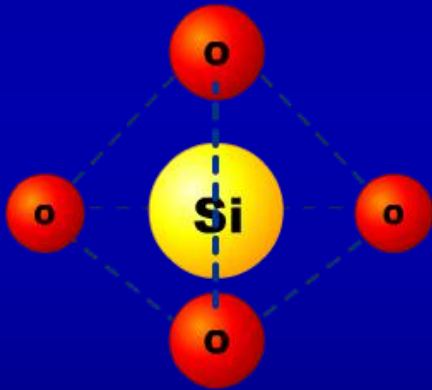




Water & Energy Solutions

“Lower Cost Through Better Efficiency”

WCTI Cooling Water Technology



“Silica - The Molecule That’s Changing Water Treatment”

2013 WRBA

Western Regional Boiler Association



WCTI Presentation

PRESENTATION OUTLINE:

- WCTI 18-Month Inspection - RFP
 - Equipment Condition
 - Water Savings
- LAKOS 18-Month Inspection
 - Tower Basin & Internals
 - No Solids Accumulation
- LAKOS Demonstration Trailer

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WCTI Introduction

RFP Operating History:



- WCTI Program Began January 2011
- On-Line Continuously Since Start Up
- July 2, 2012 Inspection

*WCTI Is Dedicated To Supporting & Advancing
Cooling Water Treatment*



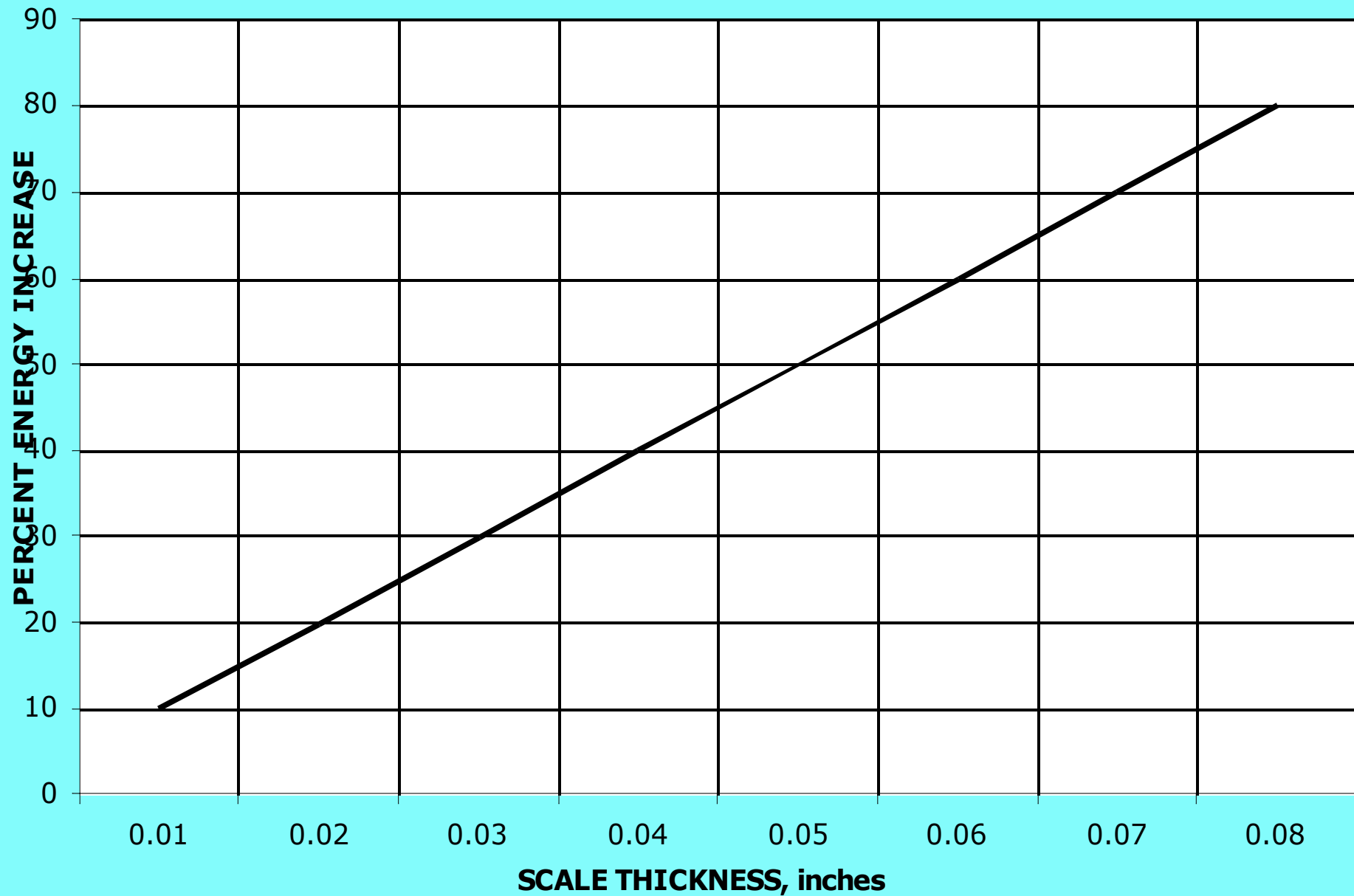
WCTI Introduction

WCTI Features:

- True Chemical Free Technology
- True Zero Blow Down Technology
- Maximizes Water Conservation

