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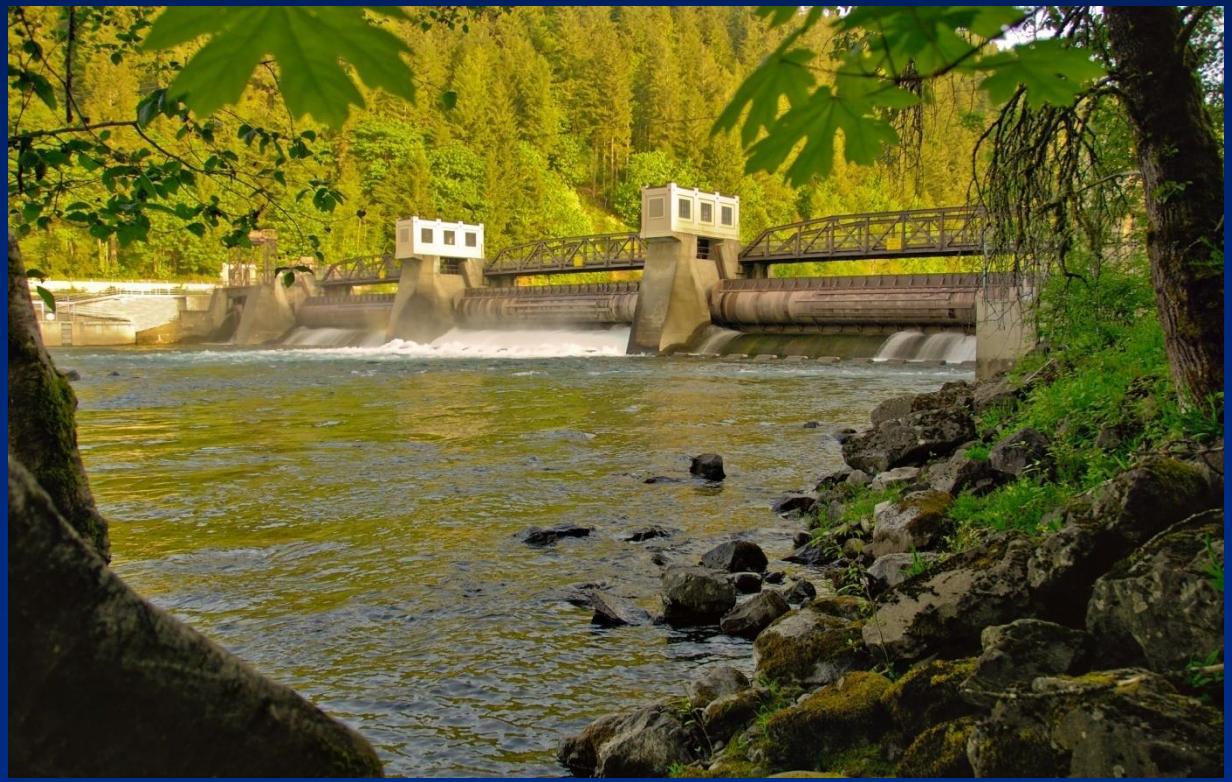
Eugene Water & Electric Board



A Small Generation Owner Perspective on the ODSP

TOTAL EWEB OWNED – 248.5 MW

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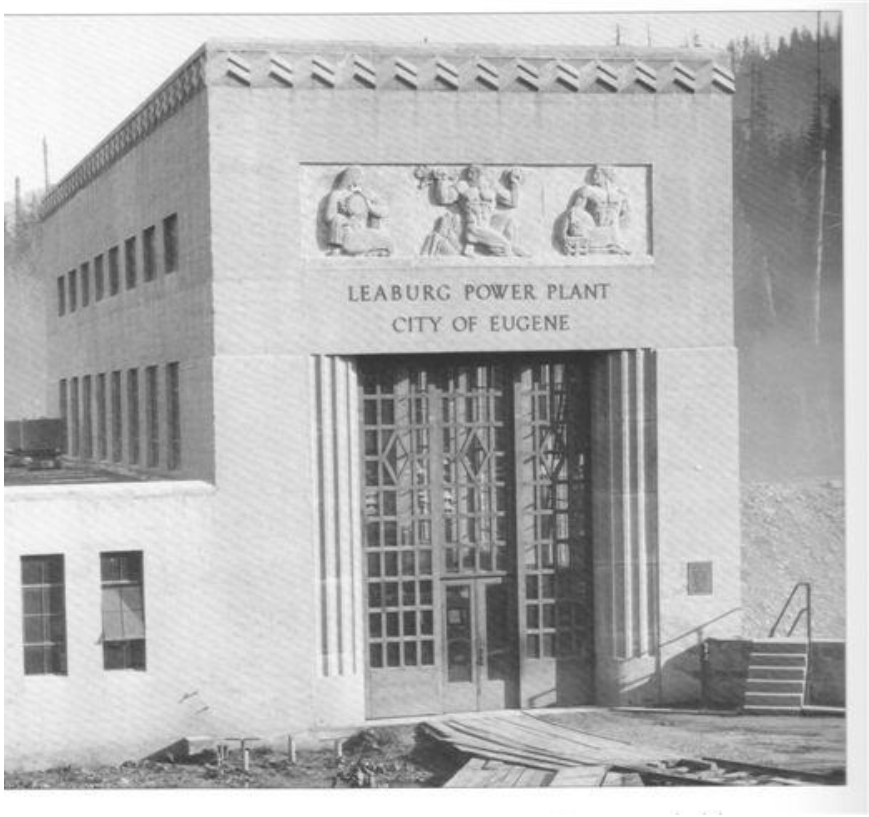
Generation Overview

McKenzie Hydro Projects

- **Two FERC Projects**
- **Four Plants (4 Francis/2 Kaplan)**
- **Two High Hazard Dams (1963)**
- **Two High Hazard Canals (1908/1928)**
- **139 MW Total**

