 		5	- 11	
· · · ·	0-m <sup>1</sup> -r-m			
	<u>Gardner</u>		Unit No. 1	Unit No. 2
	*Heating steam in/	°F (°C)	242/114	177/172
·	drain outlet		(116.7/45.6)	(80.6/77.8)
· · ·	temperature		a di Angela ang ang ang ang ang ang ang ang ang an	
1. . 1	*Feed water flow	lbs/h	894,300	1,117,700
· · ·		(kg/h)	(405,654)	(506.988)
	*Manufacturer/erector		Yuba Heat Transfer	Atlas - Mak
			Corp.	Maschinenbau -

		Corp.	Maschinenbau -
			GmbH
No. 2 LP feed water h	eater_		
*Type		Horizontal U-tube	Vval 1.2.4/490,
		L.P. size 32-319	horizontal U-
			tube, 4-pass
*Heating surface area	$ft^2 (m^2)$	3,240 (301.0)	4,850 (450.6)
*Number of heater		l set	1 set
*Material of heating	tube	Admiralty	S+ 35.8 Seamles
			steel
*Heating steam in/	°F (°C)	458/200	275/172
drain outlet		(236.7/93.3)	(135.0/80.6)
temperature			
*Feedwater in/outlet	°F (°C)	190/257	167/208
temperature		(87.94/125.0)	(75.0/97.8)
*Feed water flow	1b/h (kg/h)	896,510	1,117,672
		(406,657)	(506,976)
*Manufacturer/erector		Yuba Heat Transfer	Atlas - Mak
		Corp.	Maschnenbau -
이 문제에 가지 않는 것이 많이 많이 많이 많이 했다.			

Gardner		
	<u>Unit No. 1</u>	Unit No. 2
No. 3 LP Feed Water Heater		
*Туре	Horizontal U-tube,	Vwal 12.4/580,
	L.P. size 30-298	horizontal
		U-tube 4-pass
*Heating surface area $ft^2$ (m <sup>2</sup> )	2,280 (211.8)	5,814 (540.1)
& number of heater	1 set	1. set.
*Material of heating tube	Admiralty	St. 35.8 Seamless
		Stee1
*Heating steam in/ °F (°C)	574/267	502/218
drain outlet	(301.1/130.5)	(261.1/103.3)
temperature		
*Feed water in/outlet °F (°C)	257/294	208/289
temperature	(125.0/145.5)	(97.8/142.7)
*Feed water flow lbs/h (kg/h)	896,510	1,117,672
	(406,657)	(506,976)
*Manufacturer/erector	Yuba Heat Transfer	Atlas - Mak
	Corp.	Maschinenbau -
일 : 이번 전 1999년 1997년 1997년 1997년 - 1997년 1 1997년 - 1997년 19		GmbH
Deaerator		
*Type	Direct contact,	Spray type,
	spray tray mounted,	mounted on hori-
	on horizontal	zontal storage
	storage tank	tank
*Deaerator Capacity lbs/h (kg/h)		
*Condensate to lbs/h (kg/h)		
deaerator	an an an an an an an Arlanda. An Arlanda An Arlanda an Arlanda an Arlanda an Arlanda.	

	5 •		
•			
	Onud		
	Gardner	<u>Unit No. 1</u>	<u>Unit No. 2</u>
• • • :	*Outlet feed water lbs/h (kg/h)		1,494,270
	flow $(3, 3)$	(526,852)	(677,800)
		5,620 (159.1)	5,124 (145.1)
	capacity		
	*Deaerator pressure psig(kg/cm <sup>2</sup> g)		142.3 (10.0)
1.	*Manufacturer/erector	Worthington Corp.	
			Maschinenbau -
			GmbH
	*Heating steam inlet °F (°C)		663 (350.5)
	temperature		
	*Dissolved oxygen cc/1	0.005	0.005
	guarantee value		
	No. 5 HP feed water heater		
	*Type	U-type multilok,	VU Way 95.2/400
		Horizontal, HP	horizontal U-tube
e de N		size 34-274	2-pass
	*Heating surface area $ft^2$ (m <sup>2</sup> )	3,350 (311.2)	3,660 (340.0)
	& number of heater	1 set	2 sets
	*Material of heating tube	70-3-Cu-Ni	St 35.8 Seamless
		(PHelps Dodge	Stee1
		Cuffenloy 30)	
	*Heating steam in/ °F (°C)	830/356.8	820/369
	drain outlet	(443.3/180.4)	(437.8/187.2)
· ·	temperature		
	*Feed water in/outlet °F (°C)	346.8/383.5	359.4/408.7
	temperature	(174.9/195.3)	(181.9/209.3)
		ante e subarte de la sette de la sette La sette de la sette de la sette de la sette	

# Gardner

		Unit No. 1	Unit No. 2
*Feed water flow	lbs/h (l	xg/h) 1,055,930	1,358,425
		(478,962.37)	(616,181.6)
*Manufacturer/erector		Yuba Heat Trans	sfer Atlas - Mak
		Corp.	Maschinenbau -
	n an		GmbH

5 - 14

No. 6 HP Feed water heater		
*Туре	U-tube multi lok,	VU Way 95.2/420
	horizontal, HP	horizontal U-tube
	size 39-332	2-pass
*Heating surface area °F (°C)	5,752 (534.4)	3,770 (350.2)
& number of heater	1 set	2 sets
*Material of heating tube	70-30 Cu-Ni	St 45.8 III
	(Phelps Dodge	Seamless Steel
	Cuffenloy 30)	
*Heating steam in/ °F (°C)	650/393.4	629/418.8
drain outlet	(343.3/200.8)	(331.7/214.9)
temperature		
*Feed water in/outlet °F (°C)	383.5/457.9	408.7/481.5
temperature	(195.3/236.6)	(209.3/249.7)
*Feed water flow lbs/h (kg/h)	1,055,930	1,358.425
	(478,961.4)	(616,181.6)
*Manufacturer/erector	Yuba Heat Transfer	Atlas - Mak
	Corporation	Maschinenbau -

