Item (Unit	Print Tig			התיקיים	E G	HIND	NIN
		FOIDE			6****	1	High	LOW
			; ;	(†		-		
			T - 1					
	:		8/11	8/11				
			09:30	11:30				
outlet draft	mmAq	DI E10F10	-93.2	-107.3		-94		
	mmAg	DL E10F20		-105,2		-96.5	:	
0.00	mmAq	DL A53D10	138.8	159.2		119.4		[
	mmAq		133.4	141.5		114.3		
	mmAq	DL A40P10	1,585	1,561		1,496.2		
A IDF inlet draft	mmAg	DL A22F10	-321.8	-353,3		-297.2		
	mmAq	DL A26F10	-319.5	-352.6		-294.6		
inlet air temp.	ပ		34.7	37.2		35.1		
	ပ္		34.8	37.5		33.9		
outlet air temp.	ပ		330.6	339		338,3		
AH outlet air temp.	ပ		322.5	332.6		 337.4		
gas temp.	သွ		366.8	337.4		365.4		
AH inlet gas temp.	ပ္ပ	DL A57T10	357.6	370.4		 367.9		
AH outlet gas temp.	ပ္ပ	DL A53T20	139.8	144.3		147.4		
gas temp.	ပ	DL A57T20	144.4	150		150.3		
Precip outlet gas temp.	၁့		136.3	140.2		143.6		
Precip outlet gas temp.	ູນ		136.6	140.8		144.4		
dure •	A	CR indicator	245	257.5		236		
dure	Æ	CR indicator	240	250		230		
FDF motor amp.	A	CR indicator	82.5	85		85		
FDF motor amp.	Æ	CR indicator	82.5	85		86		
air fan motor amp.	Ą	CR indicator	230	230		183		
fan motor amp.	ď,	CR indicator	230	230		196		
ıcı	00	CR controller	70	75		70		
inlet vane open	*	CR controller	75	77.5		73		
inlet vane open	òР	CR controller	67.5	70		 74		
vane open	ď	CR controller	65	67.5		70		
damper open	æ		70	75		74		
damper open	8	,	47.5	40		75		
capacity damper open	œ	CR controller	95	95				
by Orsat (A)	æ							.
Orsat (B)	æ							

	5 -	
ltem Unit Measuring Unit Point		Recording B.E.T. High Low
Test Number	E-13	
8/11.	8/11	
Time 09:30	11:30	
A Mill coal fineness		
A Mill coal feeder flow T/H DL B11F10 46.80	47.98	36.7
A Mill inlet air temp. °C Di B13T10 260	278	196.2
A Mill air coal outlet temp. °C DL B13T20	75	77.9
A Mill diff. draft 560	570	527.8
low T/H DL B13F10	102.2	86.0
A Mill hot air damper open 8 local 28	26	
1	17	
A Mill capacity damper open % local 60	- 67	
> A Mill motor amp.	85	
K	A Company of the Comp	09
· · · · · · · · · · · · · · · · · · ·	The second secon	
B Mill coal feeder flow T/H DL B21F10 48.59	49.27	36.0
B Mill inlet air temp. °C DL B23T10 275	286	174.6
B.Will air coal outlet temp. °C DL B23T20 75	75	78.9
	620	200.0
B Mill primary air flow T/H DL B23F10 103.1	104.9	31,3
B Will hot air damper open % local 36	38	
B Mill cold air damper open 8 local 10	10	
B Mill capacity damper open 8 local 76	92	
B_Mill motor ample 85 85	85	06
B. Mill classifiler open		09
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		

	Item	Unit	Measuring Point			Recording	<u> </u>	B.E.T.	ANN	ANN
	Test Number			E-11	E-13					
	Date			8/11	8/11					
	Time			05:30	11:30					
	C Mill coal fineness	æ					i			
	C Mill coal feeder flow	T/H	DL B31F10	46.93	45.71			37.1		
	C Mill inlet air temp.	ပ	DL B33T10	267	268			174.2		
	C Mill air coal outlet temp.	ပ	DL B33T20	74	75			80.0		
	C Mill differential draft	mnAq	CR indicator	580	580			507.4		
	C Mill primary air flow	T/H	DL B33F10	66	98.6			82.5		31.3
	1	дe	local	46	40					
٠.	C Mill cold air damper open	ъ	local	12	15			62		
	C Mill capacity damper open	σę	local	50	48					
Î	C Mill motor amp.	ď.	CR indicator	85	85			92		
\- 6	C Mill classifier open	go.						09		
8					Service of the service of					
7	D Mill coal fineness	₩								
٠.	D Mill coal feeder flow	T/H	DL B41F10					***		
	D Mill inlet air temp.	၁့	DL B43T10					1		
Ż.	D Mill air coal outlet temp.	၁့	DL B43T20					1		
	D Mill differential draft	mmAq	CR indicator				.,	ì		
	D Mill primary air flow	H/T	DL B43F10					1		31.3
	D Mill hot air damper open	œ	local							
	D Mill cold air damper open	œ	local				. 1	1		
	D Mill capacity damper open	æ	local					3		į
	D Mill motor amp.	Ą	CR indicator					1	ļ	
	D Mill classifier open	æ						1		
				ž .						

ANN ANN																				
B.E.T.																				
Recording	3		08	26	17	67			38	10	76		40	15	48					
h		8/11 8/11	09:30 11:30		18					10			a - 1	12						
Unit Measuring				% local	% local	% local	% local		% local	* local	% local	% local	% local	% local	& local	% local	& local	% local	% local	% local
Item	Test Number	Date	Time	A Mill hot air damper open	A Mill cold air damper open	A Mill capacity damper open	A Mill classifier vane open	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	B Mill hot air damper open	B Mill cold air damper open	B Mill capacity damper open	B Mill classifier vane open	C Mill hot air damper open	C Mill cold air damper open	C Mill capacity damper open	C Mill classifier vane open	D Mill hot air damper open	D Mill cold air damper open	D Mill capacity damper open	D Mill classifier vane open

