



California Underground Storage Tank Program

AB2886 Implementation

**Stockton Training
October 16, 2001**

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AB2886 Implementaion

- **GeoTracker Data Flow Overview**
- **Part 1- Implementation**
 - **Electronic Data Formats for GeoTracker**
 - **Data Requirements**
 - **Available Tools**
 - **Submitting Data to GeoTracker**
- **Part 2 - Format Details**
 - **Data Format Details**
 - **Advanced Format Content**



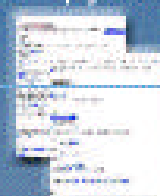
Field Samples

Survey x, y, z

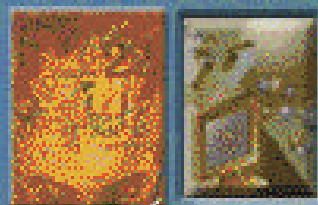


Laboratory

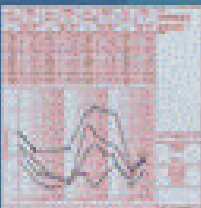
Hardcopy Report



RP Consultant

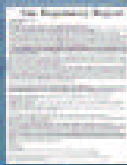


Site Regulatory Report

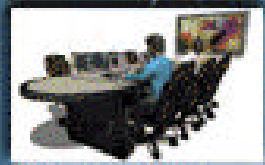


Ground Water Measure Hardcopy

Site Regulatory Report Hardcopy



Active Database



Lead Agency Case Worker



Temporary Database

Data reviewed & approved by lead SWRCB Case Worker is moved to Archive GeoTracker

The California Water Board GeoTracker Solution Data Transfer

Part 1 - Implementation

- **Formats**
- **Preparation**
- **Verification**
- **Uploading**

Electronic Formats

- **Standardized Data Format**
 - Fields of information are listed in a defined order
 - Names of organizations, analytes, and methods are generally given codes (valid values) for consistency
 - Data delivery has a defined format (e.g., fixed length or comma/quote delimited)



Delivery Format

GLOBAL ID	FIELD PT NAME	PARAMETER	RESULT	UNITS
T0605902476	MW-1	BZ	25	UG/L
T0605902476	MW-1	MTBE	33	UG/L

VALID VALUES

BZ = Benzene

MTBE = Methyl-tert-butyl ether

UG/L = ug/L

GeoTracker

GEO_XY

GEO_Z

GEO_WELL

SITE_MAP

EDF 1.2i

SURVEY_XYZ

Linking Data to GeoTracker

- **Global ID**
 - An identifier created by the GeoTracker System
 - Represents a site or facility identifier
- **Field Point Name**
 - The name assigned by the Consultant/RP to a survey or sample collection point

SURVEY_XYZ

GeoTracker

GEO_XY

GEO_Z

GEO_WELL

SITE_MAP

EDF 1.2i

SURVEY_XYZ



What is SURVEY_XYZ?

- **A format for electronic delivery of well location coordinates, elevation and groundwater measurement data**
- **Provides the geo-spatial coordinates for the GeoTracker System**

Location Information

- One-time submittal
- Latitude/Longitude data only (in decimal degrees, to 7 decimal points)
- Measure 1 meter accuracy or better
- Submission will be based upon Global ID and Field Point Name

Elevation Information

- Periodic submittal
- From top of casing
- Measure to +/- 0.01 Foot Accuracy
- Submission will be based upon Global ID and Field Point Name



Depth to Groundwater

- Submit each time a well is sampled
- From top of well casing:
 - Floating product surface
 - Groundwater surface
- Measure to +/-0.01 foot accuracy
- Submission will be based upon Global ID and Field Point Name

Site Map

- Periodic submittal
- Site Map
- File type
 - gif
 - tiff
 - jpeg
 - pdf
- Submission will be based upon Global ID



SURVEY_XYZ Benefits

- **Geo-spatial data of known precision and accuracy**
- **Data available for modeling constituents**
- **Active archive for public use**

EDF 1.2i

GeoTracker

GEO_XY

GEO_Z

GEO_WELL

SITE_MAP

EDF 1.2i

SURVEY_XYZ

What is EDF?

