

From Stone Tablet to Modern Tablet

How EWEB built an inspection platform using
the iPad

Cheri Wilson

Generation Engineering



Eugene Water & Electric Board

Eugene Water & Electric Board (EWEB)



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



EWEB Dam Safety

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**



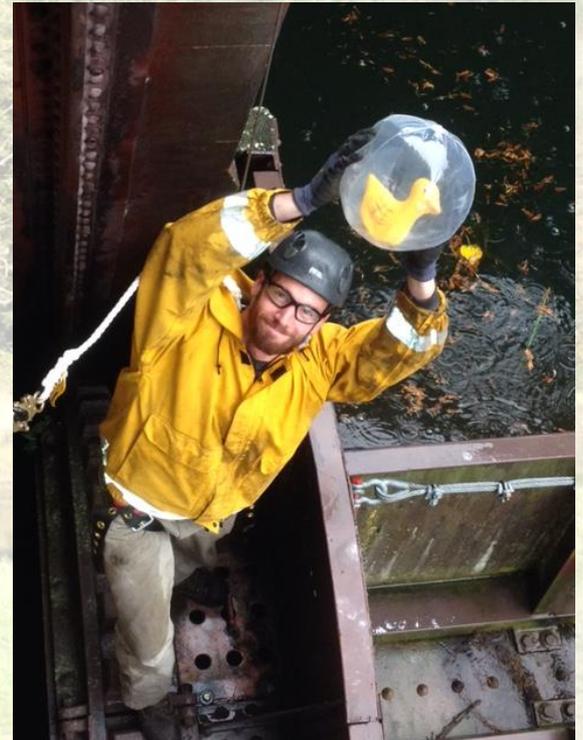
EWEB Dam Safety

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**

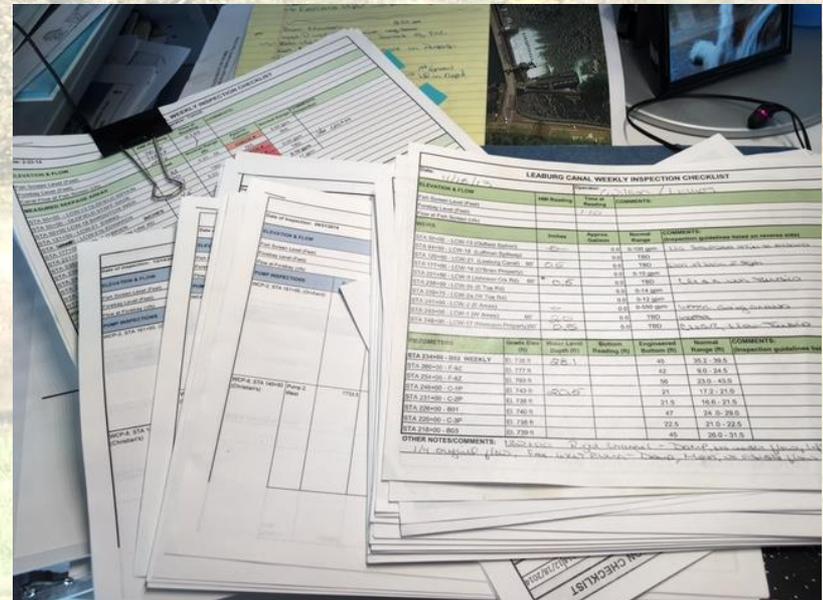
Inspection Reporting – What Worked

- 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!



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



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



VISUAL INSPECTIONS

Location:	Comments:	Photos:
STA 24+00 to 26+00 SEEPAGE CONDITIONS		 <p>Replace</p> <p>Clear</p> <p>Sketch</p>
STA 26+00 WILLS POND		<div style="border: 1px dashed gray; height: 100px;"></div> <p>Capture</p> <p>Select</p>



PIEZOMETER READINGS

PIEZOMETERS	Water Level Depth (ft)	Normal Range (ft) \
STA 266+00 - F-9Z		9.0 - 24.5 ft \ 42.0 ft
STA 263+00 - F-10Z		TBD \ 56.6 ft
STA 246+00 - C-1P		17.2 - 21.0 ft \ 21.0 f
STA 234+00 - B02		35.2 - 39.5 ft \ 45.0 f
STA 231+00 - C-2P		16.6 - 21.5 ft \ 21.5 f
STA 226+00 - B01		24.0- 29.0 ft \ 47.0 ft
STA 220+00 - C-3P	21.0	
STA 218+00 - B03	26.0	