B.E.T.: Boiler Efficiency Test

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ANN					-																							-	
ANN High				538	538	538	538	538	538	538	538	538	538	602	602	602	602	602	602	602	602	602	602	602	602	602	602	602	602
B.E.T.																													
					:																								
														2.5															
Recording																													
Re	* -							3 3 34							1 2 400						:				1				
	B-13	8/11	11:30	469.5	497.7	532.0	482.2	473.5	482.4	471.1	490.6	473.0	500.7	546.2	523.6	563.5	541.5	541.0	483.1	529.0	516.4	518.3	515.9	535.8	512.0	564.8	535.5	550.2	526.1
	E-11	8/11	08:60	451,5	477.1	530.2	458.8	448.2	458.0	444.4	460.4	450.3	478.7	542.0	521.9	558.9	541.1	540.6	456.5	521.1	510.0	513.1	509.1	535.4	513.9	561.7	536.4	548.6	527.5
Measuring Point					DL ESITII	DL E51T12		DL E51T14		DL ESIT16		DL E51T18	DL ES1T19	DL E61T10	DL E61T11	DL E61T12	DL E61T13	DL E61T14	1	DL E61T16	DL E61T17		DL E61T19	DL E61T20	DL E61T21	DL E61T22		DL E61T24	DL E61T25
Unit				ပ္	ပ	၁့	ပ	၁့	၁့	၁့	၁	ပ	ွ	ပ	ပ	ာ့	ပ	ည	ပ္	၁့	ပ	ပွ	ပ္	ပ	၁့	ညွ	ပ	ပ	၁့
	:			1	~	m	4	īΩ	9	7	ω	<u>ი</u>	10	- -1	2	m	4	5	φ	7	ω,	6	10	11	12	13	14	15	16
				emb.	- dina-	temp.	temp.	temp.	emb.	temp.	temp.	temp.						1											
				etal t	etal t		metal t	1	etal (111	metal t		etal 1	temp	temp.	temp.	temp.	temp.	temp.	temp.	temp.	temp.	temp.	temp.	temp.	temp.	temp.	temp.	temp.
Item				tube metal temp.	out tube metal temp	out tube metal	tube m	tube metal	out tube metal temp.	tube metal	tube m	out tube metal	m eqn			Ι.				metal	netal	tube metal temp.	metal	metal temp.	metal	Ε.	1	metal	metal
	er			wall out t			out	out		out	out			Final SH tube metal	tube metal	tube metal	SH tube metal	tube metal	tube metal	tube n	tube metal	tube 1	tube 1	tube 1	tube 1	1.	tube 1	tube 1	tube n
	Test Number				wall	wall	wall	wall	Div. wall	-wall	wa11	wall	wall	1 SH	SH	SH		SH	SH	SH	SH	SH	HS	ES	SH	RS	SH	SH	SH
	Test	Date	Time	Div.	Div.	Div.	Div	Div.	Div.	Div.	Div.	Div.		Fina	Final	Final	Final	Final	Final	Final	Final	Final	Final	Final	Final	Final	Final	Final	Final

(IV-1)

ANN																
ANN High																
в.Е.Т.																
Recording	The state of the s					((
		1 E-13	1 8/11	09:30 11:30	1,200 1,210	1,250 1,240	1,300 1,275	1,120 1,140	1,125 1,120	310'I 066	1,000 1,000	066	1,010 1,020	5 1,015	1,010 1,010	
Measuring Point		田-11	8/11	£:60	local 1,20	local 1,25	local 1,30	local 1,12	local 1,12	local 99	local 1,00	local 1,01	local 1,01	local 1,005	local 1,01	
Unit					ပ္	ນຸ	ပ	ပ္	ပ	ပ	ပ	၁့	ာ့	၁့	ပွ	
Item		Test Number	Date	Time	7F Mezz. Front Right 2nd Port	7F Mezz. Front Center Port	7F Mezz. Front Left 2nd Port	8F Left near S/B 6-L	8F Right near S/B 6-R	8F Rear Left 2nd Port	9F Left near S/B 4-L	9F Right near S/B 4-R	9F Front Left 2nd Port	9F Front Center Port	9F Front Right 2nd Port	

								(IV-2)
Item	Unit	Measuring Point			Recording	B.E.T.	r. High	ANN
Test Number			E-11	E-13				
Date			8/11	8/11				
Time			09:30	11:30				
			1					
A-1 Air resistor open		local	5.0	5.0				
A-2 Air resistor open		local	5.2	4.8				
A-3 Air resistor open		local	4.0	4.0				
A-4 Air resistor open		local	3.9	3.9				
B-1 Air resistor open		local	5.0	5.0				
B-2 Air resistor open		local	4.3	4.5				
B-3 Air resistor open		local	4.5	4.3				
B-4 Air resistor open		local	5.0	5.0				
C-1 Air resistor open		local	5.1	4.9				
C-2 Air resistor open		local	5.1	4.9				
		local	5.2	5.1				
C-4 Air resistor open		local	4.0	4.0				
• •		local	2.5	2.5				
D-2 Air resistor open		local	0.5	0.5	And the second of the second o			
D-3 Air resistor open		local	0.5	0.5				
D-4 Air resistor open		local	1.0	1.0	the second se			
Airport damper open (Right)	jht)	local	25	25				
Airport damper open (Le	(Left)	local	25	25				

Item	Unit	Measuring Point			Recording	B.E.T. B.	ANN ANN High Low
Test Number			E-11	E-13			
Date			8/11	8/11			
Time			09:30	11:30			A Commence of the Commence of
Burner Barrel A-1	၁ွ	- 7.1	296.0	305.0		4	400
Burner Barrel A-1	၁့		205.0			4	400
Burner Barrel A-1	ပ္စ		288.2	296.8		7	400
Burner Barrel A-1	ູ	DL B60T13	277.3	285.2		4	400
Burner Barrel A-2	ນຸ		299.5	308.3		7	400
Burner Barrel A-2	၁့	DI B60T21	232.0	240.1		7	400
Burner Barrel A-2	၁့		255,7	263.4		7	400
Burner Barrel A-2	ပ္စ		277.1	285.4		4	400
	ပ္စ		262.2	271.8	And the second s	6	400
Barrel	ນ	DL B60T31	227.5	236.6		7	400
Burner Barrel A-3	ပ္		284.3	293.4		4	400
Burner Barrel	ပ		290.5	300.2		7 Aug 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	400
6 Burner Barrel A-4	ပ		294.6	303.7		7	400
Burner Barrel	၁့	DL B60T41	174.1	179.8		4	400
Burner Barrel A-4	၁		286.2	295.8		4	001
Barrel	၁့		299.3	309.0		7	400
1	၁့		248.1	258.5		7	400
Burner Barrel B-1	၁့		262.6	272.0		7	400
1	ပ္		296.0	305.8		4	400
Burner Barrel B-1	Ö °		273.0	282.4		4	400
Barrel	ပ		269.8	280.4		7	400
Barrel	ນ		232.0	240.0		4	400
Barrel	ပ		294.7	305.5		4	400
Barrel	ပို		271.5	282.1		4	400
Barrel	ပို		267.3	279.0		4	400
Barrel	ပ	1 '	214.6	223.7		7	400
Barrel	၁့		286.2	297.4		Ď	400
Barrel	ပ		271.0	282.7		4	400
1 .	ပ	DL B61T40	260.1	271.3		9	400
1 .	၁္စ		254.0	264.3		4	400
Burner Barrel B-4	၁့	DL B61T42	276.6	288.3		7	400
Burner Barrel B-4	ວຸ	DL B61T43	277.0	287.8		7	400

B.E.T.: Boiler Efficiency Test

Item	Unit	Measuring Point			Recording	B.E.T.	ANN	ANN
Test Number			11	-11				
Date			8/11	8/11				
Time			09:30	11:30				
Burner Barrel C-1	ာ ့	DL B62T10	272.9	282.1	The second of th		400	÷
Burner Barrel C-1	၁့		265.9	275.3			400	
Burner Barrel C-1	၁့		276.5	1 •			400	
Burner Barrel C-1	ວ。	DL B62T13	267.5				400	
Burner Barrel C-2	ວ。	DL B62T20	296.0	305.7			400	
Burner Barrel C-2	၁့	DL B62T21	239.6	248.8			400	
Burner Barrel C-2	ပ ်	DL B62T22	282.8	293,2			400	
Burner Barrel C-2	၁.	DL B62T23	314.3	323,2			400	
Burner Barrel C-3	ာ ့	DL B62T30	56.9	57.2			400	
Burner Barrel C-3	ນຸ	DL B62T31	67.1	67.6			400	
	ပ	DL B62T32	305.6	316.0			400	
Burner Barrel C-3	υ°.		256.3	266.1			400	
	၁ _°	DL B62T40	273.2	282.9			400	
. !	ာ		268.2	279.1			400	
	၁့		278.2	288.3			400	
Burner Barrel C-4	၁့		291.7	302.0			400	:
	၁.	DL B63T10	348.1	355.6			400	
Burner Barrel D-1	၁့		313.4	322.4			400	
Barrel	၁့		353.8				400	
Burner Barrel D-1	၁့	DL B63T13	359.3				400	
Burner Barrel D-2	၁့		. • 1			the state of the state of	400	
Barrel	၁့						400	
Barrel	၁့	5.1	379.4	385.0		the state of the s	400	
Barrel	၁့		358.9	364.4			400	
Burner Barrel D-3	၁့	DL B63T30	A			and a second of the second	400	
Burner Barrel D-3	ນຸ		299.9	308.8		e de la marca de estado de la casa de la cas	400	A second of the second
Burner Barrel D-3	၁့		331.0	340.3			400	
Burner Barrel D-3	၁့	DL B63T33		369.8		All the said of the said of the	400	A CONTRACTOR
Burner Barrel D-4	၁့		347.2	355.1	Asserting the Comment of the Comment		400	and the state of
Burner Barrel D-4	၁့	DL B63T41	302.9	311.6			400	
Burner Barrel D-4	၁ ့			366.1			400	
	ပ	DL B63T43	349.9	357.5		A Committee of the Comm	400	