- **An electronic version of a laboratory report**
- **Data is formatted for ease of use by multiple parties**
- **Provides a consistent level of quality**

Chain-of-Custody

- **Global ID**
- **Field Point Names**
- **Sample IDs**
- **Collection Date/Time**
- **Preservation**

Analytical Results

- Laboratory IDs
- Analyses Date
- Preparation Batch
- Results

Data Quality Control

- Control Limits
- Surrogates
- Blanks
- Spikes

How it Works

- **Laboratory exports data from their Laboratory Information Management System (LIMS)**
- **Data is converted into EDF 1.2i format using either tools developed by the laboratory or tools provided by the EDF Program**
- **Data is then transferred to the client with an associated hard copy report**

Benefits of EDF

- **Eliminates laborious reentry of hard copy laboratory data**
- **Hard copy reports from unrelated laboratories may have the same format and appearance**
- **Nonconformance to standard analytical methods and procedures easily identified**
- **Conforms to SW-846 method requirements**
- **Provides a standard data format to be shared by multiple parties**

Available Tools

- **GeoTracker - Web-based Geo-spatial Database**
- **COELT - Corps of Engineers Loading Tool**
- **EDCC - Electronic Deliverable Consistency Checker**
- **DataStream Free - Data Verification and Reporting Tool**



COELT - Corp of Engineers Loading Tool

- **Laboratory software for preparation of EDF deliverables**
- **Allows for link to Laboratory Information Management System and manual data entry**
- **Electronic data consistency checking ensures format compliance**
- **Hard copy reports generated from electronic data - legally defensible**

EDCC - Checks

- **Format Errors**
 - Fields submitted in the incorrect order
 - Incorrect valid values
- **Logic Errors**
 - Analysis Date prior to Sample Date
 - Test without results
- **Content Errors**
 - Detection limits greater than reporting limits



EDCC - Electronic Data Consistency Checker

- **EDCC is available as software for a PC and is also accessible via the Web at the GeoTracker site**
- **EDCC - PC version checks for all laboratory generated content**
- **EDCC - Web version checks for all laboratory generated content plus Global IDs and Field Point Names**



DataStream Free

- **Reporting Tool**
- **Organizes Data**
- **Data Clean-Up**
- **QA/QC Reports**

Implementation

- **Preparing for the sampling event**
- **Sample submission to the laboratory**
- **Laboratory analysis and reporting**
- **Data formats preparation**
- **Data format verification**
- **Uploading data into GeoTracker**



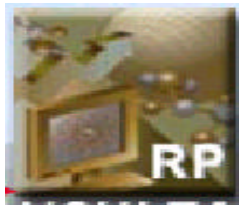
GeoTracker Set-up Tasks

- **Obtain Password**
- **Claim Facilities**
- **Establish Facility Security**
- **Obtain Global IDs**
- **Load Field Point Names**

