

# ELECTRONIC CHAIN OF CUSTODY: FORMS II LITE

The progress report of F2L implementation within the Sacramento District, and a look at the future use of this software.

Sacramento District  
Environmental Chemistry Section  
*CESPK-ED-EC*  
MAY 12<sup>th</sup>, 2004

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US Army Corps  
of Engineers®

# Introduction

- Field Operations and Records Management (Forms) II Lite (F2L).
- Developed by Dyncorp for U.S.Environmental Protection Agency, Analytical Service Branch(ASB).

# Purpose

F2L allows automation of field sampling documentation.

- Automate and generate sample container labels and Chain of Custody/EPA Traffic Report
- Electronically track samples from the field to laboratory
- Exporting data as XML, .dbf, or .txt files.
- Reduce documentation problems
- Facilitate electronic capture of sample information into LIMS to automate the sample login process

# History

- Introduced to USACE by Anand Mudambi at the Chemist Conference 2002.
- USEPA mandate F2L use for Superfund projects by Jan. 1, 2003.
- USEPA ASB requested Sacramento District to do a pilot project to test the usability for non-Superfund projects.
  - March 2002 - Monterey Peninsula Airport.
  - Suggestions and feedbacks provided to USEPA ASB and incorporated in F2L version 5.1
  - September 2002 - USEPA ASB and Dyncorp trained personnel from USEPA Region 9, Cal EPA
    - DTSC, contractors and Sacramento District.

# Since the pilot test...

- >6 Sacramento District Projects used F2L
- >2000 sample records
- Implementation of F2L were from:
  - Project Chemist
  - Project Manager
  - Joined project with the USEPA

# Benefits

- Cost Savings and Resources

F2L saves about 4-8 hrs labor vs. manual

For a typical sampling event with 200 records

- Reduce average 48% in paperwork discrepancies
- Readily available software – “off the shelf”, free to Federally Funded Projects.
- Tracks the collection of field samples
- Establishes the goals to meet the Government Paperwork Elimination Act.

## Select Station/Location

Station	Location	Matrix
Building 336	BLDG336-MW04-05-04-04	Ground Water
Building 336	BLDG336-MW24-05-04-04	Ground Water
Building 336	BLDG336-MW32-05-04-04	Ground Water

## Select Analysis

X	Analysis	Program Code	Turnaround
X	Al, Ba, Fe, Mg, Mn, Ag, Zn	Generic	21
X	Chloride	Generic	21
X	Cyanide	Generic	21
X	Fluoride	Generic	21
X	Gross Alpha	Generic	21

Unassign

Assign All

Assign

Number of Bottles:

1

Tag Prefix:

Starting Tag#:

1828

Next Available CLP#:

Y00C6

Auto Increment Tag#:

Use CLP Sample  
Numbers:Use Location Name as  
Non-CLP Number:

## Assigned Analysis with Sample number

	Sample Number	Prefix #	Tag #	Preservative	Lab QC Type	Analysis	Comments
▶	BLDG336-MW04-05-1		1814	HNO3		Al, Ba, Fe, Mg, Mn, A	

All fields in Red are required. A bottle can be deleted by double-clicking on any of the information in the row.

Generate Labels

One-Step Printing

Close

&lt; Back

Next &gt;

Weights

QuickView

# Example of a COC/TR



USACE Chain of Custody  
Generic Chain of Custody

Reference Case: Client No: BDO No:	L
<b>For Lab Use Only</b>	
Lab Contract No:	_____
Unit Price:	_____
Transfer To:	_____
Lab Contract No:	_____
Unit Price:	_____

Date Shipped: 5/4/2004 Carrier Name: Direct Airbill: Shipped to: NEL Laboratory 4208 Arcata Way Las Vegas NV 89000 (702) 657-1010	<b>Chain of Custody Record</b>		Bampler Signature:	
	Relinquished By:	(Date / Time)	Received By:	(Date / Time)
	1			
	2			
	3			
4				