GmbH

# Gardner

Garoner		
	Unit No. 1	Unit No. 2
2) <u>Turbine and Auxiliary</u>		
a. <u>Turbine</u>		
*Туре	Tanden-compound	Tanden-compound
	reheat, condensing	single reheat
	unit	
*Rating output kW	150,000	200,000
*Throttle steam psig(kg/cm <sup>2</sup> g)	1,804 (126.8)	2,706 (190.2)
pressure at MSV inlet		
*Throttle steam °F (°C)	1,000/1,000	1,000/1,000
temperature (main	(537.8/537.8)	(537.8/537.8)
steam/hot reheat)		
*Exhaust vacuum inHg (mmHg)	3.5 (88.9)	3.5 (88.9)
*Number of bled steam	6	6
stages	llan - Andrea Angeler, and an saint Angeler - Angeler Angeler - Ang Angeler - Angeler - A	
*Manufacturer/erector	General Electric	Siemens
	Company	
b. <u>Condenser</u>		
*Туре	107E - RBT - 30	Surface rectangu-
	two-pass vertical-	lar single shell
	ly divided condense	er
	with reflushing	
	deaerating hotwell	
*Circulating water $gal/m (m^3/h)$		
*Tube cleanliness %		
factor		
*Condensate flow lbs/h (t/h)	820,000 (371.94)	971,100 (440.48)

(1) The second se and second s second second s second second sec second second sec		
Gardner		
	Unit No. 1	Unit No. 2
*Cooling water design °F (°C)	85 (29.4)	85 (29.4)
temperature		
*Cooling water outlet °F (°C)		<ul> <li>A statistical sta</li></ul>
design temperature		
*Design point tube ft (m/s)	7.0 (2.134)	6.7 (2.042)
inside flow velocity		fan de fan de fan de fan de fan de fan 1970 - Englis Fan de fan de 1970 - Englis Fan de
*Tube material of	Arserical Admiralt	y Admiralty
condensing zone		
*Tube dimensions of	1" OD 18 BWG	1" OD #18
condensing zone		
*Effective tube length		en de la servició de En la servició de la s
*Tube material of air	la su statu na su sa su su su na su	ng shi kata shi kata shi ka shekara Manazarta Manazarta
cooling zone		
*Cooling surface ft <sup>2</sup> (m <sup>2</sup> )	115,060 (10,689)	130,300 (12,150)
*Material of tube plate	Steel	Steel with
		tarset coating
*Material of water box	Steel	Steel with
Material of Water Dox	Steel	
		tarset coating
*Cathodic protection -		
system type		
*Manufacturer/erector	Ingersoll - Rand	Siemens
	Company	

Gardner Unit No. 1 Unit No. 2 Circulating Water Pump c. Vertical shaft, Vertical, single \*Type mixed flow single stage mixed flow stage with varisize 40A PMA, nonable pitch propullout peller blades 102,900 g/m x 25' 55,555 g/m x 30' \*Capacity x head x number  $(23,368 \text{ m}^3/\text{h x})$  $(12,616 \text{ m}^3/\text{h x})$ 7.62 m x 2 sets 9.14 m) x 2 sets Ingersoll - Rand Siemens \*Manufacturer/erector Company \*Driver - Type 650 x 1,785 373 x 500 - Capacity kW x rpm d. Air Ejector Equipment JS 200, twin ele-Roman 1/25, twin \*Type elements, two ment, two stage, steam hot with stage steam jet combined surface inter-after condenser 45 1bs/h x 2 sets\*Capacity x number (20.4 kg/h) x 2 sets 1.0 (25.4) 2,5 (63.5) inHg (mmHg) \*Suction pressure

<u>Gardner</u>		
	Unit No. 1	Unit No. 2
*Working steam con- lbs/h (kg/h)	827 (375.1)	960 (435.5)
sumption (in case of		
steam jet ejector)		
*Driver capacity kW		
x rpm (in case of		
mechanical ejector)		
*Manufacturer/erector	Ingersoll - Rand	Siemens
	Company	
e. <u>Condensate Pump</u>		
*Type	Vertical, 6 stages	WKT 250 vertical
	size 20 APKC - 6	5 stage, 14"x12"
		ring sectional
		design with
		barrels
*Capacity gpm x head	1850 gpm x 605 ft	2880 gpm x 820 ft
ft x number	x 2 sets	x 2 sets
	$(420 \text{ m}^3/\text{h}) \text{ x}$	$(654 m^3/h) x$
	(184.4 m)	(250 m)
ないしゃ シリー・ション・コード したいたい みらう ねい 見見かい 正見 たいかい 気化的な おうせい		

· · · · · · · · · · · · · · · · · · ·		Company	
*Driver - Type			
- Capacity	kW x rpm	298.4 x 1,180	610 x 1,180
		(400 HP)	

## Gardner

Unit No. 1

5 - 19

Unit No. 2

## 3) Generator and Auxiliary

a. Generator

*Type		Totally enclosed	Totally enclosed
		hydrogen cooled	hydrogen cooled
		GE Type ATB	FTHD.540/62-2/60
*Rating capacity	kVA	188,000 (30 psig)	245,000
*Power factor		0.9	0.9
*Voltage	V	18,000	14,400
*Frequency	Hz	60	60
*Revolution	rpm	3,600	3,600
*Cooling type - St	ator	Hydrogen cooled	Hydrogen cooled

- Rotor

*Hydrogen pressure psig(kg/cm <sup>2</sup> g)	30 (2.113)	45 (3.164)
*Connection	Star	Double Star
*Exciting system	Static Type	Brushless Type
*Short circuit ration	0.604	0.596
*Neutral grounding system	Transformer 75 kVA	Transformer 50kVA
	14,400/240 V,	10,000/220 V,
	resistance,	resistance,
	0.63 ohm, 300A	0.804 ohm, 220A
*Manufacturer/erector	General Electric	Siemens

b. Exciter

\*Type

Static Type 3 phase, 6 pole revolving arma-

ture type with silicon rectifier

Gardner Garaner

		<u>Unit No. 1</u>	Unit No. 2
*Capacity	k₩	Rectifier 846A DC	1,870 (main
		2 sets	exciter)
		C.T. 6,030A 3 phase	e 940 (rectifier)
*Voltage	V	1ry P.T. 116 kVA	570(main exciter)
		18,000/120 V	
		2ry P.T. 340 kVA	410 (rectifier)
		18,000/256 V	
*Revolution speed	rpm		3,600
(if rotating type)	in an		
*Number		1 set	1 set
*Manufacturer/erecto	<b>e</b> galan yan an yang sa	General Electric	Siemens
*Kind of driver			Directly coupled
(if rotating type)			to generator