Trail Bridge – 10 MW



Leaburg – 16 MW / 2 units

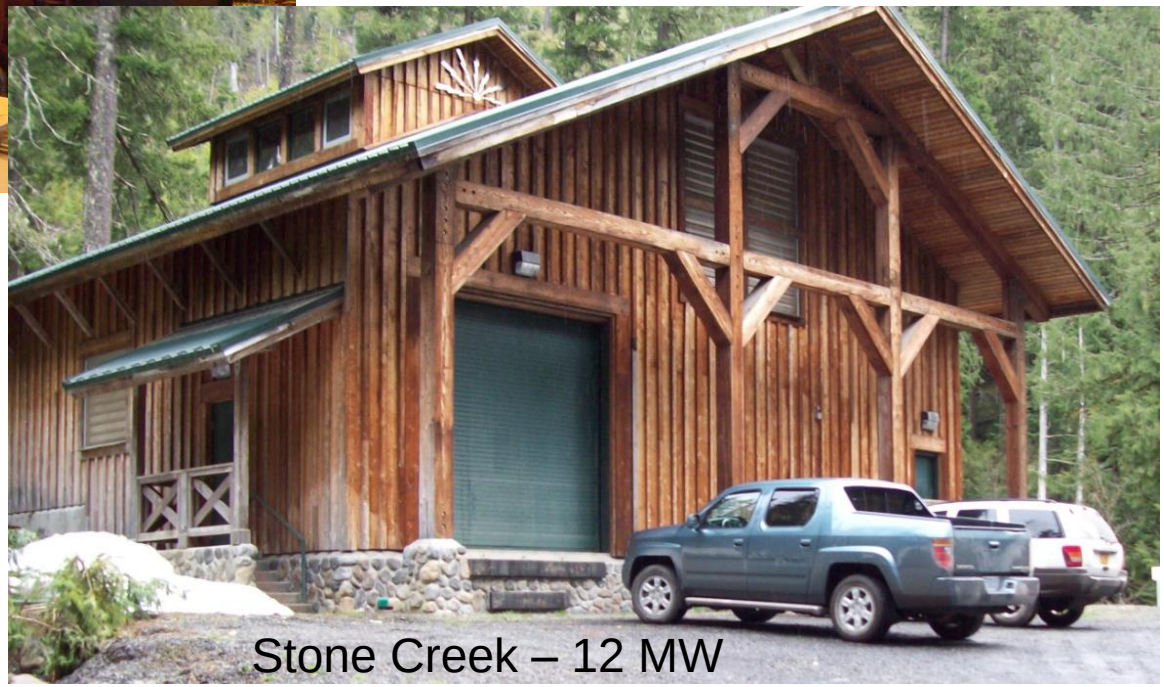
EWEB

Generation Overview

Remote Hydro Projects

Smith Creek – 38 MW

- **Two FERC Projects/Plants**
- **Four High Head Peltons**
- **Two Low Hazard Dams**
- **50 MW Total**



Stone Creek – 12 MW

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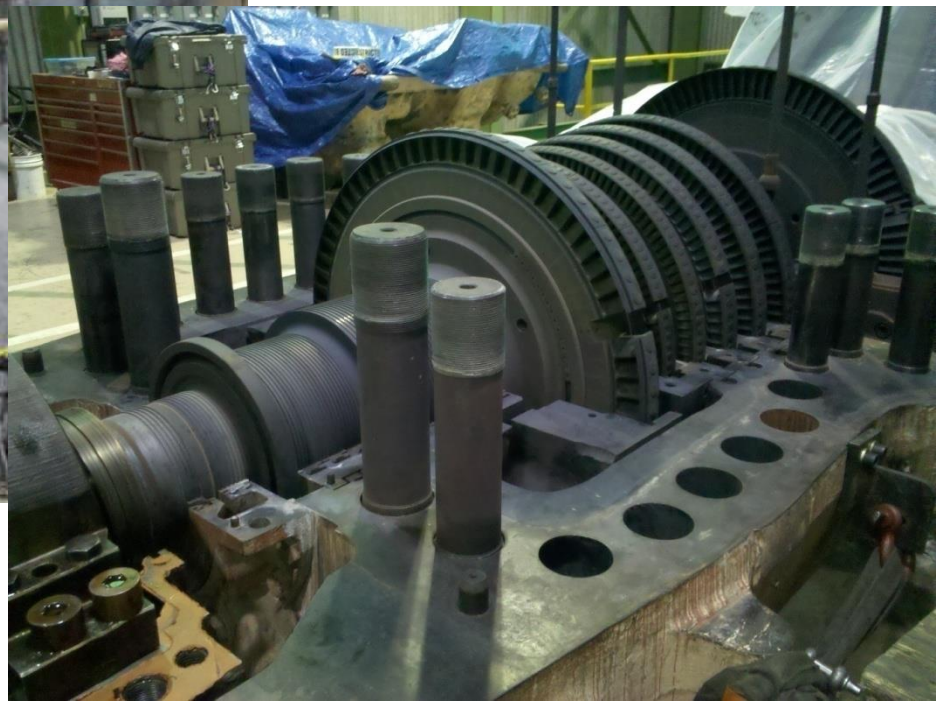
Generation Overview

Cogeneration Plants

Wauna (Georgia-Pacific Mill): 18 MW share



International Paper Mill: 12.5 MW share

TOTAL EWEB OWNED COGEN – 30.5 MW

Wind Farms

Foote Creek Wyoming
EWEB share 9 MW
15 units

Harvest Wind Washington
EWEB Share 20 MW
9 units

TOTAL EWEB OWNED WIND – 29 MW

Efficiently Staffed Generation Department

- C-S Operations – 7 staff
- LB-WV Operations – 6 staff
- Smith Creek Operations – 2.5 contract staff
- Stone Creek Operations – part time by PGE Westside Hydro

- Generation Administration – 3 staff
- Generation Engineering – 9 staff
- Carmen-Smith Relicensing – 2 staff
- FERC License Compliance – 2.5 staff

