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E.2

Creation of Control Charts

S.O.P FOR CREATING CONTROL CHARTS

When control charts submittal is received from the analyst go to the "USATHAMA" menu. In the USATHAMA menu choose option "ENTER QC CHART DATA" and press <ENTER>.

1) ENTERING OF CONTROL CHART DATA IN CLASS SYSTEM

- A) Enter storet number that has % recoveries <ENTER>.
- B) Enter method and <ENTER> six times.
- C) Press 'F4' and page down until end of file and arrow down one time.
- D) Enter lot name <ENTER>, analysis date <ENTER>, % recovery or recoveries.
- E) Press 'SHIFT F1' to run the outlier test which only takes a few seconds, then press 'F9' to save.
- F) Go to the next storet in batch that has % recoveries and start with A) (this time the method will default).
- G) When data is entered for all qc chart submittals received from analyst, enter appropriate information in the CONTROL CHART STATUS NOTEBOOK, then go to step 2), ENTERING OF CONTROL CHART DATA IN THE ARMY SYSTEM.

2) ENTERING OF CONTROL CHART DATA IN THE ARMY SYSTEM

- A) Set printamer for quadram epon emulation mode, server = class, output = cclaser, and copies = 2.
- B) Go to C:\IRCC and type CCS <ENTER>, your initials <ENTER>, and the method being added <ENTER>.
- C) When the IR CONTROL CHARTS MAIN MENU appears press 2, then 3.
- D) Enter the test name of storet being entered <ENTER>.
Enter lot number <ENTER>.
Enter analyst initials <ENTER>.
Enter analysis date <ENTER>.
The certification level defaults so return past it.
Enter the low target value <ENTER>.
Enter the found for the low target value <ENTER>.
Press 'F10' to save.
- E) If there are high spikes, enter the target and founds the same way they were entered for the low spike, otherwise enter the next compound in method until all compounds are entered.
- F) Go to the next method by pressing 'ESCAPE' until the IR CONTROL CHARTS MAIN MENU APPEARS. Press 6 and enter the next method to be entered, then press 3 and start with step D).
- G) When all data is entered for all methods go to step 3), PRINTING OF CONTROL CHARTS.

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Section No.: E-2
Revision No.: 0
Date: February 27, 1992
Page 2 of 3

3) PRINTING OF CONTROL CHARTS

- A) While in the IR CONTROL CHARTS MAIN MENU, press 6 and enter in the method to be printed.
- B) After program has accessed data, press 4 (CREATE CONTROL CHARTS), 1 (ALL TESTS NAMES), 1 (ALL CHARTS AND TABLES), 1 (LAST 20 LOTS), 2 (PRINT CHARTS AND TABLES), AND 1 (EPSON).
- C) To print next method, press 3 and enter the next method to be printed.
- D) When data has been accessed for method, press 2 then 1.
- E) When charts have finished printing, press 'ALT 2' and then E to endspool the file. Then go to step 4), DISTRIBUTION OF CONTROL CHARTS.

4) DISTRIBUTION OF CONTROL CHARTS

- A) After all charts have printed, the first copy goes to the analyst and the other copy to Hugh (On the top right hand side of my desk Hugh's copies will accumulate throughout the week until he comes to get them).
- B) When all charts have been printed and handed out to the analyst, the hard drives need to be backed up on the 486 and 386 computers. Go to step 5), BACKING UP THE HARD DRIVES.

5) BACKING UP THE HARD DRIVES

- A) At the end of each day, both hard drives need to be backed up on the 486 and 386 computers.
- B) On the 486, copy all files (except CC.* and SD20.*) updated by the end of each day to the subdirectory of I:\TEMP\486. (All files updated by the end of the day will have a file attribute of A. This makes it easy to distinguish which files have been updated.)
- C) On the 386, copy all files (except cc.* and SD20.*) updated by the end of each day to the subdirectory of I:\TEMP\386.
- D) On the 486, copy all files in I:\TEMP\386 to C:\IRCC.
- E) On the 386, copy all files in I:\TEMP\486 to C:\IRCC.
- F) All files in I:\TEMP\386 and I:\TEMP\486 need to first be copied to I:\TEMP\CHARTS, then deleted.
- G) The file attributes of A need to be cleared. Type DR in C:\IRCC on both the 486 and 386 computers and press 'F6' to mark all files, then 'ALT F6' to change file attribute. Type -A and return. Now go to step 6), UPDATING CHEMTRAK.

6) UPDATING CHEMTRAK

- A) All lots entered in the CONTROL CHART STATUS NOTEBOOK need to be entered in chemtrak.
- B) In CLASS press 'F5' and type CHEMTRAK.
- C) When CHEMTRAK window appears, enter the lot, analysis data, batch number, and QC REC'D = Y, then press 'F9' to save.
- D) This needs to be done at the end of each day for all lots received.

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Section No.: E-2
Revision No.: 0
Date: February 27, 1992
Page 3 of 3

- E) Usually, there will be a submittal every week to enter in CHEMTRAK too.
- F) For submittals only: enter lot, QC.DATE = submittal date, QC SENT = y, and QC.QA = y, then press 'F9' to save.
- G) Enter submittal date in the CONTROL CHART STATUS NOTEBOOK under date sent column for each appropriate lot.

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E.3

Processing and Transmittal of Data
(Using IRDMS)

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SOP4152-06
Revision 0
Page 1 of 11
06/06/91

**PROCESSING AND TRANSMITTAL OF USATHAMA CHEMICAL DATA USING
IRDMIS**

STANDARD OPERATING PROCEDURE

SOP4152-06

This Standard Operating Procedure (SOP) describes the process followed to Process and Transmit USATHAMA chemical data to Level II.

DATE: _____ AUTHORIZED BY: _____

DISTRIBUTION:

- 4) Running Group Check.
- 5) Creating IRDMIS transfer files for the lots being processed.
- 6) Transmitting transfer files to PRI (Level II).
- 7) Documentation for the lots which have been transferred.

3.1 Preparing USATHAMA lot files for upload into IRDMIS.

To prepare USATHAMA lot files for upload, go to O:\ARMY and call up the ARMY validation file in brief. The ARMY validation filename is written on the lot cover sheet in the 'comments' section of the 'Data Coordinator' box. See Exhibit A titled 'Chemical Data File Formats' to resolve any questions about the format of the data in the validation file. Make the following alterations to the validation file.

- 3.1.1 Make sure that there is a '0' after M0.00 (correct to M0.00 0) in column 36, for the method blank. Do the same for Site Types FBLK, RNSW, and TRIP (ie. F0.00 0, R0.00 0, T0.00 0).
- 3.1.2 On line 1, add '88.1' starting in column 59. This code assures that units for depths are read as 'feet.'
- 3.1.3 On line 1, in columns 31-32, add the correct code for prime contractor (reference the USATHAMA users guide, section 9.15)
- 3.1.4 On the sample lines (i.e. S001, S002, etc.) in column 72, add the correct base closure code (Y or N). This information should be supplied by the Lab Coordinator).
- 3.1.5 On the sample lines, in columns 73-76, add the Sample Delivery Order Number (to be supplied by the Lab Coordinator).
- 3.1.6 Correct any values (except depths) which are reported as 10.0 to 01.0.... (ie 10.0-02 = 01.0-01).
- 3.1.7 Make sure that all required field data is present.

