

STANDARD OPERATING PROCEDURE
SAMPLE TRACKING PROCEDURES

KEY WORDS

Database, chain-of- custody, sample paperwork, sample codes

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1.0 INTRODUCTION

1.1 Purpose

This Standard Operating Procedure (SOP) discusses sample check-in and check-out procedures; the recording of laboratory sample data; sample disposal procedures; and the Sample Tracking Database.

1.2 Definitions

- 1.2.1 A **Sample** is any environmental substance collected and analyzed for chemical or physical content.
- 1.2.2 **Sample Tracking Database** is a relational database designed in Microsoft Access to trace a sample from the time it is checked into the storage facility until the sample is submitted to a laboratory for analysis or disposed of after a study is completed. All the information reported on the check-in, check-out, Chain of Custody (COC) and sample disposal sheets is entered in the Sample Tracking Database. Queries, forms and reports are designed for a study to access fields to summarize data.
- 1.2.3 **Chain-of-custody** is a record describing in detail all pertinent information specific to each sample, including dates and signatures of persons handling the sample (ADMN006.00).
- 1.2.4 **Sample Custodians** are personnel, under direction of the lab liaison, responsible for receiving samples from field staff, delivering samples to the laboratory and tracking samples in the Sample Tracking Database.

2.0 PROCEDURES

2.1 Sample Tracking Codes

Sample tracking codes are abbreviations for fields in the database that refer to specific information about each sample. The study number in combination with the sample number is identified as the key field and all information specific to the sample is referenced by the following codes back to the key field.

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2.1.1 Sample Codes

Code	Information	Code	Information
P	Primary	BG	Background
R	Replicate	BM	Blank Matrix
B	Backup	A	Acidified
FB	Field Blank	U	Unacidified
*	Split	RB	Rinse Blank
S	Spike		

2.1.2 Storage Location Codes

Storage location refers to the storage location of each sample at the storage facility. If the sample is delivered direct then either the code for none, or an R, FR or I for a home/hotel refrigerator, home/hotel freezer or ice chest.

Code	Information	Code	Information
SR10	Warehouse Refrigerator	R	Refrigerator
SF05	Warehouse Freezer #5	FR	Freezer
SF06	Warehouse Freezer #6	L	Lab
SF07	Warehouse Freezer #7	FZ	Freezesafe-Dry Ice
F	Fresno	I	Ice chest
S	Sacramento	A	Air temperature
W	Warehouse	D	Deep Freeze

2.1.3 Sample Matrix Type Codes

Sample type codes refer to the sample matrix collected.

Code	Information	Code	Information
WAT	Water	SOI	Soil
VEG	Vegetation	SAN	Sand
FRU	Fruit	SED	Sediment
TUR	Turf	TSS	Total Suspended Sediment
BRA	Branch	SUR	Surrogate
DVEG	Dislodgeable Vegetation	SSS	Stainless Steel Sheets

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FOL	Foliage	STD	Standard
TWG	Twigs	TAN	Tank
TRP	Air Cassettes	EXT	Extract
AIR	Air	FILT	Filtrate
KIM	Kimbie/ Mass Deposition Sample or MDS	MDS	Mass Deposition Sample

2.1.4 Sample Container Codes

Sample container codes refer to the type of container each sample is placed in during storage.

Code	Information	Code	Information
QMSJ	Quart Mason Jar	PBAG	Plastic Bag
PMSJ	Pint Mason Jar	FOIL	Aluminum Sheets
5OZGL	5 oz Glass Jar	XADT	XAD Tube (small)
1LAMBR	1 Liter Amber Bottle	SUMMA	Summa Canister
250MLAMBR	250ml Amber Bottle	HIV	High Volume Air Sampler
500MLAMBR	500ml Amber Bottle	XAD4	Large XAD 4 Tube
HPMSJR	Half Pint Mason Jar	SUPXAD	Supelco XAD4 Tube
P500ML	Plastic Bottle 500 ml	CAS	Air Cassette
1LPC	1 L Polycarbonate Bottle	OVST	SKC filter with XAD2 tube
500MLB	500 ml Glass Bottle	HIVJAR	Hi-Vol Jar
250MLB	250 ml Glass Bottle	LOV	Low Volume Air Sampler
500MLPC	500 ml Polycarbonate Container	500MLHDPP	500ml High Density Polypropylene
1LPP	1 L Polypropylene	VIAL	Small Standard Vial
VOA	VOA sample bottle	OTH	Other- describe in comments section

2.1.5 Laboratory Codes

Laboratory codes refer to the specific laboratory a sample is transported to for analysis. The following codes are for laboratories that the Environmental

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Monitoring Branch has contracted with in the last 5 years. Former lab codes are listed in QAQC003.01 in the archives.