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Leaburg Dam Log Jam

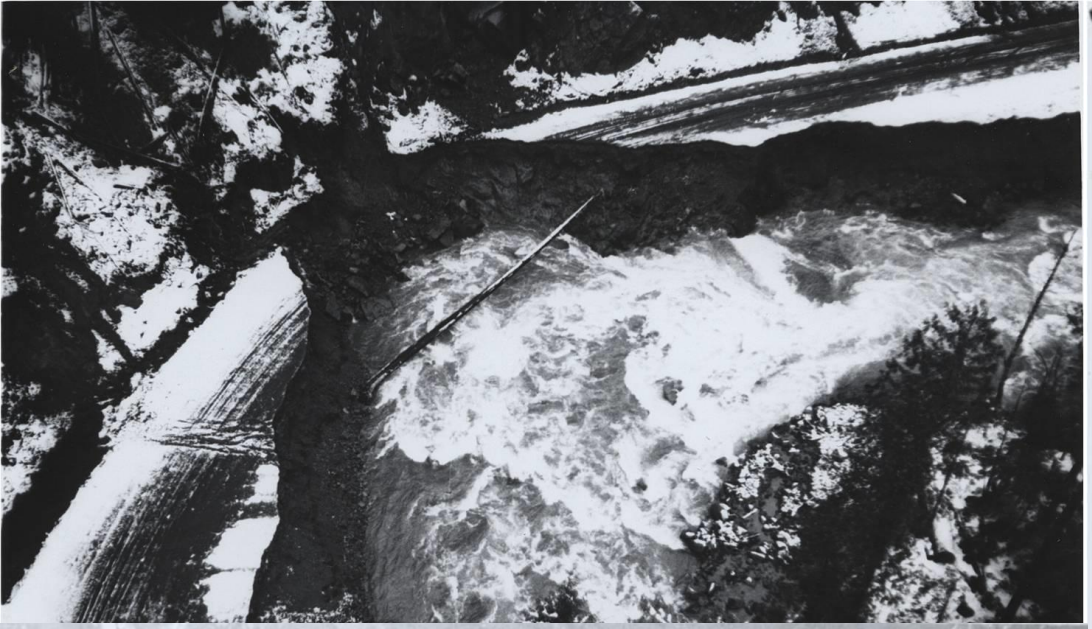
Leaburg Log Jam

EWEB

Leaburg Log Jam

EWEB

Leaburg Hoist Failure



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1964 Flood at Carmen

Percy Slide – Leaburg Canal

Walterville Forebay

Public Safety Incidents

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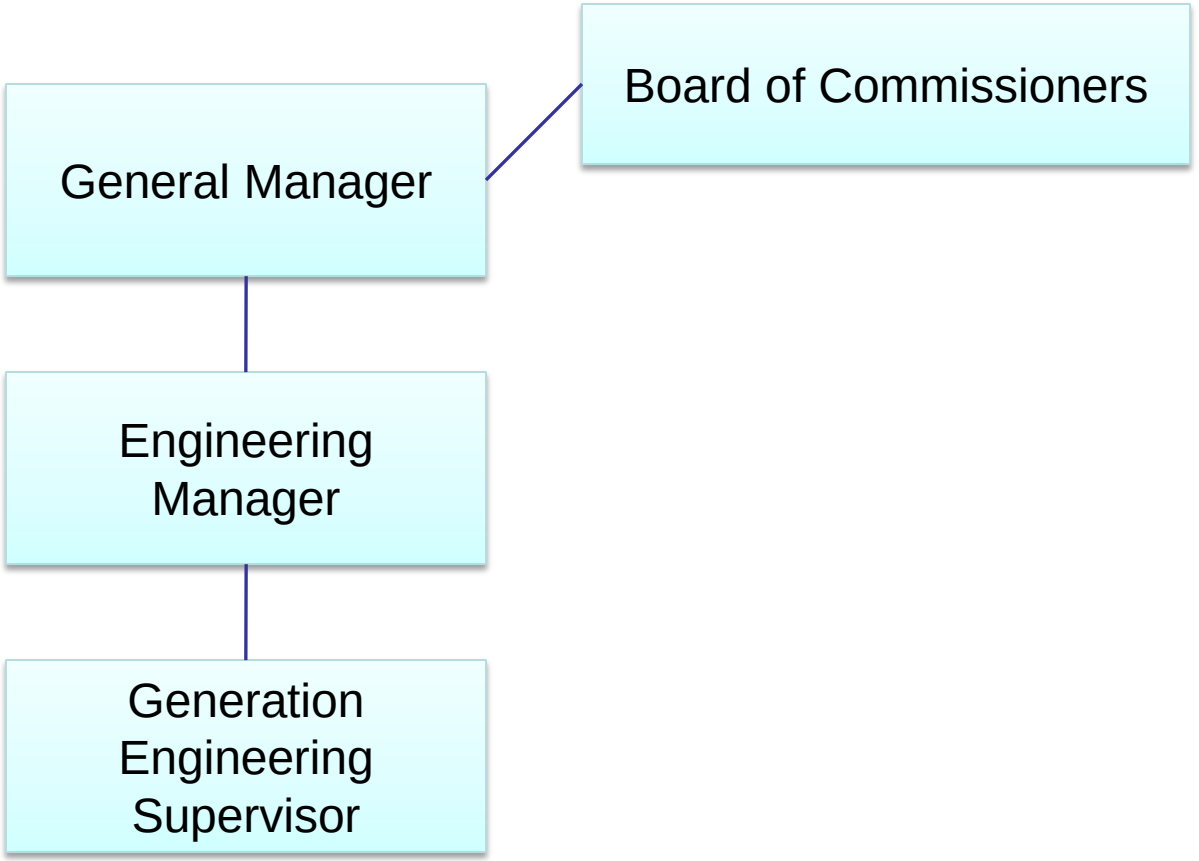
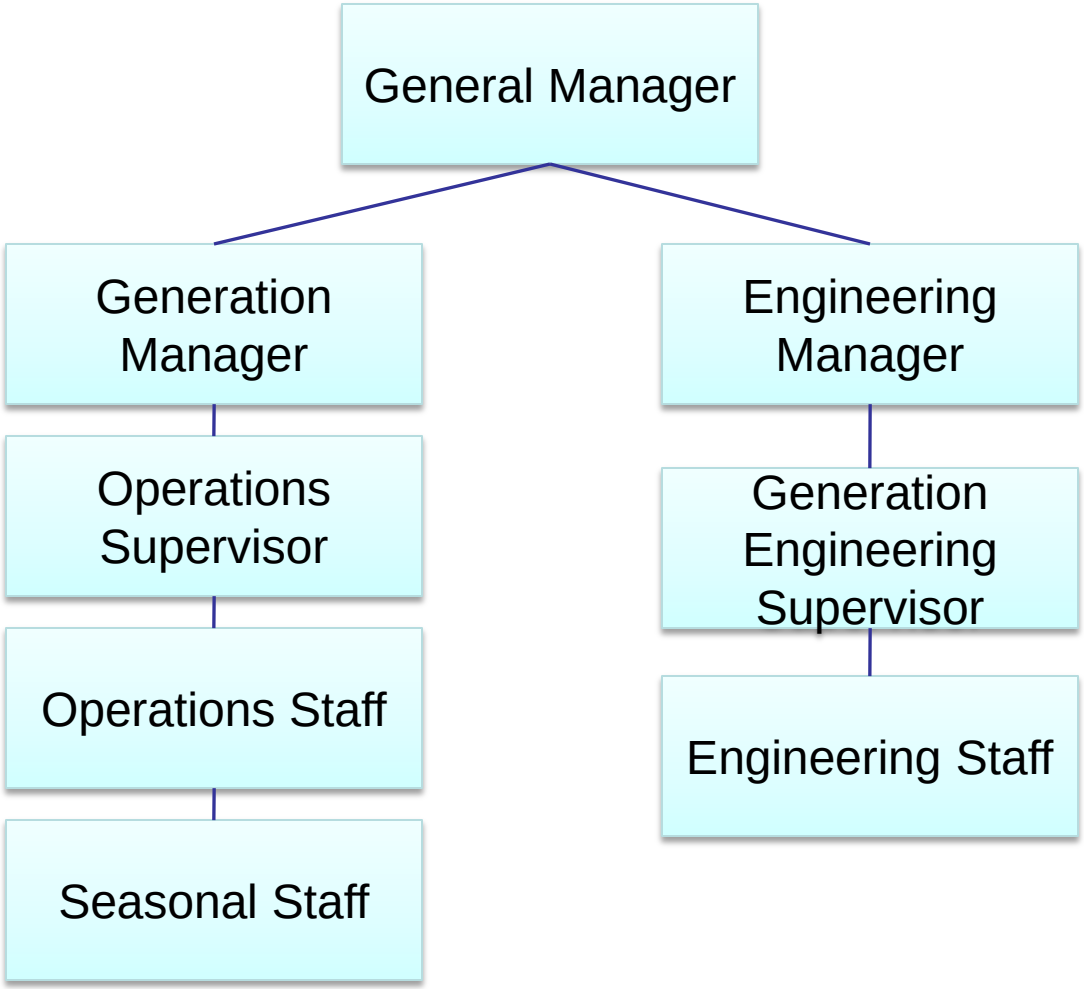
Foote Creek Tower Collapse