3.2 Uploading USATHAMA files into IRDMIS.

Before loading a new group of lots into IRDMIS for processing, 'ZAP' lot files already transferred out of IRDMIS. To do this, go to C:\ and type 'ZAP'. This will clean out the database files.

From C:\ , type 'IR.'

3.2.1 When prompted to 'Press any key to continue,' do so.

3.2.2 After 'Zapping' the database files, it is necessary to reindex the files. To do this, choose number 4 from the menu - Utilities. Then choose 3 - Index all data bases.

To begin uploading USATHAMA files:

3.2.3 Choose number 1 from the menu - Chemical Data.

3.2.4 Choose number 1 from the menu - Enter New Data.

3.2.5 At the prompt for 'mode of entry,' press 'F' for file input.

3.2.6 Enter the name and location of the file to upload (O:\ARMY\FILENAME).

3.2.7 Press <enter> when done to return to the menu.

3.3 Running IRDMIS Record Check.

Before running Record Check, go to a network directory and set up the PrinTamer so that any Record Check errors can be captured and printed so we have a hard copy of them. PrinTamer will not be able to read the PDF file and load the fonts from the c: drive.

3.3.1 From the IRDMIS Chemical Data Main Menu, choose number 4 - Record check existing data.

3.3.2 Enter the lots to be processed by either manually typing in the Installation code, Laboratory, and Lot number, or by pressing <page down> to call up a window which displays the lots. In the window, press the number (1 to 5) of the lot to process, and press <page down> again. If the number of lots is greater than 5,

pressing the <space> bar will show the second, third, etc, group of 5 lots.

- 3.3.3 Press 'N' when all lots to be processed are loaded in.
- 3.3.4 IRDMIS will either report that a lot is clean, or that it is in error and ask if you wish to edit the data found in error. If it is clean, simply record the lot and the number of analysis records in the Lot Transfer Verification Book. If it is in error, press 'Y' to edit. Using the PrinTamer, make a hardcopy of the screen showing the error(s). Then follow the procedure in appendices A and B for correcting and/or documenting errors.

3.4 Running IRDMIS Group Check.

After lots have been run through Record check and are clean, or which contain errors deemed acceptable:

- 3.4.1 Chose number 5 - Group check existing data - from the menu.
- 3.4.2 Load the lots to be checked, as in Step 3.
- 3.4.3 If a lot contains an error, IRDMIS will report that 'This lot contains invalid data - Do you wish to contine (Y/N).' Press 'Y' if the error has been deemed acceptable.
- 3.4.4 When all lots have been loaded, IRDMIS will show the filename which the results will be written to: \IRSCC\SCC91001.GRP. The numeric part of the filename is the Julian date, in this case 91001.
- 3.4.5 When processing is complete, print the SCC file. Review the results for errors. Once all errors are deemed acceptable, or all lots check clean, go to step 5.

3.5 Creating IRDMIS transfer files.

- 3.5.1 Choose number 6 - Output existing data - from the menu.

- 3.5.2 Press 'T' to create a transfer file.
 - 3.5.3 IRDMIS will show the default subdirectory and filename for the TRN file.
 - 3.5.4 Change the subdirectory from \IRSCC to \TRNIR.
 - 3.5.5 Once all desired lots have had transfer files created, go to C:\TRNIR.
 - 3.5.6 Type 'PACKES' to create an archive file of the transfer files.
 - 3.5.7 Create a README file (READMonthDay:Year - READ414.91, etc) listing the transfer files being transmitted, and their status as clean or in error. (See previous README files for details).
 - 3.5.8 PACKES will change the *.trn ending to *.trr so that once a trn file has been put in an archive file, it will not be picked up again.
 - 3.5.9 Copy the *.arc and the readme file onto a disk (use the disk in the back of the IR TRN Temp Disk section in the disk filer) after deleting any files on the disk.
- 3.6 Transmitting USATHAMA transfer files to PRI (Level II).**
- 3.6.1 Copy the ES*.ARC and READ*.91 files into c:\xtalk on the Army Multitech in the main data room. At C:\XTALK type XTALK PYRAMID. Hit [enter] so that xtalk begins dialing. After connection is made, hit [enter] once or twice, type in a for terminal identifier, and type in **thama** for login \ user name. A message will appear, hit [enter], and then type **att** for service. Next, hit the [tab] key to get to the command line. Type in **da 8**, hit [enter], and type in **bbs**. Usually you have to type **bbs** and [enter] and then type **bbs** and [enter] again. The second time you should see **bbs**. At this point, hit [escape] to return to the command line, and type **da 7**.

This will log in to the bbs. Continue through until you get to enter username. Put in username, and password, in response to queries from bbs. Choose sIg access, choose # 21 from list, choose File area, and then choose Upload. Follow the instructions to upload the files. After uploading a file, type in comments, ie. 'irdmis transfer files' and 'readme file for es000001.arc'. Select Goodbye to exit the bbs.

Accessing PRI through the 3com network

Accessing PRI through the 3com network will soon be obsolete. However, these are the instructions for doing so.

- 3.6.2 Insert the 3com boot disk into the A: drive of the communications PC and reboot the PC.
- 3.6.2 When the PC shows the A:\> prompt, go to c:\ and type 'login ese.'
- 3.6.3 When login is completed, type '3f link e:;' when E:\> is linked, go to e:\ and type 'prompt \$p\$g.' Then type 'cd transfer.'
- 3.6.4 At E:\TRANSFER>, type 'copy a:*.*'. When all files have been copied, go to A:\ and type '3r h'. When the light on the a: drive goes out, reboot the pc and take out the disk. Transmittal is complete.

3.7 Documentation of transferred lots.

Documentation consists of recording the lot, date of transfer, number of analysis records, and lot status (clean or not) in the Lot Transfer Verification Book. It also consists of printing out a hardcopy list of the lots, archived filename, and readme filename.

- 3.7.1 At C:\TRNIR, type DIR >C:\TRNIR\RECORD\RECORD.xxx, where the extension is the month and day of the transmittal. The DIR > command will list the entire contents of the directory to the file Record.xxx, which will be located in the directory

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SOP4152-06
Revision 0
Page 8 of 11
06/06/91

C:\TRNIR\RECORD. By editing this file in brief, a list of the transferred files can be easily obtained.

- 3.7.2 Print out all of the lot transfer files, two copies of the readme file and two copies of the Record.xxx file. This may be done easily by using a batch file.
- 3.7.3 Copy all of the lot transfer files and the readme file to the current disk of 'Files Sent to PRI'.
- 3.7.4 Upload the readme file into the Lot Verification screen. At the main CLASS menu, choose the USATHAMA submenu. Choose the UNISYS submenu, and then choose Lot Verification. Enter the directory and filename of the readme file, and the date of the readme file. This will add the PRI date to CHEMTRAK.
- 3.7.5 Move the readme file to the directory C:\TRNIR\README, and delete the readme file and the lot transfer files from the C:\TRNIR directory.

