



California Underground Storage Tank Program

AB2886 Implementation

**Sacramento Training
August 13 & 14, 2001**

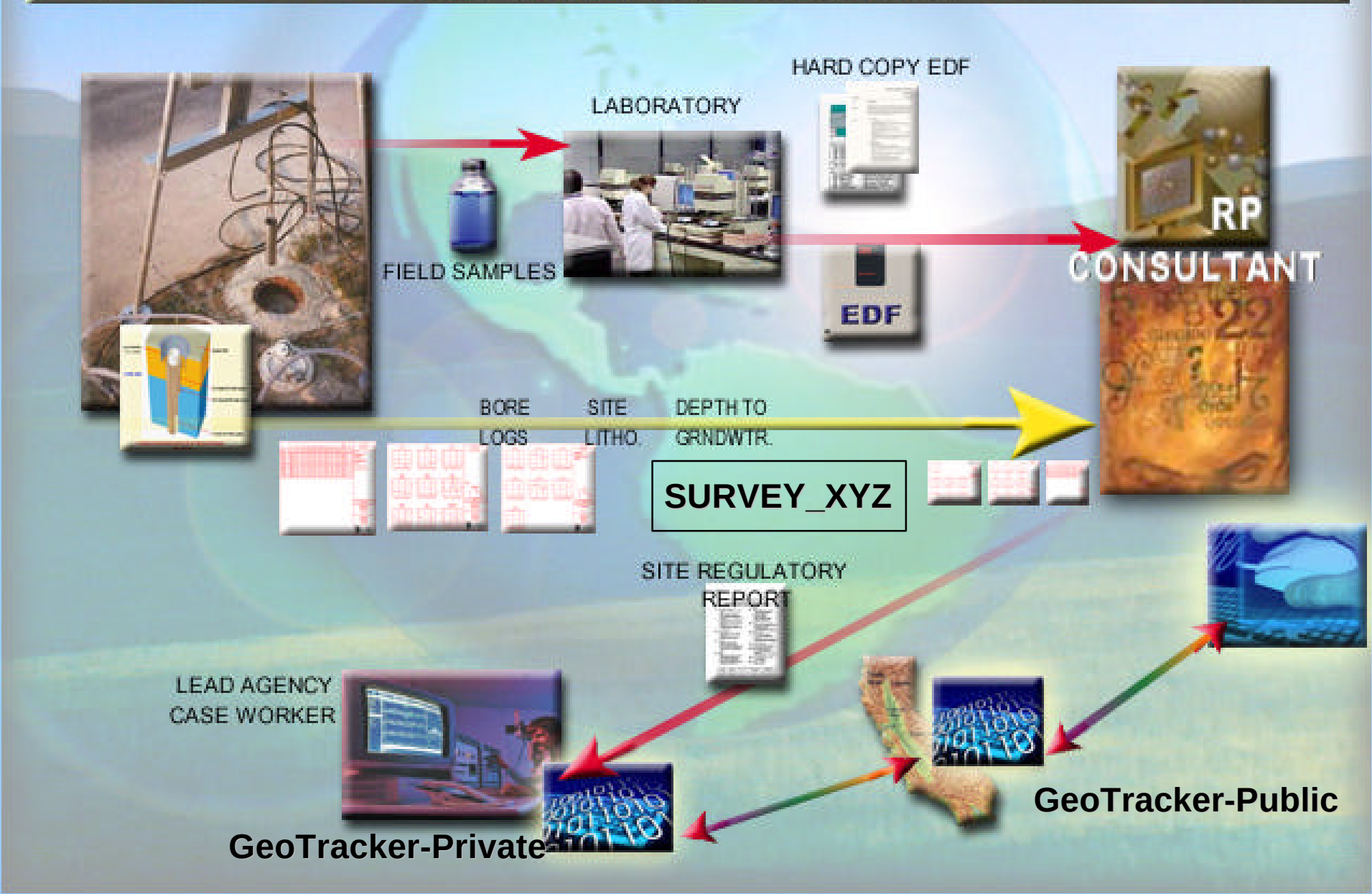
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AB2886 Implementaion

- **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**

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**



SURVEY_XYZ

Location Information

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

GEO_XY



SURVEY_XYZ

Elevation Information

- **Periodic submittal**
- **From top of casing**
- **Relative to Mean Sea Level (MSL)**
- **Submission will be based upon
Global ID and Field Point Name**