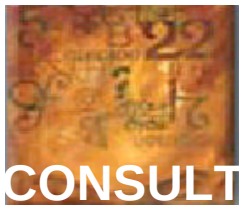
GeoTracker Security



**Provides Access to facilities RP
has claimed**



Provides Access to Consultant



Accesses Facility to Upload Data



**May Access GeoTracker to Check
Data**

Authorization

RP or authorized consultant

Obtains Password



Web Request

Request Facilities

Site 1

- Consultant 1
- Consultant 2
- Consultant 3

Site 2

- Consultant 1
- Consultant 2
- Consultant 5

Site 3

- Consultant 1
- Consultant 4
- Consultant 5

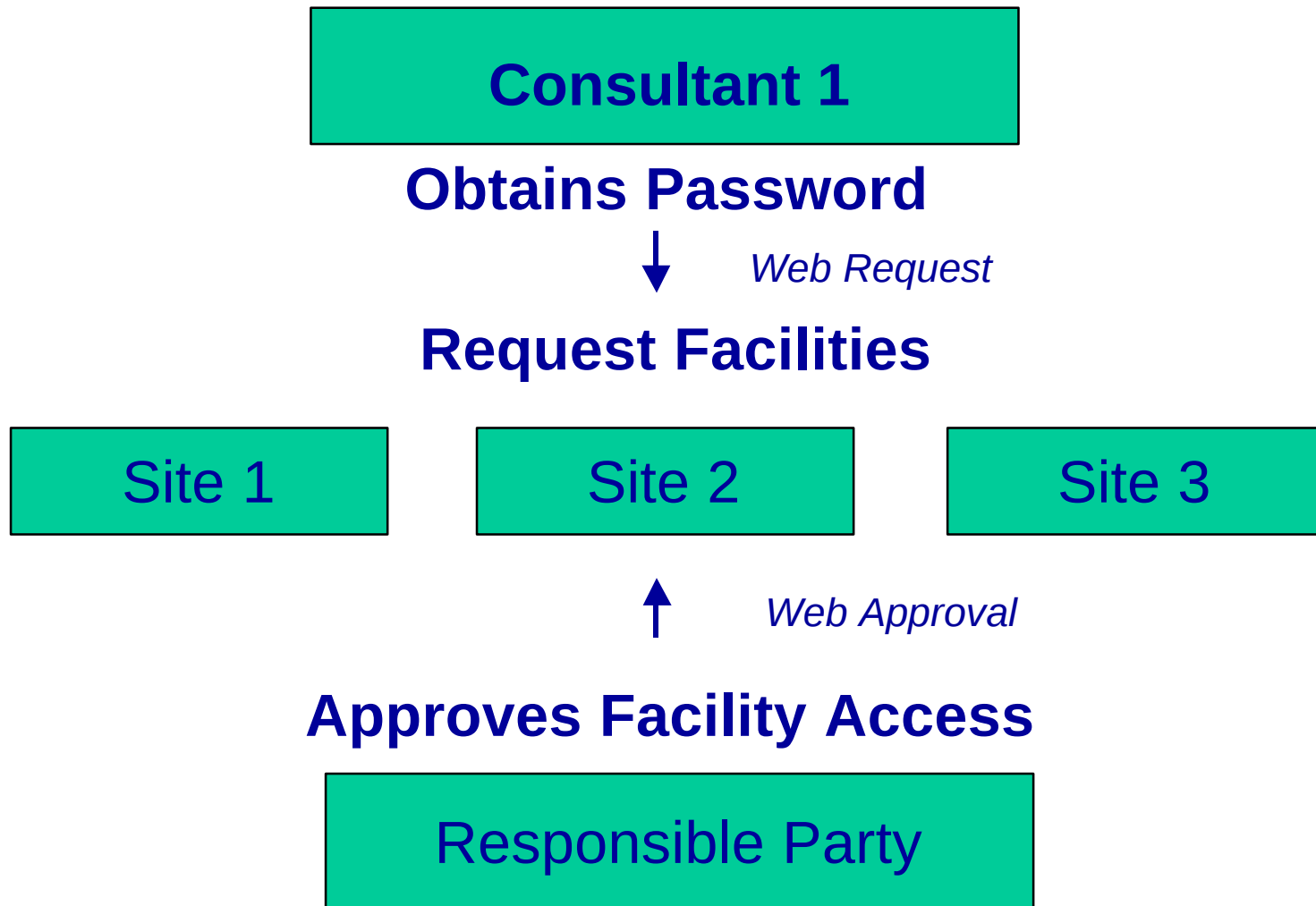


Phone Approval

Approves Facility Access

Agency

Authorization





GeoTracker Password

<https://geotracker.swrcb.ca.gov/2886>

To access or modify your sites, please enter your username and password below:

Username:

Password:

Login

If you do not have a username and password, request one using our [Password Request](#) page.



Responsible Party GeoTracker Set-upTasks

**Go to GeoTracker and Submit a
Password**

PASSWORD



Claim Facility(s)

FACILITY REQUEST



Agency Grants Access to Facility(s)

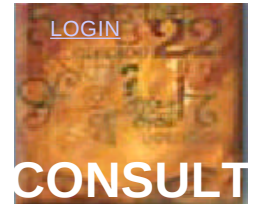




Consultant GeoTracker Set-upTasks

**Go to GeoTracker and Submit a
Password**

PASSWORD



CONSULT

Request Access to Facility(s)

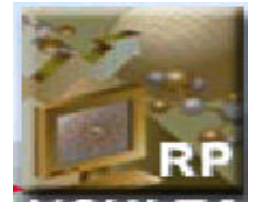
FACILITY REQUEST



CONSULT

Responsible Party Grants Access

MONITORING REQUEST



Download Global IDs

GLOBAL IDS



CONSULT



Consultant GeoTracker Set-up Tasks (cont.)