This completes the process. See appendices A-B, and exhibit A for additional information.

Appendix A

1.0 Objective

The objectives of this appendix are to ensure that the proper procedures are followed in correcting and/or determining the acceptability of errors occurring in IRDMIS processing.

2.0 Scope

This appendix applies to all USATHAMA lot data files encountering errors in IRDMIS processing.

3.0 Procedures

- 3.1 If the error lies with the field data and /or sampling dates, first check the logsheet to assure that the correct field data and sampling data have been entered into the lot. If the error is with the chemical data, go to step #3.
- 3.2 If the field data and sampling date on the logsheet match the data in the lot file, use the IRDMIS data dictionary to find the correct site types which are allowable for the filename give (CSO, CSE, CSW, CGW, etc.).
- 3.3 Then consult with the lab coordinator to verify the correct data which can then be entered upon obtaining a written correction notice from the lab coordinator. In the case of chemical data, verify that the data are in error and obtain a written explanation which can be submitted upon transmission data to Level II.
- 3.4 If all the data seem to be correct, yet the error message persists, contact Virginia O'Brien so that she can contact PRI in order to determine whether and how the data can be submitted, and if the error lies with the data or with the software.
- 3.5 When errors have been corrected, rerun the lots in question through Record and Group check again to clean them up. (IRDMIS flags errors

internally so that lots in error must be run through again when clean in order to remove the error flag.)

Appendix B

1.0 Objective

The objectives of this appendix are to ensure that the proper procedures are followed in documenting USATHAMA lot errors which occur in IRDMIS processing.

2.0 Scope

This appendix applies to all USATHAMA data encountering errors in IRDMIS processing.

3.0 Procedures

3.1 USATHAMA lots arrive from Quality Assurance. The lots are uploaded into the IRDMIS system and processed.

3.2 Lots without Record and Group Check errors are sent to PRI according to regular procedure.

Lots which contain errors are dealt with in the following manner:

3.3 Lots which contain errors which can be resolved by consulting with the project and/or lab coordinator shall be corrected as per their instructions and reprocessed. (Errors of this type include incorrect Site ID's, Missing Map data, etc.) If the lot the checks clean, it will be sent to PRI according to regular procedure.

3.4 Lots which contain errors which are due to lab / analysis / other situations which cannot be corrected shall be handled as follows:

3.4.1 A hardcopy screen printout of the errors as they occur in IRDMIS will be obtained to document the exact error message and the data in error.

3.4.2 This printout shall be attached to the IRDMIS PROCESSING

COMMENT FORM, which will contain explanations of the data in error, the reason for the error, and any other documentation pertaining to the error. The Group Check results will also be attached. This documentation shall then be added to the lot folder. A copy shall be made for ESE files, so that ESE can retain documentation of the errors independent of the lot folder.

- 3.4.3 Upon submittal to PRI, a README file will be included in the transmittal which will include the explanations included in the IRDMIS Processing Comment Form.

Note: Lots which pass both Record and Group checks will not have an IRDMIS Processing Comment Form included in the lot folder. The Group check results printout will serve as documentation of the lot having checked cleanly.

- 3.5 Lots which fail only because of missing map information will be dealt with as follows:

3.5.1 If USATHAMA has authorized the submission of installations for which we are missing map information, these lots shall be sent to PRI. These lots will not have an IRDMIS Processing Comment Form, as the Group check record shall be sufficient documentation.

3.5.2 If USATHAMA has not authorized the submission of installations for which we do not have map information, these lots shall not be sent. The project manager or lab coordinator will be notified so that map information can be obtained. These lots will be held pending reception of map information, or authorization to sent without maps.

Exhibit A

Chemical Data File Formats

Lot Record

Columns

1	"L"
2-3	Installation Code
4-5	Laboratory Code
6-8	Lot Number
9-12	Method Number
13-16	Units
17-19	Initials
20	Class Indicator
24	Delivery Order Indicator
31-32	Prime Contractor

Sample Record

Columns

1	"S"
2-4	Sample Number
5-7	File Name
8-11	Site Type
12-21	Site Identification
22-29	Field Sample Number
30-37	Sample Date (MM/DD/YY)
38-40	Sample Program
41-46	Sample Depth
47	Sample Technique
48-55	Laboratory Sample Number
56-63	Sample Preparation Date (19YYMMDD)
64-71	Analysis Date (19YYMMDD)
72	Base Closure
73-76	Delivery Order Number

Analysis Record

Columns

1	"A"
2-7	Test Name
8-9	Boolean
10-13	Uncorrected Mantissa (###)
14-16	Uncorrected Exponent
17-19	Dilution Mantissa (###)
20	Dilution Exponent
21-24	Moisture (##.##)
25-28	Accuracy
29	Flagging Code
30	QCtest Code
31-34	QC Mantissa (###)
35-37	QC Exponent

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E.4

Extraction/Analysis EPA Holding Time Tracking

**EXTRACTION/ANALYSIS EPA HOLDING TIME TRACKING
STANDARD OPERATING PROCEDURE
SOP 4101-06.1**

This Standard Operating Procedure (SOP) describes the daily practice of monitoring samples that are approaching EPA holding time deadlines.

DATE: _____ AUTHORIZED BY: _____

DISTRIBUTION:

EXTRACTION/ANALYSIS EPA HOLDING TIMES TRACKING

SOP 4101-06.1

1.0 Objective

The objective of this standard operating procedure is to explain the following practices involved in tracking EPA holding times:

- 1.1 Generating a master list of samples close to holding time deadlines.
- 1.2 Checking status of samples in the lab.
- 1.3 Notifying the proper personnel about samples' status.

2.0 Scope

This standard operating procedure applies to all samples in house except for samples involved with special interest projects that don't follow EPA holding time guidelines.

3.0 Procedures

3.1 Generate master list of samples

3.1.1 Materials needed to create the sample list:

3.1.1.1 A copy of available numbers purposely generated daily by CLASS for this procedure.

3.1.1.2 The lab's available numbers located in L:TEMP:
3243LC.AVN, 3243LCX.AVN, 3243GC.AVN,
3243GCX.AVN and GLENN.

3.1.2 Separate the samples into seven different categories: HPLC, GC NON-VOLATILE, GCMS, GC VOLATILE, TECHNICON, MERCURY and WATER QUALITY (see Exhibit 2).

3.1.3 Write down and track all samples that have holding times of four days to zero day left chronologically in their respective category. Samples are displayed on available numbers by parameters and/or individual groups, i.e.

VOA, MISC3243LC, HALL, etc..