GEO_Z



SURVEY_XYZ

Depth to Groundwater

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

GEO_WELL



Site Map

- Periodic submittal
- Site Map
- File type
 - gif
 - tiff
 - jpeg
 - shape file
 - pdf



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**



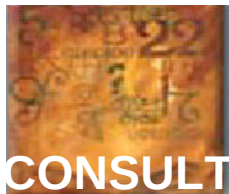
GeoTracker Security



Provides Access to facilities RP has claimed



Provides Access to Consultant



Accesses Facility to Upload Data



May Access GeoTracker to Check Data

GeoTracker

Map Address:
Address:

City:

Zip:

Regional Map:
County:



GeoTracker

Your link to environmental data for regulated facilities in California

TOOLS	INFORMATION
Site/Facility Finder	About GeoTracker
Well Concentrations	Hot News
Case Finder	Drinking Water Quality
MTBE/Case Reports	MTBE Reports
GeoTracker Demo	Subsurface Investigations
GeoTracker	AB2886

[Contact Us](#) [SWRCB](#) [GeoTracker](#)

[Http://geotracker.swrcb.ca.gov](http://geotracker.swrcb.ca.gov)



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-up Tasks

Go to GeoTracker and Submit a Password

PASSWORD



Request Access to Facility(s)

FACILITY REQUEST



Responsible Party Grants Access

MONITORING REQUEST



Download Global IDs

GLOBAL IDS





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





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**



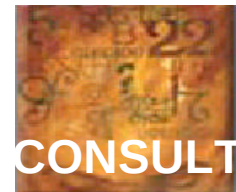


Consultant Field Data Tasks

**Collect Groundwater Measurements
for each Well Sampled**



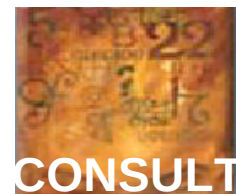
Create GEO_WELL



Web Check GEO_WELL



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



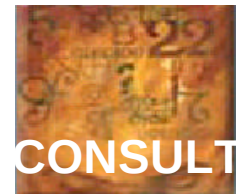


Consultant Survey Tasks

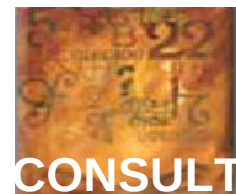
Survey Monitoring Wells



Create GEO_XY and GEO_Z



Web Check GEO_XY and GEO_Z



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





Help Desk

- Support for parties generating or using EDF deliverables
- COELT, EDCC, and DataStream Free software technical support
- New valid value code requests and valid value list updates
- Automatically receive updated documentation and valid values



Tutorials

- **Step-by-step guide through software functionality**
- **Provides practice exercises**
- **Includes sample data for use with the software**
- **Supplements for beginning to advanced users**



To Contact Us

geotrackerhelp@ecointeractive.com

(800)-506-9118

or

edfhelpdesk@arsenaultlegg.com

(800)-506-3887

8am to 6pm PST



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	☐ V
XY Survey Date	01/09/2001
Latitude	38.6481038
Longitude	-121.3949836
XY Survey Meth	SUBP ☐ V

Example Entry



Valid Value Example

GEO_XY



Field Point Class

CODE	DESCRIPTION
MW	Groundwater Monitoring Well
BH	Borehole
PUBW	Public Drinking Water Well
PRIW	Private Drinking Water Well
AGT	Above Ground Tank
UST	Underground Storage Tank



XY Survey Method

CODE	DESCRIPTION
CSUR	Classical survey technique
SUBP	GPS unit, rated for less than 1-meter accuracy. Data was post processed or processed real-time.
SUBNP	GPS unit, rated for less than 1-meter accuracy. Data was NOT post processed.



Location Information

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



XY_DATUM

CODE	DESCRIPTION
83	NAD 83 Datum
84	WGS84 Datum
27	NAD 27 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	Digital differential leveling survey
DGPS	Differential leveling survey (non-digital)
NDIF	Differential leveling using HPGN GPS vertical reference points



Elevation Information

Elev Equip Type	DIG	V
Elev Survey Org	SURVEY-1	
Elev Survey Desc		
Elev Accuracy Val		