WCTI Is A Totally Green Technology

EFFECT OF SCALE ON ENERGY USAGE



WCTI Inspection

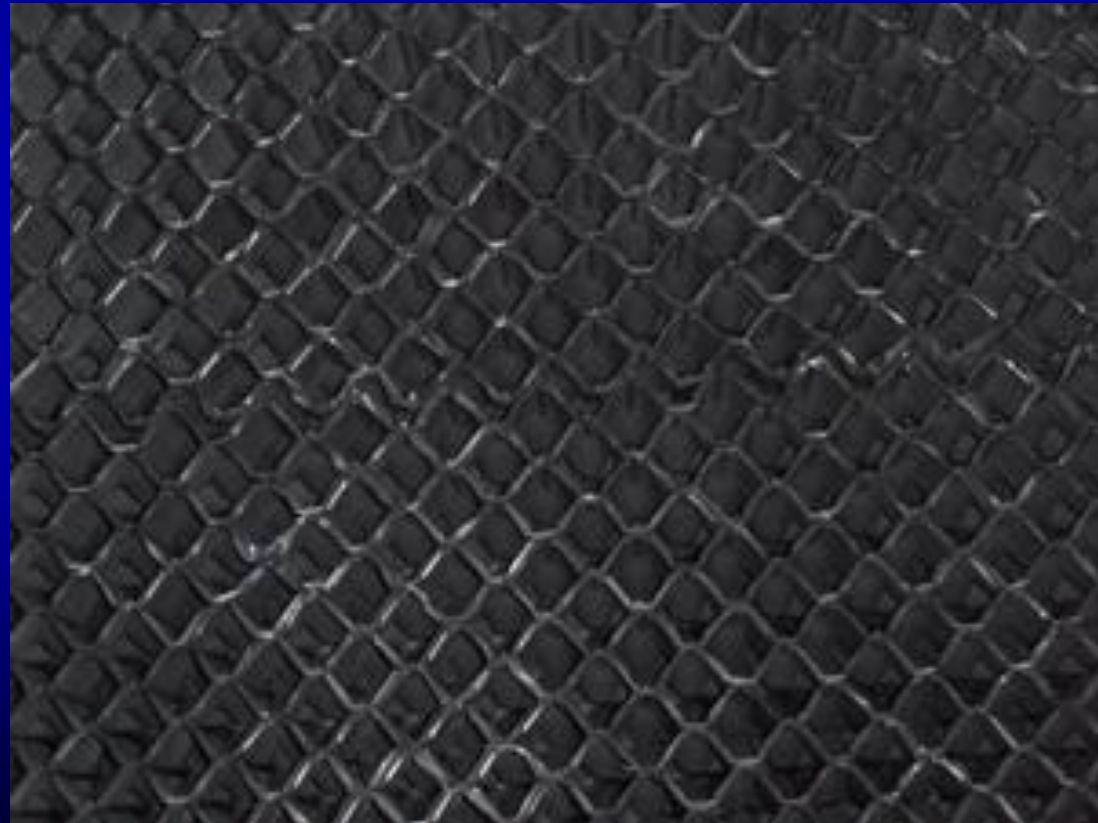
Drift Eliminators





WCTI Inspection

Tower Fill





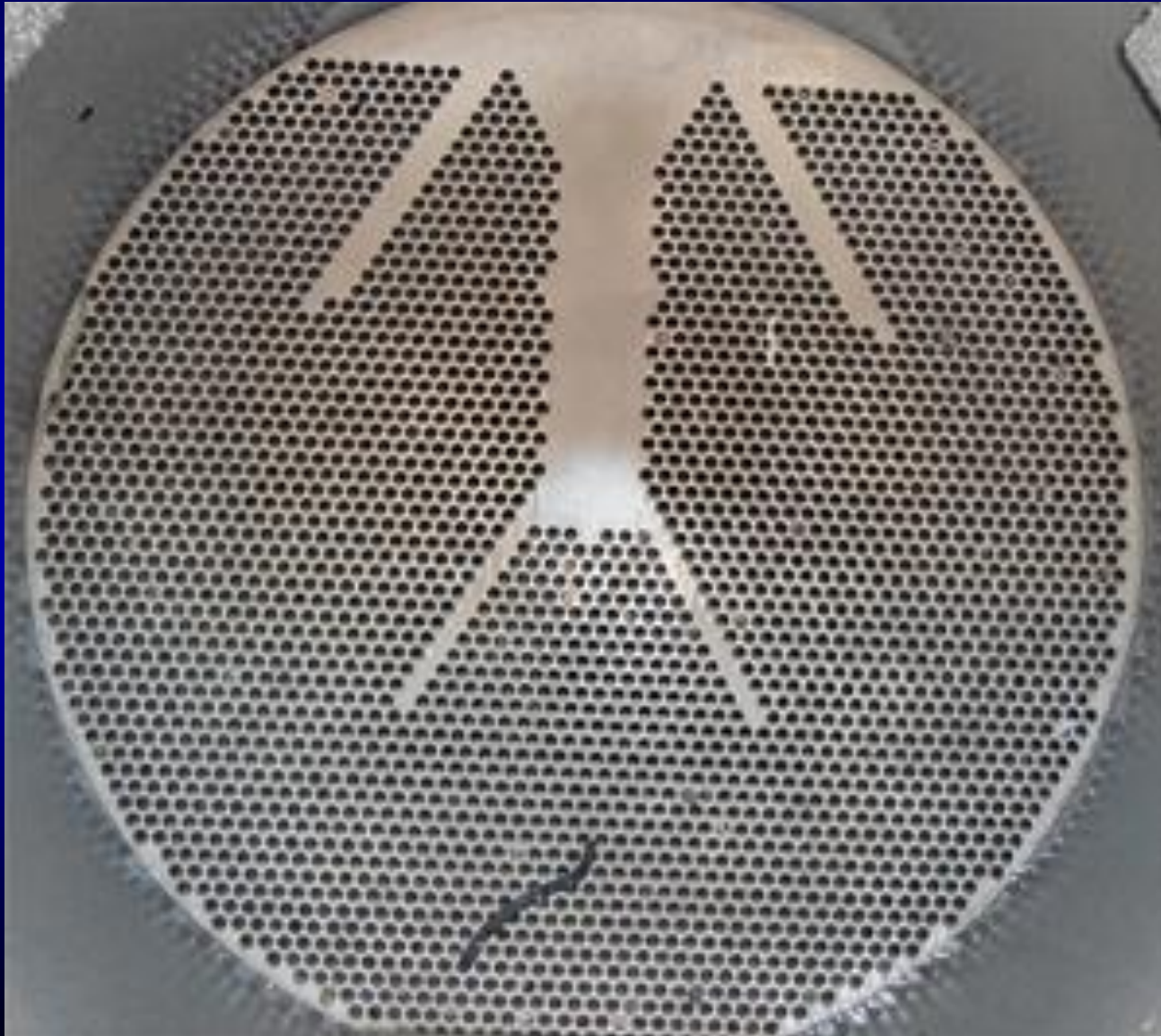
WCTI Inspection



Tower
Fill



WCTI Inspection



Condenser



WCTI Inspection



Condenser



WCTI Inspection



Condenser
Tubes



SYSTEM PERFORMANCE

Weed, CA

Month	WCTI TREATED SYSTEM			CHEMICALLY TREATED SYSTEM		
	M/U Gal	Evap Gal	Softener Regen Gal	M/U Gal	Evap Gal	B/D Gal
Jan-12	2,916,773	2,906,310	10,463	5,189,839	2,906,310	2,283,529
Feb-12	4,691,027	4,674,200	16,827	8,346,786	4,674,200	3,672,586
Mar-12	3,247,730	3,236,080	11,650	5,778,714	3,236,080	2,542,634
Apr-12	3,116,569	3,105,390	11,179	5,545,339	3,105,390	2,439,949
May-12	3,256,491	3,244,810	11,681	5,794,304	3,244,810	2,549,494
Jun-12	3,444,114	3,431,760	12,354	6,128,143	3,431,760	2,696,383
Jul-12	3,905,409	3,891,400	14,009	6,948,929	3,891,400	3,057,529
Aug-12	4,229,231	4,214,060	15,171	7,525,107	4,214,060	3,311,047
Sep-12	4,341,333	4,325,760	15,573	7,724,571	4,325,760	3,398,811
Oct-12	3,599,612	3,586,700	12,912	6,404,821	3,586,700	2,818,121
Nov-12	2,522,669	2,513,620	9,049	4,488,607	2,513,620	1,974,987
Dec-12	2,807,330	2,797,260	10,070	4,995,107	2,797,260	2,197,847

