



Field Direct, A Field Inspection Application Designed to Improve Data Integrity and Accessibility for Management Oversight

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Our Discussion Topics

1. The Scenario: Reclaimed Mine for Historical Educational Use
2. The Challenge: Data Integrity & Accessibility
3. The Solution: Field Direct
4. Lessons Learned: What Worked? What Didn't?

The Scenario

- ◆ Reclaimed Mine
- ◆ Restored for Unique Occupancy
 - Structurally
 - Environmentally
- ◆ Risk Assessment
- ◆ Site-specific Cleanup Standards



The Scenario – Field Activities

- ◆ Record Observations
- ◆ Take Photos and Record Photo Details
- ◆ Collect Field Samples
- ◆ Take Measurements
- ◆ Record Coordinates
- ◆ Conduct Safety Inspections/Meetings



The Challenges

1. Unorganized and Inconsistent/Illegible Data
2. Coordinating with Field Staff in Remote Locations
3. Peer Reviewing and Editing Field Information
4. Sharing Collected Data with Stakeholders

Challenge #1: Unorganized and Inconsistent/Illegible Data

- ◆ Juggling Multiple Hardcopies
- ◆ Information Transcribed from Field Notes to Reports
- ◆ Assigning Recorded Observations to Corresponding Photographs

Challenge #2: Coordination with Field Staff in Remote Locations

- Communicate existing conditions and transmit site photos and coordinates.
- Share photos and observations without leaving the field due to time and location constraints.
- Decide what samples need to be collected and where, then communicate back to the field.

Challenge #3: Peer Reviewing and Editing Field Information

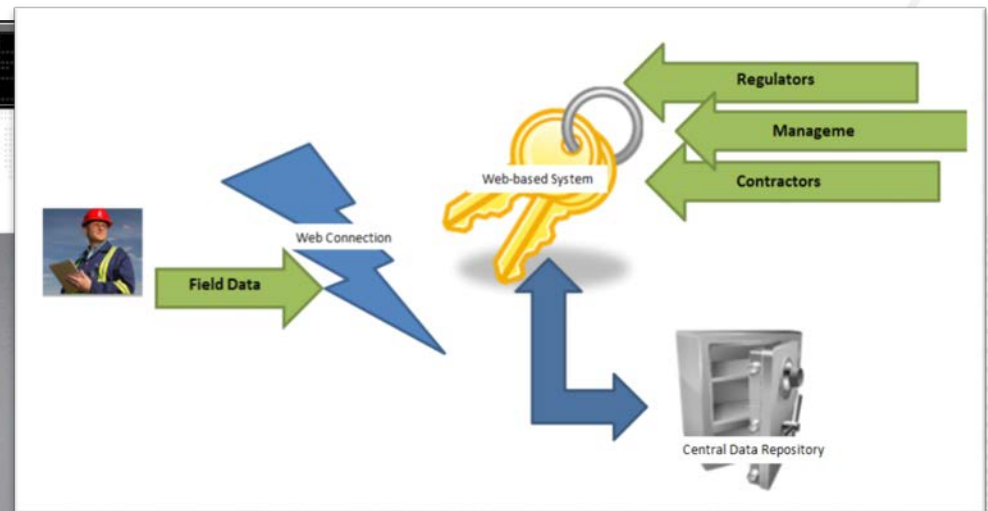
- Reviewing uploaded data in the database for accuracy, continuity, and completeness.
- Editing data that has been loaded to the database.
- Controlling which team members can review and edit the data and maintain the edited versions.

Challenge #4: Sharing Collected Data with Stakeholders

- ◆ Project status reports on a weekly basis ate up the budget and schedule.
- ◆ Regulators wanted to approve the sample locations, but don't have the software to view or GIS maps and cannot electronically receive large files.
- ◆ Contractors needed visuals of site conditions.

The Solution!

- Field Direct - dynamically driven, mobile data collection application designed to capture field data, including photos of the site, and global positioning satellite (GPS) data.