サード スペーコーロッ コード・ア・ロコング コロルナ

B.E.T.: Boiler Efficiency Test

Test Number Date Time Coal blend ratio (S/A) Generator load Main steam flow Feed water flow SH spray flow Drum level Drum level Drum pressure Turbine inlet steam press. Final SH outlet temperature RH outlet temperature Eco. inlet feedwater temp. A Hot primary air flow B Hot primary air flow A Tempering air flow	Unit T/H T/H T/H mm kg/cm² kg/cm² cc cc cc r/H T/H T/H T/H	Measuring Point Point DI Q20WIO DI G21HIO DI E15FIO DI E20LIO DI E20FIO DI E20FIO DI E20FIO DI E74TIO DI E74TIO DI E74TIO DI E47FIO DI A42FIO DI A42FIO DI A42FIO	D-6 8/15 09:30 218.9 629 629 629 629 174.7 167.6 538.0 538.0 538.0 535.3 172 172 172 172	D-8 8/15 11:30 218.0 682 64.1 -1.1 -1.1 173.6 166.8 541.9 256.1	Calaca Unit i Boiler D-8 8/15 11:30 218:0 682 64:1 -1:1 173.6 166.8 541.9 256:1 159	B.E.T. High 300 913.3 881.5 56.4 -11.7 127 187.2 200 171 542.5 541.6	(I-1) (I-1) (I-1) (I-1)
1 1 1	1/H T/H	2 W W	22 244	2566			
flow	卫/用 卫/用	DL A52F10 DL A60G10 DI A80C10	268 876 3 09	287 895 3 59		L L	88 2 94
Boiler exit gas O ₂ (A) Boiler exit gas O ₂ (B) Total fuel flow	* * H/T	DL ABOCLO DL ABOC20 DL BIOG10A	3.09	3.59 123.05		3.22 5.8	7 7
isch di	mmAq mmAq mmAq	DL A12F10 DL A16F10 DL A70F10	1	51.2 49.0 7.6		233.7 231.1 114.3	
Furnace draft	mmAq	DL ASUFIO	-13.L	ر د د		5.02-	

Combustion Test of Calaca Unit I Boiler

Item	Unit	Measuring Point			Recording	B.E.T.	ANN ANN High Low
Test Number			D-6	Ω−8			
Date			8/15	8/15			
Time			08:30	11:30			
A Lower Eco outlet draft	mmAq		-71.1	-67.9	****	46-	
B Lower Eco outlet draft	mmAq	DL E10F20	-69.7	-68.3		96.5	
A AH gas side diff. press.	mmAq	DL A53D10	83.1	95.6		119.4	
side diff.	mmAg		82.0	93.2		114.3	
Primary air press.	mmAq		1,468	1,486		1,496.2	
A IDF inlet draft	mmAq		-210.6	-229.9		-297.2	
B IDF inlet draft	mmAg		-208.7	-227.4		-294.6	
A AH inlet air temp.	ာ့		36.9	36.9		35.1	
B AH inlet air temp.	၁		38.I	37.3		33.9	
A AH outlet air temp.	్పి	DL A52T20	305.3	311:6		338.3	
B AH	၁		301.0	308.3		337.4	
A AH inlet gas temp.	ູນ		333.2	342.4		365.4	
B AH inlet	ပ	DL AS7T10	326.7	337.7		367.9	
A AH outlet gas temp.	၁့			132.1		147.4	
B AH outlet gas temp.	ည္ပ	DL A57T20	137.8	138.9		150.3	
A Precip outlet gas temp.	ာ့	DL C10110	127.5	128.3		143.6	
B Precip outlet gas temp.	၁.	DL C10120	132.4	132,5		144.4	
	A	CR indicator	220	220		236	
B IDF motor amp.	Ą	CR indicator	218	218		230	
A FDF motor amp.	Ą	CR indicator	72	72		85	
B FDF motor amp.	A	CR indicator	70	72		98	
A Pri. air fan motor amp.	Ą	CR indicator	238	238		183	
fan motor	Ą	CR indicator	238	238		196	
inlet vane oper	οjo	CR controller	9	61		20	
B IDF inlet vane open	œ	CR controller	99	68		73	
vane	æ	CR controller	47	47		74	
B FDF inlet vane open	æ	CR controller	44	49		70	
SH pass damper open	φo	CR controller	57	89		74	
RH pass damper open	æ	CR controller	71	50		75	
Pri. air capacíty damper open	æ	Ö	96.93	96.94			
O analysis by Orsat (A)	œ						
O analysis by Orsat (B)	æ						
Ы							

Item	Unit	Measuring Point			Recording	B.E.T.	ANN High	ANN
			4	¢				
Test Number			9 - 0	אורט				
Date			8/15	8/15				
Time			08:30	11:30				
A Mill coal fineness	œ							
A Mill coal feeder flow	T/H	DL BIIFIO	33.65	33.82		36.7		
A Mill inlet air temp.	1.0	DL B13T10	284	293		196.2		
A Mill air coal outlet temp.	ပွ	DL BI3T20	77	79		77.9		
A Mill diff. draft	mmAg	CR indicator	480	480		527.8		
A Mill primary air flow	T/H	DL B13F10	92.3	93.9		0*98		31.3
A Mill hot air damper open	дo	local	62	55				
A Mill cold air damper open	œ	local	ហ	8				
A Mill capacity damper open	æ	local	43	43				
> A Mill motor amp.	A	CR indicator	70	70		86		
A Mill classifier open	6 %					09		
97								
B Mill coal fineness	%							
B Mill coal feeder flow	H/T	DL B21F10	43.44	43.63		36.0		
B Mill inlet air temp.	ပ	DL B23T10	277	284		174.6		
B Mill air coal outlet temp.	၁	DL B23T20	89	69		78.9		
B Mill differential draft	mmAq	CR indicator	580	009		500.0		
B Mill primary air flow	T/H	DL B23F10	92.8	98.8		86.7		31.3
1	дp	local	96	96				
B Mill cold air damper open	8	local	2	2		40		
	œ	local	58	58				
B Mill motor amp.	Ą	CR indicator	65	75		06		
B Mill classifier open	æ					9		
	í	-						