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottle c	STATION LOCATION	SAMPLER COLLECT DATE/TIME	FOR LAB USE ONLY Sample Condition On Receipt
BLDG336-MW01 4-05-04-0	Ground Water/ Yes (See) Chain	G	EPA 150.1 (2), EPA 200.7 (2), EPA 200.8 (2), EPA 245 (2), EPA 300 (2), EPA 900 (2), EPA 900_ (2), Silica (2), SM 4500-CN (2), SM 4500-F (2), SW 2540 (2)	1814 (HNO <sub>3</sub> ), 1815, 1816, 1817, 1818 (Notpreserved), 1819 (S)	BLDG336-MW04-05-0 4-04	S: 5/4/2004 14:45	
BLDG336-MW02 4-05-04-0	Ground Water/ Yes (See) Chain	G	EPA 150.1 (2), EPA 200.7 (2), EPA 200.8 (2), EPA 245 (2), EPA 300 (2), EPA 900 (2), EPA 900_ (2), Silica (2), SM 4500-CN (2), SM 4500-F (2), SW 2540 (2)	1822 (Notpreserved), 1823 (HNO <sub>3</sub> ), 1824, 1825, 1826, 1827 (Notpreserved) (S)	BLDG336-MW04-05-0 4-04	S: 5/4/2004 13:45	
BLDG336-MW03 2-05-04-0	Ground Water/ Yes (See) Chain	G	EPA 150.1 (2), EPA 200.7 (2), EPA 200.8 (2), EPA 245 (2), EPA 300 (2), EPA 900 (2), EPA 900_ (2), Silica (2), SM 4500-CN (2), SM 4500-F (2), SW 2540 (2)	1801 (HNO <sub>3</sub> ), 1802, 1803, 1804, 1805 (Notpreserved), 1806 (Notpreserved) (S)	BLDG336-MW03-05-0 4-04	S: 5/4/2004 12:00	

Shipment for Case Complete? <input type="checkbox"/>	Sample(s) to be used for laboratory QC: _____	Additional Sampler Signature(s): _____	Cooler Temperature Upon Receipt: _____	Chain of Custody Seal Number: _____
Analytic Key: Concentration: L = Low, M = Low/Medium, H = High		Type/Designate: Composite = C, Grab = G		Chain of Custody Seal Initials: _____ Shipment/Load? <input type="checkbox"/>
EPA 150.1 = pH, EPA 200.7 = Al, Ba, Fe, Mg, Mn, Ag, Zn, EPA 200.8 = Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ti, EPA 245 = Mercury, EPA 300 = Chloride, EPA 300 = Nitrite/Nitrate, EPA 300 = Sulfate, EPA 900 = Gross Alpha, EPA 900 = Gross Beta, Silica = Silica, SM 4500-CN = Cyanide, SM 4500-F = Fluoride, SW 2540 = TDS				

TR Number: 9-133940294-050404-0002

LABORATORY COPY

# Problems

- Bulky Equipments
- Format unfriendly
- Funding - improvements and future use
- Some projects may be too small
- Reluctance to use the software
- Alternative and similar tools to F2L