ODSP Organization Chart

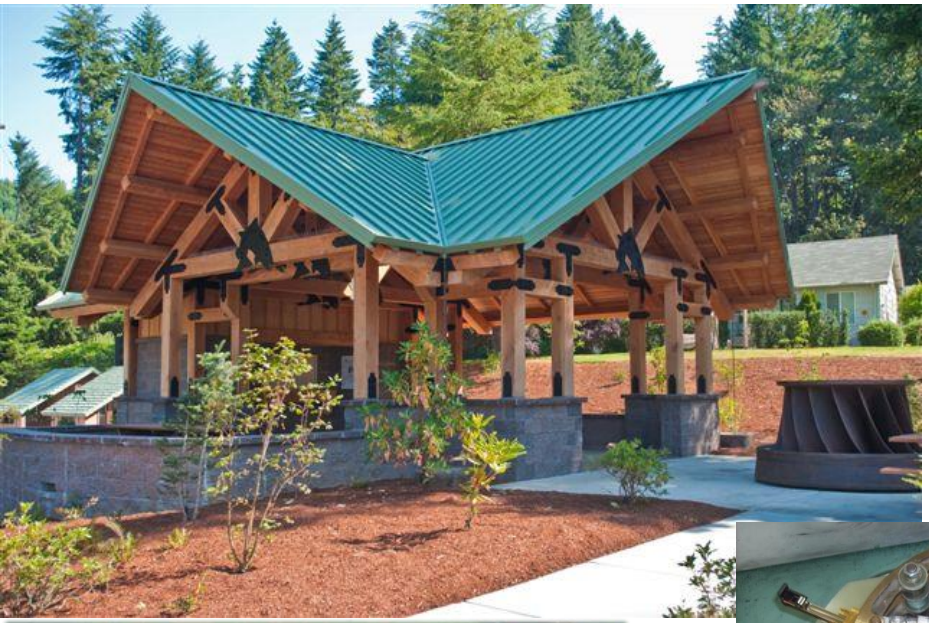


ODSP Organization Chart



Dam Safety Program Staffing

Generation Engineering Supervisor – Mark Zinniker
Staff Civil Engineer – Cheri Wilson
Senior Civil Engineer – Dan Olmstead



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ODSP Overview

EWEB Mission, Vision, Values

EWEB Strategic Plan: '*Provide safe….power products' and 'provide these products… in a socially and environmentally responsible manner'*

Generation Dept Safety Goal: *Zero lost time injuries*

Generation Dept Compliance Goal: *Zero non-compliance incidents*

Generation Department Philosophy: *People, Plants, Profits*

Dam Safety Program Maturity

A1. Surveillance Sub-Elements	Maturity Level				
	1. Needing Development	2. Intermediate	3. Good Industry Practice	4. Best Practice	5. Leading Edge
A1.A Surveillance Program					
A1.B Inspections					
A1.C Instrumentation & Data Management					
A1.D Dam Safety Assessment					

<u>CEATI Project Sponsorship</u>: Maturity Matrices – *A tool for internal auditing of the dam safety program*

Pre-ODSP: Multiple Programs

EAP Program: ***Planning/Updating, Training, Drills, Reporting***

Surveillance and Monitoring Program:
Planning/Updating, Training, Inspecting, Reporting

PFMA, STID, Part 12 Review Program:
Planning/Updating, Training, Drills

Public Safety Program: ***Planning/Updating, Training, Drills***

Post-ODSP: Unified and Higher Visibility

Unified Inspections: ***Dam Safety, EAP, PSP***

Unified Training: ***EAP, SMP, PFMAs, PSP***

Unified Reviews/Audits: ***Comprehensive annual internal reviews and external audits in conjunction with Part 12 Reviews***

Unified Reporting: ***Reports to the FERC mirrored by reports to upper management***

Realistic Dam Safety Commitments

Primary Focus: ***Present an accurate summary of EWEB's existing dam safety practices and management philosphies***

Intentionally Avoided: ***Over-promising more dam safety activities or enhancements than what we could realistically perform***

Minimized: ***Program elements that were not ongoing or under development, avoided including aspirations***

Right Sizing: ***Strived to calibrate levels of efforts to what is appropriate for the specific PFMs at our Projects***

Enhanced Operational Inspections

LEABURG CANAL MONTHLY DAM & PUBLIC SAFETY INSPECTION CHECKLIST		
OPERATOR:		DATE:
Canal Forebay Level (ft)	Canal Flow at Fish Screen (cfs)	
FISH LADDER, DAM & INTAKE STRUCTURE		
CHECK OK	STRUCTURE	COMMENTS
	FISH LADDER	
	PIER HOUSES	
	PUBLIC SAFETY CABLE	
	LIGHTS & WINDOWS	
	FENCING/GATES	
	SIGNAGE	
	DAM ROAD	
	FENDER/INTAKE GATES	
	OTHER SAFETY DEVICES	

LEABURG CANAL WEEKLY INSPECTION CHECKLIST

Date: 05/02/2014 Operator: Cheri Wilson

DAILY PRECIP (Prev 7 Days)								
	DATE							
	AMOUNT (In)							