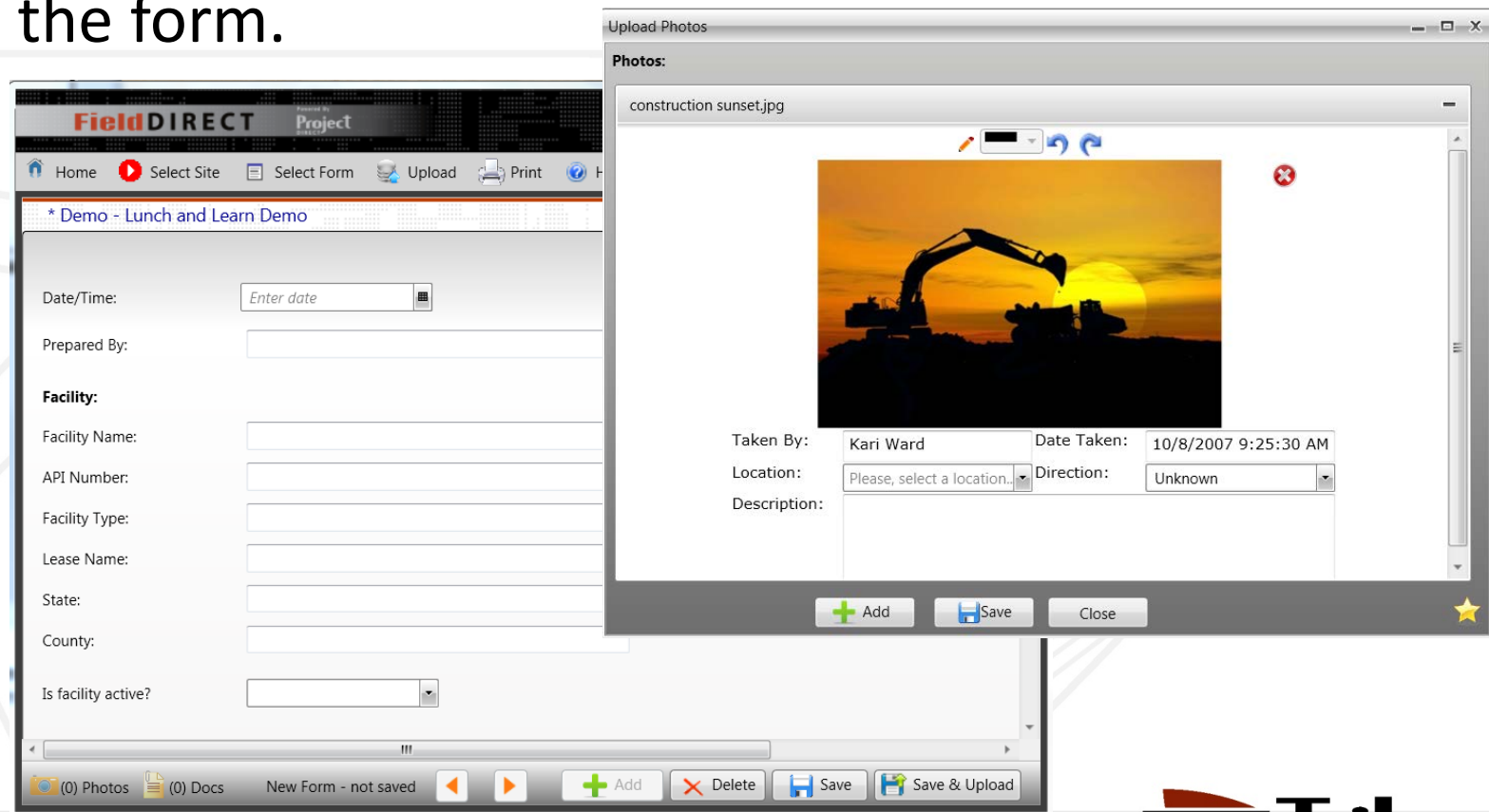
Solution #1: Mobile Electronic Forms

- Field forms were set up in electronic form and accessed through the mobile application

The screenshot displays the FieldDIRECT mobile application interface. At the top, the header includes the 'FieldDIRECT Project' logo and a navigation menu with icons for Home, Select Site, Select Form, Upload, Print, Help, and Logout. The status bar indicates 'Status: Connected'. Below the navigation menu, there are three main sections: 'My Current Site: Select a site' with a refresh icon, 'My Local Forms:' which is currently empty, and 'My Recent Sites:' which is also empty. A section titled 'Practice Winter Weather Driving' is visible, containing a list of instructions: 'Practice Winter Weather Driving', '•During daylight, rehearse maneuver slowly on the ice or snow in an empty lot', '•Steer into a skid', '•Know what your brakes will do: stomp on antilock brakes, pump non-antilock brakes', '•Stopping distances are longer on snow and ice', and '•Don't idle for a long time with the windows up or in an enclosed space'. Below this list is a progress indicator. At the bottom right, there is a section for 'Current Site Forms:' which is currently empty.

Solution #1: Mobile Electronic Forms (continued)

- Site photos can be opened, edited and saved within the form.



Solution #2: Coordination with Field Staff in Remote Locations

- Immediately access information and coordinates after forms and photos are uploaded



Photo Date: 5/31/2013
Direction: Unknown
Taken By: Tyler Smeenk
X Coordinate: 0
Y Coordinate: 0

Location:

E-2 trackhoe excavating material from the Task 20 terrace.



Photo Date: 5/31/2013
Direction: Unknown
Taken By: Tyler Smeenk
X Coordinate: 0
Y Coordinate: 0

Location:

E-2 trackhoe loading material into the TK-28 haul truck.

Solution #3: Peer Review and Editing Field within the Database

- Forms that have been uploaded can be reviewed and edited by assigned project team members.
- Project Managers can assign editing or reading rights.