- 3.1.4 Update the sample entries daily. Add new samples at the bottom of their appropriate category. There is no need to update samples that already have been extracted/analyzed and still appear on available numbers.
 - 3.1.5 Start a new sample record at the beginning of every week.
 - 3.1.6 Remember to adjust the length of holding time tracking for holidays.
- 3.2 Checking sample status
- 3.2.1 Extraction holding times
 - 3.2.1.1 HPLC, GC NON-VOLATILE, and GCMS(NVO) categories are tracked through Department 3242. To locate the extraction logsheets, look in the box outside the organic wetlab technicians' office or in the appropriate technician's extraction logbook. If the extraction logsheet cannot be located ask the department manager to provide a copy.
 - 3.2.1.2 For any other miscellaneous extractions done in other categories, ask the department manager.
 - 3.2.2 Analysis holding times
 - 3.2.2.1 For the HPLC and GC NON-VOLATILE categories ask the manager of Department 3243 for the analyst's name responsible for the samples in question. Locate the analyst and his instrument logbook to verify if sample is analyzed.
 - 3.2.2.2 For the GCMS, TECHNICON, MERCURY and WATER QUALITY categories check the instrument logbooks to find the desired samples. If the logbook is not located by the instrument or in its designated location, ask the analysts or group leaders to help locate the book. In the Water Quality and Atmospheric Chemistry Department, strip charts of certain analyses may be substituted for an instrument

logbook if sample numbers are clearly marked on the chart.

3.2.2.3 The GC VOLATILE department writes the analysis date of all samples to be analyzed on a wall chart in the technicians' office. If the date is not reported on the chart proceed to the instrument logbooks to check for samples that are analyzed.

3.2.3 DO NOT take anyone's word that the samples being checked are extracted or analyzed. The sample number always has to be clearly marked in a notebook, stripchart or chromatograph for proof that its extraction or analysis is completed.

3.3 Notification of sample's status

3.3.1 If a sample has not been extracted or analyzed yet and it has one day or less remaining (three days or less if Friday) on its EPA holding time, fill out an Analysis/Extraction Holding Time notice (exhibit 1). The notice should be project and department specific however it may contain the same samples but requested for different analyses. Different field groups may also be placed on the notice that have the same analysis.

3.3.2 Deliver 1 copy to the following:

- 3.3.2.1 Department manager
- 3.3.2.2 Project lab coordinator
- 3.3.2.3 Group leader (optional)
- 3.3.2.4 Information Services' files

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E.5

Automated GCMS Unknown Processing

AUTOMATED GCMS UNKNOWN PROCESSING SOP

1.0 Objectives

The objective for this standard operating procedure is to transfer unknown compounds for a USATHAMA sample from a DOS file to the validation file.

2.0 Scope

All unknowns found for samples analyzed by a HP GCMS instrument for USATHAMA methods LM18 and UM18.

3.0 Procedures

- 3.1 The analyst notifies Information Services that a particular USATHAMA lot of unknowns has been transferred to I:\TEMP with the filename, a hard copy of the file and the GCMS library search.
- 3.2 The data analyst then activates the Unknown Report program located in the CLASS menu option USATHAMA.
- 3.3 After typing in the directory and filename, the data analyst is prompted to enter the output filename which is "filename.UNK".
- 3.4 Enter the method code, LM18 or UM18. The data analyst is then asked for two numbers. If LM18 method, type "90". If UM18 method, type "91". In the next window enter the Add.Factor "500". The program will then finish uninterrupted.
- 3.5 Print out a hard copy of the output file to the laser printer.
- 3.6 Check the output file to see if there are any errors such as improper method blank correction or USATHAMA identified compounds without a test name that have a CAS number. If there are errors, fix them

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Section No.: E-5
Revision No.: 0
Date: February 27, 1992
Page 2 of 2

- accordingly and rerun the program again overwriting the existing output file until the file is correct.
- 3.7 Make three copies of the output file. File one copy. Give one copy to the analyst and also give one to the lab coordinator. Put the original copy along with the documents the analyst gave information services with the correct USATHAMA lot folder.
 - 3.8 Merge the unknown file with the validation file using the Batch Results Merge program located under the CLASS menu option Lab Data. Following the step-by-step process and calling the new file "lot.UNK", print out the new merged validation file.
 - 3.9 After reviewing the new validation file, stamp and label it correctly. Then place it in the USATHAMA lot folder along with all of the other documents.
 - 3.10 Return the lot folder to the validation chain after designating on the lot folder's cover sheet that the unknowns have been merged into the validation file.

E.6

GCMS Upload Files

GCMS UPLOAD FILES SOP

1.0 Objectives

The objective of this standard operating procedure is process a GCMS upload file to data batch.

2.0 Scope

All samples run by GCMS must be uploaded into a CLASS data batch so data is obtainable to the CLASS data base.

3.0 Procedures

- 3.1 A GCMS Download Request is filled out by the analyst and turned into Information Services when the upload file is transferred to I:\TEMP or a floppy disk.
- 3.2 The data analyst will then run the file in the Autobatch Program found in the CLASS menu option, Lab Data.
- 3.3 The data analyst will choose the option "HP" or "FINNIGAN", depending on which instrument type is used by the GCMS department.
- 3.4 Enter the directory and filename when prompted to do so. At the next window prompt type "NEW" to obtain the new batch designation.
- 3.5 After the program reads the samples in the file a window prompt will appear requiring some information. Type in the analyst's employee number, the extraction date (semi-volatiles only), data analyst's employee number, the method code and into the comments section, the upload file name. Save this information by hitting the F9 key.

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Section No.: E-6
Revision No.: 0
Date: February 27, 1992
Page 2 of 2

- 3.6 The program will automatically complete it's process if no errors are encountered.
- 3.7 If errors occur, then take the appropriate actions to fix these errors and then rerun the batch through the upload process again. Instead of typing "NEW" at the correct prompt type the original batch number. This will create a safety prompt where the data analyst can either get out of the upload program or continue by typing "RERUN". Continue through all of the steps until the download process finishes completely error free.
- 3.8 Run the data batch through Batch Results and return to analyst.
- 3.9 Document the upload process on that week's GCMS Data Transfer form.

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E.7

Usathama Lot Folder Assignment

USATHAMA LOT FOLDER ASSIGNMENT SOP

1.0 Objective

The objective of this standard operating procedure is to generate a new lot folder for a unique analysis run of an USATHAMA method.

2.0 Scope

A USATHAMA lot folder is assigned for all samples belonging to a USATHAMA project.

3.0 Procedures

- 3.1 A USATHAMA lot folder is initiated when an analyst/extractor brings a request for set of USATHAMA samples being analyzed or extracted. This request must include the samples, USATHAMA method and analyst/extractor's initials.
- 3.2 The next available three-letter coded lot for that particular method is assigned by looking into the Lot Assignment Document Book. If that series of three-letter codes are completed, start a new series of three-letter codes (i.e. lot series XXA through XXZ).
- 3.3 Determine the earliest sample collection date of the group of samples.
- 3.4 Assign the next incremented method blank for that particular USATHAMA project and analysis method.
- 3.5 Record all of this information into the Lot Assignment Document Book.
- 3.6 Select the appropriate colored lot folder based on the department the method is run under. Apply USATHAMA ANALYTICAL LOT/FOLDER TRANSMITTAL FORM to the lot folder. Fill out all the information in

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Section No.: E-7
Revision No.: 0
Date: February 27, 1992
Page 2 of 2

the spaces provided on the form. The Level II Due Date is forty days from the earliest collection date.