ELEVATION & FLOW	HMI Reading	Time at Reading	COMMENTS:
Fish Screen Level (Feet)	0	18:25:40 UTC	None
Forebay Level (Feet)	0	18:25:40 UTC	None
Canal Flow at Fish Screen (cfs)	0	0	None

MEASURED SEEPAGE AREAS	Feet	Normal Range (ft)	Approx. Gal/min	Normal Range	COMMENTS: (Inspection guidelines liste	PHOTO
STA 50+00 - LCW-13 OLDFIELD SIPHON	0.32	0.23 - .59	1.55954	0-50 gpm	None	
STA 50+00 - OLDFIELD STAFF GAGE	0.50		N/A	N/A	None	

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ODSP Improvements

Enhanced Training

Inspection of Embankment Dams and Abutments

What to Look For

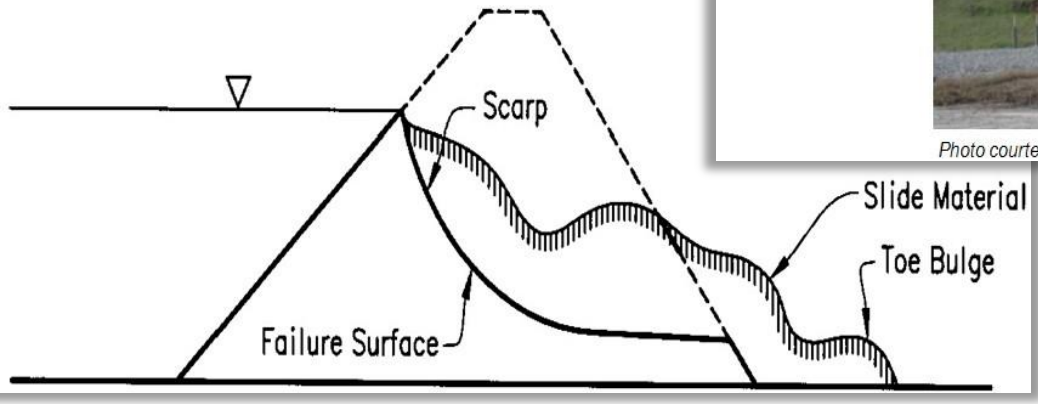
- Slides or sloughs

Photo courtesy of CEATI

Embankment Dams

Common Failure Modes

- Slope instability



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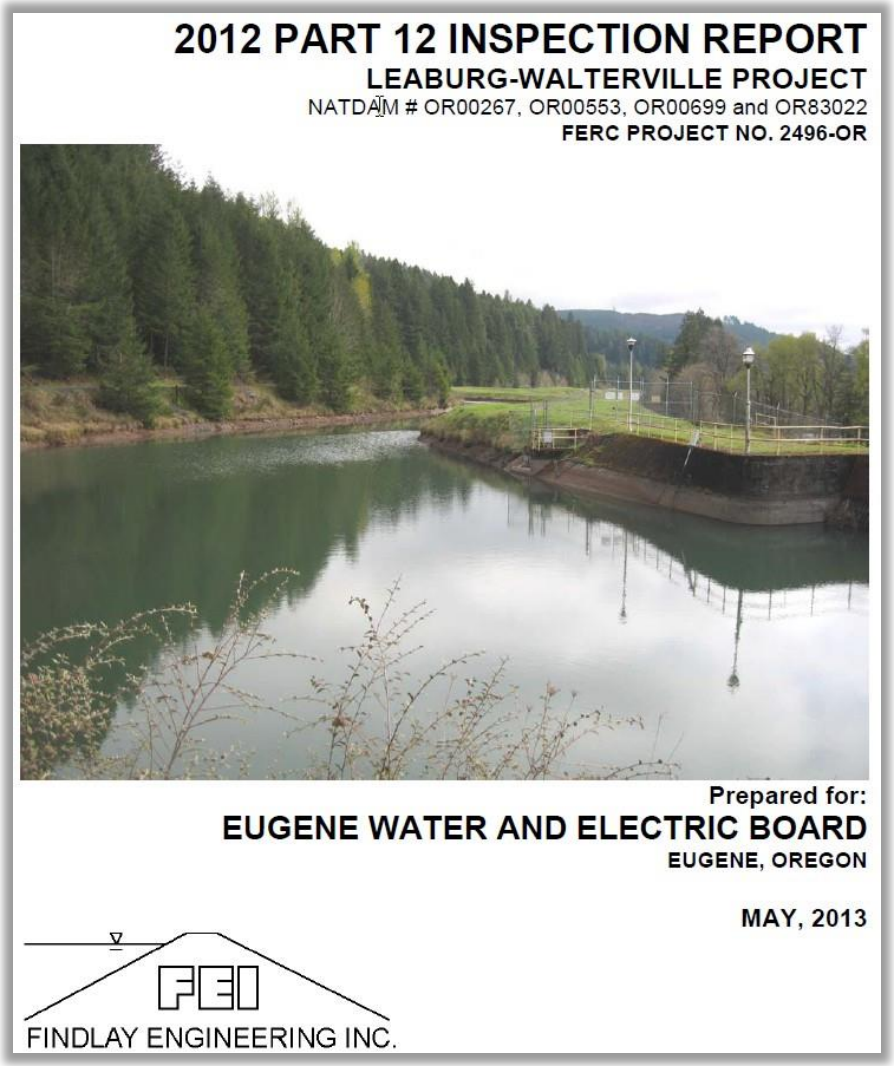
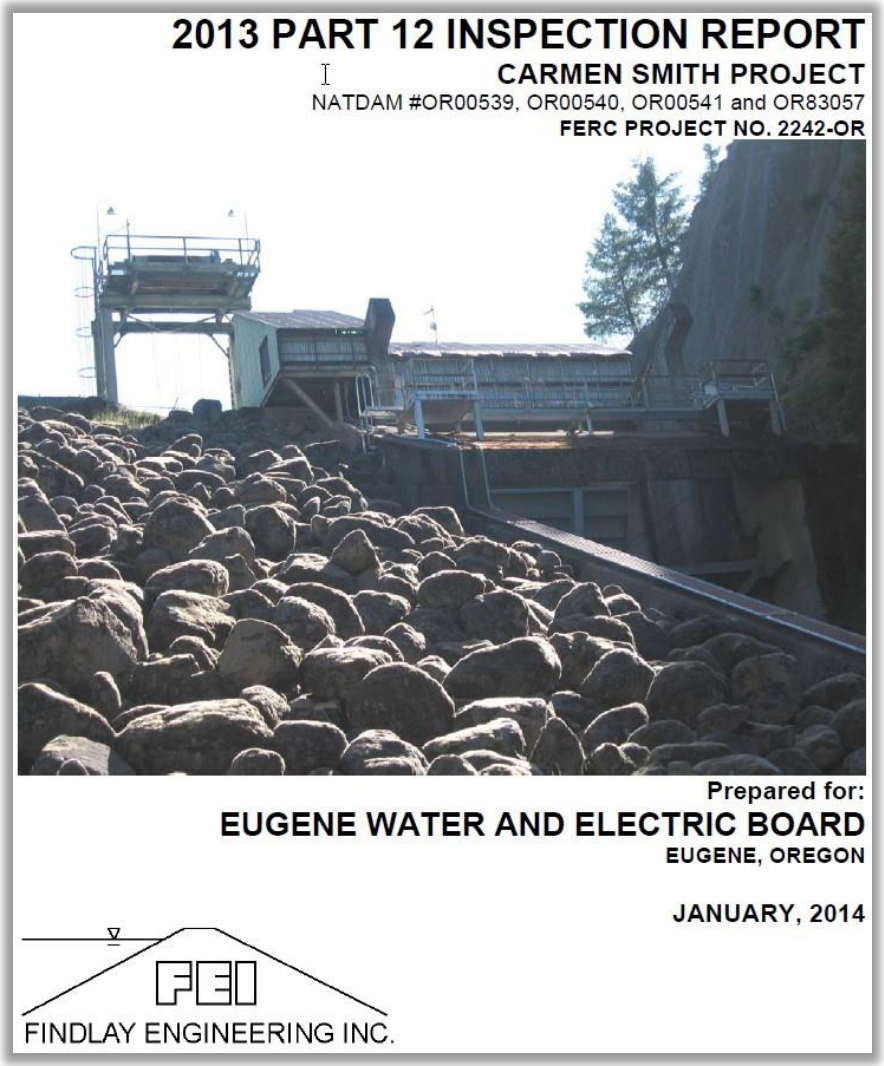
ODSP Improvements