Code	Information	Code	Information
CDFA	CA Dept. of Food and Agriculture	WSAC	W. Sacramento Warehouse
CDFG	CA Dept. of Fish and Game	USGS	US Geological Survey
ATL	DFG Aquatic Toxicology Lab	UCD	University California Davis
PTRL	PTRL Lab	FRES	Fresno Soils Lab
APPL	APPL Laboratory		

2.1.6 Analysis Type Codes

Analysis type codes refer to the type of test method to be performed on each sample.

Code	Information	Code	Information	Code	Information
C	Chemical	F	Tracer	E	Elisa
O	Organic	P	PH	M	Moisture
T	Texture	B	Bulk Density	V	Various

2.1.7 Chemical Analysis Abbreviations

The following abbreviations refer to the chemical analysis to be performed on each sample if applicable. The chemical does not have to be abbreviated if it is less than 35 characters long. If abbreviated, the following are preferred.

Code	Information	Code	Information	Code	Information
OP	Organophosphate	TRIAZ	Triazine	MOL	Molinate
CB	Carbamate	HEX	Hexazinone	GLY	Glyphosate
DI	Diazinon	TRI	Triclopyr	THIO	Thiobencarb
CARBO	Carbofuran	MEBR	Methyl Bromide	PROP	Propanil
TOX	Toxicity Testing	TOC	Total Organic Carbon	TSS	Total Dissolved Substances
TDM	Triclopyr, 2,4-D, MCPA	MP/MN	Methyl Parathion/ Malathion	EN/DI	Endosulfan/ Diazinon
PIC	Chloropicrin				

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2.1.8 Comments

Comments may be entered into the table if there is any additional information. Short comments of less than 35 characters do not need to be abbreviated. However, the following is a list of common abbreviations used in the comment section of the sample-tracking database. Codes used for former studies can be found in the archived SOP QAQC003.01.

Code	Information	Code	Information	Code	Information
BS	QC blind spike	RB	QC rinse blank	Broke	Sample broken
ACT TOX	Acute toxicity testing	CHN TOX	Chronic toxicity testing	BKG or BG	Background matrix
SPLIT	Split sample	TE	Trapping efficiency		

2.2 Sample Check-in Procedures

- 2.2.1 All samples received at the storage facility are immediately put in a refrigerator or freezer depending on the matrix specific storage requirements. Samples should not be subjected to heat or sunlight.
- 2.2.2 The field crew fills out a three part check-in sheet (Figure A) using the sample tracking codes listed in section 2.1. The check-in sheet must be complete in order to properly track environmental samples.
- 2.2.3 The following is a description of each key component of the check-in sheet.

Check-in Sheet: Portion Filled out by Field Staff in ink:

Project ID: The study number.

Date Received: The date the sample was relinquished from the field crew to sample custodian.

Checked-in by: The initials of the person who fills out the check-in sheet.

Remarks: List any additional or necessary information regarding the samples listed on the check-in sheet.

Storage Location: List where the sample is being stored (Section 2.1.2).

Ice Chest No.: List ice chest number that sample was stored in. For GLP studies, the ice chest number along with the maximum ice chest temperature during transport must be marked on Hobo Temp[®] print-out as noted in SOP EQOT001.01. If temperature exceeded 6° C for refrigerated samples or 0° C for frozen samples, this must be documented in sample check-in sheet comments section and must be brought to the attention of the QAQC officer for the study.

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EM Sample No.: The unique number assigned to a labeled sampling container for the study.

Sample Code: List sample code (see Section 2.1.1).

Date Sample Collected: Note the sample collection date.

Sample Matrix Type: Specify the type of sample collected (matrix) (Section 2.1.3).

Container Type: What the sample is stored in (Section 2.1.4).

Analysis Type: The type of analysis the sample is intended for (Section 2.1.6).

Analysis: List the type of chemical the sample is to be analyzed for (Section 2.1.7).

Comment: Space provided for additional information regarding individual samples (Section 2.1.8).

2.2.4 After the check-in sheet is completed, the white and yellow copy is used to enter the information into the Sample Tracking Database and then filed with the lab liaison. The pink copy is given to project leader with ice chest temperature read-out if applicable.