- 3.7 Place the proper documents into the lot folder that need to be filled out by the personnel involved with the processing of this lot folder. These documents may include:
 - 3.7.1 USATHAMA Data Review Checklist
 - 3.7.2 Extraction Data Sheet
 - 3.7.3 Final Checkoff List Prior To Transmission of USATHAMA Lot Data
 - 3.7.4 Comment/Corrective Action Form for Control Charts
 - 3.7.5 Table of Contents label
 - 3.7.6 Army Data Review Form
- 3.8 Deliver folder to the analyst/extractor who requested the lot folder.
- 3.9 Enter lot into CHEMTRAK.

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APPENDIX F
CONTROL CHART FLAGGING CODES

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PART I
DATA FLAGGING CODES

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ELEMENT IS USED IN THE FOLLOWING IR RECORDS AND DATA BASE TABLES:

IRDMIS Record		IRDMIS Data Base	
Record Type	Column(s)	DB Table(s)	DB Column
•	132	chem/cqc	flag_codes
	133		
	134		
	135		
	136		
	137		
	138		
	139		
	flag_qual_desc	f_q_code	

• Any valid chemical or radiological record type

ELEMENT SIZE AND CHARACTERISTICS:

IRDMIS Record: 1 upper-case alphabetical character, full field (as many as 8 per record)
 IRDMIS Data Base: chem/cqc: as many as 8 Flagging Codes per record
 flag_qual_desc: 1 Flagging Code per record

ELEMENT DESCRIPTION:

Code assigned by the Laboratory to indicate other-than-usual analytical conditions or results.

ACCEPTABLE CRITERIA:

NOTE: Flagging Codes marked with * were changed effective 1 February 1993!

- * A Analyte found in trip blank as well as in field samples. The analyte was detected in the field sample and the trip blank for the same cooler. To be used for volatiles only.
- B Analyte found in the method blank or QC blank as well as the sample. This Code is to be used when an analyte was detected and quantitated at higher-than-normal background levels. For metals in soil, the following rules must be followed:
 - (1) If the analyte is detected in the method blank, both the field and QC samples are to be flagged.
 - (2) If the analyte is detected in the QC blank, only the QC samples are to be flagged.
- C Analysis was confirmed. This Code is to be used when a confirmatory analysis bears out the reported result (if it is above the CRL or MDL). The confirmatory analysis must use a different column or analytical technique.
- D Duplicate analysis. This Code is used to distinguish analytical results when duplicate analyses are required. Flag only the second (duplicate) sample.
- E No longer in use.

ACCEPTABLE CRITERIA: (CONT.)

- F Sample filtered prior to analysis. This Code is to be used when results of filtered samples are to be differentiated from non-filtered samples. This Code is also to be used when filtering of samples (as a first step in the sample preparation) is a deviation from the approved method SOP. This Code may be used to indicate both field and laboratory filtering. It is not to be used when filtering the extract is the normal procedure.
- * G Analyte found in rinse blank as well as field sample. The analyte was detected in the field sample as well as that day's rinse blank for the same equipment type.
- H Out of control but data accepted due to high recoveries. This Code is to be used when control analytes show higher-than-normal recoveries, assuring USAEC that if a concentration was found in the sample at or near the CRL, it would have been reported.
- * I Interferences in sample cause the quantitation and/or identification to be suspect. This Code is to be used when matrix interferences may mask detection of the target analyte. Must always be used with Flagging Code J.
- * J Value is estimated either due to interferences in the sample (use Flagging Codes J and I) or because the value is below the method detection level but above the instrumental detection level (use Flagging Codes J and P). This Code must always be used with Code I or P. The J and I combination may be used both for methods demonstrated under the 1990 QA Program and for methods validated under the 1993 QA Guidelines. The J and P combination is only to be used for methods validated under the 1993 QA Guidelines.
- * K Reported results affected by interferences or high background. This Code is to be used when analyte levels at or near the CRL or MDL cannot be accurately quantified down to the CRL/MDL due to interferences. This Code will allow a laboratory to input a higher CRL/MDL, rather than defaulting to the Methods data base. **(Formerly Flagging Code G)**
- * L Out of control, data rejected due to low recoveries. This Flagging Code is to be used when recoveries of the control analytes are depressed so that there is no assurance that values at or near the CRL are accurate. **(Formerly Flagging Code I)**
- M Duplicate (high) spike analysis not within control limits. This Flagging Code is to be used when one of the duplicate spikes gives significantly different results, placing the spike average outside of control limits.
- * N Tentatively identified compound (result of a GC/MS library search) with a match greater than 70%. To be used when specified in the contract/task order.
- * O No longer in use.

PART II
DATA QUALIFIERS

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ELEMENT IS USED IN THE FOLLOWING IR RECORDS AND DATA BASE TABLES:

IRDMIS Record		IRDMIS Data Base	
Record Type	Column(s)	DB Table(s)	DB Column
•	140	chem/cqc	data_qual
	141		
	142		
	143		
	144		
	145		
	146		
	147	flag_qual_desc	f_q_code

• Any valid chemical or radiological record type

ELEMENT SIZE AND CHARACTERISTICS:

IRDMIS Record: 1 upper-case alphabetical character, full field (as many as 8 per record)
 IRDMIS Data Base: chem/cqc: as many as 8 Data Qualifiers per record
 flag_qual_desc: 1 Data Qualifier per record

ELEMENT DESCRIPTION:

Code assigned by the USAEC Chemist to indicate data acceptance or rejection based on other-than-usual analytical conditions or results.

ACCEPTABLE CRITERIA:

- I The low-spike recovery is high. To be used for the single low spike in Class 1 methods and the duplicate low spikes in Class 1P.
- J The low-spike recovery is low. To be used for the single low spike in Class 1 methods and the duplicate low spikes in Class 1P.
- K Missed holding times for extraction and preparation (Hold Time 1). This Qualifier is automatically set when the extraction/preparation holding time is exceeded. **(Formerly Flagging Code K)**
- L Missed holding time for sample analysis (Hold Time or Hold Time 2). This Qualifier is automatically set when the analytical holding time is exceeded. **(Formerly Flagging Code L)**
- M The high-spike recovery is high. To be used for the duplicate high spikes in Class 1 and 1P methods. Also to be used for the single spike in Class 1A and 1B methods and for the duplicate spikes in Class 1M methods.
- N The high-spike recovery is low. To be used for the duplicate high spikes in Class 1 and 1P methods. Also to be used for the single spike in Class 1A and 1B methods and for the duplicate spikes in Class 1M methods.

ACCEPTABLE CRITERIA: (CONT.)

- Q Surrogate recovery is outside of normal limits (applies only to field samples, including field quality control samples). **(Formerly Flagging Code Q)**
- R Data is rejected and is not usable.