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

GEO_WELL



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	



Site Map

- Site Map

SITE_MAP

GeoTracker

GEO_XY

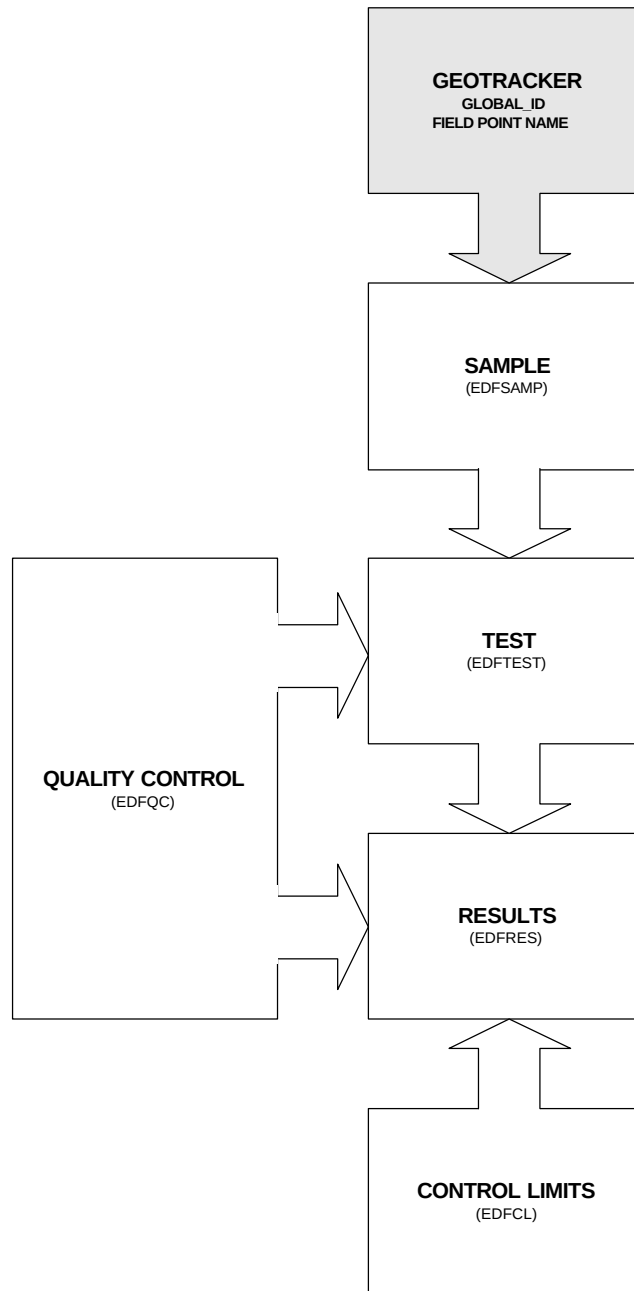
GEO_Z

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 ☐
Sample ID	UST-1
Matrix	W ☐



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 ☐



Laboratory

CODE	DESCRIPTION
HPLE	HP Labs, Escondido, CA
HRGT	Hargis & Associates, Tucson, AZ
HTI	Hydro-Terra, Inc., Columbia, MD
ICFK	ICF Kaiser Engineers, Boston, MA
ICFP	ICF Kaiser Engineers, Pittsburgh, PA



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
HRGT	Hargis & Associates, Tucson, AZ
HTI	Hydro-Terra, Inc., Columbia, MD
ICFK	ICF Kaiser Engineers, Boston, MA
ICFP	ICF Kaiser Engineers, Pittsburgh, PA



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



Results Information

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



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

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	<	2	1	5	<2



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	Regected 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**

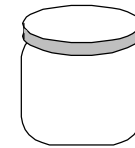
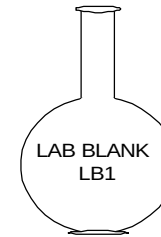
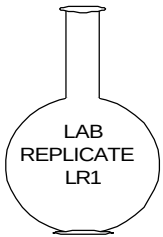
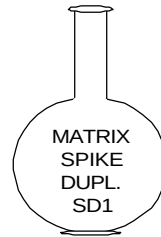
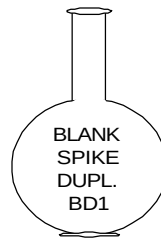


To Contact Us

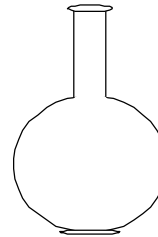
edfhelpdesk@arsenaultlegg.com

or

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

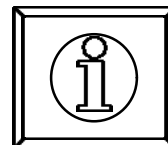


= ENVIRONMENTAL
SAMPLE



= LAB QC

LAB LOT CONTROL #
METHOD
ANALYSIS DATE



QC BATCH