Item	Unit	Measuring Point			Recording		B. E. T.	r. ANN High	ANN
Test Number			9-0	D-8					
Date			8/12	8/15					
Time			08:60	11:30					
C Mill coal fineness	0∜0	•					٠		٠.
C Mill coal feeder flow	T/H	DL B31F10	45.56	45.58			37.1	1.	
C Mill inlet air temp.	၁့	DL B33T10	264	270			174.2	2	
1	၁့	DL B33T20	99	67			80.0	0.	
C Mill differential draft	mmAq	CR indicator	909	009			507.4	.4	
C Mill primary air flow	T/H	DL B33F10	111.8	111.7			82.5	5	31.3
C Mill hot air damper open	&	local	100	98					
C Mill cold air damper open	æ	local	2	ഹ				62	
C Mill capacity damper open	æ	local	63	45					
C Mill motor amp.	1.	CR indicator	65	75				92	
6 C Will classifier open	æ							60	
-98									
D Mill coal fineness	8								
D.Mill.coal feeder flow	T/H	DL B41F10				:		ı	
D Will inlet air temp.	၁့	DL B43T10							
D Mill air coal outlet temp.	ာ့	DL B43T20						1	
D Mill differential draft	mmAq (CR indicator						1	
D Mill primary air flow	T/H	DL B43F10						1	31.3
D Will hot air damper open	8	local						-	
D-Mill cold air damper open	8	local						***	
D Mill capacity damper open	æ	local						1	
D Mill motor amp.) Y	CR indicator						1	
D Mill classifier open	υp							•	

B.E.T.: Boiler Efficiency Test

•															
•	Item			Unit	æ.	Measuring Point			Rec	Recording		B	B.E.T.	ANN High	ANN
		-					-								
•	Test Number						9-0	0-8 0-8							
	Date						8/15	8/15							
	Time					-	08:60	11:30							
		,				i.									
	Div. wall out tube metal	1 temp.	[1	ပ	ы	DL ESITIO	438.9	457.8	-					538	
	Div. wall out tube metal	il temp.	2	ပ	ı	DL ESITI1	464.8	1 .						538	
	Div. wall out tube metal	il temp.	<u>س</u>	ပ္	ם	3	516.9	532.5						538	
	Div. wall out tube metal		4	ပ		DL ESITIS	450.8	1						538	
	Div. wall out tube metal	1 temp.	เก	ပ)L E51T14	449.5	467.9						538	
	Div. wall out tube metal	11 temp.	φ	ပွ		L ESITIS	466.0	482.3						538	
	Div: wall out tube metal	2.35	7	ပ	ņ		459.4	477.6						538	
	Div. wall out tube metal	J	ω	ပ	, 1 1	DL ESITI7	473.0	487.9						538	
A	Div. wall out	•	ြက	ပ	1-4		463.4	479.9						538	
\ -6	Div: wall out	1 temp.	10	ပ		DL ESITI9		١.						538	
-1(Final SH tube metal temp:	ďυ	П	ပွ	1	N E61T10	534.3	549.8						602	
00	Final SH tube metal temp.	đu	~	ပ	1	DL E61T11	513.4	527.8						602	
	Final SH tube metal temp.	ວຸ	m	ပ		DL EGIT12	551.4							602	
	SH tube metal	ď.	4	၁့	F-7		530.3	543.7						602	
	Final SH tube metal temp.	- du	5	ပ			525.6	543.0			The same of the sa			602	
:	Final SH tube metal temp.	-du	ြဖ	ပ		DL EGITIS	438.7	458,3						602	
	Final SH tube metal temp.	- du	_	ပွ	"	DL EGITIG	523.9	536,4						602	
	Final SH tube metal temp.	යා	8	ပ	1		509.2	523.1						602	
	Final SH tube metal temp.	-du	<u>ი</u>	ပ	I		529.3	523.1						602	
	SH tube metal	· du	10	ပ	-		516.7	513.7						602	
	Final SH tube metal temp.	đu	11	ပ	I		535.4	530.6						209	
	Final SH tube metal tem	temp	12	ပ	ř.		514.6	209.7						602	
	Final SH tube metal temp.	.du	13	ပ		DL EGIT22	556.1	556.8						602	
	Final SH tube metal temp.	-du	₽	ပ္	T.	DL E61T23	530.3	528.7						602	
	1.00	-du	15	ပ္ပ		DL EGLT24	547.4	546.5						602	
	Final SH tube metal temp.	- du	16	၁့	Ī		524.4	521.9						602	:
												:			

B.E.T.: Boiler Efficiency Test

					-							-													
(III-2)	T. High Low				599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	
	B.E.																								
	Recording																								
			715 8/15		7.2 505.0	5 487.4	.0 585.7	.8 566.9	.7 536.4	.5 534.3	.4 490.0	.4 469.3	7.0 503.1		.1 527.5		.3 516.7		.5 530.8	.8 555.2	1	1		.4 540.7	
	Measuring Point		u 8/8	:60	DL E71710 457	DL E71T11 480.5	DL E71T12 576.0	DL E71113 556	DL E71T14 526.7	DL E71T15 522		DL E71T17 463.4	DL E71T18 497	DL E71T19 474.2	DL E71T20 526		E71T22	DL E71T23 507	DL E71T24 523	DL E71T25 545.8	DL E71T26 603	E71T27	DL E71T28 566.2	DL E71T29 532	
	Unit				ာ ျ	ı o.	ာ ၁	. ວໍ	. ວູ	ر ا	ာ့ ၁	ာ ပ	ນ ວ.	I ວູ	၁့	၁့	၁ ့	r U	ည	ပ	ر ک ا	၁့	၁့	၁့	
					p. 1	p. 2	p. 3	p. 4	5		-d	8	6	p. 10	p. 11	p. 12	p. 13	p. 14	p. 15		p. 17	p. 18	p. 19	p. 20	
	Item		Der		tube metal temp.	out tube metal temp.	tube metal temp.	tube metal temp.	ube metal temp.	ube metal temp.	RH out tube metal temp.	out tube metal temp.	out tube metal temp.	RH out tube metal temp.	tube metal temp.	tube metal temp.	, ,	tube metal temp.							
		- F	Test Number Date	Time	RH out th	RH out to	RH out th	RH out to	RH out to	RH out to	RH out th	RH out th	RH out th	RH out	RH out tube	- RH out tube	!	RH out to	RH out to	RH out th	RH out ti	RH out th	RH out-th	RH out ti	

Item	Unit	Measuring Point			Recording		B.E.T.	ANN	ANN
Test Number			9-0	D-8		٠			
Date			8/15	8/15]
Time			05:60	09:30 11:30					
£	Ć		7	7					
/F Mezz. Front Kignt and Fort	ر	TOCAT	TITAC	1,180 1,210	:				
7F Mezz. Front Center Port	၁ ့	local	1,190	1,200					
7F Mezz. Front Left 2nd Port	ပ	local	1,170	1,170					
8F Left near S/B 6-L	ပ	local	1,040	1,060					
8F Right near S/B 6-R	ပ	local	1,060	1,060					
8F Rear Left 2nd Port	ပ္	local	915	935					
9F Left near S/B 4-L	၁့	local	965	086					
9F Right near S/B 4-R	၁့	local	970	985					
9F Front Left 2nd Port	υ O	local	965	985					
9F Front Center Port	ۍ - °C	local	9.40	086				-	
9F Front Right 2nd Port	၁့	local	970	995			The second secon	7.1	

