From Stone Tablet to Modern Tablet

How EWEB built an inspection platform using the iPad

Cheri Wilson
Generation Engineering

Eugene Water & Electric Board (EWEB)

- Oregon's Largest Publicly Owned Utility
- Service to 86,000 Homes
- In Operation 105 Yrs

EWEB's Hydro Projects

- 5 Hydro Projects
- 3 High Hazard

EWEB's Owner's Dam Safety Program

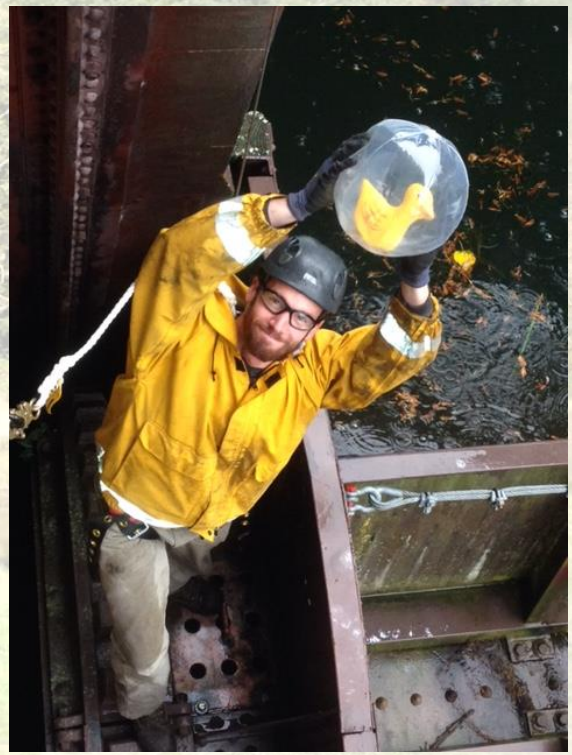
- Semi-annual Dam Safety Training
- Ops Weekly & Monthly Inspections
- Engr & Ops Semi-Annual Projects Inspections

EWEB's Owner's Dam Safety Program

- Hazard Mitigation Control System – Real-time Canal Level Monitor Stations on LB
- Survey Monuments – Frequency Dependent on Location & Activity
- Piezometers – Real-time & Manual
- Weirs – Real-time & Manual

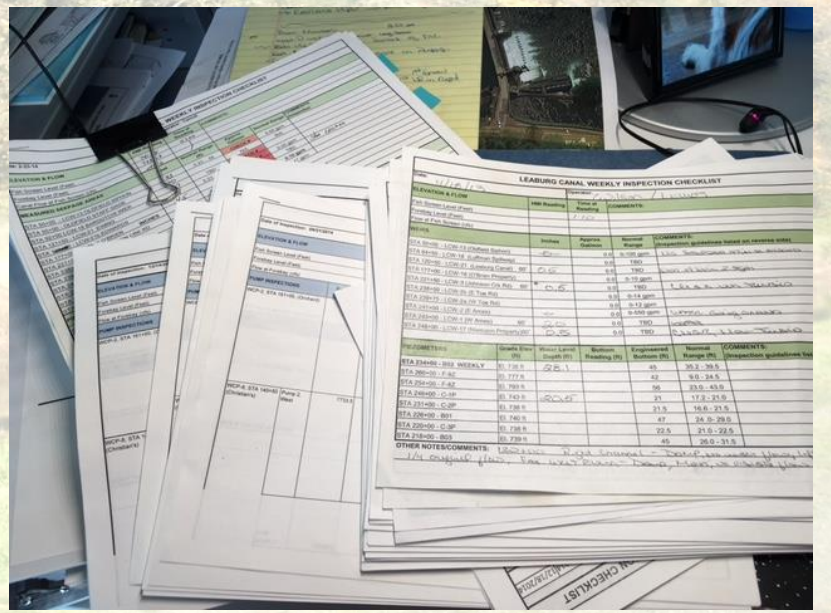
Inspection Reporting – What Worked

- Easily Used by All Ops Crew
- More Comments & Notes
- Relatively Low Tech
- Great Paper Trail



Inspection Reporting – Didn't Work

- Several Step Turn In Process
- Inconsistent Process
- No Photos
- Delayed Reporting
- Several Forms
- Lots of Paper!