ACCEPTABLE ENTRIES:

- I The low-spike recovery is high.
- J The low-spike recovery is low.
- K Missed holding time for extraction and preparation.
- L Missed holding time for sample analysis.
- M The high-spike recovery is high.
- N The high-spike recovery is low.
- Q Surrogate recovery is outside of normal limits (field samples only).
- R Data is rejected.

ACCEPTABLE CRITERIA: (CONT.)

- * P Value is less than the method reporting level but greater than the instrumental detection limit. This Code must always be used with J. This Code is only to be used for methods validated under the 1993 QA Guidelines.
- * Q Confirmatory analysis was performed; however, sample interference obscured the area where the peak of interest would have appeared. To be used when the peak of interest fell within the retention-time window on the primary column, but the retention-time window on the secondary column was masked by interferences.
- R Non-target compound analyzed for but not detected (must be used with a Boolean of ND). This Code is used only for those analytes (in GC/MS methods) which were not performance demonstrated or validated. To be used when specified in the contract/task order.
- S Non-target compound analyzed for and detected. This Code is used only for those analytes (in GC/MS methods) which were not performance demonstrated or validated. Also used to report tentatively identified compounds which are quantitated against an internal standard. To be used when specified in the contract/task order.
- T Non-target compound analyzed for but not detected (must be used with a Boolean of ND). This Code is used only for those analytes (in non-GC/MS methods) which were not performance demonstrated or validated.
- U Analysis is unconfirmed. This Code is to be used when a confirmatory analysis was performed but does not verify the analytical results from the initial analysis.
- V Sample was subjected to unusual storage/preservation condition. To be used when samples are received at the laboratory at greater than 4° C, or were not correctly preserved in the field.
- W Single analyte required from a multi-analyte method. This Code is to be used when field samples are to be analyzed for a subset of the demonstrated/validated analytes.
- X Analyte recovery outside of certified range but within acceptable limits. This Flagging Code is to be used when analyte recoveries exceed the upper limit of the certified range by less than 15% and the laboratory feels a dilution is not warranted.
- * Y Tentatively identified compound (result of a GC/MS library search) with a match of less than 70%, but peak area is greater than 35% of the internal standard. To be used when specified in the contract/task order.
- * Z Non-target compound analyzed for and detected. This Code is used only for those analytes (in non-GC/MS methods) which were not performance demonstrated or validated.

ACCEPTABLE CRITERIA: (CONT.)

- * 1 Result less than the CRL but greater than the Criteria of Detection (COD). Can only be used for methods which were performance demonstrated under the 1990 QA Program.
- * 2 Ending calibration not within acceptable limits. This Code is to be used for an analyte for which the ending calibration is still unacceptable after multiple attempts.
- * 3 Internal standard(s) not within acceptable limits.
- * 7 Low spike recovery is not within control limits. This Code is to be used when the low spike recovery (not the three-day average) falls outside of control limits and the analytical data is potentially biased. (Formerly Flagging Code N)

ACCEPTABLE ENTRIES:

- * A Analyte found in trip blank as well as in field samples.
- B Analyte found in the method blank or QC blank as well as the sample.
- C Analysis was confirmed.
- D Duplicate analysis.
- F Sample filtered prior to analysis.
- * G Analyte found in rinse blank as well as field sample.
- H Out of control but data accepted due to high recoveries.
- * I Interferences in sample make quantitation and/or identification to be suspect.
- * J Value is estimated.
- * K Reported results are affected by interferences or high background.
- * L Out of control, data rejected due to low recoveries.
- M Duplicate (high) spike analysis not within control limits.
- * N Tentatively identified compound (match greater than 70%).
- * P Results less than reporting limit but greater than instrumental detection limit.
- * Q Sample interference obscured peak of interest.
- R Non-target compound analyzed for but not detected (GC/MS methods).
- S Non-target compound analyzed for and detected (GC/MS methods).
- T Non-target compound analyzed for but not detected (non-GC/MS methods).
- U Analysis is unconfirmed.
- V Sample subjected to unusual storage/preservation conditions.
- W Single analyte required from a multi-analyte method.
- X Analyte recovery outside of certified range but within acceptable limits.
- * Y Tentatively identified compound (match less than 70%).
- * Z Non-target compound analyzed for and detected (non-GC/MS methods).
- * 1 Result less than CRL but greater than COD.
- * 2 Ending calibration not within acceptable limits.
- * 3 Internal standard(s) not within acceptable limits.
- * 7 Low spike recovery is not within control limits.

APPENDIX G

FIELD AND LABORATORY AUDIT CHECKLISTS

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LABORATORY AUDIT CHECKLIST

APPENDIX U

LABORATORY AUDIT CHECKLIST

EVALUATED LABORATORY

SUBJECT PROJECT

QC Coordinator _____

Analytical Task Manager _____

Project Manager _____

Project Officer _____

Evaluator _____

Evaluation Date _____



APPENDIX U
AUDIT CHECKLIST

YES NO COMMENT

PRE-AUDIT

1. Notified laboratory
2. Notified project officer
3. Made travel arrangements
4. Reviewed background information/
data
5. Requested laboratory to have data/
methods/personnel available
6. Prepared agenda

IN-BRIEFING

7. Introduced participants
8. Described goals and objectives of
audit/agenda
9. Identified specific areas for
review that could require some
laboratory preparation
10. Discussed general overview/status
on project
11. Discussed problem areas



YES NO COMMENT

GENERAL

12. a. Has detailed Project QC Plan (QAPjP) been submitted?
- b. Has individual been appointed as QAC who is independent from analysis?
- c. Have sufficient facilities, personnel, and instrumentation been provided to perform the required analyses?
- d. Does the QAC have the resources to function effectively?
- e. Are chemicals and reagents of sufficient quality so as not to compromise the analytical system?
- f. Is housekeeping commensurate with analytical techniques?
- g. Has a training plan been developed and training been documented?
- h. Is the correct version of USATHAMA supplied software being used?



AUDIT

YES NO COMMENT

13. Samples chosen to follow through laboratory:

Inorganic

Organic

14. Sample receiving:

- a. Are procedures/SOPs available?
- b. Are samples checked upon receipt?
- c. Is the sample checking documented?
- d. Is area secure?
- e. Are chain-of-custody forms filed?
- f. Are internal chain-of-custody forms generated?
- g. Are samples logged in according to SOP?
- h. Are USATHAMA numbers assigned?
- i. Are numbers allocated for QC samples?



<u>AUDIT</u> (cont)	<u>YES</u>	<u>NO</u>	<u>COMMENT</u>
j. Are samples stored in refrigerator until needed?			
k. Is the temperature of refrigerator monitored?			
l. Is there a sign-out system for samples?			
m. Are VOA samples isolated from other samples?			
15. Inorganics Section:			
a. Are logbooks kept for:			
Digestion?			
Analysis?			
Instrument maintenance?			
Standard preparation?			
b. Are logbooks identified with unique number?			
c. Are pages of logbooks numbered?			
d. Are reagents/solvents/acids checked for purity, etc.?			



