitation Worksheet" should show the project number and sample identification information as well as the standard reference mix run number, the laboratory blank run number, the reagent blank run number, and an indication of "Page __ of __". Enter the scan number of the sample compound identified in the "NO." column and the priority pollutant number of the compound in the "COMPONENT" column. Attach a list of the priority pollutants searched for in the sample to the orange sheet.

5.4 All sample results must be corrected for the presence of contaminants found in laboratory (VOA), reagent (method), and field blanks.

5.5 Dilution factor calculations must be done when the original sample was diluted prior to analysis.

6.0 Sample and Internal Standard/Analysis/Non-Priority Pollutant Compound Identification and Quantitation.

6.1 Compare the sample spectra for the non-priority pollutants to the standard spectra from the NBS library. Record a compound on the orange sheet as a tentative identification of the sample spectrum if ion clusters present in the sample spectrum are present in the standard spectrum and if the ratio of the ions within the clusters agree within ±20% to those ratios in the standard spectra. For each tentative identification entered on the orange sheet include the scan number of the sample compound, CAS# of the tentative identification compound, and an indication of whether the identification was excellent (EX), good (G), or fair (F). A FIT value of 900-1000 can be designated excellent, of 800-900 can be called good, and of 600-800 can be called fair.

6.2 Review the tentatively identified compounds listed on the orange sheets for each sample. Prepare standard compound mixes and run these standards on the GC/MS under the same conditions as the samples were run.

6.3 Create a user library and corresponding library list of the standards to be used to confirm and quantitate the tentatively identified non-priority compounds. Instructions for creating a user library and library list can be found in "NEIC Computer Assisted Evaluation of GC/MS Data".

6.4 Process the special standard mix runs using the special standard library and EVALØQ.

6.4.1 Check the QUAN reports to see if all the standard compounds have been found and quantitated.

6.4.2 Delete all valid "NOT FOUND" entries from the QUAN report.

6.4.3 When all of the standard compounds have been found, update the retention times, relative retention times, and response factors in the special standards library using QUAN.

6.5 Copy all of the sample data files and blank files to alternate filenames. If these data files were to be processed using the special standards library the quantitation reports generated using the priority pollutant library would be overwritten.

6.6 Process all of the sample runs and blank runs using the special standards library and procedure EVALØ (EVAL2).

6.7 Review the tentatively identified compounds listed on the orange "Quantitation Worksheet" for each sample. Draw a line through all of the compounds that were not confirmed as present in the sample and designate these samples as NC (not confirmed). Record the quantitation results for those compounds that were confirmed and quantitated. Attach a list of the standards available to confirm and quantitate the non-priority pollutants to the orange sheet.

6.8 All sample results must be corrected for the presence of contaminants found in laboratory, reagent, and field blanks.

6.9 Dilution factor calculations must be done when the original sample was diluted prior to analysis.

7.0 Quality Control

7.1 After each quality control sample is processed according to Sections 5-6, complete an "Organics Quality Control Summary Sheet" for each quality control sample (spike, replicate analysis, relicate injection).

7.2 Report the quality control sample results on the appropriate "Quality Control Report" sheet. A copy of each "Quality Control Report" sheet must be kept with the laboratory sample data files.

8.0 Data Summary/Priority Pollutant Compounds

8.1 Record the quantitative results for each priority pollutant detected on the appropriate white "Data Summary" sheet. The results should be recorded to the number of significant figures on the "Data Summary" as will appear on the final report sheet.

8.2 Attach the white "Data Summary" for each sample to the front of the orange "Quantitation Worksheet".

9.0 Data Summary/Non-Priority Pollutant Compounds

9.1 Record the quantitative results for each non-priority pollutant detected on the appropriate white organic characterization "Data Summary" sheet.

9.2 Attach the organic characterization "Data Summary" to the front of the orange "Quantitation Worksheet".

10.0 Data Report/Priority Pollutant Compounds

10.1 Record the quantitative results for each priority pollutant detected in each sample on the appropriate "Data Report" sheet. Reserve the last column of the report sheet for the lower limit of detection for the compound results reported. A copy of each "Data Report" sheet is kept with the laboratory data files in the same folder as custody sheets and logbook pages.