OTHER NOTES/COMMENTS:

Additional Photo




5:33 AM AT&T 4G 72%  

Water Level Depth (ft)	Normal Range (ft) \ Eng. Well Depth (ft)	Measured Depth (ft)
26.00	9.0 - 24.5 ft \ 42.0 ft	
	TBD \ 56.6 ft	
	17.2 - 21.0 ft \ 21.0 ft	
	21.0 - 22.5 ft \ 22.5 ft	
	26.0 - 31.5 ft \ 45.0 ft	

STA266 WL : Input number must be between 9.0 and 24.5

Ok



AT&T 4G 5:34 AM 71%

EWEB Mobile Solutions doFORMS

STA 50+00 - LCW-13
OLDFIELD SIPHON

0.23-0.60 ft / 0-50 gpm

0.39
0.40
0.41
0.42
0.43
0.44

50+00 - OLDFIELD
OFF GAGE

0.25-1.00 ft / N/A

Q W E R T Y U I O P
A S D F G H J K L Done
Z X C V B N M ! ?
. ?123

AT&T 4G 5:35 AM 71%

EWEB Mobile Solutions doFORMS

OTHER NOTES/COMMENTS

ADDITIONAL PHOTO (Visual Inspections)

Capture Select

EMAIL ENGINEERING

cheri.wilson@eweb.org

Leaburg Inspection Form Submittal

Email Operator

Email report to...
DoForms Report - Leaburg Weekly Inspections