5 - 20

<u>Gardner</u>		
	Unit No. 1	Unit No. 2
4) <u>Transformers</u>		
a. <u>Main Transformer</u>		
*Туре	G.E. "Atmoseal"	KFUM 1985N/130E
	Oil-immersed(OA/FA	) 011-immersed
	outdoor type	(FOD) outdoor
a series a series a series and a A series and a series A series and a series		type
*Capacity kVA	130,000 a 55°C	232,000
	Rise, OA	
	173,000 a 55°C Ris	se, FA
	193,760 a 65°CV R:	ise, FA
*Primary voltage V	17,500	14,400
*Secondary voltage V	115,000	115,000
*Phase	3	3
*Impedance voltage %	7.13	10.7
*Connection	Delta - WYE	Delta - WYE
*Neutral (HV side)	Solidly-grounded	Solidly-grounde
*Cooling system	Air cooled	Forced oil cool
		Forced air cool
*Number	1 set	1 set
*Manufacturér/erector	General Electric	Siemens
b. <u>Station Service</u>	Transformer	
*Туре	0il immersed, sea	1- KOUM, 1425 n/20
	ed air, (OA)	(OA)
*Capacity kVA	10,000	17,000
*Primary voltage V	18,000	14,400
*Secondary voltage V	4,160	4,160

*Phase *Impedance voltage % *Connection *Neutral (L.V. side) *Cooling system *Number	Jnit No. 1       Unit No. 2         3       3         5.5       9.9         Delta - WYE       Delta - WYE         Solidly grounded       Solidly grounded         Oil air self cooled oil air self         cooled         1 set       1 set
<pre>*Phase *Impedance voltage % *Connection *Neutral (L.V. side) *Cooling system *Number *Number *Manufacturer/erector</pre>	3 5.5 Delta - WYE Solidly grounded Oil air self cooled oil air self cooled
<pre>*Impedance voltage % *Connection *Neutral (L.V. side) *Cooling system *Number *Number *Manufacturer/erector</pre>	5.5 9.9 Delta - WYE Delta - WYE Solidly grounded Solidly grounded Oil air self cooled oil air self cooled
*Connection *Neutral (L.V. side) *Cooling system *Number *Manufacturer/erector	Delta - WYE Delta - WYE Solidly grounded Solidly grounded Oil air self cooled oil air self cooled
*Neutral (L.V. side) *Cooling system *Number *Manufacturer/erector	Solidly grounded Solidly grounded Oil air self cooled oil air self cooled
*Cooling system *Number *Manufacturer/erector	0il air self cooled oil air self cooled
*Number *Manufacturer/erector	cooled
*Manufacturer/erector	44
*Manufacturer/erector	1 set 1 set
	그렇게 잘 하면 것 같아요. 그는 것
c. Emergency Station Ser	General Electric Siemens
그는 물건은 소설 가지요? 이 것은 것을 걸려요? 그는 몸을 가지고 하는 것은 것을 수 있는 것을 수 있다.	vice Transformer
*Type	<u>Common Use</u>
	Oil immersed (OA)
	Out door, type
*Capacity kVA	12,000
*Primary Voltage V	115,000
*Secondary voltage V	4,160
*Phase	3
*Impedance voltage %	6.0
*Connection	Delta-Zigzag
*Neutral (L.V. side)	Solidly grounded
*Cooling system	0il, air, self cooled
*Number	l set
*Manufacturer/erector	<b>G.E.</b>
양은 물건 가슴을 보면 것을 다 있는 것 같은 것이 많다.	

# C Gardner

	Unit No. 1	<u>Unit No, 2</u>
5) Water Treatment System		
a. <u>Raw Water</u>	<u>Common Use</u>	
*Kind	Deepwell water	
*Total hardness (CaCO <sub>3</sub> ) ppm	95	
*pH	6.9	
*Silica (SiO <sub>2</sub> ) ppm	70	
<pre>*Turbidity</pre>		
b. <u>Raw Water Tank</u>		
*Type		
*Capacity m <sup>3</sup> x number		
*Manufacturer/erector		
c. <u>Sedimentation System</u>		
*Type		
*Applied chemical		
*Manufacturer/erector		alasia Alasia Alasia
d. Filtering System		
*Type		
*Applied chemical		
*Capacity t/day x number		
*Manufacturer/erector	an an an an Araba an Araba. An Araba an Araba	
e. <u>Filtering System</u>	an an an Anna an Anna Anna Anna Marta an Anna Anna Anna Anna Anna Anna Anna	
*Type		
*Capacity t/day x number		
*Type of reverse washing		
*Filter material		
*Manufacturer/erector		

NO, 2

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# Gardner

	Unit No. 1 Unit No. 2
f. <u>Water Dimineralizing</u>	Equipment
*Type	Graver
*Capacity GPM(m <sup>3</sup> /H) x number of	.50 (11.4) x 3
train	Mixed Bed 76 (17.3) x 2
*Capacity per 1 cycle	Cation 90500 (286)
service gal(m <sup>3</sup> )	Anion 71000 (269)
	Mixed Bed 1,000,000 (3785)
*Type of resin x resin	Cation RE-3 108 (3058)
filling capacity ft <sup>3</sup>	Anion AE-61 96 (2718)
	Mixed Bed Cation RE-6 17 (481)
	Anion AE-61 11 (311)
g. <u>Condensate Demineral</u>	<u>izer</u>

5 - 24 

# g.

*Pre-filter Type	None		None	
*Condensate Demineralizer	None		1400	(318) x 3
Capacity x number $GPM(m^3/H)$		an a		n de la companya de La companya de la comp
*Regeneration Equipment			2 set	s in GSTP