11.0 Data Report/Non-Priority Pollutant Compounds

11.1 Record the quantative results for each non-priority pollutant detected in each sample on the appropriate organic characterization "Data Report" sheet. A copy of each "Data Report" sheet is kept with the laboratory data files in the same folder as custody sheets and logbook pages.

OC-VOA IDENTIFICATION/QUANTITATION WORK SHEET (ORANGE SHEET)

PROJ CODE	STATION NO.	SEQUENCE NO.	MO/DAY/YR	TIME	EXTRACT	AMOUNT	IDENT. DATE	QUANT. DATE
							IDENT. ANALYST	QUANT. ANALYST

EXTERNAL STANDARD	INTERNAL STANDARD	CONCENTRATION
$ng/ul = \frac{ph}{ul} \times \frac{ng\ STD}{ph\ STD}$	$R_f = \frac{ph\ STD}{ph\ INT\ STD} \times \frac{ng/ul\ INT\ STD}{ng/ul\ STD}$, $ng/ul = \frac{ph}{ph\ INT\ STD} \times \frac{ng/ul\ INT\ STD}{R_f}$	$ug/l = \frac{ng}{ul} \times \frac{100\%\ conc.\ vol\ ml}{extract\ vol\ l} \times \frac{100\%}{\%\ sol}$

NO.	COMPONENT	CAS #	IDENT.	% SOL/VOL	RT/RRT	pH/AREA	CONC. ng/ul	CONC. ug/l

CF = CONFIRMED, NC = NOT CONFIRMED, TENT. = TENTATIVE ID, NA = NOT ANALYZED

ORGANICS QUALITY CONTROL SUMMARY SHEET

PROJ CODE	STATION NO.	SEQUENCE NO.	MO/DAY/YR	TIME	SPIKE ☐ BLANK ☐ REPLICATE INJECTION ☐ REPLICATE ANALYSIS ☐	ANALYST DATE
		-				

COMPONENT	REPLICATE			SPIKE		
	AMOUNT 1	AMOUNT 2	DIFFERENCE	ADDED	RECOVERED	% RECOVERY

VOLATILE PRIORITY POLLUTANTS

DATA REPORT PROJECT _____ , _____

STATION-SEQUENCE						
DATE-TIME						
TAG NUMBER						
UNITS						
	NAME	CAS NUMBER				
2.	ACROLEIN	(83-32-9)				
3	ACRYLONITRILE	(107-02-8)				
4	BENZENE	(71-43-2)				
6	CARBONTETRACHLORIDE	(56-23-5)				
7.	CHLOROBENZENE	(108-90-7)				
10.	1,2-DICHLOROETHANE	(107-06-2)				
11.	1,1,1-TRICHLOROETHANE	(71-55-6)				
13	1,1-DICHLOROETHANE	(75-34-3)				
14	1,1,2-TRICHLOROETHANE	(79-00-5)				
15	1,1,2,2-TETRACHLOROETHANE	(79-34-5)				
16	CHLOROETHANE	(75-00-3)				
19.	2-CHLOROETHYLVINYLETHER	(110-75-8)				
23	CHLOROFORM	(67-66-3)				
29.	1,1-DICHLOROETHYLENE	(540-59-0)				
30.	TRANS-1,2-DICHLOROETHYLENE	(156-60-5)				
32	1,2-DICHLOROPROPANE	(78-87-5)				
33A.	TRANS-1,3-DICHLOROPROPYLENE	(10061-02-6)				
33B.	CIS-1,3-DICHLOROPROPYLENE	(10061-01-5)				
38.	ETHYLBENZENE	(100-41-4)				
44.	METHYLENE CHLORIDE	(75-09-2)				