Inorganics (cont)

YES NO COMMENT

- e. Are standards stored correctly?
- f. Is inventory of standards maintained?
- g. Are standard solutions labelled with date prepared?
- h. Are solution validity checks documented?
- i. Are standards traceable from receipt to use?
- j. Are samples maintained and stored according to SOP?
- k. Are procedures in place to minimize cross contamination?
- l. Are samples analyzed according to certified methods?
- m. Are results of analyses stored in data packages?

16. Organics Section:

- a. Are logbooks kept for:

Extraction?

Analysis?



Organics Section (cont)

YES NO COMMENT

Instrument Maintenance?

Standard preparation?

- b. Are logbooks identified with unique number?
- c. Are pages in logbooks numbered?
- d. Are reagents/chemicals checked for purity, etc.?
- e. Are standards stored correctly?
- f. Is an inventory of standards maintained?
- g. Are standard solutions labelled with date prepared?
- h. Are solution validity checks documented?
- i. Are standards traceable from receipt to use?
- j. Are samples maintained and stored according to SOP?
- k. Are procedures in place to minimize cross contamination?



Organics (cont)

YES NO COMMENT

- l. Is tuning of GC/MS performed and documented every 12 hours?

- m. Are samples analyzed according to certified methods?

- n. Are results of analyses stored in data packages?

- 17. Method selected is performed according to written certified method?

- 18. Have problem areas been discussed and corrective actions reviewed/recommended?

- 19. Data Management:
 - a. Data packages prepared for each lot of analysis?

 - b. Data packages readily available for review?

 - c. Representative data packages from each method reviewed?

 - d. Data package checklists included in each package?

Filled out correctly?

 - e. Notebook pages signed and dated?



Data Management (cont)

YES NO COMMENT

- f. Computer print-outs readily identified?
 - g. Data processing according to SOPs?
 - h. Data transmittal to USATHAMA according to SOPs?
20. Has data been validated according to USATHAMA internal SOP?

OUTBRIEFING

- 21. Summary given on findings, observations, conclusions reached?
- 22. Responded to laboratory questions/concerns?
- 23. Provided forum to rectify differences between laboratory staff and audit team?
- 24. Identified deficiencies and offered assistance in their correction?
- 25. Copy of completed audit checklist provided to laboratory?
- 26. Discussed future goals and objectives?



FIELD AUDIT CHECKLIST

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FIELD CHECKLIST

Signature of Auditor _____ Date of Audit _____

Project Coordinator _____ Project No. _____

Project Location _____

Type of Investigation
(Authority, Agency) _____

Briefing with Project Coordinator

Yes ___ No ___ N/A ___

1. Was a project plan prepared? If yes, what items are addressed in the plan?

Yes ___ No ___ N/A ___

2. Were additional instructions given to project participants (i.e., changes in project plan)? If yes, describe these changes.

Yes ___ No ___ N/A ___

3. Is there a written list of sampling locations and descriptions? If yes, describe where documents are.

Yes ___ No ___ N/A ___

4. Is there a map of sampling locations? If yes, where is the map?

Yes ___ No ___ N/A ___

5. Do the investigators follow a system of accountable documents? If yes, what documents are accountable?



Yes No N/A

6. Is there a list of accountable field documents checked out to the project coordinator? If yes, who checked them out and where is this documented?

Yes No N/A

7. Is the transfer of field documents (sample tags, chain-of-custody records, logbooks, etc.) from the project coordinator to the field participants documented? If yes, where is the transfer documented?

Yes No N/A

8. Have the team members received the adequate training for their position? Documented?

Yes No N/A

9. Have the team members received the required number of hours of OSHA training.



FIELD CHECKLIST

FIELD OBSERVATIONS

Yes ___ No ___ N/A ___

1. Was permission granted to enter and inspect the facility (required if RCRA inspection)?

Yes ___ No ___ N/A ___

2. Is permission to enter the facility documented? If yes, where is it documented?

Yes ___ No ___ N/A ___

3. Were split samples offered to the facility? If yes, was the offer accepted or declined?

Yes ___ No ___ N/A ___

4. Is the offering of split samples recorded? If yes, where is it recorded?

Yes ___ No ___ N/A ___

5. If the offer to split samples was accepted, were the split samples collected? If yes, how were they identified?

Yes ___ No ___ N/A ___

6. Are the number, frequency and types of field measurements, and observations taken as specified in the project plan or as directed by the project coordinator? If yes, where are they recorded?



Yes ___ No ___ N/A ___

7. Are samples collected in the types of containers specified for each type of analysis? If no, what kind of sample containers were used?

Yes ___ No ___ N/A ___

8. Are samples preserved as required? If no or N/A, explain.

Yes ___ No ___ N/A ___

9. Are the number, frequency, and types of samples collected as specified in the project plan or as directed by the project coordinator? If no, explain why not?

Yes ___ No ___ N/A ___

10. Are samples packed for preservation when required (i.e., packed in ice, etc.)? If no or N/A, explain why.

Yes ___ No ___ N/A ___

11. Is sample custody maintained at all times? How?

Yes ___ No ___ N/A ___

12. Is the following information completed on each chain-of-custody record?

- Sample identification number;
- Sample collector's signature;
- Date and time of collection;
- Place and address of collection;
- Waste sample description;
- Shipper's name and address;
- Name and address of organization(s) receiving sample;



- Signatures and titles of persons involved in chain-of-possession; and
- Inclusive dates of possession for each possession.

Yes No N/A

13. Does a sample analysis sheet accompany all samples on delivery to the laboratory sample custodian?

Yes No N/A

14. At the minimum, has the following information been completed on each sample analysis request sheet?

- Name of person receiving sample (sample custodian);
- Laboratory sample number;
- Date of sample receipt;
- Sample allocation;
- Analyses to be performed;
- Collector's name, affiliation name, address, and phone number;
- Date and time of sampling;
- Location of sampling; and
- Special handling and/or storage requirements.

Yes No N/A

15. Has a field custodian been assigned for sample recovery, preservation, and storage until shipment?

Yes No N/A

16. Where applicable, are sample collection containers rinsed three times with the sample material prior to collection?



Yes No N/A

17. Are glass containers with Teflon-lined screw caps used to collect the following types of samples?

- Water samples for organic analyses?
- Soil and sediment samples?
- Liquid and solid hazardous waste samples (*)?

Yes No N/A

18. Are polyethylene bottles with solid polyethylene-lined caps used to collect the following types of samples?

- Water samples for metal analysis?
- Water samples for pH and fluoride analysis?
- Water samples for cyanide analysis?

Yes No N/A

19. Are amber glass or aluminum foil-wrapped glass bottles used for samples suspected of being photosensitive?

* Highly alkaline wastes and wastes known to contain hydrofluoric acid should be collected in plastic containers. If it is suspected that highly alkaline materials or hydrofluoric acid is present, a small sample should be tested to determine if it reacts with the sample container.