D=6 D=6 D=6		High Low
8/15 A-1		
A-1 °C DL B60T10 268.7 A-1 °C DL B60T11 179.3 A-1 °C DL B60T12 262.4 A-1 °C DL B60T13 253.3 A-1 °C DL B60T20 276.7 A-2 °C DL B60T21 206.0 A-2 °C DL B60T21 206.0 A-3 °C DL B60T21 206.0 A-3 °C DL B60T21 206.0 A-3 °C DL B60T21 206.0 A-4 °C DL B60T23 253.1 A-3 °C DL B60T32 261.5 A-4 °C DL B60T31 201.2 A-4 °C DL B60T31 201.2 A-4 °C DL B60T31 201.2 A-4 °C DL B60T41 262.6 B-1 °C DL B60T42 270.2 B-1 °C DL B61T12 270.3 B-2 °C DL		
A-1 °C DL B60T10 268.7 A-1 °C DL B60T11 179.3 A-1 °C DL B60T12 262.4 A-1 °C DL B60T13 253.3 A-2 °C DL B60T20 276.7 A-2 °C DL B60T21 206.0 A-3 °C DL B60T22 236.4 A-3 °C DL B60T22 236.4 A-3 °C DL B60T22 236.4 A-3 °C DL B60T32 253.1 A-4 °C DL B60T3 271.5 A-4 °C DL B60T3 272.6 A-4 °C DL B60T3 272.6 A-4 °C DL B60T4 272.6 A-4 °C DL B60T4 272.6 A-4 °C DL B60T4 272.6 B-1 °C DL B60T4 272.6 B-1 °C DL B60T4 272.6 B-2 °C DL B61T1 </td <td></td> <td></td>		
A-1 °C DL B60TIU 268.7 A-1 °C DL B60TII 179.3 A-1 °C DL B60TII 262.4 A-2 °C DL B60TII 253.3 A-2 °C DL B60TII 266.0 A-3 °C DL B60TII 266.0 A-3 °C DL B60TII 267.0 A-4 °C DL B60TII 25.0 B-1 °C DL B60TII 25.0 B-1 °C DL B61TII 25.0 B-2 °C DL B61TII 25.0 B-3 °C DL B61TII 245.9 B-3 °C DL B61		
A-I	400	0
A-1 °C DL B60T12 262.4 A-1 °C DL B60T13 253.3 A-2 °C DL B60T20 276.7 A-2 °C DL B60T21 206.0 A-2 °C DL B60T22 236.4 A-2 °C DL B60T22 236.4 A-3 °C DL B60T23 253.1 A-3 °C DL B60T31 201.2 A-3 °C DL B60T31 201.2 A-3 °C DL B60T31 267.0 A-4 °C DL B60T41 156.6 A-4 °C DL B60T42 270.2 A-4 °C DL B60T41 270.2 A-4 °C DL B60T41 270.2 B-1 °C DL B61T11 25.4 B-1 °C DL B61T11 25.4 B-2 °C DL B61T21 242.3 B-3 °C DL B61T21 245.6 B-3 °C DL B	400	Q
A-1 °C DL B60T13 253.3 A-2 °C DL B60T20 276.7 A-2 °C DL B60T21 206.0 A-2 °C DL B60T22 236.4 A-3 °C DL B60T32 253.1 A-3 °C DL B60T32 253.1 A-3 °C DL B60T31 201.2 A-3 °C DL B60T31 201.2 A-3 °C DL B60T31 201.2 A-4 °C DL B60T32 267.0 A-4 °C DL B60T41 156.6 A-4 °C DL B60T42 278.0 A-4 °C DL B60T41 156.6 A-4 °C DL B60T41 156.6 A-4 °C DL B60T42 279.4 B-1 °C DL B60T41 252.6 B-1 °C DL B61T21 252.6 B-2 °C DL B61T21 242.3 B-3 °C DL	400	.01
A-2 °C DL B60T20 276.7 A-2 °C DL B60T21 206.0 A-2 °C DL B60T22 236.4 A-2 °C DL B60T32 253.1 A-3 °C DL B60T32 253.1 A-3 °C DL B60T31 201.2 A-3 °C DL B60T32 267.0 A-4 °C DL B60T32 267.0 A-4 °C DL B60T41 156.6 A-4 °C DL B60T41 156.6 A-4 °C DL B60T41 156.6 A-4 °C DL B60T42 270.2 A-4 °C DL B60T41 156.6 A-4 °C DL B60T41 156.6 B-1 °C DL B61T12 262.6 B-1 °C DL B61T21 270.9 B-2 °C DL B61T21 270.9 B-3 °C DL B61T31 269.4 B-3 °C DL	400	0.
A-2 °C DL B60T21 206.0 A-2 °C DL B60T22 236.4 A-2 °C DL B60T31 241.5 A-3 °C DL B60T31 201.2 A-3 °C DL B60T31 201.2 A-3 °C DL B60T31 201.2 A-4 °C DL B60T31 201.2 A-4 °C DL B60T41 156.6 A-4 °C DL B61T10 215.4 B-1 °C DL B61T11 225.4 B-1 °C DL B61T20 244.4 B-2 °C DL B61T21 195.4 B-3 °C DL B61T31 182.4 B-4 °C DL	400	2
A-2 °C DL B60T22 236.4 A-3 °C DL B60T33 253.1 A-3 °C DL B60T31 241.5 A-3 °C DL B60T31 201.2 A-3 °C DL B60T32 267.0 A-4 °C DL B60T32 267.0 A-4 °C DL B60T32 272.6 A-4 °C DL B60T33 272.6 A-4 °C DL B60T41 278.0 A-4 °C DL B60T41 278.4 B-1 °C DL B60T41 278.4 B-1 °C DL B61T11 225.4 B-1 °C DL B61T11 225.4 B-1 °C DL B61T12 242.3 B-2 °C DL B61T21 243.4 B-3 °C DL B61T21 245.6 B-3 °C DL B61T31 245.6 B-3 °C DL B61T32 245.9 B-4 °C DL	400	0(
A-2 °C DL B60T23 253.1 A-3 °C DL B60T31 241.5 A-3 °C DL B60T31 201.2 A-3 °C DL B60T32 267.0 A-4 °C DL B60T33 272.6 A-4 °C DL B60T41 272.6 A-4 °C DL B60T41 273.4 B-1 °C DL B61T11 225.4 B-1 °C DL B61T11 225.4 B-1 °C DL B61T12 242.3 B-2 °C DL B61T21 195.4 B-3 °C DL B61T21 185.4 B-3 °C DL B61T31 182.4 B-3 °C DL B61T31 243.9 B-4 °C DL B61T31 250.7 B-4 °C DL	400	01
A-3 °C DL B60T30 241.5 A-3 °C DL B60T31 201.2 A-3 °C DL B60T32 267.0 A-4 °C DL B60T40 278.0 A-4 °C DL B60T41 156.6 A-4 °C DL B60T41 156.6 A-4 °C DL B60T42 278.0 A-4 °C DL B60T41 156.6 A-4 °C DL B60T41 156.6 B-1 °C DL B60T41 279.4 B-1 °C DL B61T11 225.4 B-1 °C DL B61T12 242.3 B-1 °C DL B61T12 243.4 B-2 °C DL B61T21 195.4 B-3 °C DL B61T22 270.9 B-3 °C DL B61T31 182.4 B-3 °C DL B61T32 245.6 B-4 °C DL B61T31 269.4 B-4 °C DL	400	0
A-3 °C DL B60T31 201.2 A-3 °C DL B60T32 267.0 A-4 °C DL B60T40 278.0 A-4 °C DL B60T41 156.6 A-4 °C DL B60T42 278.0 A-4 °C DL B60T41 156.6 A-4 °C DL B60T42 270.2 A-4 °C DL B60T42 270.2 A-4 °C DL B60T42 270.2 B-1 °C DL B61T11 225.4 B-1 °C DL B61T12 262.6 B-1 °C DL B61T12 243.4 B-2 °C DL B61T21 195.4 B-3 °C DL B61T22 270.9 B-3 °C DL B61T31 182.4 B-3 °C DL B61T32 245.6 B-3 °C DL B61T32 243.9 B-4 °C DL B61T33 243.9 B-4 °C DL B61T41 220.7 B-4 °C DL B61T41 220.7	400	0,
A-3 °C DL B60T32 267.0 A-4 °C DL B60T40 272.6 A-4 °C DL B60T41 156.6 A-4 °C DL B60T41 156.6 A-4 °C DL B60T42 270.2 A-4 °C DL B60T41 156.6 B-1 °C DL B60T42 270.2 B-1 °C DL B60T42 270.2 B-1 °C DL B61T10 215.3 B-1 °C DL B61T12 262.6 B-1 °C DL B61T12 242.3 B-2 °C DL B61T20 244.4 B-2 °C DL B61T21 195.4 B-3 °C DL B61T21 195.4 B-3 °C DL B61T21 245.6 B-3 °C DL B61T31 182.4 B-3 °C DL B61T31 245.9 B-4 °C DL B61T32 243.9 B-4 °C DL B61T31 231.7 B-4 °C DL B61T41 231.7	400	Q.