**Assign Field Point Names to
Global IDs**

ASSIGN FLD PT



**Upload Global IDs and Field Point
Names into GeoTracker**

UPLOAD FLD PT





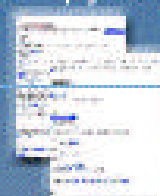
Field Samples

Survey x, y, z

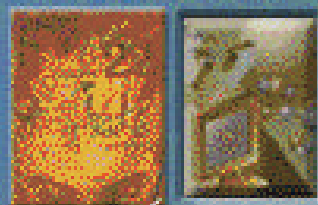


Laboratory

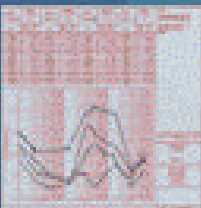
Hardcopy Report



RP Consultant

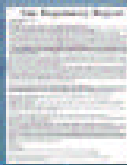


Site Regulatory Report

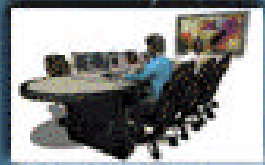


Ground Water Measure Hardcopy

Site Regulatory Report Hardcopy



Active Database



Lead Agency Case Worker



Temporary Database

Data reviewed & approved by lead SWRCB Case Worker is moved to Archive GeoTracker

The California Water Board GeoTracker Solution Data Transfer

Consultant Analytical Data Tasks

**Submit Samples to Laboratory
(Global IDs and Fld Pt Names)**



**Laboratory Sends Consultant
EDF1.2i**



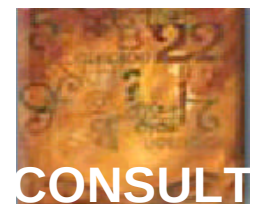
**Electronic Data, Lab Report,
EDCC Report**

EDCC



**Consultant Reviews and
Groups EDF1.2i for Site Report**

REPORT1





Consultant Analytical Data Tasks (cont.)

**Consultant EDCC Web Checks
EDF1.2i**



**Consultant Uploads EDF1.2i
To GeoTracker Private**

EDF UPLOAD



**Lead Agency Worker Reviews
and Approves Electronic Data**

REPORT SUBMITTAL



**Electronic Data is Moved to
GeoTracker Public**



Consultant Survey Tasks

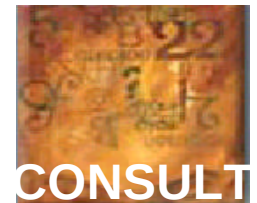
Survey Monitoring Wells



Create GEO_XY and GEO_Z



Web Check GEO_XY and GEO_Z



**Upload into GeoTracker grouped in
by Global ID(s)**





Consultant Field Data Tasks

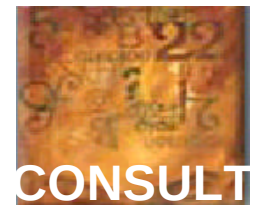
**Collect Groundwater Measurements
for each Well Sampled**



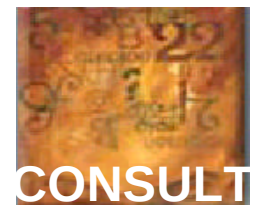
Create GEO_WELL



Web Check GEO_WELL



**Upload into GeoTracker grouped by
Site Regulatory Report**



Part 2 - The Details

- **SURVEY_XYZ format content**
- **EDF 1.2i format content**
- **Advanced format concepts**

GeoTracker

GEO_XY

GEO_Z

GEO_WELL

SITE_MAP

EDF 1.2i

SURVEY_XYZ

Location Information

Global ID	T0627059321
Field Point Name	MW-1
Field Point Class	MW ☐
XY Survey Date	01/09/2001
Latitude	38.6481038
Longitude	-121.3949836
XY Survey Meth	SUBP ☐

Example Entry



Valid Value Example

GEO_XY



Field Point Class

CODE	DESCRIPTION
MW	Remediation/Groundwater Monitoring Well
BH	Borehole
PUBW	Public Drinking Water Well
PRIW	Domestic/Private Drinking Water Well
AGT	Above Ground Tank



XY Survey Method

CODE	DESCRIPTION
CONV	Conventional survey technique. (Third order – Class II) Minimum or 2 reference points: HPGN, HPGN-D, or 2 horizontal control points derived from the HPGN or HPGN-D reference points.
RTK	Real-Time Kinematic (RTK) GPS survey technique using a



Location Information

XY Datum	NAD83	☐
XY Survey Org	SURVEY-1	
GPS Equip Type	TXR	☐
XY Survey Desc		
XY Accuracy Val		