	5 1 2 Condon Davies D			
	5.1.2 <u>Snyder Power P</u> 1) Boiler	rant rdurbment		
		<b>n</b>		
	a. <u>Boiler</u>	Proper		
			Unit No. 1	Unit No. 2
	Type		Meander Waterwall	
			radiant type	radiant type
	Steam Pressure at 100	0		
	*Design pressure	psig(kg/cm <sup>2</sup> g)	3,425 (240.8)	3,425 (240.8)
	*Final superheater	psig(kg/cm <sup>2</sup> g)	2,770 (194.76)	2,770 (194.76)
	outlet			
n tan	*Reheater outlet	psig(kg/cm <sup>2</sup> g)	544.3 (38.27)	544.3 (38.27)
	Steam temperature at	100 % 1oad		
	*Rating temperature	°F (°C)	1,005 (540.5)	1,005 (540.5)
	Economizer inlet	°F (°C)	481 (249.4)	481 (249.4)
	Reheater inlet	°F (°C)		627 (330.5)
	Reheater outlet	°F (°C)	1,005 (540.5)	1,005 (540.5)
	Superheater outlet	°F (°C)	1,005 (540.5)	1,005 (540.5)
	Evaporation			
	*Boiler MCR	1bs/h (t/h)	1,675,485	2,274,227
	(1) A set of the se		(760)	(1,031.6)
	*Unit 4/4 load	1bs/h (t/h)	1,494,270	2,028,507
		~~~, ii (c/ ii)	(677.8)	(920.1)
	<b>C</b>			(720.1)
	<u>Superheater</u>			
	*Primary superheater			
	Type		horizontal conti-	horizontal conti-

Type	horizontal conti-	horizontal conti-
	nuous tube	nuous tube type
Heating surface $ft^2$ (m <sup>2</sup> )	(S.H. Total)	52,560 (4,883)
	57,360 (5328.9)	

Snyder			
		Unit No. 1	<u>Unit No. 2</u>
*Top and Roof SH			
Туре		Tangent type	Tangent type
Heating surface	ft <sup>2</sup> (m <sup>2</sup> )		9,860 (916)
*Secondary Superhea	ter		
Туре			Pendant conti-
			nuous tube type
Heating surface	ft <sup>2</sup> (m <sup>2</sup> )		26,570 (2,468.4)
Superheater mater	ials	STPT-49	
	an an Araba an Araba Araba an Araba Araba an Araba an Araba	STBA-12, 22, 23, 2	4 -
<u>Reheater</u>			
*Туре		Horizontal & pen-	Horizontal & pen-
		dant continuous	dant continuous
		tube	tube
*Heating surface	ft <sup>2</sup> (m <sup>2</sup> )	44,810 (4163.0)	41,900 (3,985.5)
*Materials		STBA-12,22,24	STBA-12,23,24,
		STB-34	STB-35
		SUS-27 HTB	
<u>Economizer</u>	an an an Arran an Array an Ar Array an Array an Arr Array an Array an Arr		
*Material		STB 42	STB 42
		(ASTM A210 A-1)	
*heating surface	ft <sup>2</sup> (m <sup>2</sup> )	30,200 (2,805.7)	54,600 (5,072.5)
*In/outlet	°F (°C)	481/545	481/564
temperatue		(249.4/285.0)	(249.4/295.5)
Furnace			
*Volume	ft <sup>3</sup> (m <sup>3</sup> )	79,750 (2,258.2)	120,000 (3,398)

Snyder.			
		Unit No. 1	Unit No. 2
*Construction of wat	er	Horizontal meander	
wal1			tion
*Manufacturer/erecto	n <b>r</b> a sa s	Babcock - Hitachi	
b. Air F			
Regenerative air hea	· · · · · · · · · · · · · · · · · · ·		
*Type		Horizontal regene-	
2.2.7 P.2. 2.2.1 P.2. 2.2.1 P.2.		rative type	zontal regenera-
			tive type
*Heating area	ft <sup>2</sup> (m <sup>2</sup> )	98,070 (9,111)/	(149,210 (13,862)
-neating area	16 (ш)	heater	(14),210 (13,002)
*In/outlet air	°F (°C)	160/555	137/559
temperature		(71.1/290.5)	(58.3/292.8)
*Manufacturer/erecto	<b>ir</b>	Ljungstrom Gadelius	
			Gadelius
Steam air heater			
*Type		21-450M4V-ETI-FE 31	21-530H5V-FTI-FF
<b>,,,,,</b> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			41
*Heating area	ft <sup>2</sup> (m <sup>2</sup> )	18,510 (1,719.6)	27,835 (2,586)
*In/outlet air	°F (°C)	136/160	100/134
temperature		(57.8/71.1)	(37.8/56.7)
*Manufacturer/erecto	or in the second	GEA Luftkunkler-	GEA Luftkunkler-
		gestllschaft Bothum	
			Bothum

		c.	Sootble	wer
*Typ	e/units	s num	lber	
*Man	ufactui	er/e	rector	
	ne stall i Marcine	d.	Boiler	Auto
01				

Snyder

\*Type Electronic Electronic Siemens Siemens \*Type Electropneumatic Electropneumatic \*Manufacturer/erector Bailey & Siemens Bailey & Siemens Feed water control \*Type Electronic Electronic \*Manufacturer/erector Siemens Siemens e. Fuel Supply & Firing System Heavy oil storage tank \*Type Floating roof type

, i		9			지방 같은 것이 같다.	
•	*Capacity	m <sup>3</sup> x number		Tan	k No. 1	8752 m <sup>3</sup>
ļ				Tan	k No. 2	8752 m <sup>3</sup>
						신 이상도에 두 편 수품가 1911년 - 1913년 - 1911년 - 1913년 -
Ċ,				Tan	k No. 3	23550 m <sup>3</sup>
						m
			化化化学学 化化化学学 学校学校 化化学学	Tan	k No. 4	$23550 m^{3}$
		그는 아이는 것 같은 것이 같이 같이 같이 같이 같이 같이 않는 것이 같이 많이 했다.		Lan	a no. 4	20000

\*Manufacturer/erector

Unit No. 1

RSB-53A Retract-

Unit No. 2

RSB-53A retractable rack 22 units able rack type

18 sets

swing type 2 sets

Babcock - Hitachi Babcock - Hitachi

tomatic Control

Combustion control

\*Manufacturer/erector Temperature control

	Snyder		
		Unit No. 1	Unit No. 2
	Light oil tank		
	*Type	Common use for Gl,	G2, S1 and S2
	*Capacity x number gal (m <sup>3</sup> )	11,720 (44.36 ) x 1	
	*Manufacturer/erector		
	<u>Heavy oil service tank</u>	None	nóne
	*Type		
	*Capacity, Number of tank		
	*Manufacturer/erector		
	Heavy oil burner		