VOLATILE PRIORITY POLLUTANTS

DATA REPORT PROJECT _____ , _____

STATION-SEQUENCE						
DATE-TIME						
TAG NUMBER						
UNITS						
	NAME	CAS NUMBER				
45	METHYL CHLORIDE	(74-87-3)				
46	METHYL BROMIDE	(74-83-9)				
47.	BROMOFORM	(75-25-2)				
48	DICHLOROBROMOMETHANE	(75-27-4)				
49	TRICHLOROFLUOROMETHANE	(75-69-4)				
50	DICHLORODIFLUOROMETHANE	(75-71-8)				
51.	CHLORODIBROMOMETHANE	(124-48-1)				
85	TETRACHLOROETHYLENE	(127-18-4)				
86	TOLUENE	(108-88-3)				
87	TRICHLOROETHYLENE	(79-01-6)				
88	VINYL CHLORIDE	(75-01-4)				

BASE/NEUTRAL EXTRACTABLE PRIORITY POLLUTANTS

DATA REPORT PROJECT _____ , _____

STATION-SEQUENCE						
DATE-TIME						
TAG NUMBER						
UNITS						
	NAME	CAS NUMBER				
1.	ACENAPHTHENE	(83-32-9)				
5	BENZIDINE	(92-87-5)				
8	1,2,4-TRICHLOROBENZENE	(120-82-1)				
9.	HEXACHLOROBENZENE	(118-74-1)				
12.	HEXACHLOROETHANE	(67-72-1)				
18	BIS(2-CHLOROETHYL)ETHER	(111-44-4)				
20	2-CHLORONAPHTHALENE	(91-58-7)				
25	1,2-DICHLOROBENZENE	(95-50-1)				
26.	1,3-DICHLOROBENZENE	(541-73-1)				
27	1,4-DICLOROBENZENE	(106-46-7)				
28.	3,3'-DICHLOROBENZIDINE	(91-94-1)				
35.	2,4-DINITROTOLUENE	(121-14-2)				
36.	2,6-DINITROTOLUENE	(606-20-2)				
37.	1,2-DIPHENYLHYDRAZINE (MEASURED AS AZOBENZENE)	(122-66-7)				
39.	FLUORANTHENE	(206-44-0)				
40.	4-CHLOROPHENYLPHENYLETHER	(7005-72-3)				
41.	4-BROMOPHENYLPHENYLETHER	(101-55-2)				
42	BIS(2-CHLOROISOPROPYL)ETHER	(39638-32-9)				
43.	BIS(2-CHLOROETHOXY)METHANE	(111-91-1)				
52.	HEXACHLOROBUTADIENE	(87-68-3)				
53	HEXACHLOROCYCLOPENTADIENE	(77-47-4)				
54.	ISOPHORONE	(78-59-1)				
55.	NAPHTHALENE	(91-20-3)				

BASE/NEUTRAL EXTRACTABLE PRIORITY POLLUTANTS

DATA REPORT PROJECT _____ , _____

STATION-SEQUENCE						
DATE-TIME						
TAG NUMBER						
UNITS						
	NAME	CAS NUMBER				
56	NITROBENZENE	(98-95-3)				
62	N-NITROSODIPHENYLAMINE (MEASURED AS DIPHENYLAMINE)	(86-30-6)				
63	N-NITROSODI-N-PROPYLAMINE	(621-64-7)				
66.	BIS(2-ETHYLHEXYL)PHTHALATE	(117-81-7)				
67	BUTYLBENZYLPHTHALATE	(85-68-7)				
68	DI-N-BUTYLPHTHALATE	(84-74-2)				
69.	DI-N-OCTYLPHTHALATE	(117-84-0)				
70	DIETHYLPHTHALATE	(84-66-2)				
71.	DIMETHYLPHTHALATE	(131-11-3)				
72	BENZO(A)ANTHRACENE	(56-55-3)				
73	BENZO(A)PYRENE	(50-32-8)				
74.	3,4-BENZOFLUORANTHENE	(205-99-2)				
75	BENZO(K)FLUORANTHENE	(207-08-9)				
76	CHRYSENE	(218-01-9)				
77	ACENAPHTHYLENE	(208-96-8)				
78	ANTHRACENE	(120-12-7)				
79.	BENZO(G,H,I)PERYLENE	(191-24-2)				
80.	FLUORENE	(86-73-7)				
81.	PHENANTHRENE	(85-01-8)				
82	DIBENZO(A,H)ANTHRACENE	(53-70-3)				
83	INDENO(1,2,3-C,D)PYRENE	(193-39-5)				
84	PYRENE	(129-00-0)				