TOTAL: 42,078,288 41,927,350 150,938 74,870,268 41,927,350 32,942,918

Water Savings: 27,947,811 Gallons Per Year

Annual Water Savings: 27,947,811 Gallons Per Year



SYSTEM PERFORMANCE

Weed, CA

Month	WCTI - Total Water Cost	Chemical Program	
		M/U Water Cost	B/D Water Cost
Jan-12	\$350	\$623	\$22,835
Feb-12	\$563	\$1,002	\$36,726
Mar-12	\$390	\$693	\$25,426
Apr-12	\$374	\$665	\$24,399
May-12	\$391	\$695	\$25,495
Jun-12	\$413	\$735	\$26,964
Jul-12	\$469	\$834	\$30,575
Aug-12	\$508	\$903	\$33,110
Sep-12	\$521	\$927	\$33,988
Oct-12	\$432	\$769	\$28,181
Nov-12	\$303	\$539	\$19,750
Dec-12	\$337	\$599	\$21,978

Total: \$5,049 \$8,984 \$329,429

M/U Water Cost: \$0.12 /1,000 gal
oftener Regen Cost: \$0.12 /1,000 gal
Chemical B/D Cost: \$10.00 /1,000 gal



WCTI Summary

Operating History Since Start Up:

- Eliminated Tower Blow Down
- 28 Million Gallons Water Saved (2012)
- No Chemicals Used For Treatment
- Tower Internals Are Like New
- Condenser Tubes Are Spotless
- System Operates At Peak Efficiency

Does It Get Any Better Than This?



LAKOS Inspection

LAKOS Separators For Cooling Towers:

- Purpose: Keeps Tower Basins *Clean*
- Remove Solids Continuously 24/7
- No Moving Parts In The Separator
- Independent of Recirculation Pumps
- No Backwash – No Water Loss
- Eliminates Manual Cleaning
- Reduces Chiller Maintenance & Energy
- *Proven in 1,000's of Installations*

LAKOS Separators Maximize Cooling Capacity



LAKOS Inspection



Model JPX-1850:
3,400 GPM (Each Unit)





LAKOS Inspection



Basin After Draining



LAKOS Inspection



Basin After Draining



LAKOS Inspection

**Deep Sump (13')
Recirculation Pumps**





LAKOS Inspection



BASIN SOLIDS



LAKOS Inspection

BASIN SOLIDS





LAKOS Inspection

Benefits Of A Clean Tower

- Eliminate Manual Basin Cleaning
- Keep All Heat Transfer Surfaces Clean
- Eliminate Nozzle Plugging
- Save Water – No Blow Down Or Back Wash
- Minimize Maintenance

Result – Maximize Heat Transfer Efficiency



Summary

How Are We Doing?

WCTI Program:

- Fill Is Spotlessly Clean
- Heat Transfer Is Maximized - No Scale or Deposits
- Water Usage is Minimized (Evaporation Rate – No B/D)

LAKOS Separator System:

- Tower Basin Is Free Of Solids
- Minimize Maintenance Requirements
- Heat Transfer is Maximized – Clean Condenser



Final Thoughts

What Do Others Say?

Midwest Towers

“ I’ve never seen towers so clean in this industry”

CCS (Vacuum Truck – Basin Cleaning)

*“ The basins were very clean – no solids to remove -
I’ve never seen anything like this”*

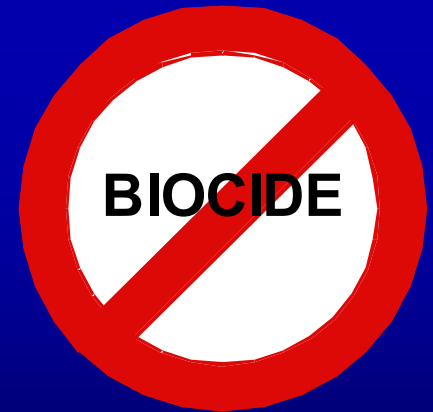
Christian Power Equipment

*“ The condenser tubes are clean and the tower is
in like-new condition”*



WCTI TECHNOLOGY

INNOVATIVE TECHNOLOGY FOR COOLING WATER TREATMENT



***Brought To You By Great Minds and Innovative
Creators Right Here in the USA!***