	*Type	Wide range mecha-	Mechanical ato-
		nical atomizing	mizing type
	*Capacity, Number of g/h (1/h)	1,280 (4,845) x 18	972 (3,679) x 24
	burner		
	*Manufacturer/erector	Babcock & Wilcox	Babcock & Wilcox
	Light oil burner		
	*Туре	B & W standard	B & W standard
		pressure and ato-	pressure and ato-
		mizing	mizing with re-
			placeáble sprayer
			plate
	*Capacity, number of 1b/h (kg/h)	440 (199.6)/18 pcs	/24 pcs
	burner		
na Alinia National Partina Ali	*Manufacturer/erector	Babcock & Wilcox	Babcock & Wilcox

<u>Snyder</u>			
		Unit No. 1	Unit No. 2
Main fuel oil pump			
*Туре		IMO-Saren type	IMO-Screw type
		spindle pump	ALG-110-4B
			spindle pump
*Discharge pressure,	psig(kg/cm <sup>2</sup> g)	720 (50.6)	900 (63.3)
capacity & number			
of pump	g/m (m <sup>3</sup> /h)	330 (74.9)	380 (86.3) x
		2 sets	2 sets
*Manufacturer/erector		Siemens	Steinmeller
*Driver - Type			1MJ5428 - 4F
- Capacity	kW	250	250
Constant differential	fuel oil pump		
*Type			81, HSZ-5321
*Capacity	g/m (m <sup>3</sup> /h)		430 (97.7)
*Suction pressure	psig(kg/cm <sup>2</sup> g)		730 (51.3)
*Discharge pressure	psig(kg/cm <sup>2</sup> g)		900 (63.3)
Light fuel oil pump			
*Туре		De Laval - IMO	4800-Gear pump
*Discharge pressure	psig(kg/cm <sup>2</sup> g)		250 (17.6)
Capacity & number		2 sets	86 (19.5) x 1 set
of pump			
*Manufacturer/erector			The Engineering
			Co.
*Driver - Type		AC motor	AC motor
2012년은 1월 2013년 1월 2017년 1월 20 1월 2017년 1월 2	HP (kW)	7.5 (5.6)	25 (18.65)
*Manufacturer/erector		General Electric	Westing House
nunururburer/erect0	"全国有效的"的"进行"。 实现了例如"专业"的实际	Ceneral Micoffic	", U C L L L L L L L L L L L L L L L L L L

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	Unit No. 1	Unit No. 2
<u>Main fuel oil heater</u>		
*Type	MESCO 2 EV 13 -	MESCO 2 EU15-168-F
	1625	Triplex fuel
		oil heater
*Capacity & number g/m (m <sup>3</sup> /h)	135 (30.7) x	190 (43.2) x
of heater	3 sets	3 sets
*Manufacturer/erector	The Engineering	The Engineering
	Co.	Co.

f. <u>Boiler Draughting Equipment</u> ught Fan

Forced Draught Fan •

*Type		Axial Flow, 2 stage	Model FAF 22.4/
		horizontal, with	12.5-2 axial flow
		oil hydraulic rotor	2 stage horizon-
		blade adjustment	tal, with oil
			hydraulic rotor
			blade
*Capacity & number	ft <sup>3</sup> /min	232 1b/sec	380,000 (10,760)
	(m <sup>3</sup> /min)	(105.2 kg/sec)	x 2 sets
*Pressure	inwg (mmwg)	45 (1,143)	43 (1,092,2)
*Revolution speed	rpm	1,750	1,150
(Manufacturer/erector		Dingler	Dingler
*Driver - Type		AC motor	AC motor
		squirrel cage,	1, RN3, 352-LHE-
		horizontal	90Z
- Capacity HP(	KW)		2,250 (1,680) x 3,300 (2,
x number		2 sets	2 sets

**5 - 31** 

<u>Snyder</u>			
		Unit No. 1	<u>Unit No. 2</u>
- Manufacture	r/	Siemens	Siemens
erector			
Gas Recirculation Fa	<u>n</u>		
*Туре		6600 POT - CH	Double suction turbo
			fan NV - 1CO #16 -1/2
*Capacity & number	ft <sup>3</sup> (m <sup>3</sup> /min)	250,800 (7,101.6)	416,400 (11,790.8)
		.xlset	x 1 set
*Pressure	inwg (mmwq)		12.2 (309.9)
*Revolution speed	rpm	900	870
*Manufacturer/erecto	<b>r</b>		
*Driver - Type		AC motor	AC motor
			ETA-KK weather
			protected NEMA
			type II
- Capacity K			
x number		475 x 1 set	930 x 1 set
- Manufactur	er/		
erector			
<u> Stack - handles flue</u>	gas from		
<u>S1 and S2</u>			
*Construction		Welded steel plate	and gunitelined
		with 2.5" thick mi	xture of sand
*Top inside diameter	n	17'6" (5.34m)	
*Height	m	284' (86.6m)	
*Number		One stack for S1 a	nd S2
*Manufacturer/erecto	r	Pacific Engineerin	

Snyder

## Unit No. 1

Unit No. 2

### g. Boiler Feed Water Pump

### Turbine driven feed water pump HDGR 75, 7 stage HDR8S, 6 stage \*Type & number of stage centrifugal centrifugal \*Capacity 1bs/h (t/h)1,863,000 (845) 2,600,000 (1,179.4) x l set x 1 set & number of pump 3,545 (2492.5)/ 3,804 (2,674.6)/ \*Total head psi (m)/rpm 5000 & revolution 4600 KSB KSB \*Manufacturer/erector Turbine for BFP Axial reaction Axial reaction \*Type single cylinder, single cylinder condensing type condensing type 12,214 x 1 set \*Capacity & number 14,200 x 1 set k₩ of turbine \*Manufacturer/erector Siemens Siemens T-BFP booster pump YNK N 400/300, YNKN 400/300, \*Type 가는 물 물 같은 것 double suction, double suction single stage single stage 2,600,000 1,863,000 \*Capacity & number 1bs/h (t/h) 21 (1 (CA)) (845.0) x 1 set (1,179.4) x 1 set 96 (67.5)/1,500 96 (67.5)/1,630 \*Total head & psi m/rpm revolution 420 \*Driver (pump input) kW 200 \*Manufacturer/erector KSB KSB

알 있다. 같은 것은 것은 것은 것은 것은 것은 것은 것이다. 같은 것은 것은 같은 것은 것은 것은 것은 것은 것은 것은 것을 것을 했다.		
Snyder	Unit No. 1	Unit No. 2
Motor driven feed water pump	UIIL NO. I	UAIL NO. Z