ACID EXTRACTABLE AND MISCELLANEOUS PRIORITY POLLUTANTS

DATA REPORT PROJECT _____ , _____

STATION-SEQUENCE						
DATE-TIME						
TAG NUMBER						
UNITS						
	NAME	CAS NUMBER				
21.	2,4,6-TRICHLOROPHENOL	(88-06-2)				
22	PARACHLOROMETACRESOL	(59-50-7)				
24	2-CHLOROPHENOL	(95-57-8)				
31.	2,4-DICHLOROPHENOL	(120-83-2)				
34	2,4-DIMETHYLPHENOL	(105-67-9)				
57	2-NITROPHENOL	(88-75-8)				
58.	4-NITROPHENOL	(100-02-7)				
59	2,4-DINITROPHENOL	(51-28-5)				
60	4,6-DINITRO-O-CRESOL	(534-52-1)				
64	PENTACHLOROPHENOL	(87-86-5)				
65A.	PHENOL	(108-95-2)				
17	BIS (CHLOROMETHYL)ETHER	(542-88-1)				
61.	N-NITROSODIMETHYLAMINE	(62-75-9)				
129	2,3,7,8-TETRACHLORODIBENZO-DIOXIN	(1764-01-6)				

VOLATILE - ORGANIC CHARACTERIZATION

DATA REPORT PROJECT _____ , _____

STATION-SEQUENCE					
DATE-TIME					
TAG NUMBER					
UNITS					

	NAME	CAS NUMBER				
1						
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BASE/NEUTRAL EXTRACTABLE - ORGANIC CHARACTERIZATION

DATA REPORT PROJECT _____ , _____

STATION-SEQUENCE					
DATE-TIME					
TAG NUMBER					
UNITS					
	NAME	CAS NUMBER				
1						
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ACID/MISCELLANEOUS EXTRACTABLE - ORGANIC CHARACTERIZATION

DATA REPORT PROJECT _____ , _____

STATION-SEQUENCE					
DATE-TIME					
TAG NUMBER					
UNITS					

	NAME	CAS NUMBER				
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EXTRACTABLE - ORGANIC CHARACTERIZATION

DATA REPORT PROJECT _____ , _____

STATION-SEQUENCE					
DATE-TIME					
TAC NUMBER					
UNITS					

	NAME	CAS NUMBER				
1						
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ORGANIC PRIORITY POLLUTANTS - DATA SUMMARY

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ TAC# _____

DESCRIPTION _____

VOLATILES UNITS _____

2	ACROLEIN	_____	51.	CHLORODIBROMOMETHANE	_____
3	ACRYLONITRILE	_____	85.	TETRACHLOROETHYLENE	_____
4	BENZENE	_____	86.	TOLUENE	_____
6	CARBONTETRACHLORIDE	_____	87.	TRICHLOROETHYLENE	_____
7	CHLOROBENZENE	_____	88.	VINYL CHLORIDE	_____
10.	1,2-DICHLOROETHANE	_____			
11.	1,1,1-TRICHLOROETHANE	_____			
13.	1,1-DICHLOROETHANE	_____			
14.	1,1,2-TRICHLOROETHANE	_____			
15	1,1,2,2-TETRACHLOROETHANE	_____			
16.	CHLOROETHANE	_____			
19	2-CHLOROETHYLVINYLETHER	_____			
23.	CHLOROFORM	_____			
29	1,1-DICHLOROETHYLENE	_____			
30.	TRANS-1,2-DICHLOROETHYLENE	_____			
32.	1,2-DICHLOROPROPANE	_____			
33A	TRANS-1,3-DICHLOROPROPYLENE	_____			
33B.	CIS-1,3-DICHLOROPROPYLENE	_____			
38	ETHYLBENZENE	_____			
44.	METHYLENE CHLORIDE	_____			
45.	METHYL CHLORIDE	_____			
46.	METHYL BROMIDE	_____			
47.	BROMOFORM	_____			
48	DICHLOROBROMOMETHANE	_____			
49.	TRICHLOROFLUOROMETHANE	_____			
50.	DICHLORODIFLUOROMETHANE	_____			