2.2.5 The sample custodian compares each field sample with its corresponding Chain-of-custody (COC), then the custodian signs and dates the COC showing that it has been received at the warehouse facility. The white and yellow copy, or original copy of the each COC is sent with its corresponding field sample to the laboratory with a check-out sheet (section 2.3). The Project Leader retains the pink COC copy or may make copies of the original COC. Any remaining samples held at the storage facility are stored under their required storage conditions with the white and yellow copy or original of their corresponding COC's.

2.1 Sample Check-out Procedures

2.1.1 A three part check-out sheet is filled out for any sample leaving the storage facility (Figure B). The check-out sheet is used to enter data in the Sample Tracking Database to properly track a samples' location.

2.1.2 The check-out sheet is similar to the check-in sheet but differs in three components.

Check-out Sheet:

Date Delivered: The date the sample is taken to the laboratory.

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Checked-out by: The initials of the person filling out and transporting the sample to the laboratory (usually the sample custodian).

Laboratory Delivering to: Specify the destination code for the sample scheduled for analysis (Section 2.1.5).

Date/Logged in by: The date and person who enters information into the Sample Tracking Database from both the check-in and check-out sheets.

2.1.3 A pink copy of the check-out sheet is clipped to the white and yellow copies or original COCs and accompany the samples to the laboratory. The white and yellow copies of the check-out sheet are retained by the sample custodian and are used to enter information into the Sample Tracking Database.

2.1.4 For delivery to the lab, the samples are placed in ice chests and kept cooled at their required temperatures using blue ice, wet ice or dry ice.

2.2 Logging in Data

2.2.1 Data is logged in by entering data from the check-in and check-out sheets into a spreadsheet in Microsoft Excel. Once the spreadsheet is saved it is imported into the Sample Tracking Database in Microsoft Access with a macro. The employee entering the data initials the date and logged in by portion of the check-in and check-out sheets. The white copy of each sheet is given to the lab liaison to file.

2.3 Chemistry Results

After results are received from the laboratory, the laboratory sample number, extraction and analysis date for each sample are entered into the Sample Tracking Database using a Microsoft Access query for the study. This data can be used to determine approximate length of time between sampling and extraction of a sample, assist with retrieving lost data as well as other uses.

2.4 Sample Disposal

After each study is completed and with the approval of the Project Leader, all remaining samples stored in the storage facility may be disposed of by the sample custodian. A Sample Disposal Sheet is completed and includes information similar to the check-out sheet (Figure C). This sheet is used to enter the date of disposal for a sample in the Sample Tracking Database using the Microsoft Access query for the study. The lab liaison retains the original copy of the Sample Disposal Sheet

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and a copy can be made for the sample custodian and Project Leader if necessary. The lab liaison can recycle the COCs with the Project Leaders' permission.

2.5 Computer Generated Backups

Backups of the Sample Tracking Database are conducted by copying the database to the shared drive at the headquarters office at minimum on a monthly basis. When large amounts of data are added to the database, it must be backed up more frequently. The shared drive is backed up weekly.

Study number (project ID): _____	
Date received (at warehouse): _____	
Checked-in by: _____	
Page ____ of ____	

Remarks:

Samples were stored in ice chest # _____ at check-in.

EM Sample #	Date Sample Collected	Sample Type	Container Type	Analysis Type	Analysis	Comments
						1
						2
						3
						4
						5
						6
						7
						8
						9
						10
						11
						12
						13
						14
						15
						16
						17
						18
						19
						20
						21
						22
						23
						24

SAMPLE CHECK-OUT SHEET

Figure B

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Study number (project ID): _____	Logged out by (data entry): _____
Date delivered to lab: _____	Data entry date: _____
Checked-out by: _____	Storage location code: _____
Laboratory delivering To: _____	Page ____ of ____

Remarks:

EM Sample #	Sample Code	Date Sample Collected	Sample Type	Container Type	Analysis Type	Analysis	Comments
							1
							2
							3
							4
							5
							6
							7
							8
							9
							10
							11
							12
							13
							14
							15
							16
							17
							18
							19
							20
							21
							22

Study number (project ID): _____	Sample Tracking Staff Only:
Date disposes: _____	Logged In by: (data entry) _____
Disposed by: _____	Data entry date: _____
Page ____ of ____	

Remarks

EM Sample #		EM Sample #	Sample Code	EM Sample #	Sample Code	EM Sample #	Sample Code
							1
							2
							3
							4
							5
							6
							7
							8
							9
							10
							11
							12
							13
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