

FUEL TECH COMBUSTION UNIT SURVEY

APPLICATION IDENTIFICATION

Customer:		Date:
Project Identification:		

Name of Facility:	
Application Location:	
Unit Designation(s):	
Type of Unit:	
Type of Firing System:	
Unit Capacity Factor:	
Current Emission Controls: (NOx, SOx, Dust, HCL)	
Type of Emissions Monitor:	
Emission Signals to DCS:	

FUEL ANALYSES (values as analyzed) Data Source: Customer, Typical Estimates

Fuel ID:	1	2	3	4	5
Fuel Source:					
Type of Fuel:					
Ultimate Analysis:					
%Carbon					
%Hydrogen					
%Nitrogen					
%Oxygen					
%Sulfur					
%Chlorine					
%Moisture					
%Ash					
*Ash Fusion Temperature (F)					
Heating Value					

Indicate (✓) Heating Value Basis: HHV or LHV and Units: Btu/lb KJ/Kg KCal/Kg
 For gaseous fuels, compute ultimate analysis using GASFUEL1.XLS, and attach printout

AS FIRED CONDITIONS

%Moisture					
%Ash					

*Please attach ash analysis if available

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UNIT DESIGN AT MAXIMUM CONTINUOUS RATING (MCR)

	Design Fuel:	Primary	Secondary	Tertiary	Other
Fuel Mix Fuel 1	% <input type="checkbox"/> wt./% <input type="checkbox"/> Heat				
Fuel 2	% <input type="checkbox"/> wt./% <input type="checkbox"/> Heat				
Fuel 3	% <input type="checkbox"/> wt./% <input type="checkbox"/> Heat				
Fuel 4	% <input type="checkbox"/> wt./% <input type="checkbox"/> Heat				
Fuel 5	% <input type="checkbox"/> wt./% <input type="checkbox"/> Heat				
Thermal Input <input type="checkbox"/> HHV, <input type="checkbox"/> LHV	<input type="checkbox"/> 10 ⁶ Btu/hr, <input type="checkbox"/> MJ/s,				
or, Fuel Flow	<input type="checkbox"/> Klb/hr, <input type="checkbox"/> Kg/s <input type="checkbox"/> TPD, <input type="checkbox"/> Metric t/d				
Steam Output	<input type="checkbox"/> Klb/hr <input type="checkbox"/> Metric tons/hr				
Steam Pressure @ SHO	<input type="checkbox"/> Psig, <input type="checkbox"/> MPa <input type="checkbox"/> barG				
Steam Temp. SH/RH1/RH2	<input type="checkbox"/> °F, <input type="checkbox"/> °C				
Electric Output (Utility)	<input type="checkbox"/> MWn, <input type="checkbox"/> MWg				
Plant Heat Rate	<input type="checkbox"/> Btu/KWHn <input type="checkbox"/> Btu/KWHg				
Boiler Efficiency	<input type="checkbox"/> %gross, <input type="checkbox"/> %net				
Combustion Excess Air	% of Stoichiometry				
Comb. Air & OFA Temp.	<input type="checkbox"/> °F, <input type="checkbox"/> °C				
Flue Gas O ₂ at Boiler Outlet	<input type="checkbox"/> %wet, <input type="checkbox"/> %dry				
Flue Gas Flow @ <input type="checkbox"/> Blr Outlet, <input type="checkbox"/> Stack @ O ₂ <input type="checkbox"/> wet, <input type="checkbox"/> dry	<input type="checkbox"/> Nm ³ /hr <input type="checkbox"/> STP, <input type="checkbox"/> SI <input type="checkbox"/> SCFM, <input type="checkbox"/> ACFM@°F				
OverFire Air Distribution	%/%/%/etc.				
Flue Gas Recirculation	% of net Flue Gas Flow				

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OPERATING REQUIREMENTS

Case:

Case Number ____ of ____

Fuel Name:	1	2	3	4	5
Fuel Mix (<input type="checkbox"/> %wt/ <input type="checkbox"/> %Heat Input):					

Applicable Load Range		Minimum	Interm. 1	Interm. 2	Maximum
%LOAD	%MCR				
Heat Input <input type="checkbox"/> HHV, <input type="checkbox"/> LHV	<input type="checkbox"/> 10 ⁶ Btu/hr, <input type="checkbox"/> MJ/s				
Flue Gas Flow @ <input type="checkbox"/> Blr Outlet, <input type="checkbox"/> Stack @ O ₂ <input type="checkbox"/> wet, <input type="checkbox"/> dry	<input type="checkbox"/> Nm ³ /hr <input type="checkbox"/> STP, <input type="checkbox"/> SI <input type="checkbox"/> SCFM, <input type="checkbox"/> ACFM@°F				
<input type="checkbox"/> Excess Air or <input type="checkbox"/> Boiler O ₂	% %O ₂ : <input type="checkbox"/> wet, <input type="checkbox"/> dry				
CO, <input type="checkbox"/> Furnace, <input type="checkbox"/> Stack at corresponding O ₂	<input type="checkbox"/> lb/10 ⁶ Btu, <input type="checkbox"/> PPM- <input type="checkbox"/> wet <input type="checkbox"/> dry @%O ₂ <input type="checkbox"/> wet, <input type="checkbox"/> dry				
Baseline NOx	<input type="checkbox"/> lb/10 ⁶ Btu, <input type="checkbox"/> PPM- <input type="checkbox"/> wet <input type="checkbox"/> dry @%O ₂ <input type="checkbox"/> wet, <input type="checkbox"/> dry				
Baseline SOx	<input type="checkbox"/> lb/10 ⁶ Btu, <input type="checkbox"/> PPM- <input type="checkbox"/> wet <input type="checkbox"/> dry @%O ₂ <input type="checkbox"/> wet, <input type="checkbox"/> dry				
Baseline HCL	<input type="checkbox"/> lb/10 ⁶ Btu, <input type="checkbox"/> PPM- <input type="checkbox"/> wet <input type="checkbox"/> dry @%O ₂ <input type="checkbox"/> wet, <input type="checkbox"/> dry				
Desired Reduction NOx	%				
Desired Reduction SOx	%				
Desired Reduction _____	%				
Time at Condition	Hours/year				

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UNIT GEOMETRY AND DIMENSIONS

<u>Drawings Available</u>	<u>Source</u>	<u>Drw or Sketch No.</u>	<u>Location</u>
Sectional Side View			
Sectional Front View			
Plan Section through Furnace			
Section through Convective Heat Transfer Surfaces			
Observation, Instrument, or Soot Blower Port Locations			
Process Flow Diagram (PFD), Mass & Energy Balance Sheet			
Piping & Instrumentation Diagram (P&ID)			

GENERAL DIMENSIONS

			<u>Data Source</u>
Furnace Width or Diameter	<input type="checkbox"/> meters, <input type="checkbox"/> mm, <input type="checkbox"/> Feet		
Furnace Depth	<input type="checkbox"/> meters, <input type="checkbox"/> mm, <input type="checkbox"/> Feet		
Furnace Height (floor to furnace nose or exit)	<input type="checkbox"/> meters, <input type="checkbox"/> mm, <input type="checkbox"/> Feet		
Firing Zone Height	<input type="checkbox"/> meters, <input type="checkbox"/> mm, <input type="checkbox"/> Feet		
Other:	<input type="checkbox"/> meters, <input type="checkbox"/> mm, <input type="checkbox"/> Feet		
Other:	<input type="checkbox"/> meters, <input type="checkbox"/> mm, <input type="checkbox"/> Feet		