External Audits





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ODSP Aspirations

Formal Upper Management Reporting

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DAM SAFETY

SURVEILLANCE AND MONITORING REPORT

2013

Completed March 26, 2014

Eugene Water & Electric Board

Leaburg – Walterville Hydroelectric Project

FERC Project Number: P-2496-OR

Photo: Walterville Pond showing newly exposed islands

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DAM SAFETY SURVEILLANCE AND MONITORING REPORT

2013

Completed March 07, 2014

Eugene Water & Electric Board
Carmen-Smith Hydroelectric Project
FERC Project Number: P-2242-OR

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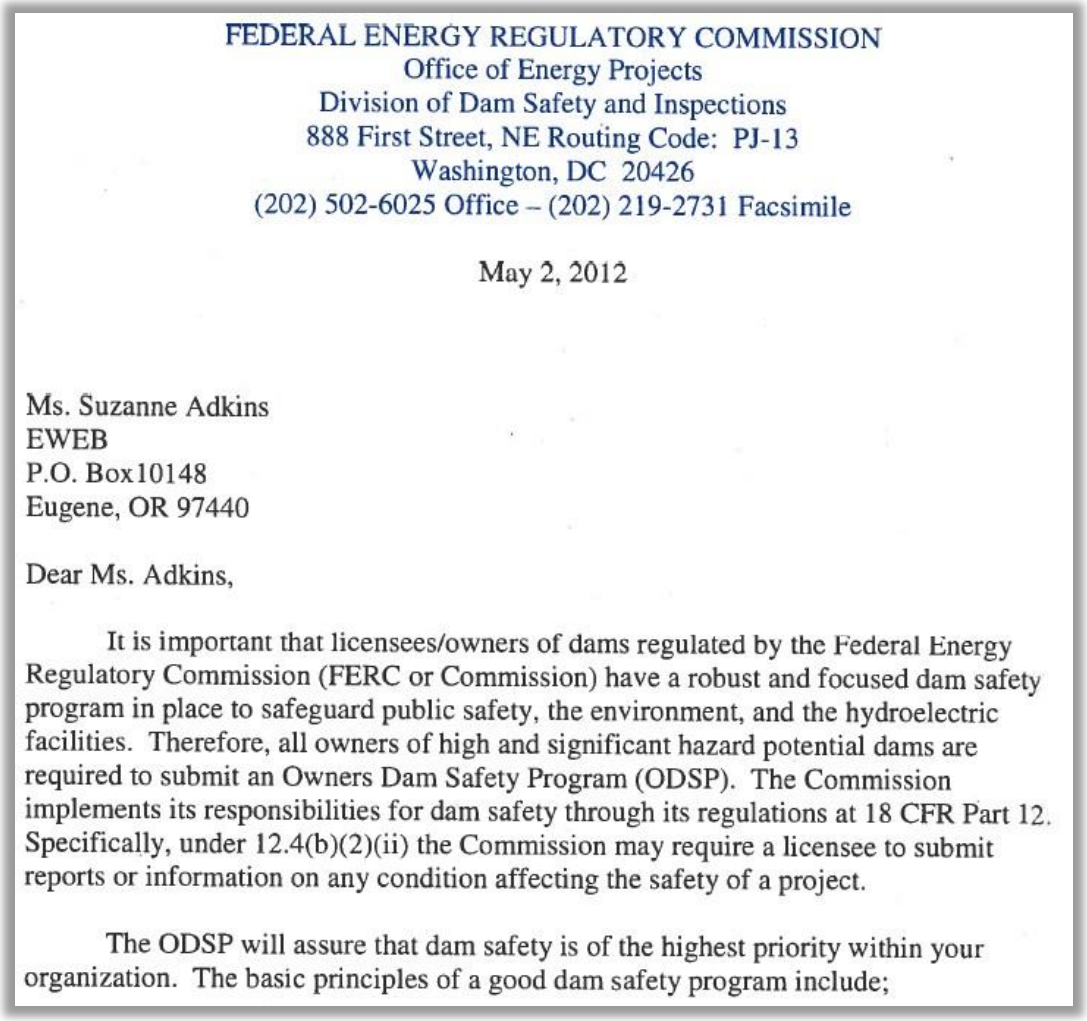
ODSP Aspirations

Regulatory Driver



FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects
Division of Dam Safety and Inspections
888 First Street, NE Routing Code: PJ-13
Washington, DC 20426
(202) 502-6025 Office – (202) 219-2731 Facsimile

May 2, 2012

Ms. Suzanne Adkins
EWEB
P.O. Box10148
Eugene, OR 97440

Dear Ms. Adkins,

It is important that licensees/owners of dams regulated by the Federal Energy Regulatory Commission (FERC or Commission) have a robust and focused dam safety program in place to safeguard public safety, the environment, and the hydroelectric facilities. Therefore, all owners of high and significant hazard potential dams are required to submit an Owners Dam Safety Program (ODSP). The Commission implements its responsibilities for dam safety through its regulations at 18 CFR Part 12. Specifically, under 12.4(b)(2)(ii) the Commission may require a licensee to submit reports or information on any condition affecting the safety of a project.