A-4 °C DL B60T40 272.6 A-4 °C DL B60T41 156.6 A-4 °C DL B60T41 156.6 A-4 °C DL B60T41 156.6 A-4 °C DL B60T42 270.2 A-4 °C DL B60T42 270.2 B-1 °C DL B60T43 279.4 B-1 °C DL B61T11 225.4 B-1 °C DL B61T12 262.6 B-1 °C DL B61T13 242.3 B-2 °C DL B61T21 195.4 B-3 °C DL B61T21 245.6 B-3 °C DL B61T23 245.6 B-3 °C DL B61T31 182.4 B-3 °C DL B61T31 269.4 B-4 °C DL B61T32 245.9 B-4 °C DL B61T31 245.9 B-4 °C DL B61T31 231.7 B-4 °C DL B61T41 220.7 B-4 °C DL B61T41 231.7	400	0,
A-4 A-4 A-4 C DL B60T41 156.6 A-4 A-4 C DL B60T42 270.2 A-4 C DL B60T42 270.2 B-1 B-1 C DL B61T10 215.3 B-1 C DL B61T11 225.4 B-2 C DL B61T12 262.6 B-2 C DL B61T12 262.6 B-2 C DL B61T12 262.6 B-2 C DL B61T21 195.4 B-2 C DL B61T21 195.4 B-2 C DL B61T21 195.4 B-3 C DL B61T22 245.6 B-3 C DL B61T32 245.6 B-3 C DL B61T32 245.6 B-3 C DL B61T32 245.8 B-3 C DL B61T31 182.4 B-3 C DL B61T32 245.8 B-3 C DL B61T31 245.8 B-4 C DL B61T31 245.8 B-3 C DL B61T31 245.8 B-4 C DL B61T31 245.8	400	0,
A-4 °C DL B60T41 156.6 A-4 °C DL B60T42 270.2 A-4 °C DL B60T43 279.4 B-1 °C DL B61T10 215.3 B-1 °C DL B61T11 225.4 B-1 °C DL B61T12 262.6 B-2 °C DL B61T21 245.4 B-2 °C DL B61T21 195.4 B-2 °C DL B61T21 245.6 B-3 °C DL B61T22 245.6 B-3 °C DL B61T32 245.9 B-4 °C DL B61T41 220.7 B-4 °C DL	4C	400
A-4 °C DL B60T42 270.2 A-4 °C DL B60T43 279.4 B-1 °C DL B61T10 215.3 B-1 °C DL B61T11 225.4 B-1 °C DL B61T12 242.3 B-2 °C DL B61T21 242.3 B-2 °C DL B61T21 195.4 B-2 °C DL B61T21 195.4 B-3 °C DL B61T21 245.6 B-3 °C DL B61T32 245.6 B-3 °C DL B61T32 245.6 B-3 °C DL B61T32 269.4 B-3 °C DL B61T32 245.9 B-4 °C DL B61T32 245.9 B-4 °C DL B61T32 243.9 B-4 °C DL B61T40 231.7 B-4 °C DL B61T41 220.7	36	400
A-4 °C DI B60T43 279.4 B-1 °C DI B61T10 215.3 B-1 °C DI B61T12 262.6 B-1 °C DI B61T12 262.6 B-1 °C DI B61T12 242.3 B-2 °C DI B61T21 195.4 B-2 °C DI B61T21 195.4 B-2 °C DI B61T22 270.9 B-3 °C DI B61T22 270.9 B-3 °C DI B61T31 185.4 B-3 °C DI B61T32 245.6 B-3 °C DI B61T32 245.9 B-4 °C DI B61T32 243.9 B-4 °C DI B61T33 243.9 B-4 °C DI B61T41 231.7 B-4 °C DI B61T41 220.7	A	0(
B-1 °C DL B61T11 225.4 B-1 °C DL B61T12 262.6 B-1 °C DL B61T12 262.6 B-1 °C DL B61T13 243.3 B-2 °C DL B61T20 244.4 B-2 °C DL B61T21 195.4 B-2 °C DL B61T22 270.9 B-3 °C DL B61T22 245.6 B-3 °C DL B61T31 182.4 B-3 °C DL B61T31 269.4 B-3 °C DL B61T32 243.9 B-4 °C DL B61T33 243.9 B-4 °C DL B61T31 231.7 B-4 °C DL B61T41 220.7	4(400
B-1 °C DL B61T11 225.4 B-1 °C DL B61T12 262.6 B-1 °C DL B61T12 242.3 B-2 °C DL B61T20 244.4 B-2 °C DL B61T21 195.4 B-2 °C DL B61T21 245.6 B-3 °C DL B61T22 245.6 B-3 °C DL B61T31 182.4 B-3 °C DL B61T31 182.4 B-3 °C DL B61T32 269.4 B-4 °C DL B61T33 243.9 B-4 °C DL B61T31 243.9 B-4 °C DL B61T41 231.7	4(400
B-1 °C DL B61T12 262.6 B-1 °C DL B61T13 242.3 B-2 °C DL B61T20 244.4 B-2 °C DL B61T21 195.4 B-2 °C DL B61T21 245.6 B-3 °C DL B61T22 245.6 B-3 °C DL B61T31 182.4 B-3 °C DL B61T31 269.4 B-3 °C DL B61T32 269.4 B-4 °C DL B61T33 243.9 B-4 °C DL B61T31 231.7 B-4 °C DL B61T41 220.7)7	400
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B-2 °C DL B61T21 195.4 B-2 °C DL B61T21 195.4 B-2 °C DL B61T22 270.9 B-3 °C DL B61T23 245.6 B-3 °C DL B61T31 246.8 B-3 °C DL B61T32 269.4 B-3 °C DL B61T32 243.9 B-4 °C DL B61T32 243.9 B-4 °C DL B61T40 231.7 B-4 °C DL B61T40 231.7	7	400
B-2 °C DL B61T21 195.4 B-2 °C DL B61T22 270.9 B-3 °C DL B61T33 245.6 B-3 °C DL B61T31 182.4 B-3 °C DL B61T32 269.4 B-3 °C DL B61T32 243.9 B-4 °C DL B61T32 243.9 B-4 °C DL B61T31 243.9 B-4 °C DL B61T40 231.7 B-4 °C DL B61T41 220.7)	400
B-2 °C DL B61T22 270.9 B-3 °C DL B61T33 246.8 B-3 °C DL B61T31 182.4 B-3 °C DL B61T31 269.4 B-3 °C DL B61T32 243.9 B-4 °C DL B61T33 243.9 B-4 °C DL B61T40 231.7 B-4 °C DL B61T41 220.7)	400
B-2 °C DL B61T23 245.6 B-3 °C DL B61T30 246.8 B-3 °C DL B61T31 182.4 B-3 °C DL B61T31 269.4 B-3 °C DL B61T32 263.9 B-4 °C DL B61T32 243.9 B-4 °C DL B61T40 231.7	<u>ን</u>	400
B-3 °C DL B61T31 246.8 B-3 °C DL B61T32 269.4 B-3 °C DL B61T32 243.9 B-3 °C DL B61T33 243.9 B-4 °C DL B61T40 231.7 B-4 °C DL B61T40 231.7	7	400
B-3 °C DE B61T31 182.4 B-3 °C DE B61T32 269.4 B-3 °C DE B61T33 243.9 B-4 °C DE B61T40 231.7 B-4 °C DE B61T41 220.7	7(400
B-3 °C DL B61T32 269:4 B-3 °C DL B61T33 243:9 B-4 °C DL B61T40 231.7 B-4 °C DT B61T40 231.7	A CONTRACTOR OF THE STATE OF TH	400
B-4 °C DI B61133 243;9 B-4 °C DI B61140 231.7 B-4 °C DI B61141 220.7	18 . The second	400
B-4 °C DI B61T40 231.7) 7 - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 1	400
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 | 285.7 | 232.4 | 246.2 | 243.5 | 255.0 | 269.3 | 323.7 | 289.1 | 334.3 | 339.8 | 336.8 | 277.1 | 357.9 | 334.5 | 339.2 | 275.1
 | 356.8 | 340.5 | 333.9 | 287.9 | 345.0 | 331.3
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ANNEX - 7

