

**Dennis Roberts**

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**From:** Michael MacDonald [Mike.MacDonald@RFMacDonald.com]  
**Sent:** Monday, February 22, 2010 9:11 PM  
**To:** Dennis Gregor; Dennis Roberts  
**Subject:** ::RE: Draft BPS

An FYI HW-Hot Water; LPS is Low Pressure Steam (<15psig); HPS is High Pressure Steam (>15psig)

Regards,

Mike MacDonald

R.F. MacDonald Company  
1549 Cummins Drive  
Modesto, CA  
209.595.5798 cell  
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209.576-1312 fax



March 17-18 Modesto Centre Plaza  
Visit us at Booth #418 in the Harvest Hall Building

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**From:** Dennis Gregor  
**Sent:** Thursday, February 18, 2010 11:07 AM  
**To:** Dennis Roberts  
**Cc:** Michael MacDonald  
**Subject:** Draft BPS

Dennis,

We are attach a draft of Baseline and BPS for boilers per MMBtu input for your review.

Please advise if you should have any questions.

Thanks,  
Dennis Gregor  
RF MacDonald Company  
209 595-5836 Mobile  
[dennis.gregor@rfmacdonald.com](mailto:dennis.gregor@rfmacdonald.com)

February 16, 2010

SAN FRANCISCO  
 FRESNO  
 LAS VEGAS  
 LOS ANGELES  
 SAN DIEGO  
 RENO

**SJVUAPCD BEST PERFORMANCE STANDARDS**

BOILER CLASSIFICATION	BOILER HEAT INPUT		
	1-5 MMBtu/hr	5-20 MMBtu/hr	>20 MMBtu/hr
<b>HW/LPS 2004 Base Line</b>	Efficiency 79%-82% Non Condensing 4-5% O2 0% FGR 70-90ppm NOx 400ppm CO	Efficiency 82% Non Condensing. 15-20% FGR 3-5% O2 30ppm NOx 400ppm CO	Limited Number of Installed Units Efficiency 82% 30% FGR 4-5% O2 or 0% FGR 7-8% O2 9ppm NOx 400ppm CO
<b>HW/LPS BPS</b>	Efficiency 95% Full Condensing with low temperature return water available Efficiency 89% Near Condensing with 130deg F return water available 5-6% O2 0% FGR 9-15ppm NOx 50ppm CO	<b><u>5-8MMBtu/hr</u></b> Efficiency 95% Full Condensing with low temperature return water available Efficiency 89% Near Condensing with 130deg F return water available 5-6% O2 0% FGR 9-15ppm NOx 50ppm CO Efficiency 82% Non Condensing. 15-20% FGR 3-5% O2 30ppm NOx 400ppm CO  <b><u>8-20MMbtu/hr*</u></b> Efficiency 85% Non Condensing with 130deg F return water available 5-6% O2 0% FGR	Very Limited Number of Units as SCR would be required to meet NOx requirement of 5ppm and stack temperatures are too low for SCR to be effective.  Non Condensing  Efficiency 82%* 10% FGR 3% O2 5 ppm NOx 400 ppm CO 10ppm NH3 Slip  * Efficiency >89% if development of combustion air pre- heaters continues

		<p>9-15ppm NOx            50ppm CO            Efficiency 82%            Non Condensing.            15-20% FGR            3-5% O2            30ppm NOx            400ppm CO</p> <p>* Efficiency &gt;89% if            development of            combustion air pre-            heaters continues</p>	
<p><b>HPS</b>  <b>2004 Base Line</b></p>		<p>Efficiency 80%            Low NOx Burner            20% FGR            3-4% O2            30 ppm NOx            400 ppm CO</p>	<p>Efficiency 82%            Ultra Low NOx Burner            30% FGR            4-5% O2            9 ppm NOx            400 ppm CO</p>
<p><b>HPS</b>  <b>BPS</b></p>		<p>Efficiency 85%            Low NOx Burner            10% FGR            3-4% O2            SCR            6 ppm NOx            400 ppm CO            10 ppm NH3 Slip</p>	<p>Efficiency 85%            Low NOx Burner            10% FGR            3-4% O2            SCR            5 ppm NOx            400 ppm CO            10 ppm NH3 Slip</p>