The ODSP will assure that dam safety is of the highest priority within your organization. The basic principles of a good dam safety program include;

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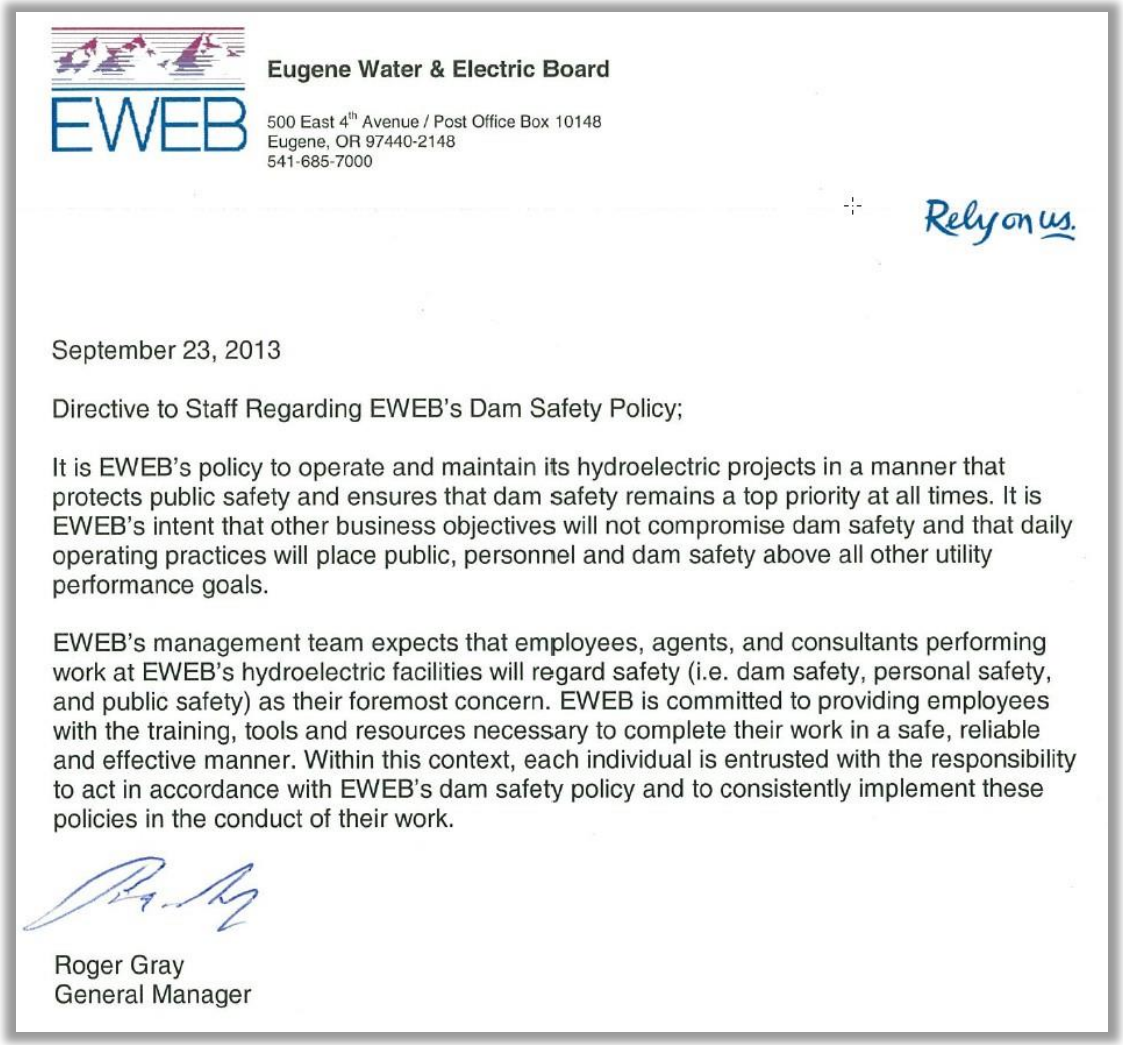
ODSP Conclusions

Regulatory Motivation for Discipline



Eugene Water & Electric Board

500 East 4th Avenue / Post Office Box 10148
Eugene, OR 97440-2148
541-685-7000

Rely on us.

September 23, 2013

Directive to Staff Regarding EWEB's Dam Safety Policy;

It is EWEB's policy to operate and maintain its hydroelectric projects in a manner that protects public safety and ensures that dam safety remains a top priority at all times. It is EWEB's intent that other business objectives will not compromise dam safety and that daily operating practices will place public, personnel and dam safety above all other utility performance goals.

EWEB's management team expects that employees, agents, and consultants performing work at EWEB's hydroelectric facilities will regard safety (i.e. dam safety, personal safety, and public safety) as their foremost concern. EWEB is committed to providing employees with the training, tools and resources necessary to complete their work in a safe, reliable and effective manner. Within this context, each individual is entrusted with the responsibility to act in accordance with EWEB's dam safety policy and to consistently implement these policies in the conduct of their work.

Roger Gray
General Manager

ODSP Conclusions

Culture of Continuous Improvement

Report Date: 1/24/2014

Condition Index Summary (Power Train)

Plant Name	Unit ID	Generator Rotor Condition Index	Generator Rotor Condition Rating	Generator Stator Condition Index	Generator Stator Condition Rating	Transformer Condition Index	Transformer Condition Rating	Turbine Condition Index	Turbine Condition Rating	Governor Condition Index	Governor Condition Rating	Exciter Condition Index	Exciter Condition Rating	Unit Breaker Condition Index	Unit Breaker Condition Rating
Carmen Smith	1	5.8	Marginal	3.3	Marginal	6.7	Fair	5.8	Marginal	8.7	Good	8.1	Good	6.3	Fair
Carmen Smith	2	5.8	Marginal	2.8	Poor	7.8	Fair	5.8	Marginal	8.7	Good	8.1	Good	6.7	Fair
International Paper	1	8.4	Good	4.9	Marginal							7.2	Fair	7.9	Fair
Leaburg	1	10.0	Good	10.0	Good	7.8	Fair	10.0	Good	7.7	Fair	10.0	Good	6.7	Fair
Leaburg	2	7.6	Fair	4.4	Marginal	8.6	Good	10.0	Good	7.7	Fair	10.0	Good	10.0	Good
Smith Creek	1	9.2	Good	6.6	Fair	9.0	Good	10.0	Good	10.0	Good	7.2	Fair	10.0	Good
Smith Creek	2	9.2	Good	6.6	Fair			10.0	Good	10.0	Good	7.2	Fair	10.0	Good
Smith Creek	3	9.2	Good	6.6	Fair			9.0	Good	10.0	Good	7.2	Fair	10.0	Good
Stone Creek	1	9.2	Good	10.0	Goo										
Trail Bridge	1	6.7	Fair	4.4	Margin										
Walterville	1	7.6	Fair	10.0	Goo										