Analytical Instruments for Fuel, Environment and Water

Analytical Instruments for the Fuel Laboratory

1. Existing Instrument

(1)	Redwood No. 1 Type Viscometer	RW-11E	Yoshida Kagaku
(2)	Flash Point Tester, Pensky	1.2	Market and the second of the second
1000	Martens	PMF-EM	Yoshida Kagaku
i de la	Cleveland Open Cup	COC-E	Yoshida Kagaku
(3)	Centrifugal Separator	H-210A	Kokusan Enshinki
			Co., Ltd.
(4)	Muttle Furnace	IMK-A	Ishizuka Denki
(5)	Saybolt Colorimeter	SC-SP	Yoshida Kagaku
(6)	Drying Oven	DS-62	Yamato Scientific
		•	Co., Ltd.
(7)	Scale	W-500B	Nutix
(8)	Electric Digital Hydrothermometer	AY-21	Yamato Scientific
	:		Co., Ltd.
(9)	Moisture Determination Balance	F-2A	Kett Electric
	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0		Laboratory
(10)	Electric Furnace	IMKM	Ishizuka Denki
(11)	Electric Furnace	ICKV	Ishizuka Denki
(12)	Water Bath	BS-48	Yamato Scientific
(12)	nucci bacii	20 40	Co., Ltd
(13)	Calorimeter, Adiabstic Bomb Type	1013	Yoshida Seisakusho
(13)	Odiolimeter, narabotic bomb Type	1015	Co., Ltd.
(1/4)	Roll Jaw Crusher	1023-B	Yoshida Seisakusho
(14)	WOIL DAW Oldshei	1025 2	Co., Ltd.
(15)	Coffee Mill Type Crusher	1023-A	Yoshida Seisakusho
(1)	Corree Hirr Type Crusher	1025 11	Co., Ltd.
(16)	Sieve Shaker		Tyler Combustion
(10)	Steve guaver		Eng'g. Inc.
(17)	Riff1er		Fisher Scientific Co.
			Murayama Seisakusho
(18)	Top Loading Scale		Hurayama Seisakusho
(19)	Top Loading Scale		Vancta Caintifia
(20)	Analytical Balance 200 g		Yamato Scientific
	200		Co., Ltd.
	200 g		Sauter (Germany)

2. JICA Supply Instruments

(1)	Atomic Absorption Spectrophotometer	AA670	Shimadzu	
(2)	ASTM Colormeter		Yoshida Kagaku	
(3)	Crucible Swelling Furnace		Yoshida Seisakusho	
(4)	Computer/Printer		IBM	٠

Analytical Instruments for the Environmental Laboratory

1. Existing Instrument

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(1)	Atomic Absorption Spectrophotometer Not Operational			Instrumentation Labo. Brand
(2)	Water Quality Analyzer			TOA Electronics, Ltd.
(3)	PH Meter	. 200		Scott Gerate Brand
(4)	Air Particulate Sampler		1	
	High Volume			Staplex Brand
(5)	Sulfur Dioxide Monitoring System			Sierra Misca Brand
(6)	Noise Meter	452		Scott Instrumentation
				Labo. Brand
(7)	Drying Oven			Herew Brand
(8)	Conductivity Meter/Temperature Meter	•		Extech Brand
(9)	Laboratory Incubator			
(10)	PDL-24 Meteorological Monitoring	4.		
	System	-1		
	ang and a single section of the sect			

2. JICA Supply Instruments

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(1)	Dissolved Oxygen Meter		DC-25	TOA Electronics, Ltd.
(2)	Spectrophotometer	****	UV-120-01	Shimadzu
(3)	Water Bath		LH-800	Toyo Scientific
(4)	Middlevolume Air Sampler		M-100	Shibata Scientific
(5)	Stack SO ₂ Analyzer		ESDA-813	Horiba Seisakusho
(6)	Fume Hoods		LFA-120	Toyo Scientific
(7)	Gaseous Pollutant Sampler		HS-6N	Showa Sokki
	Water Quality Checker	1.	WQC-2A	TOA Electronics, Ltd.
(9)	Water Sampler VANDORN TYPE		5062A	Rigou

Analytical Instruments for the Water Laboratory

1. Existing Instrument

(1)	UV-VIS Spectrophotometer	HTC-100-10	Hitachi Ltd.
(2)	PH Meter	HM-5ES	TOA Electronics Ltd.
(3)	Conductivity Meter	32	TOA Electronics Ltd.
(4)	Drying Oven	DS-62	Yamato Scientific
			Co., Ltd.
(5)	Direct Reading Balance	7AG	Kensei Industrial
		•	Co., Ltd.
(6)	Shaker	SA-31	Yamato Scientific
			Co., Ltd.
(7)	Magnetic Stirrer	M-41	Yamato Scientific
			Co., Ltd.
(8)	Dissolved Oxygen Meter	D0-18	TOA Electronics Ltd.
(9)	Hot Plate	HK-21	Yamato Scientific
			Co., Ltd.
(10)	Lab. Demineralizer	MA-1	Japan Organo Co.
(11)	Microscope, Metallurgical	BHM-112	Olympus Optical
2.00			Co., Ltd.
(12)	Du. Nony's Surface Tentiometer	3012	Yoshida Seisakusho Co.
(13)	Orsat Analyzer	•	
(14)	Fume Hood	VKD-150	Yamato Scientific Co.
(15)	Programmable Timer	151	Fisher
	Electrothermal Heating Mantle		Electrothermal
(17)	Magnetic Stirrer with Heater	610T	Fisher
(18)	Water Bath	BS-48	Yamato Scientific
(19)	Centrifuge		Precision Universal
(20)	Multi-Pen Recorder	R-53	Rikadenki Kogyo