*Type & number of stage	HDGr 555/7 stage	HDG 55n, 11 stage
	centrifugal, motor	
	driven	motor driven
*Capacity & number lbs/h (t/h)	706,470 (320.4) x	
of pump	2 sets	l set
	3,585 (2,520)/4870	
revolution		3,570
*Manufacturer/erector	KSB	KSB
*Driver - Type	Totally enclosed	ITC 2929-3 EP01-Z
	fan cooled	
- Capacity kW	4,400 x 1 set	3,120 x 1 set
& number of motor		
- Manufacturer/	Siemens	Siemens
erector		
h. Feed Water Heaters	Equipment	
No. 1 LP feed water heater		
	Vwak1 115.4/470	Vwakl 115.2/750,
		horizontal U-tube
승규는 승규는 방문을 수 없는 것을 가지 않는 것을 하는 것을 수 있다.	4 pass	2 pass low pres-
		sure, 4 separate
		drain cooler
*Heating surface ft <sup>2</sup> (m <sup>2</sup> )	4,740 (440.3)	금리가 일로 있는 그리는 그리고 주셨다. 전문한 것 및 말한 것, 그는 것을 하는 것
& number of heater	1 set	
*Material of heating tube	St 35.8 seamless	
	steel	

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	5	- 35	
<u>Snyder</u>			
		<u>Unit No. 1</u>	Unit No. 2
*Heating steam in/	°F (°C)	177/172	182.5/176.5
drain outlet		(80.6/77.8)	(83.6/80.3)
temperature			
*Feed water in/outlet	°F (°C)	112/167	113.4/170.1
temperature		(44.4/75.0)	(45.2/76.7)
*Feed water flow	lbs/h (kg/h)	1,117,690	1,863,526
		(506,975)	(845.295)
*Manufacturer/erector		Atlas - Mak	Atlas - Mak
가지가 다른 것 같은 것을 가지는 것이다. - 이미 : 가지 같은 물 물 문 한 한 것이다. - 이미 : 이미 : 가지 같은 것이다. (1999년 1월 1999년 1월 1999년 1월 1999년 1월 1999년 1월 1999년 1월 1999년		Maschinenbau GmbH	Maschinenbau -
			GmbH

<pre>*Heating surface ft<sup>2</sup> (m<sup>2</sup>) &amp; number of heater</pre>	4 pass 4,850 (450.6)	design, 2 pass low press. with internal drain cooler
	4,850 (450.6)	는 것을 사용하는 것을 가지. 같은 것은 것은 것은 것은 것을 것을 것을 수 있는 것을 것을 수 있는
	4,850 (450.6)	일 이 같은 것이 같아요.
	4,850 (450.6)	cooler
	4,850 (450.6)	이 가슴을 걸려 주말을 알았다.
& number of heater		7,410 (688.4)
	1 set	1 set
*Material of heating tube	St 35.8	St 35.8
*Heating steam in/ °F (°C)	275/172	266.6/182.5
drain outlet	(135/80.6)	(130,3/83.6)
temperature		
*Feed water in/outlet °F (°C)	167/208	170.1/214
temperature	(75.0/97.8)	(76.7/101.1)

# <u>Snyder</u>

Snyder		Unit No. 1	Unit No. 2
*Feed water flow	1bs/h (kg/h)		1,863,526
		(506,976)	(845,295)
*Manufacturer/érector		Atlas-Mak Mas-	Atlas-Mak Más-
		chinenbau - GmbH	chinenbau - GmbH
No. 3 LP feed water he	ater		
*Type		Vwak1-12.4/580	Vwak1 125.2/900
			horizontal U-tube
		4 pass	2 pass low press.
			and with inter-
			nal drain cooler
*Heating surface	ft <sup>2</sup> (m <sup>2</sup> )	5,814 (540.1)	8,880 (825.0)
& number of heater		1 set	1 set
*Material of heating	tube	St 35.8 seamless	St 35.8
		steel	
*Heating steam in/	°F (°C)	502/218	499/226.6
drain outlet		(261.1/103.3)	(259.4/108.1)
temperature			
*Feed water in/outlet	°F (°C)	208/289	214/299.3
temperature		(97.8/142.7)	(101.1/148.5)
*Feedwater flow	1bs/h (kg/h)	1,117,672	1,863,526
		(506,976)	(845,295)
*Manufacturer/erector		Atlas-Mak Mas-	Atlas-Mak Mas-
		chinenbau GmbH	chinenbau GmbH

Snyder			
		Unit No. 1	Unit No. 2
Deaerator			
*Type		Spray type mounted	spray deaerator
		on horizontal	mounted on hori-
		storage tank	zontal storage
			tank
*Deaerating capacity	1bs/h (kg/h)		2,425,600
요즘 이번 관련적 것 것 같아. 같은 사람은 것 같은 것 같아.			(1,100,252)
*Condensate to	1bs/h (kg/h)		1,674,262
deaerator			(759,445)
*Outlet feed water	1bs/h (kg/h)	1,494,270	2,028,507
flow		(677,800)	(920,130.8)
*Heating steam inlet	°F (°C)	663 (350.5)	642 (338.9)
temperature			
*Storage tank	Cu.ft.(m <sup>3</sup> )	5,124 (145.1)	6,762.8 (191.5)
capacity			
*Design pressure	psig(kg/cm <sup>2</sup> g)	142.3 (10.0)	171 (12.0)
*Dissolved oxygen	cc/1	0.005	0,005
guarantee value			
*Manufacturer/erector		Atlas-Mak Mas-	Atlas-Mak Mas-
		chinenbau GmbH	chinenbau GmbH
<u>No. 5 HP feed water h</u>	<u>eater</u>		
*Type		VU way 95.2/400	VU way 110.2/530
		horizontal U-tube	horizontal U-tub
		2 pass	2 pass high pres
			sure with inter-
			nal drain coole

	Unit No. 1	Unit No. 2
*Heating surface ft <sup>2</sup> (m <sup>2</sup> )	3,660 (340.0) x	
& number of heater	2 sets	2 sets
*Material of heating tube	St 35.8 seamless steel	15 MO3
*Heating steam in/ °F (°C)	820/369	432.9/375
drain outlet temperature	(437.8/187.2)	(222.7/190.5)
*Feed water in/outlet °F (°C)	359.4/408.7	(362.7/420
temperature	(181.9/209.3)	(183.7/215.5)
*Feed water flow lbs/h (kg/h)	1,358,448	2,274,199
(both heaters)	(616,181.6)	(1,031,559.3)
*Manufacturer/erector	Atlas-Mak Mas-	Atlas-Mak Mas-
	chinenbau GmbH	chinenbau GmbH
No. 6 HP feed water heater		
*Турё	VU way 95.2/420	VU way 110.2/560
	에게 같은 이가가 있는 것은 바람은 것이라. 같은 특별은 같은 것은 것은 관계에서 가격했다.	horizontal U-tube
	2 pass	2 pass, high
		press. with
		internal drain
<b>3 3</b>		cooler