XY_DATUM

CODE	DESCRIPTION
NAD83	NAD 83 HPGN Datum

GPS EQUIP TYPE

CODE	DESCRIPTION
TXR	Trimble PathfinderProXR <1m
TXRS	Trimble PathfinderProXRS <1m
TPOW	Trimble PathfinderPower 1m
TPOC	Trimble PathfinderPocket 2-5m
APRO	Ashtech PromarkX < 2m
AZX	Ashtech Z-Extreme < 1m
AZS	Ashtech Z-Surveyor < 1m

Elevation Information

Global ID	T0627059321	
Field Point Name	MW-1	
Survey Date	01/09/2002	
Elevation	437.05	
Riser Height	2.88	
Elev Datum	29	V
Elev Survey Meth	MEA	V



Elevation Datum

CODE	DESCRIPTION
29	NDGV29(Mean Sea Level)
88	NAVD88
LOC	Publically available local datum from city, county or state agency



Elev Survey Method

CODE	DESCRIPTION
DIG	Conventional differential leveling (digital or non-digital)... Third Order
TRIG	Trigonometric leveling using total stations.
CPGS	Conventional elevation survey technique (Third Order) based on a minimum of 2 GPS-derived control points...



Elevation Information

Elev Accuracy Val	
Elev Survey Org	SURVEY-1
Elev Survey Desc	



Well Information

Global ID	T0627059321
Field Point Name	MW-1
Measure Date	01/09/2002
Grndwater Depth	140.05
Riser Height	2.82
Well Status	ACT ☐
Status Begin Date	01/09/2002



Well Status

CODE	DESCRIPTION
ACT	Groundwater well currently used for remediation or monitoring
INACT	Groundwater well not included in groundwater monitoring program
DRY	Groundwater well is dry and cannot be sampled



Well Information

Depth to Product	
Grndwater Desc	
Depth to Well	



Site Map

- Site Map
- Global ID

SITE_MAP

GeoTracker

GEO_XY

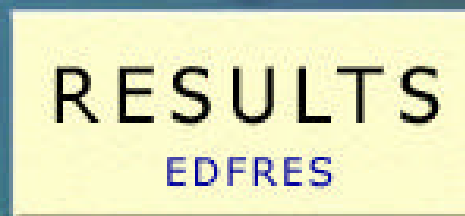
GEO_Z

GEO_WELL

SITE_MAP

EDF 1.2i

SURVEY_XYZ





Sample Information

Field Point Name	MW-1
Global ID	T0627059321
Collection Date	01/15/2002
Collection Time	1256
Field Organization	FRM1 V
Sample ID	UST-1
Matrix	W V



Field Organization

TGGB	TEG, Solana Beach, CA
RMTM	RMT, Inc., Madison, WI
MOOD	Moodys of Dayton, Dayton, OH
JFHM	J.F. Hoffman, Merced, CA
ABRF	ABR, Inc., Fairbanks, AK
BBR	Bill Belknap, Reedley, CA
BVEA	Black & Veatch, Overland, KS

Matrix

CODE	DESCRIPTION
SO	Soil
W	Water
GS	Soil Gas
MH	Hazardous Multi-Phase Waste
TA	Animal Tissue



Sample Information

Project Name	UST PHASE 1
Work Order	#4352
Laboratory	LAB1 V



Laboratory

CODE	DESCRIPTION
HPLE	HP Labs, Escondido, CA
KIFF	KIFF Analytical LLC, Davis, CA
EELR	Excelchem Environmental Labs, Roseville, CA
MCAP	McCampbell Analytical, Pacheco, CA
PIC	Pace Analytical Services, Inc., Camarillo, CA

Test Information

Lab Sample ID	LAB-4332-1
Lab Sample Type	CS ☐
Analytical Method	SW8260B ☐
Prep Method	SW5030B ☐
Analysis Date	01/17/2002
Prep Date	01/17/2002
Prep Batch	5030-0117 ☐



Lab Sample Type

CODE	DESCRIPTION
LB1	Lab Blank #1
LR1	Lab Replicate #1
MS1	Lab Matrix Spike #1
SD1	Lab Matrix Spike Duplicate #1
BS1	Blank Spike #1
BD1	Blank Spike Duplicate #1