Field Direct Edit

Observer: Jen Allender

Date: 2/12/2013

Temperature: <32 degree

Sky: Overcast

Wind: 25-54 mph

Health and Safety: Tailgate m hazards as equipment

Form | Projects | Users | Report Security

Add new Status levels to be used when this Form is uploaded to the Field Direct, Report Manager:

Example:

Status	Locked	Default	Assign to	Usage
Initial	No	Yes	Internal User Group	Default status upon upload. Report is editable and cannot be viewed by Client User Group.
Final	Yes	No	Client User Group Internal User Group	Upon change to this status. Report can be viewed by Client User Group and is not editable.

Add New Status

Description	Is Locked	Default Status	Edit	Delete
Draft	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Review	<input type="checkbox"/>	<input type="checkbox"/>		
Final	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

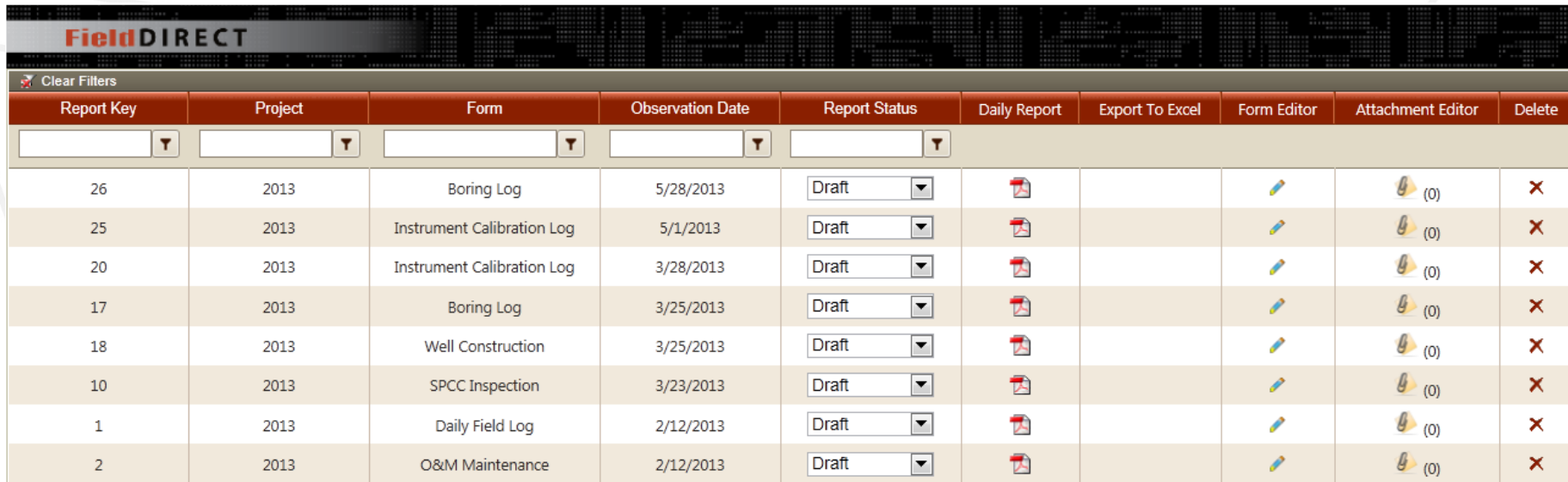
Click on each Project Direct, User Group Name below to assign the new Status levels:

Group Name	Current Security Role
Administrators	Administrator
Internal Users	Administrator
Trihydro Demo	Administrator

Cancel

Solution #4: Share Collected Data with Stakeholders

- A variety of project-specific reports can be generated through the web database system and shared with multiple stakeholders.



The screenshot displays the FieldDIRECT web interface. At the top, the 'FieldDIRECT' logo is visible. Below it, there is a 'Clear Filters' button. The main content is a table with the following columns: Report Key, Project, Form, Observation Date, Report Status, Daily Report, Export To Excel, Form Editor, Attachment Editor, and Delete. Each row represents a report entry with specific details.

Report Key	Project	Form	Observation Date	Report Status	Daily Report	Export To Excel	Form Editor	Attachment Editor	Delete
26	2013	Boring Log	5/28/2013	Draft				(0)	
25	2013	Instrument Calibration Log	5/1/2013	Draft				(0)	
20	2013	Instrument Calibration Log	3/28/2013	Draft				(0)	
17	2013	Boring Log	3/25/2013	Draft				(0)	
18	2013	Well Construction	3/25/2013	Draft				(0)	
10	2013	SPCC Inspection	3/23/2013	Draft				(0)	
1	2013	Daily Field Log	2/12/2013	Draft				(0)	
2	2013	O&M Maintenance	2/12/2013	Draft				(0)	

Lessons Learned – What Worked?

- ◆ Ease of Use - Simplification
- ◆ Immediate Capture of Photo Details
- ◆ Daily Connection to Field Activities
- ◆ Form Library
- ◆ Laptop Computers
- ◆ Mobile Offline Use

Lessons Learned – Things to Improve Upon

- ◆ Tablet Computers
 - Intrinsically safe units
 - Weather constraints
 - Ruggedness
 - Hardware technology not keeping up with software capability
- ◆ Units with Other Features
 - Accessories (cases, styles)
 - GPS, camera, transducers