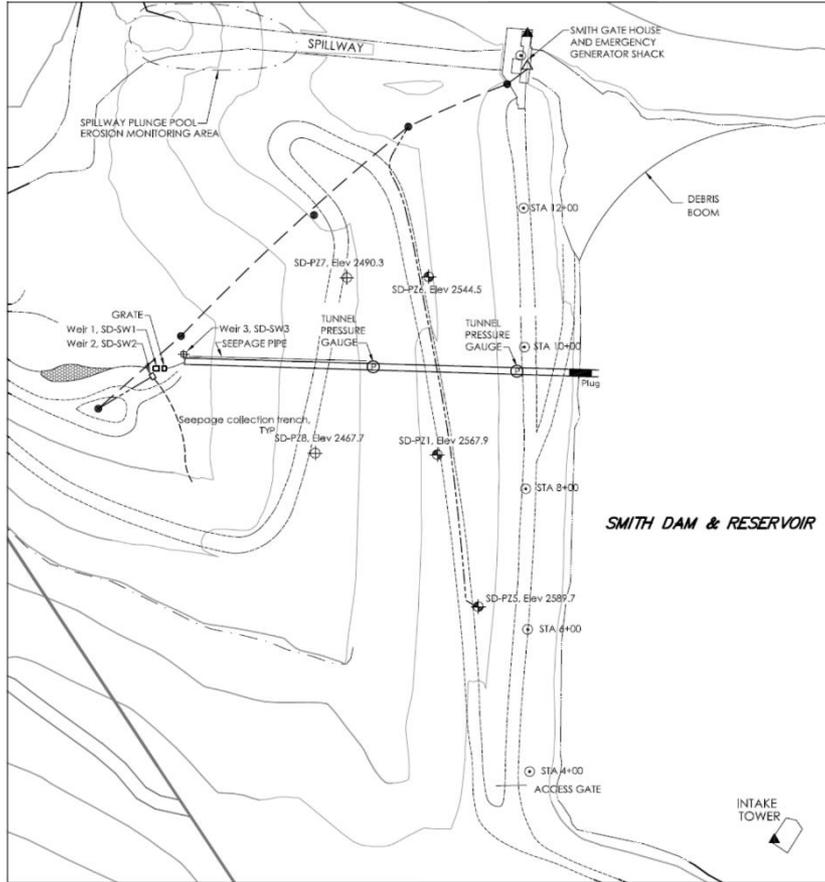
Email Other

Email report to...
DoForms Report - Leaburg Weekly Inspections



EWEB Dam Safety

Smith Dam Monthly Inspection



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

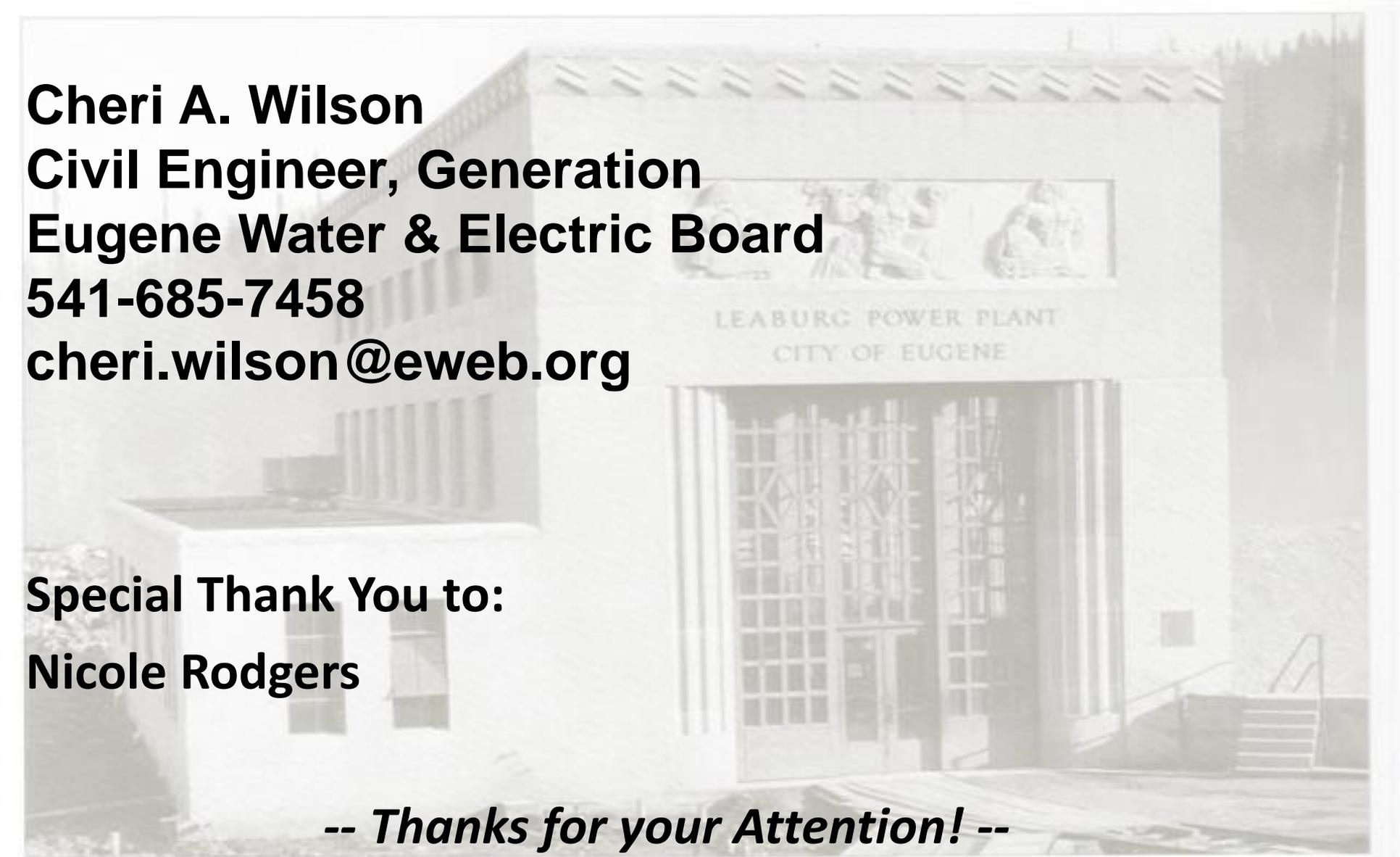
CHECK OK	STRUCTURE	COMMENTS
	Spillway Approach / Abutments	



- **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



A grayscale photograph of the Leaburg Power Plant building, a large, multi-story structure with a prominent entrance. The entrance is framed by a decorative archway with a relief sculpture. Above the archway, the text "LEABURG POWER PLANT" and "CITY OF EUGENE" is visible. The building has a classical architectural style with columns and a pediment.

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Special Thank You to:
Nicole Rodgers

-- Thanks for your Attention! --



Questions -- Comments?