QUALITY ASSURANCE/QUALITY CONTROL
SAMPLE DOCUMENTATION AND CHAIN-OF-CUSTODY

Yes ___ No ___ N/A ___

1. Is the following information being recorded in the field log book or on data sheets?

- Project name and project number;
- Purpose of sampling (e.g., quarterly sampling, resample to confirm previous analysis, initial site assessment, etc.);
- Date and time each sample was collected;
- Date and starting/stopping times (Hr:Min) for air samples;
- Date and well bailing time for groundwater;
- Blank, duplicate and split sample identification numbers;
- Sample description including type (i.e., soil, sludge, groundwater, etc.);
- Field measurement results (i.e., conductivity, pH, dissolved oxygen, combustible gas (e.g., LEL), radioactivity, etc.);
- Preservation method for each sample;
- Type and quantity of containers used for each sample;
- Weather conditions at time of sampling;
- Photographic log identifying subject, reason for photograph, date, time, direction in which photograph was taken, number of the picture on the roll;
- Sample destination;
- Analyses to be performed on each sample;
- Reference number from all forms on which the sample is listed or labels attached to the sample (i.e., chain-of-custody, bill of lading or manifest forms, etc.);
- Name(s) of sampling personnel; and
- Signature of person(s) making entries on each page.



Yes No N/A

2. Is a chain-of-custody record completed for all samples collected?



CHECKLIST FOR MECHANICALLY CORED SAMPLES

Yes No N/A

1. Was the rig set up at a staked and cleared borehole location?

Yes No N/A

2. Was the location, date, time, and other pertinent information recorded on boring log form?

Yes No N/A

3. Was polybutyrate core tubes cut to specification and placed into core barrel?

Yes No N/A

4. Was augering and coring conducted according to the following sequence: 0-1 ft, 1-4 ft, 4-5 ft, 5-9 ft, and 9-10 ft, etc.?

Yes No N/A

5. Was the core barrel removed from the borehole and opened at the completion of each coring interval?

Yes No N/A

6. Was the 12-inch sections for laboratory analysis removed, capped with Teflon film lined plastic caps, sealed with tape, and immediately placed in a cooler?



Yes No N/A

7. Were core sections which were previously etched length-wise taped with plastic caps to prevent opening during transport to the support facility?

Yes No N/A

8. Were the polybutyrate line sections marked with an arrow to the top end, the boring number, and depth interval? Was a label giving the same information as well as the project name, number, the date, and the sampler's initials attached to the core in the sample handling trailer or at the site?

Yes No N/A

9. Were clean polybutyrate liners placed in a clean core barrel for each additional coring increment to be drilled?

Yes No N/A

10. Did the boring reach a predetermined depth or encounter the water table, whichever came first?

Yes No N/A

11. For trench disposal areas was the coring performed to the maximum depth of observable contamination?

Yes No N/A

12. Were all core sections transported to the support facility for logging and sample shipment preparation?



Yes No N/A

13. Was the boring stake left in the ground adjacent to the borehole and a board placed over the hole until it was grouted?

Yes No N/A

14. Were all boreholes greater than 1 ft in depth grouted the same day of construction and the borehole location stake placed in the grout?

Yes No N/A

15. Were one foot deep borings backfilled with native materials available adjacent to the boring?

Yes No N/A

16. Were the augers, and other downhole equipment decontaminated in the field prior to moving to the next borehole location upon completion of each boring?

Yes No N/A

17. When all borings in a specific source were completed was the drill rig initially cleaned at the source location?

Yes No N/A

18. Upon completion of the initial cleaning was the drill rig transported to the decontamination pad where it was thoroughly steam-cleaned before entering another source area?



Yes No N/A

19. Were enough augers and core barrels available so that when one set was in use a second set was being decontaminated?

Yes No N/A

20. At the end of the working day did all equipment, except the drill rig, and personnel proceed to the decontamination pad where decontamination procedures were initiated?

Yes No N/A

21. Were all bore cuttings drummed and stored while awaiting USATHAMA's directions for disposal?



Yes No N/A

7. Does information on sample tags and chain-of-custody records match?

Yes No N/A

8. Does the chain-of-custody record indicate the method of sample shipment?

Yes No N/A

9. Is the chain-of-custody record included with the samples in the shipping container?

Yes No N/A

10. If used, do the sample traffic reports agree with the sample tags?

Yes No N/A

11. If required, has a receipt for samples been provided to the facility (required by RCRA)? Describe where offer or a receipt is documented.

Yes No N/A

12. If used, are blank samples identified?

Yes No N/A

13. If collected, are duplicate samples identified on sample tags and chain-of-custody records?



Yes No N/A

14. If used, are spiked samples identified?

Yes No N/A

15. Are logbooks signed by the individual who checked out the logbook from the project coordinator?

Yes No N/A

16. Are logbooks dated upon receipt from the project coordinator?

Yes No N/A

17. Are logbooks project-specific (by logbook or by page)?

Yes No N/A

18. Are logbook entries dated and identified by author?

Yes No N/A

19. Is the facility's approval or disapproval to take photographs noted in a logbook?

Yes No N/A

20. Are photographs documented in logbooks (e.g., time, date, description of subject, photographer, etc.)?



CHECKLIST FOR HAND CORED SAMPLES

Yes No N/A

1. Was a piece of Teflon film and plywood placed over the top of the polybutyrate tube and the tube pushed or driven into the ground by hand?

Yes No N/A

2. Was the tube removed from the ground by shovel, the tube exterior wiped clean, the ends capped with Teflon film lined plastic caps, and sealed with tape?

Yes No N/A

3. Were the sample tubes marked with the boring number, the depth of the interval sampled, and the upward direction?

Yes No N/A

4. Was a label containing the same information written on the sample tube as well as the project name, number, the date, and sampler's initials taped to the outside of the core?

Yes No N/A

5. Were cores logged and stored in a cooler with commercially available Blue Ice prior to and during transport to the support facility sampling area where they were logged for shipment?



FIELD CHECKLIST

DOCUMENT CONTROL

Yes No N/A

1. Have all unused and voided accountable documents been returned to the coordinator by the team members?

Yes No N/A

2. Were any accountable documents lost or destroyed? If yes, have document numbers of all lost or destroyed accountable documents been recorded and where are they recorded?

Yes No N/A

3. Are all samples identified with sample tags? If no, how are samples identified?

Yes No N/A

4. Are all sample tags completed (e.g., station number, location, date, time, analyses, signatures of samplers, type, preservatives, etc.)? If yes, describe types of information recorded.

Yes No N/A

5. Are all samples collected listed on a chain-of-custody record? If yes, describe the type of chain-of-custody record used and what information is recorded.

Yes No N/A

6. If used, are the sample tag numbers recorded on the chain-of-custody documents?



Yes No N/A

21. If film from a self-developing camera is used, are photos matched with logbook documentation?

Yes No N/A

22. Are sample tag numbers recorded? If yes, describe where they are recorded.



FIELD CHECKLIST

DEBRIEFING WITH PROJECT COORDINATOR

Yes No N/A

1. Was a debriefing held with project coordinator and/or other participants?

Yes No N/A

2. Were any recommendations made to the project participants during the debriefing? If yes, list recommendations.

Yes No N/A

3. Was a copy of the field checklist left with the project coordinator at the conclusion of the debriefing?