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The Good (Bad) Old Days…

There Had to Be a Better Way!

There Had to Be a Less $$ Way!

Electronic Platform – iPads

- DoForms Program
- Completely Editable Forms
- Created Weekly & Monthly Inspection Forms
- Includes Operating Range w/Thresholds
- Allows for Comments
- Add Photographs

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LEABURG CANAL WEEKLY INSPECTION CHECKLIST

Operator

Date of Inspection*

Now

DAILY PRECIPITATION (Previous 7 Days)

DATE							
AMOUNT (In)							

ELEVATION FLOWS

Name:	HMI Reading:	Time of Reading:
Fish Screen Level (Feet)		05:29:14 AM Now
Forebay Level (Feet)		05:29:14 AM Now
Canal Flow at Fish Screen (cfs)		05:29:14 AM Now

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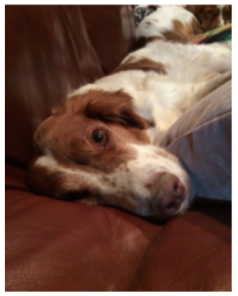
VISUAL INSPECTIONS

Location:	Comments:	Photos:
STA 24+00 to 26+00 SEEPAGE CONDITIONS		 Replace Clear Sketch
STA 26+00 WILLS POND		Capture Select