2. JICA Supply Instruments

Spectrophotometer	UV-120-02	Shimadzu
Jar Tester	J6	Toyo Keiryoki
Electronic Analytical Balance	AEL-200	Shimadzu
Flash Point Tester		Yoshida Seisakusho
Pensky Martens Closed	821	
Cleveland Open Cup	823	
	Jar Tester Electronic Analytical Balance Flash Point Tester Pensky Martens Closed	Jar Tester J-6 Electronic Analytical Balance AEL-200 Flash Point Tester Pensky Martens Closed 821

ANNEX - 8

Items of Education and Training at Calaca Power Plant

ANNEX-8 Items of Education and Training at Calaca Power Plant

For the Freshman Training

- 4.10 SAFETY of personnel application of Artificial Respiration and Mouth to Mouth/Heart Massage Resuscitation
- 4.11 SOP on equipment tagging
- 4.12 Fire Brigade and SOP on Fire Fighting System

For the Regular Training

4.2 Shift Refresher Course (ON THE JOB TRAINING)

Cource content as follows:

- A. PHYSICS FUNDAMENTALS relevant to Plant Operation
 - a.1 Heat
 - a.2 Mechanics
 - a.3 Sound
 - a.4 Optics
 - a.5 Electricity/Magnetism
 - a.6 Modern Physics
- B. TURBINE GENERATOR (TOSHIBA) AUXILIARY EQUIPMENT OPERATION
 - 1. System lay out (Flow diagram where possible) for each of the following:

•	
B.1.1	Bearing Cooling Water System
B.1.2	Instrument Air Compressor System
B.1.3	House Service Air Compressor System
B.1.4	Boiler Auxiliary Air Compressor System
B.1.5	Condensing System
B.1.6	Chlorination System
B.1.7	Screen House Equipment
B.1.8	Condensate System
B.1.9	Feedwater System A-8-1

B.1.10	Cathodic Protection System
B.1.11	Ferrous Sulfate
B.1.12	Machine Gas System (Hydrogen and CO ₂)
B,1,13	Seal Oil System
B.1.14	Stator Cooling Water System
B.1.15	Oil Conditioning System
e de la companya de	(Turbine - Gen and Turb BFPs)
B.1.15.1	Turbine - Gen Oil Conditioning
B.1.15.2	Boiler Feed Pumps (Turbine - driven)

C. TURBINE:

1.	Design/Construction	
	C.1.1	Nozzle
	C.1.2	Moving blades - Impulse/Reaction blades -
		differentiate
	C.1.3	Cylinder/casing arrangement
	C.1.4	Shaft and wheels
	C.1.5	Thrust bearings
	C.1.6	Journal bearings
	C.1.7	Steam chest
	C.1.8.1	Main Stop Valve or Hydraulic Stop Valve
	C.1.8.2	Control Valves
	C.1.8.3	Combined Reheat - Intercept Valves
	C.1.8.4	High Press/Lo Press Bypass Valves
	C.1.9.1	Turning Gear
	C.1.9.2	Jacking Oil Pump
	C.1.10	Lubrication/Hydraulic 0il System/0il
٠.		Coolers
	C.1.11	Glands and Shaft Sealing System
	C.1.12	Turbine Protection Devices
ě	C.1.12.a	Speed Gov'r/Pre-emergency gov'r/Emergency
		gov'r
	С.1.12.Ъ	Relay Dump Valve/Extraction Non-Return
		Valves
	C.1.12.c	Vac Trip Device
	C.1.12.d	Blowdown Valve
	C.1.12.e	Other Valves - (CV, MSV, CRV)

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C.1.12.f	Diaphragm Valves
C.1.12.g	Aux Oil Pump/Emergency DC Oil Pump
C.1.12.h	TOOP/Jacking 011 Pump
C.1.12.1	Oil Trip Valve
C.1.12.j	Emergency Trip Valve
C.1.12.k	IPR (Initial Press Regulator)
C.1.12.1	Reverse Power Relay
C.1.12.m	Thrust bearing failure relay
C.1.13	Auxiliary Steam System (TURBINE)
C.1.14	E.H.C. (Electro Hydraulic Control)
C.1.15	Automatic Turbine Start-Up (ATS)
C.1.15.1	Extraction Drain Valve Master by ATS
C.1.15.2	Extraction Stop Valve Master by ATS
C.1.15.3	Condenser Vacuum Raise/Break Master by ATS
C.1.15.4	Turbine Drain Valve Master
C.1.15.5	ATS - Cold, Warm, Hot and Very Hot
	Conditions
C.1.15.5.1	ATS as laid out in ATS Control Panel
	a. CV chest warming
	b. Load set (INC/DEC)
	c. Load Limit Set Knob
	d. Auto Turbine Start
	e. Coordinated Control
1 E	f. IPR (initial pressure regulator)
· ·	g. Speed Set RPM
	h. Starting Rate
	i. Line Speed Matching
	j. FA/PA transfer
C.1.15.5.2	ATS as laid out in ATS Tests Panel
	a. MSV
·	b. CRV
	c. LP - BP "A"
	d. LP - BP "B"
	e. Emergency Oil Trip Test
	f. Over Speed Trip
	g. Back-up D/S Test
	h. Power/Load (P/L) Unbalanced Test

i. Lamp Test

- D. Generator/System (22 kV to 230 kV) and Station Service Lay-out
 - D.1 Excitation
 - D.2 EHC
 - D.3 CVCF
 - D.4 Emergency Diesel Generator
- E. BOILER (Foster Wheeler) Auxiliary Equipment Operation
 - E.1 System Lay out (show FLOW DIAGRAM where possible for each of the following:
 - E.1.1 Burner Management System (BMS)
 - E.1.1.a Light Oil System
 - E.1.1.b Heavy Oil System
 - E.1.1.c Coal System
 - c.l Gravimetric Feeder
 - c.2 Pulverizer/Lube Oil System
 - c.3 Pyrite System
 - E.1.2 Interposing Logic System (ILS)
 - E.1.2.a Air Flow Secondary/Primary
 - b Gas Flow
 - c Ductworks/Dampers/Positioners
 - d Furnace Draft/Furnace Aspirating Pipes
 - e Tri-sector Air Heater
 - f Electrostatic Precipitator
 - g Fans (IDF/FDF/PAF)
 - h Tertiary Air Fan/System
 - i Seal Air Fan/System
 - E.1.3 Sootblowers
 - E.1.3.a Retractables
 - E.1.3.b Wall Blowers
 - E.1.3.c Air Heaters
 - E.I.3.d Water Blowers
 - E.1.4 Combustion Control/Temperature Control IMCC

F. BOILER:

- a. Design/Construction Features
- b. Principles of Operation
- c. Description/Purpose or Function of various parts/components
- d. Whys and Hows of Putting IN/OUT of service the various auxiliary equipment
- e. Sequence of Operation
- f. Blr Hydrostatic Testing/Safety Valves/Electromatic Valve
- g. Equipment troubles and remedial measures to apply
- G. ASH HANDLING
- H. COAL HANDLING