ORGANIC PRIORITY POLLUTANTS - DATA SUMMARY

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ TAG# _____

DESCRIPTION _____

BASE/NEUTRALS UNITS _____

1.	ACENAPHTHENE	_____	56.	NITROBENZENE	_____
5.	BENZIDINE	_____	62.	N-NITROSODIPHENYLAMINE(A)	_____
8.	1,2,4-TRICHLOROBENZENE	_____	63.	N-NITROSODI-N-PROPYLAMINE	_____
9	HEXACHLOROBENZENE	_____	66.	BIS(2-ETHYLHEXYL)PHTHALATE	_____
12	HEXACHLOROETHANE	_____	67.	BUTYLBENZYLPHTHALATE	_____
18	BIS(2-CHLOROETHYL)ETHER	_____	68.	DI-N-BUTYLPHTHALATE	_____
20	2-CHLORONAPHTHALENE	_____	69.	DI-N-OCTYLPHTHALATE	_____
25	1,2-DICHLOROBENZENE	_____	70.	DIETHYLPHTHALATE	_____
26	1,3-DICHLOROBENZENE	_____	71.	DIMETHYLPHTHALATE	_____
27	1,4-DICHLOROBENZENE	_____	72	BENZO(A)ANTHRACENE	_____
28	3,3'-DICHLOROBENZIDINE	_____	73.	BENZO(A)PYRENE	_____
35	2,4-DINITROTOLUENE	_____	74	3,4-BENZOFLUORANTHENE	_____
36	2,6-DINITROTOLUENE	_____	75.	BENZO(K)FLUORANTHENE	_____
37.	1,2-DIPHENYLHYDRAZINE(B)	_____	76	CHRYSENE	_____
39.	FLUORANTHENE	_____	77.	ACENAPHTHYLENE	_____
40.	4-CHLOROPHENYLPHENYLETHER	_____	78.	ANTHRACENE	_____
41.	4-BROMOPHENYLPHENYLETHER	_____	79	BENZO(G,H,I)PERYLENE	_____
42	BIS(2-CHLOROISOPROPYL)ETHER	_____	80.	FLUORENE	_____
43	BIS(2-CHLOROETHOXY)METHANE	_____	81.	PHENANTHRENE	_____
52.	HEXACHLOROBUTADIENE	_____	82.	DIBENZO(A,H)ANTHRACENE	_____
53	HEXACHLOROCYCLOPENTADIENE	_____	83	INDENO(1,2,3-C D)PYRENE	_____
54.	ISOPHORONE	_____	84.	PYRENE	_____
55	NAPHTHALENE	_____			

(A) MEASURED AS DIPHENYLAMINE
(B) MEASURED AS AZOBENZENE

ORGANIC PRIORITY POLLUTANTS - DATA SUMMARY

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ TAG# _____

DESCRIPTION _____

PHENOLS UNITS _____

21	2,4,6-TRICHLOROPHENOL	_____
22	PARACHLOROMETACRESOL	_____
24.	2-CHLOROPHENOL	_____
31.	2,4-DICHLOROPHENOL	_____
34	2,4-DIMETHYLPHENOL	_____
57.	2-NITROPHENOL	_____
58	4-NITROPHENOL	_____
59	2,4-DINITROPHENOL	_____
60.	4,6-DINITRO-O-CRESOL	_____
64.	PENTACHLOROPHENOL	_____
65A.	PHENOL	_____