Method

CODE	DESCRIPTION
SW8260B	Volatile Organic Compounds by GC/MS
SW8270B	Semivolatile Organic Compounds by GC/MS
SW8015B	Non-Halogenated Organics Using GC/FID
SW6010B	Inductively Coupled Plasma-Atomic Emission Spectroscopy
SW7421	Lead (AA, Furnace Technique)
E160.1	Residue, Filterable (TDS)



Preparation Method

CODE	DESCRIPTION
SW3550B	Ultrasonic Extraction
SW3580	Waste Dilution
SW3580A	Waste Dilution
SW3810	Headspace
SW5030B	Purge-and-Trap for Aqueous Samples
SW5035	Closed-System Purge-and-Trap



Test Information

Lab Report	LAB-4332
Received Date	01/16/2002
Chain-of-Custody	UST-1
Basis	N ☒ V
Mod Param List	T
Leach Method	
Run Number	1

Basis

CODE	DESCRIPTION
D	Dry
F	Field Filtered
L	Lab Filtered
N	Not Filtered
W	Wet
C	California Waste Extraction Test



Test Information

Preservation	P05	☐
Sub Laboratory	NA	☐
Report Date	01/19/2002	
Approved By	TECH1	
Test Notes		☐

Preservation

CODE	DESCRIPTION
P01	4 drops of 10% sodium thiosulfate to 4 oz.
P02	Adjust to pH 4-5
P03	Add 3 mL 10% sodium thiosulfate per 1 gal.
P04	Adjust to pH < 2 with sulfuric acid



Sub-Contract Laboratory

CODE	DESCRIPTION
HPLE	HP Labs, Escondido, CA
KIFF	KIFF Analytical LLC, Davis, CA
EELR	Excelchem Environmental Labs, Roseville, CA
MCAP	McCampbell Analytical, Pacheco, CA
PIC	Pace Analytical Services, Inc., Camarillo, CA

Test Notes

CODE	DESCRIPTION
ET	Sample was extracted past end of recommended max. holding time
CN	Hydrocarbon response in diesel range but does not resemble diesel
CG	Sample releases strong solvent odor
AO	Typical pattern for gasoline

Results Information

Parameter	MTBE	V
Qualifier	=	V
Value	45	
Units	UG/L	V
Method Limit	0.5	
Reporting Limit	1.0	
Report Limit Qual	MRL	V

Parameter

CODE	DESCRIPTION
MTBE	Methyl-tert-butyl ether
BZ	Benzene
BZLCL	Chlorotoluene
BZME	Toluene
XYLENES	Xylenes
PB	Lead

Qualifier

CODE	DESCRIPTION
<	Less Than
=	Equal To
>	Greater Than
ND	Not Detected



Units

CODE	DESCRIPTION
PPB	Parts per billion
PPM	Parts per million
PPT	Parts per trillion
UG/G	Micrograms per gram
UG/KG	Micrograms per kilogram
UG/L	Micrograms per liter
UG/ML	Micrograms per milliliter



Detection Qualifier

CODE	DESCRIPTION
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
MQL	Method Quantitation Limit
IDL	Instrument Detection Limit

Results Information

Prim Value Type	PR	V
Uncertainty		
Dilution Factor		1
Std Ref Material	APG	V
Results Notes		V
CL Date		
Retention Time		



Primary Value Code

CODE	DESCRIPTION
PR	Primary Result - The Primary Result for a Parameter
SR	Semi-Quantitative Result
MS	GC/MS Result - Value Confirmed Using GC/MS
SR	Semi-Quantitative Result
NR	Not Reported - Data Not Reported
1C	First Column Result - The Value Obtained from the First Column
2C	Second Column Result - The Value Obtained from the Second Column



Standard Ref Material

CODE	DESCRIPTION
ABSSTD	Absolute Standards
ACCUSTD	AccuStandard
ALDRICH	Aldrich Chemical Co.
APG	Analytical Products Group
BURJAC	Burdick & Jackson
CAMBRIDGE	Cambridge Isotope Labs

Result Notes

CODE	DESCRIPTION
FX	Analyte present in the instrument blank
GI	Analyte confirmed by GC/MS
FN	Large closely eluting peak cannot be separated from result
EW	Surr. recovery outside of acceptance limits, spike recov. accept.