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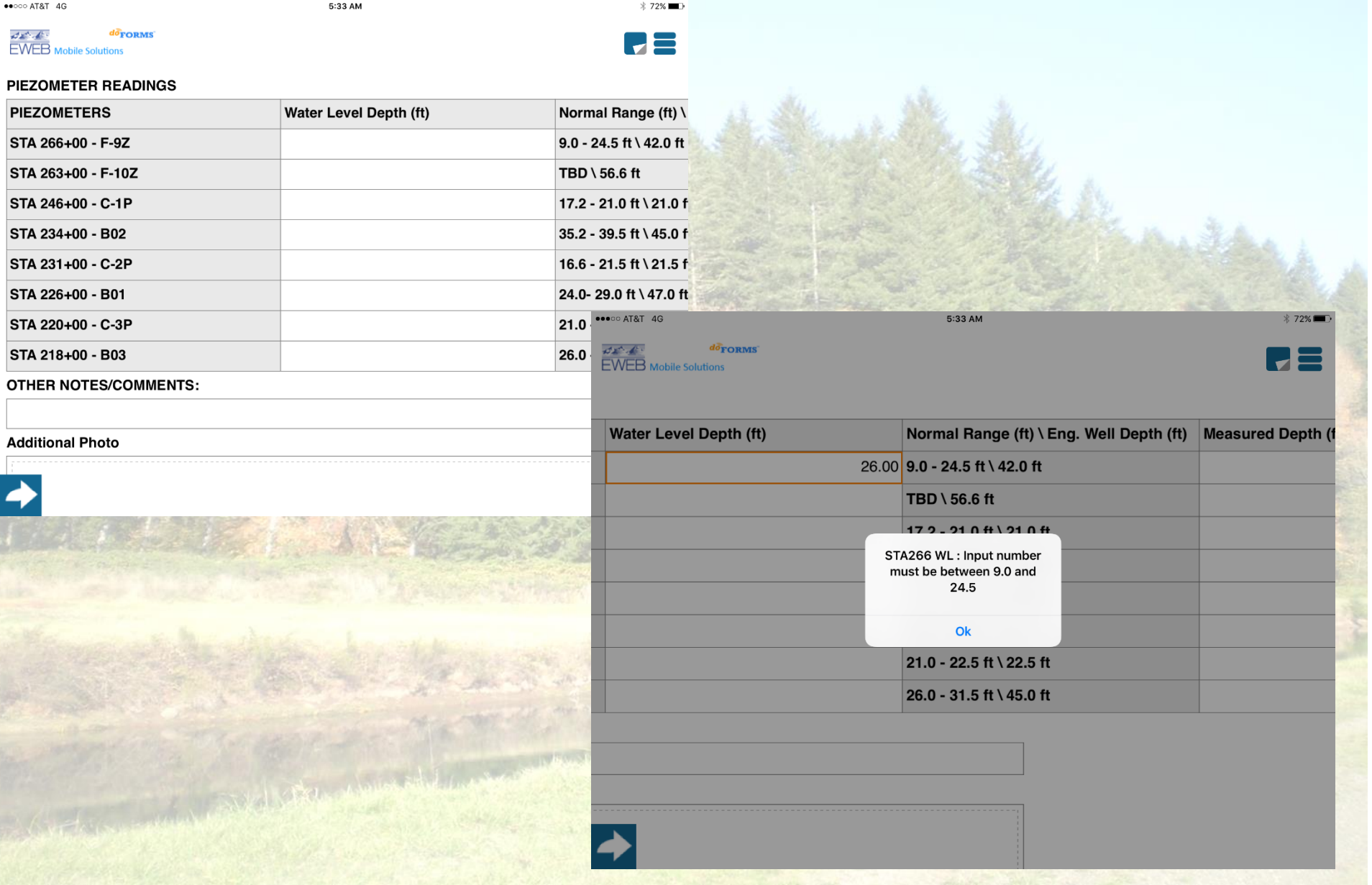