	3,770 (350.2) x	2012년 1월 2012년 1월 21일 <del>- 1</del> 월 21일 - 11일 - 11 - 11일 - 1 - 11일 - 11g - 11 - 11일 - 11g - 11 - 11g -
& number of heater	2 sets	
*Material of heating tube	St 45.8 III	13 CrMo44
	seamless steel	

# <u>Snyder</u>

629/418.8 (331.7/214.9) 408.7/481.5 (209.3/249.7) /h) 1,358,448 (616,181.6) Atlas-Mak Mas-	647/432.9 (341.7/222.7) 420.3/492.3 (215.7/255.7) 2,274,199 (1,031,559.3)
408.7/481.5 (209.3/249.7) /h) 1,358,448 (616,181.6)	420.3/492.3 (215.7/255.7) 2,274,199 (1,031,559.3)
(209.3/249.7) /h) 1,358,448 (616,181.6)	(215.7/255.7) 2,274,199 (1,031,559.3)
(209.3/249.7) /h) 1,358,448 (616,181.6)	(215.7/255.7) 2,274,199 (1,031,559.3)
/h) 1,358,448 (616,181.6)	2,274,199 (1,031,559.3)
(616,181.6)	(1,031,559.3)
이가 한다. 사람은 것은 가격한 것이다. 이가 같은 것 이는 것이 아파 이가 있는 것이 가 나는 것이가 한다.	: 2011년 1월 1997년 2월 1998년 1월 1 1월 1997년 1월 1998년 1월 1월 1997년 1월 1998년 1월 1
Atlas-Mak Mas-	그는 그는 한 것에서 물건을 가지 않는 것을 많을까?
	Atlas-Mak Mas-
chinenbau GmbH	chinenbau GmbH
	chinenbau GmbH

Snyder			
		Unit No. 1	Unit No. 2
2) <u>Turbine and</u>	Auxiliary		
a. <u>Turbine</u>			
*Туре		Tanden compound	Tanden compound
		single reheat	reheat retraction
			condensing type
*Rating output	kW	200,000	300,000
*Throttle steam pres-	psig(kg/cm <sup>2</sup> g)	2,706 (190.2)	2,700 (189.8)
sure at MSV inlet			
*Throttle <sup>,</sup> steam	°F (°C)	1,000/1,000	1,000/1,000
temperature (main		(537,8/537.8)	(537.8/537.8)
steam/hot reheat)			
*Exhaust vacuum	inHg (mmHg)	3.5 (88.9)	3.5 (88.9)
*Number of bled steam		6	6
stages			
*Manufacturer/erector		Siemens	siemens
b. <u>Condens</u>	<u>ier</u>		
*Туре		Surface, rectan-	Surface rectan-
		gular single	gular single
		shell	she11
*Circulating water			222,200 (50,462)
*Tube cleanliness factor	<b>%</b>		85
*Condensate flow	1bs/h (t/h)	971,100	1,335,893
		(440.48)	(605.95)
*Cooling water design	°F (°C)	85 (29.4)	85 (29.4)
temperature			

<u>Snyder</u>	Unit No. 1	Unit No. 2
*Cooling water outlet °F (°C)	UIIIL NOT I	
design temperature		
*Design point tube ft/s (m/s)	6.8 (2.072)	6.4 (1.95)
inside flow velocity		
	Admiralty metal	SOMS, 76 (AL-
condensing zone		Bross)
*Tube dimensions of	1' OD #18	1"OD 25"
condensing zone		
*Effective tube length		25', 11-3/64"
		(7,900.6 m/m)
*Tube material of air		90 - 10 Cu - Ni
cooling zone		
*Cooling surface $ft^2 (m^2)$	130,300 (12,105)	236,000 (21,925
*Material of tube plate	Steel with tarset	Steel with epox
	coating	coating
*Material of water box	Steel with tarset	Steel with tars
	coating	coating
*Chathodic protection		
system type		
*Manufacturer/erector	Siemens	Kraftwerke Unic
		West Germany
물건 이 방법을 만들어 있다. 이 것 이 것을 잘 못 들었다.		· 영상 이 가격되었다. 이 나는 가격되는 신경에는 이 같은 이 것이 나무 말했다. 것이 나

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Unit No	4 <u>f</u>		Unit No.	· 42

Snyd <u>er</u>		
	Unit No. 1	Unit No. 2
c. Circulating water p		
*Type	Vertical shaft,	PEZ-1600 verti-
	mixed flow, single	
	case with variable	
		with variable
	blades	pitch propeller
		blade
*Capacity x head x number	102,900 g/m x 25'	128,480 g/m x
	(23,368 m <sup>3</sup> /h x	30.1 ft (29,178
	7.62 m) x 2 sets	$m^3/h \ge 9.17 m$ )
		x 2 sets
*Manufacturer/erector	Siemens	Pump KSB Drive-
		draftwerke Union
		(Siemens)
*Driver - Type	Siemens	
- Capacity kW x rpm		1,100 x 1,190
d. Air ejector equipment		
*Type	Roman I/2E, twin	Roman 1/2E, twin
	element, two stage,	
2. 같은 것 같은 것 같은 것을 가지 않는 것 같은 것이다. 같은 것 같은 것 같은 것 같은 것 같은 것 같은 것 같은 것 같은 것 같은 것		stage steam jet
		with combined
		surface inter
		and after conden-
		ser
*Capacity (dry air) x number	45 lbs/h(20.4 kg/h)	33 lbs/h(15 kg/h)
		x 2 sets
그는 물질을 많다. 물질을 가지 않는 것이 있는 것을 했다.	물감에 앉은 것을 가지 못 들었는데?	한글 그는 것 같은 물건은 것을 통했다.

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	<u>Snyder</u>			
			Unit No. 1	Unit No. 2
	*Suction pressure	inHg (mmHg)		2 (50.8)
	*Working steam	lbs/h (kg/h)	960 (435.4)	868 (393.7)
	consumption	2 2		
	*Inter Condenser	ft <sup>2</sup> (m <sup>2</sup> )		77.5 (7.2)
	surface	2 2		
	*After condenser	ft <sup>2</sup> (m <sup>2</sup> )		50.6 (4.7)
	surface			
	*Manufacturer/erector		Siemens	Siemens
	e. <u>Condensate pump</u>			
	*Type		WKT-250 vertical	WKT-300 vertical
			5 stage 14" x 12"	4 stage, 16" x
			ring sectional	14" ring section-
аланы. Тараларынын Алараларынын			design with barrels	s al design with
				barrels equipped
				with radial im-
				pellers
	*Capacity x head x nu	mber	2880 gpm x 820 ft	2,100,000 1b/h x
			x 2 sets	355 psi x 2 sets
			(654.0 m <sup>3</sup> /h) x	(952.56 t/h x
			(250 m)	(24.96 kg/m <sup>2</sup> )
	*Manufacturer/erector		Siemens	Pump - KSB
				Drive - Kraft-
				werte Union
	*Driver - Type			
	- Capacity kW	x rpm	610 x 1,180	900 x 1,180