Generation Status Report: 2014 Q1

Project	Unit	Year-To-Date Availability Factor			Year-To-Date Capacity Factor			Year-To-Date Forced Outage Factor		
		2012Q1	2013Q1	2014Q1	2012Q1	2013Q1	2014Q1	2012Q1	2013Q1	2014Q1
Leaburg-Walterville	LBU1 (8.4 MW)	95.97	100	100	71.96	81.95	72.95	4.03	0	0
	LBU2 (7.5 MW)	99.96	100	100	89.39	95.67	86.52	0.04	0	0
	WVU (8 MW)	99.95	100	100	68.51	94.48	59.21	0.05	0	0
Carmen-Smith	CSU1 (52.25 MW)	100	98.59	97.18	25.12	16.33	25.91	0	1.29	2.82
	CSU2 (52.25 MW)	100	99.79	91.08	40.42	31.68	38.22	0	0.21	8.80
	TBU (9.98 MW)	100	98.91	99.34	75.89	57.62	74.18	0	0.89	0.66
Stone Creek	STCU (12 MW)	100	100	99.73	80.91	64.77	64.77	0	0	0.27
Smith Creek	SMCU1 (18 MW)	100	100	99.99	1.24	10.35	5.83	0	0	0.01
	SMCU2 (18 MW)	100	100	100	0.35	4.91	0.04	0	0	0
	SMCU3 (2.15 MW)	100	46.26	100	20.15	18.56	8.13	0	53.74	0
	TOTAL EWEB HYDRO	**99.82**	**98.89**	**96.72**	**37.60**	**34.08**	**35.01**	**0.18**	**1.07**	**3.25**
International Paper	IPU4 (13 MW EWEB)	98.44	97.08	100	79.04	81.16	77.90	1.56	.07	0
Wauna	WGAU (18 MW EWEB)	98.79	97.99	71.40	57.38	58.92	37.54	0	0.54	28.56
	TOTAL EWEB THERMAL	**98.64**	**98.80**	**83.27**	**66.41**	**68.15**	**54.30**	**0.65**	**0.35**	**16.70**
Foote Creek	69 units (8.9 MW EWEB)	72.8	76.2	88.8	32.4	31.0	57.5			
Harvest Wind	43 units (20 MW EWEB)	98.8	98.5	64.1	23.1	31.0	20.9			
	TOTAL EWEB WIND	**90.8**	**91.6**	**71.7**	**26.0**	**31.0**	**32.2**			

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ODSP Conclusions

Program Maturity

Maturity Level (DW Selected)				
1. Needing Development	2. Intermediate	3. Good Industry Practice	4. Best Practice	5. Leading Edge

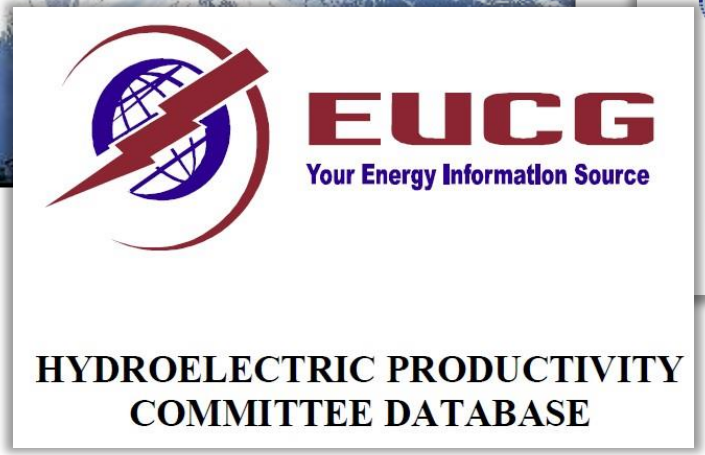
Leaburg Canal Hazard Mitigation Control System

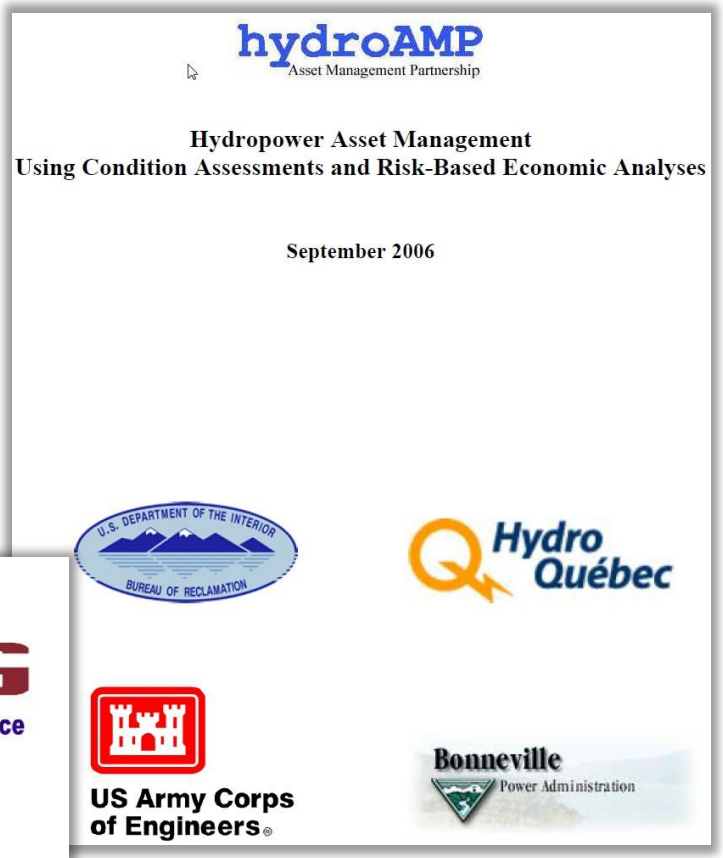
Addressing known landslide risks with real time monitoring

ODSP Conclusions

Dam Safety Microcosm

- Asset Management Program
- Maintenance Management Program
- Industry Benchmarking





EWEB

ODSP Conclusions