Quality Control

Laboratory	LAB1	V
Prep Batch	5030-0117	
Analytical Method	SW8260B	V
Parameter	MTBE	V
Lab Sample Type	MS1	V
Lab Sample ID	LAB-4332-1-MS	
Ref Lab ID	LAB-4332-1	

Quality Control

Expected Value	95	
Units	UG/L	V
Matrix	W	V

Control Limits

Laboratory	LAB1	V
Matrix	W	V
Analytical Method	SW8260B	V
Prep Method	SW5030B	V
Parameter	MTBE	V
CL Date	01/06/2001	
CL Type	MEA	V



Control Limit Type

CODE	DESCRIPTION
MEA	Method Established Accuracy

Control Limits

Upper CL	120
Lower CL	80

Data Verification

- Blank hits
- Holding time
- Spikes outside of limits

Data Verification Cont.

- **Method sensitivity**
- **Preparation appropriate for analysis**
- **Method parameter list**
- **Proper preservation**



Advanced Concepts

Detection Limits

Notes

Modified Parameter List

Expected Field

Batching

Non-Client Samples

Special QC Entry

Control Limits

Detection Limits

Analyte	Qual	Data Value	MDL	RDL	GeoTrck Value
Benzene	=	2	1	5	2
Benzene	ND	2	1	5	ND
Benzene	<	5	1	5	<5



Validation Notes

CODE	DESCRIPTION
VR	Val. Qual.: Rejected value
VQL	Val. Qual.: QA/QC protocols not met for lab control sample
VQM	Val. Qual.: QA/QC protocols not met for matrix spike/spike dup.
VQS	Val. Qual.: QA/QC protocols not met for surrogate recovery

Notes

Test Notes	Results Notes	Validation Notes
Method	Parameter	Either
SW8260B	Benzene	Both
Holding Time	Blank Contamination	Rejected Value
H	B	VR



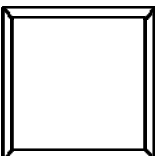
QA/QC Samples

Collect Date	Collect Time	Sample	Lab Sample Type
01/17/2001	1200	MW-1	Client Sample
			Lab Blank
			Lab Control



Non-Client Samples

- **Samples analyzed for QA/QC purposes that are not your samples**
- **Reported with a sample type of “NC”
Non-Client samples**



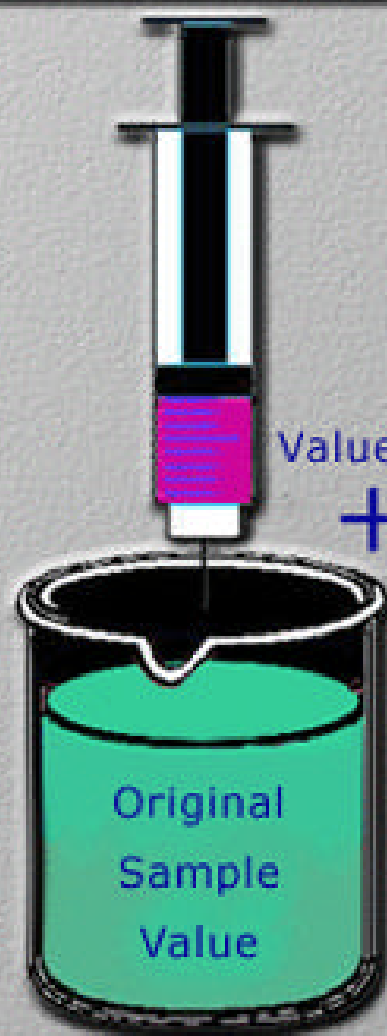


To Contact Us

edfhelpdesk@arsenaultlegg.com

or

(800)-506-3887 (8am to 6pm PST)



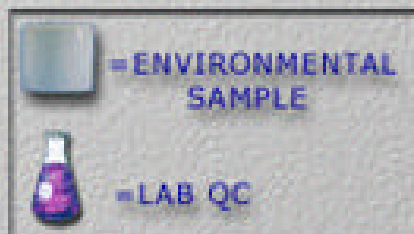
Value of Spike

+

=



Expected
Value



BLANK SPIKE
BS1



BLANK SPIKE
DUPLICATE
BD1



MATRIX SPIKE
MS1



MATRIX SPIKE
DUPLICATE
SD1



LAB REPLICATE
LR1



LAB BLANK
LB1



LAB LOT CONTROL #
METHOD
ANALYSIS DATE

