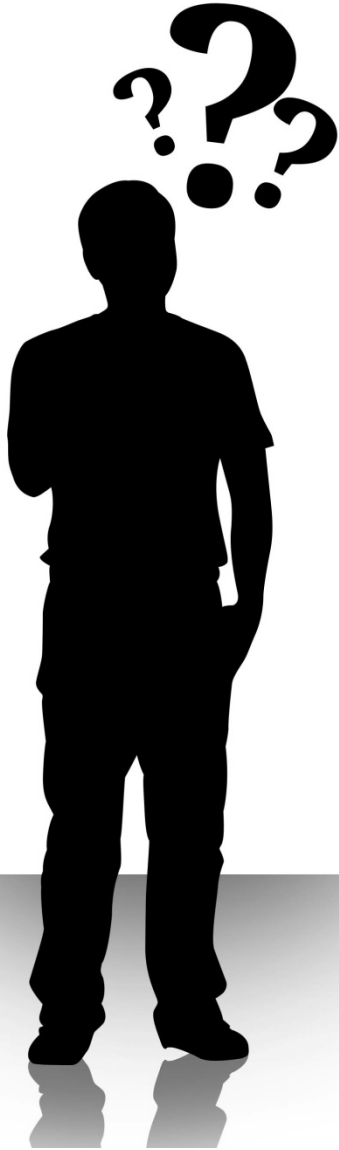




## ***CIBO Annual Meeting***

*Greg Leibel  
General Manager, East Region  
October 14, 2011*



***“Think about the problems you have and the things that you might need to help solve them (maybe other than Orders).”***

***RDB, 9/10/2011***

# ***Our Biggest Problem***



***Solution:  
Join and support  
CIBO***

## ***Problem 2: Confusion, Uncertainty, Fear***

**If our customers can't figure out what to do, we can't plan and manage our business.**

<b><i>Boss:</i></b>	<b>Greg, your updated 2012 forecast is due next week.</b>
<b><i>Greg:</i></b>	<b>Right. I expect bookings between \$1,000,000 and \$400,000,000.</b>
<b><i>Boss:</i></b>	<b>Can you narrow that down a little?</b>
<b><i>Greg:</i></b>	<b>Not really.</b>



## ***Help Clients Find the Right(est) Answer***



***Solution: Optimize compliance solution to emissions and operational requirements for that particular installation.***

## ***Recent Project History***

***B&W Began Working with Client in August of 2010***

- **Compliance with BART and MACT Presented as Primary Concern**

## ***Recent Project History***

### ***B&W Began Working with Client in August of 2010***

- Compliance with BART and MACT Presented as Primary Concern

### ***Phase I - B&W Contracted to Perform High Level Study to Identify Compliance Options***

- **Acquired Knowledge of Facility & Boiler Operating Practices**
- **Weekly Teleconferences Fostered Mutual Understanding and Customized Results**
- **Phase I Study Presented Options Tailored to the Facility with Approximate Pricing & Lead Times**
- ***Examined 13 compliance strategies related to 5 pollutants***

# Analysis Summary for One Unit

## Compliance Options Summary

UNIT 7

Red font signifies assumed compliance path for Option 1:  
Burning current Low-sulfur fuel plant wide

Cost (\$ K)	Technology	BART-2013			MACT-2014					BART INSTALLATION	MACT INSTALLATION
		NOx	SO2	PM	CO	PM	HCL-Acid Gas	Hg-Mercury	Dioxin/Furan		
700	<i>Aqueous Ammonia Storage/Handling (Common for SCR or SNCR)</i>	X								2,100	-
800	<i>Selective Non-Catalytic Reduction (SNCR)</i>	X								1,900	-
3,500	Selective Catalytic Reduction (SCR)	X								10,500	-
80	Steam Coil Air Heater addition to RCFA system	X								240	-
N/A	Over Fire Air	X								-	-
N/A	Dry Scrubber		X				X			-	-
N/A	Wet Scrubber		X			X	X	X		-	-
875	<i>Dry Sorbent Injection</i>		X				X			2,625	-
400	<i>Pulverizer Upgrades</i>			X	X					-	1,200
875	<i>Powder Activated Carbon Injection</i>							X	X	-	2,025
5,700	<i>Pulse Jet Fabric Filter - Baghouse</i>			X		X				17,100	-
N/A	Electrostatic Precipitator Upgrades					X				-	-
2,500	200 kb Nat/Gas Fired Package Boiler		X	X	X	X	X	X	/	7,500	-
800	PB w/ SCR for NOx Control	X								1,900	-
3,100	250 kb Nat/Gas Fired Package Boiler		X	X	X	X	X	X	/	9,300	-
800	PB w/ SCR for NOx Control	X								1,900	-
900	Natural Gas Conversion		X	X	X	X	X	X	/	2,700	-
<b>Daily Consumables : Trona Sorbent + Activated Carbon + Ammonia, Delivered</b>										<b>9,837</b>	<b>864</b>
<b>Daily Consumables : Sodium Bicarbonate Sorbent + Activated Carbon + Ammonia, Delivered</b>										<b>5,877</b>	<b>864</b>



## ***Recent Project History***

### ***Phase II – Validation of Technology and Options***

- **Maintain Coal as Primary Fuel Strongly Desired**
- **Dry Sorbent Injection Technology Was Tested and Proven on Unit 7, Allowing Coal Firing to Remain Feasible**
- **Natural Gas (NG) Available as a Fall Back to “Dilute” Emissions?**
- **Significant NG Co-Firing on Unit 7 Will Require SH Material Upgrade / De-superheater System**
- **Compliance Strategies were Refined to Expand/Eliminate Phase I Options and to Optimize Performance vs Cost of Compliance**

## ***Recent Project History***

### ***Phase III – Moving Forward***

- **Agreed upon compliance technologies**
- **Agreed upon cost mark-ups**
- **Agreed upon guarantees and warranties**
- **Agreed upon commercial terms and conditions**
- **Agreed to perform project on EPC basis with defined scope and risks.**

## ***Key Takeaways***

- **Spend the money to find the best answer**
  - **Yours and Ours**
  - **Think functional vs. prescriptive**
- **Use A/E's and Consultants to define requirements and permits**
- **Work EARLY with potential suppliers to suggest and bracket compliance options**
  - **Find one to trust and work with them.**
- **Create team to optimize compliance solution**
  - **Considering capital costs**
  - **Considering operating costs**
  - **Considering guesses on future variables**