MISCELLANEOUS UNITS _____

17.	BIS(CHLOROMETHYL)ETHER	_____
61.	N-NITROSODIMETHYLAMINE	_____ .
129.	2,3,7,8-TETRACHLORODIBENZODIOXIN	_____.

ORGANIC CHARACTERIZATION - DATA SUMMARY

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ TAG# _____

DESCRIPTION _____

UNITS _____

NAME	

VOLATILE PRIORITY POLLUTANTS
QUALITY CONTROL REPORT

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ TAG# _____

DESCRIPTION _____

	NAME	DUPLICATES UNITS _____ FIRST	SECOND	%DIFFERENCE	SPIKE UNITS _____ LEVEL	%RECOVERY
2	ACROLEIN					
3	ACRYLONITRILE					
4	BENZENE					
6	CARBONTETRACHLORIDE					
7.	CHLOROBENZENE					
10	1,2-DICHLOROETHANE					
11.	1,1,1-TRICHLOROETHANE					
13.	1,1-DICHLOROETHANE					
14	1,1,2-TRICHLOROETHANE					
15	1,1,2,2-TETRACHLOROETHANE					
16	CHLOROETHANE					
19	2-CHLOROETHYLVINYLETHER					
23	CHLOROFORM					
29.	1,1-DICHLOROETHYLENE					
30.	TRANS-1,2-DICHLOROETHYLENE					
32.	1,2-DICHLOROPROPANE					
33A.	TRANS-1,3-DICHLOROPROPYLENE					
33B	CIS-1,3-DICHLOROPROPYLENE					
38	ETHYLBENZENE					
44.	METHYLENE CHLORIDE					

%DIFFERENCE = 2* 100 * (SECOND - FIRST)/(SECOND + FIRST)
%RECOVERY = 100 * RECOVERED/LEVEL

VOLATILE PRIORITY POLLUTANTS
QUALITY CONTROL REPORT

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ TAG# _____

DESCRIPTION _____

	NAME	DUPLICATES UNITS _____ FIRST	SECOND	%DIFFERENCE	SPIKE UNITS _____ LEVEL	%RECOVERY
45	METHYL CHLORIDE					
46	METHYL BROMIDE					
47	BROMOFORM					
48	DICHLOROBROMOMETHANE					
49	TRICHLOROFLUOROMETHANE					
50	DICHLORODIFLUOROMETHANE					
51	CHLORODIBROMOMETHANE					
85	TETRACHLOROETHYLENE					
86	TOLUENE					
87	TRICHLOROETHYLENE					
88.	VINYL CHLORIDE					

%DIFFERENCE = 2* 100 * (SECOND - FIRST)/(SECOND + FIRST)
%RECOVERY = 100 * RECOVERED/LEVEL

BASE/NEUTRAL EXTRACTABLE PRIORITY POLLUTANTS
QUALITY CONTROL REPORT

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ TAC# _____

DESCRIPTION _____

	NAME	DUPLICATES UNITS _____ FIRST	SECOND	%DIFFERENCE	SPIKE UNITS _____ LEVEL	%RECOVERY
1	ACENAPHTHENE					
5	BENZIDINE					
8	1,2,4-TRICHLORODENZENE					
9	HEXACHLOROBENZENE					
12	HEXACHLOROETHANE					
18	BIS(2-CHLOROETHYL)ETHER					
20.	2-CHLORONAPHTHALENE					
25	1,2-DICHLOROBENZENE					
26	1,3-DICHLOROBENZENE					
27.	1,4-DICLOROBENZENE					
28.	3,3'-DICHLOROBENZIDINE					
35	2,4-DINITROTOLUENE					
36.	2,6-DINITROTOLUENE					
37.	1,2-DIPHENYLHYDRAZINE (B)					
39.	FLUORANTHENE					
40	4-CHLOROPHENYLPHENYLETHER					
41	4-BROMOPHENYLPHENYLETHER					
42.	BIS(2-CHLOROISOPROPYL)ETHER					
43.	BIS(2-CHLOROETHOXY)METHANE					
52	HEXACHLOROBUTADIENE					
53	HEXACHLOROCYCLOPENTADIENE					
54	ISOPHORONE					
55	NAPHTHALENE					