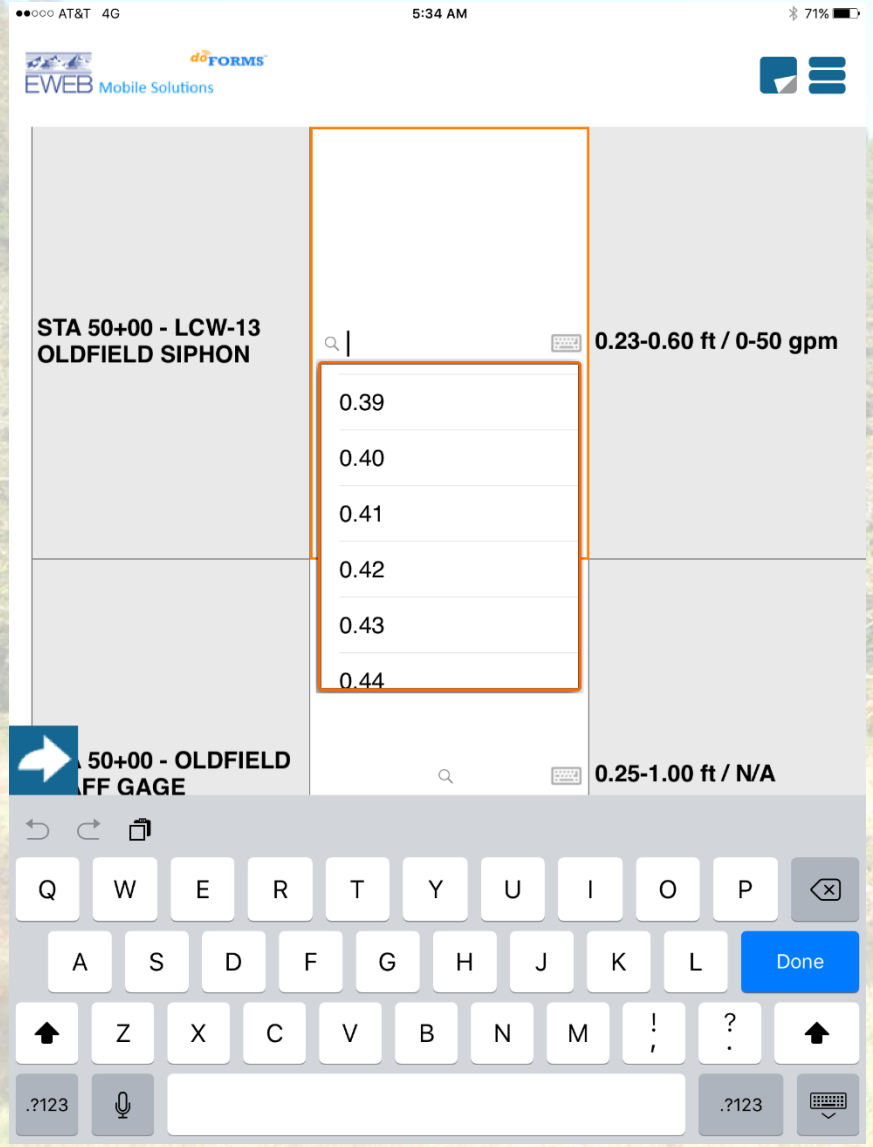
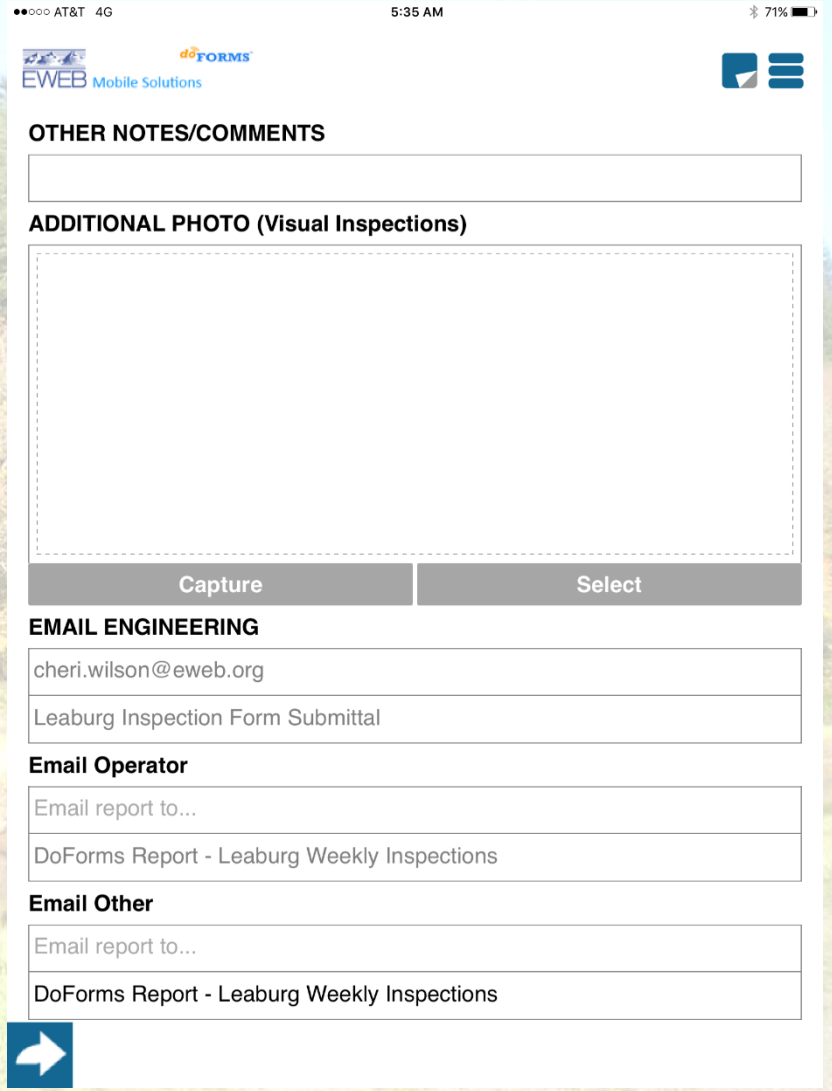
Seepage..Right On!