# Lesson Learned

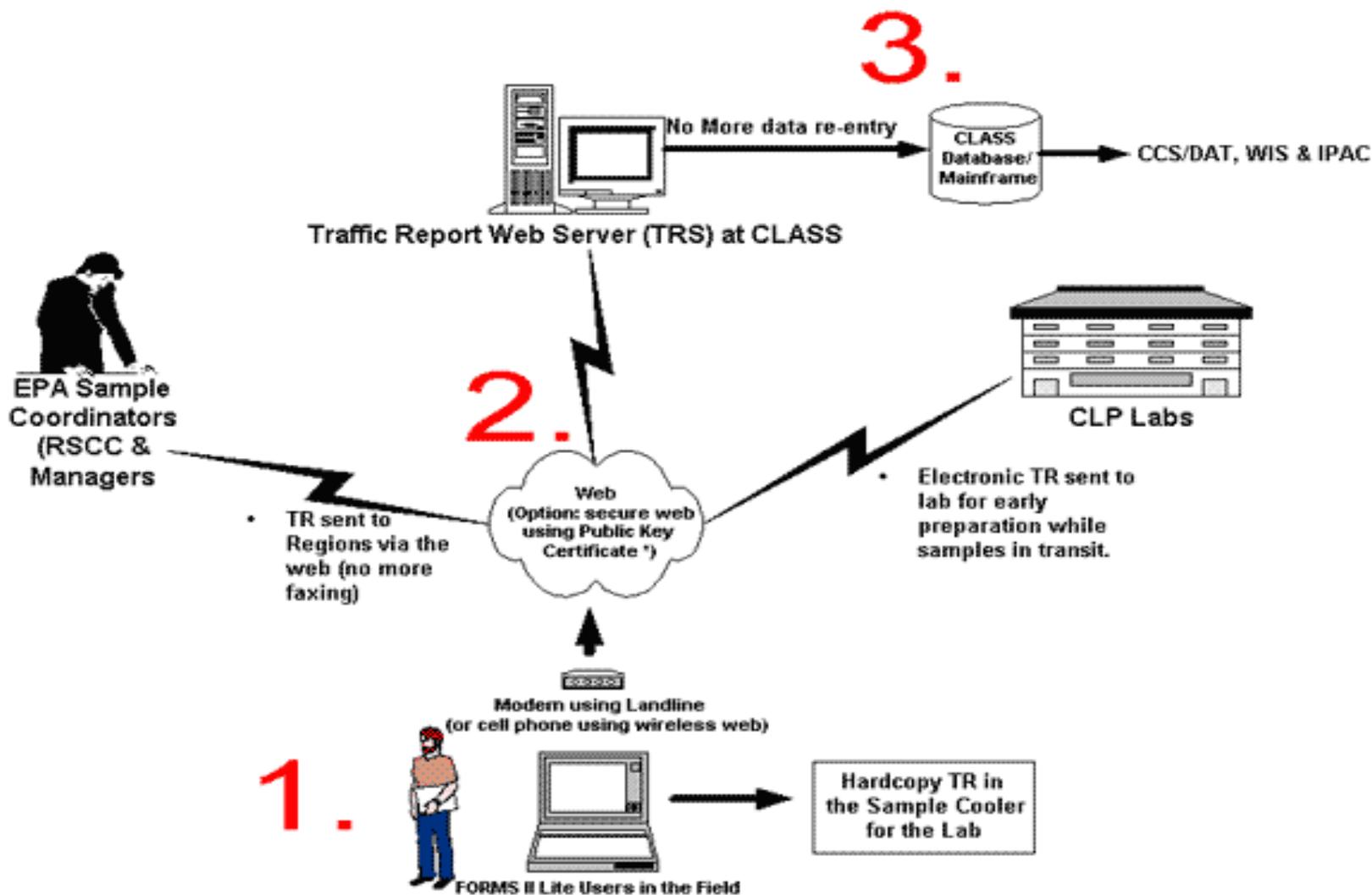
- Learning curve
- Planning and organization
- Unfriendly Format
  - Work around F2L for example hand write - date and time and corrections to the labels and COCs
  - Reduced sample group/station to manageable size for printing 1 sample container label.

# Future Plans

## USACE Sacramento District

- Implement F2L across the Sacramento District and South Pacific Division, later .
  - F2L Version 6.0 release in Dec 2004
  - Continue to provide feedback to USEPA ASB.
  - PDA format
  - Laboratory Sample Login Interface with LIMS (F2Lims)
  - Centralization and Web-Enabled Chain of Custody Submission
  - Integration F2L with Automated Data Review (ADR) and Environmental Database System (EDMS)
  - Bar Coding and scanner

# Future Concepts for F2L



# Acknowledgment

- USEPA Analytical Service Branch & Dyncorp  
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