(B) MEASURED AS AZOBENZENE

%DIFFERENCE = 2* 100 * (SECOND - FIRST)/(SECOND + FIRST)
%RECOVERY = 100 * RECOVERED/LEVEL

BASE/NEUTRAL EXTRACTABLE PRIORITY POLLUTANTS
QUALITY CONTROL REPORT

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ TAC# _____

DESCRIPTION _____

	NAME	DUPLICATES UNITS _____ FIRST	SECOND	%DIFFERENCE	SPIKE UNITS _____ LEVEL	%RECOVERY
,6	NITROBENZENE					
,2	N-NITROSODIPHENYLAMINE (A)					
-3	N-NITROSODI-N-PROPYLAMINE					
5	BIS(2-ETHYLHEXYL)PHTHALATE					
,7	BUTYLBENZYLPHTHALATE					
8	DI-N-BUTYLPHTHALATE					
9.	DI-N-OCTYLPHTHALATE					
,0.	DIETHYLPHTHALATE					
1	DIMETHYLPHTHALATE					
,2	BENZO(A)ANTHRACENE					
,3	BENZO(A)PYRENE					
,4	3,4-BENZOFLUORANTHENE					
,5	BENZO(K)FLUORANTHENE					
,6	CHRYSENE					
,7	ACENAPHTHYLENE					
,8	ANTHRACENE					
,9	BENZO(G,H,I)PERYLENE					
;0	FLUORENE					
;1.	PHENANTHRENE					
;2	DIBENZO(A,H)ANTHRACENE					
;3.	INDENO(1,2,3-C,D)PYRENE					
;4	PYRENE					

(A) MEASURED AS DIPHENYLAMINE

. DIFFERENCE = 2 * 100 * (SECOND - FIRST)/(SECOND + FIRST)
RECOVERY = 100 * RECOVERED/LEVEL

ACID EXTRACTABLE AND MISCELLANEOUS PRIORITY POLLUTANTS
QUALITY CONTROL REPORT

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ TAC# _____

DESCRIPTION _____

	NAME	DUPLICATES UNITS _____ FIRST	SECOND	%DIFFERENCE	SPIKE UNITS _____ LEVEL	%RECOVERY
21	2,4,6-TRICHLOROPHENOL					
22	PARACHLOROMETACRESOL					
24.	2-CHLOROPHENOL					
31.	2,4-DICHLOROPHENOL					
34	2,4-DIMETHYLPHENOL					
57.	2-NITROPHENOL					
58	4-NITROPHENOL					
59.	2,4-DINITROPHENOL					
60.	4,6-DINITRO-O-CRESOL					
64.	PENTACHLOROPHENOL					
65A	PHENOL					
17.	BIS(CHLOROMETHYL)ETHER					
61.	N-NITROSODIMETHYLAMINE					
129	2,3,7,8-TETRACHLORODIBENZO-DIOXIN					

%DIFFERENCE = 2* 100 * (SECOND - FIRST)/(SECOND + FIRST)
%RECOVERY = 100 * RECOVERED/LEVEL

ORGANIC PRIORITY POLLUTANTS
QUALITY CONTROL REPORT

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ TAG# _____

DESCRIPTION _____

NAME	DUPLICATES UNITS _____ FIRST	SECOND	%DIFFERENCE	SPIKE UNITS _____ LEVEL	%RECOVERY

%DIFFERENCE = 2 * 100 * (SECOND - FIRST)/(SECOND + FIRST)
%RECOVERY = 100 * RECOVERED/LEVEL

ORGANIC CHARACTERIZATION
QUALITY CONTROL REPORT

PROJECT _____ STATION _____ SEQUENCE _____ DATE _____ TIME _____ TACH _____

DESCRIPTION _____

NAME	DUPLICATES UNITS _____ FIRST	SECOND	%DIFFERENCE	SPIKE UNITS _____ LEVEL	%RECOVERY

%DIFFERENCE = 2 * 100 * (SECOND - FIRST)/(SECOND + FIRST)
%RECOVERY = 100 * RECOVERED/LEVEL