EWEB Dam Safety





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EWEB Dam Safety

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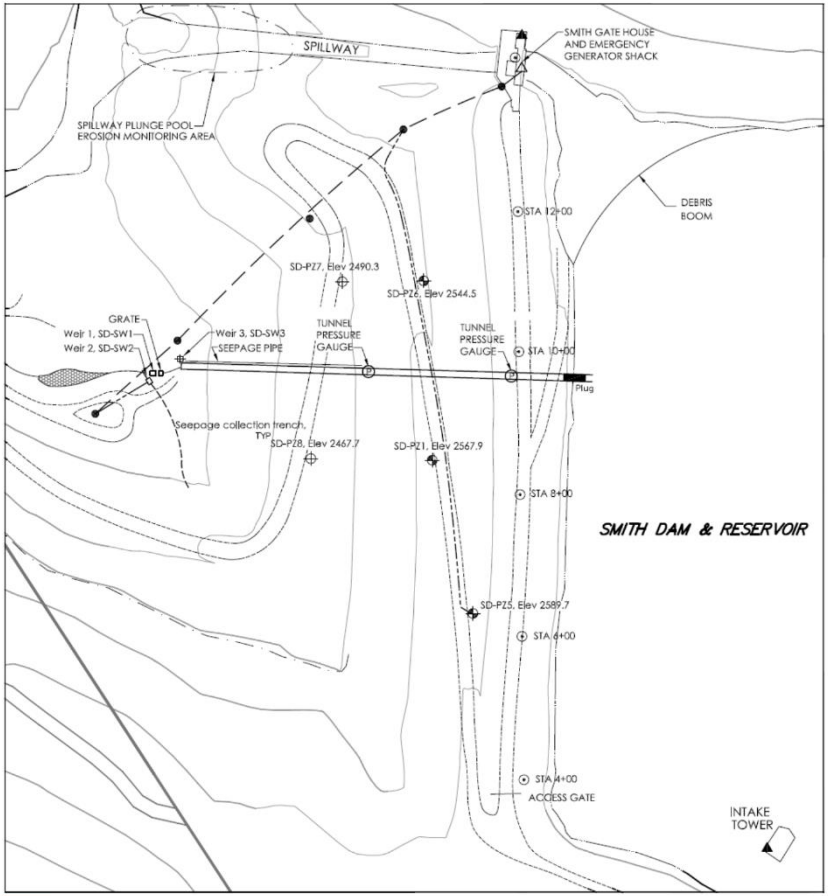
Smith Dam Monthly Inspection



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SPILLWAY STRUCTURE/GATE HOUSE

1. Confirm that the spillway inlet is free of obstructions and large debris. Inspect abutments for signs of erosion at soil interface, visible cracks, seepage and vegetation.
2. Inspect tainter gate, cables, seals, rollers, radial arms. Note broken welds, loose parts, misalignment, corrosion, bent members, damaged seals and seats. Verify gate operations weekly.
3. No obstructions in spillway. Visually inspect uphill slope of spillway for potential landslides and debris.
4. Inspect concrete condition for visible cracks, loose joints, displacement, misalignments and vegetation in joints or cracks. Note significant pop-outs, pitting, scaling, spalling or efflorescence - note recommended repairs.
5. Assess condition of Gate/Generator House. Roof, siding, doors, fences and signage are in working order.
6. Note where vegetation needs to be removed.
7. Confirm that public safety and security measures are in place and operational including cables, signs, gates, barriers, fences, PFD's and cameras.

Spillway Structure / Gate House

CHECK OK	STRUCTURE	COMMENTS
	Spillway Approach / Abutments	

EWEB Dam Safety

- **OTHER USES:**
  - Emergency Action Plans
  - Other Dam Safety Inspection Forms
  - Project Maps
  - Tailboard Forms
  - PFM's
  - Balance of Plant Forms
  - Other Apps

- **Total Cost:**
  - **iPads - $1000 each x 3**
  - **1 Week Labor**
  - **Crew Training**
    - **Under $10,000**

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How to Make it Inexpensive

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Special Thank You to:

Nicole Rodgers

-- Thanks for your Attention! --

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Questions -- Comments?