Snyder Unit No. 2 Unit No. 1 3) Generator and Auxiliary Generator a. t han de al a Totally enclosed Totally enclosed \*Type hydrogen cooled Hydrogen cooled FTHDD 540/66-2/60 245,000 370,000 (45 psig **kv**A \*Rating capacity Hz) 0.9 \*Power factor 0.9 14,400 ý 21,000 \*Voltage 60 60 \*Frequency Hz 3,600 3,600 \*Revolution rpm Hydrogen cooled Direct cooling \*Cooling type - Stator Hydrogen cooled Direct cooling - Rotor \*Hydrogen pressure psig(kg/cm<sup>2</sup>g) 45 (3.164) 45 (3.164) 60 (4.219) Double Star Double Star \*Connection Brushless type Brushless type \*Exciting system 0.62 0.596 \*Short circuit ration Transformer 50 kVA Transformer 175 \*Neutral grounding system kBS 21,000/240 V, 10,000/220 V Resistance 0.8040hm 0.198 ohm 730 A 220 A SLIV-CC \*Manufacturer/erector Siemens Siemens

<u>Snyder</u>	Unit No. 1	Unit No. 2
<b>b.</b> Exciter		<u>Mit av z</u>
*Type	3 phase, 6 pole	3 phase, 6 pole
	revolving arm type	
	with silicon rec-	ture type
	tifier	F 340 - 32 - 6
*Capacity kW	가지 않는 것이 있는 것이 있다. 같은 것이 같은 것이 있는 것이 같이 있다. 같은 것이 같은 것이 같은 것이 같이 같이 같이 같이 같이 같이 않는 것이 같이 같이 같이 같이 같이 않는 것이 같이 않는 것이 같이 않는 것이 없다. 않는	
Main Exciter	1,870	1,880
Rectifier	940	1,665
*Voltage V		
Main exciter	570	415
Rectifier	410	520
*Revolution speed rpm	3,600	3,600
(if rotating type		
*Number	l set	1 set
*Manufacturer/erector	Siemens	Siemens
*Kind of driver	Directly coupled	Directly coupled
(if rotating type)	with generator	with generator
	shaft	shaft

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Snyder			
		Unit No. 1	Unit No. 2
4) <u>Transform</u>	ners		
a. <u>Main</u>	Transformer		
*Type		0il immersed	AFOC - 3NY5CP,
		(FOA) outdoor type	oil immersed,
			(FOA) outdoor
			type
*Capacity	kVA	232,000	370,000
*Primary voltage	V	14,400	21,000
*Secondary voltage	V	115,000	115,000
*Phase		3 phase	3 phase
*Impedance voltage	%	11.0	14.97
*Connection		Delta - WYE	Delta - WYE
*Neutral (HV side)		Solidly grounded	Solidly grounded
*Cooling system		Forced oil cooled	Forced oil,
		forced air cooled	forced air cooled
		(FOA)	(FOA)
*Number		1 set	l set.
*Manufacturer/erect	or	Siemens	Hitachi Ltd.
b. <u>Stat</u>	ion Service Tr	<u>ansformer</u> :	
*Туре		0il immersed (OA)	Oil immersed (OA/
		outdoor type	FA) outdoor type
			having 2 LV wind-
			ings
*Capacity	kVÅ	17,000	HV-18,750/25,000
			LV-9,375/12,500
*Primary voltage	V	14,400	21,000

	<u>Snyder</u>			
			<u>Unit No. 1</u>	Unit No. 2
	*Secondary_voltage	V	4,160	4,160/4,160
	*Phase		3 phase	3 phase
	*Impedence voltage	%	9.7	HV-LV 8.59
				HV-LV <sub>2</sub> 8.67
				LV <sub>1</sub> -LV <sub>2</sub> 16.04
				12.5 MVA, Base
	*Connection		Delta - WYE	Delta - WYE
	*Neutral (LV side)		Solidly grounded	249 ohm, 10 A,
				grounding resis-
				tor
	*Cooling system		0il, air self	Oil, alr, self
			cooled	cooled
an Ara Marina Marina	*Number		1 set	l set
	*Manufacturer/erector		Siemens	Hitachi
	c. <u>Emerg</u> e	ncy statio	<u>n service transformer</u>	
			<u>Common Use</u>	
	*Туре		Oil immersed (OA	)
			outdoor type	
	*Capacity	kVA	30,000 - 15,000/	15,000
	*Primary voltage	V	34,500	
	*Secondary voltage	V	4.160/4.160	
	*Phase		3 phase	
	*Impedance voltage	%	HV-LV <sub>1</sub> 7.63	
			HV-LV <sub>2</sub> 7.19	
			HV-LV <sub>2</sub> 16.63	
			15 MVA base	

# <u>Snyder</u>

*Connection	Delta - WYE	
*Cooling system	Self cooled	
*Number	1 set	
*Manufacturer/erector	Mitsubishi	
"Manufacturer/erector	MICSUDISHI	
사는 가슴을 보는 것으로 가슴을 즐길을. 실망하는 것은 것은 것으로 가슴을 다.		
	1993년 1993년 - 1993년 1993년 1993년 - 1993년 1993년 1993년 1993년 1993년 - 1993년	
	이에게 가슴을 즐고 있었는 것을 가슴을 가슴다. 같이 아파	

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# Snyder

## Unit No. 1

6.9

a Cana ya

Unit No. 2

## 5) Water Treatment System

a. Raw water

\*Kind \*Total hardness ppm 95

a. 1990年代。1993年3月

(CaCO<sub>3</sub>)

\*pH

Silica (SiO<sub>3</sub>) ppm 70

\*Turbidity degree

b. Raw water tank

\*Type Cylindrical \*Capacity x number gal (m<sup>3</sup>) 300,000 (1,135.5) x l

(Manufacturer/erector

c. Sedimentation system

\*Type

\*Applied chemical

\*Capacity t/day x number

\*Manufacturer/erector

d. Filtering system

\*Type

5167/cycle (cation)

Reverse Osmosis

\*Capacity t/day x number

\*Type of reverse washing

\*Filter material

\*Manufacturer/erector

Snyder

	<u>Unit No. 1</u>	nit No. 2
e. <u>Water Deminera</u>	lizing Equipment	
*Туре	Permutit	
*Capacity GPM (m <sup>3</sup> /h)	100 (22.7) x 2	
x number of train	Mixed Bed 100 (22.7)	x 2
*Capacity per l cycle	Cation 136400 (516)	
service gal (m <sup>3</sup> )	Anion 125,600 (475)	
	Mixed Bed 514000 (194	6)
*Type of resin x resin	Cation 1R-120 172	
filling capacity ft <sup>3</sup> (1)	Anion IRA-402 102 (28	88)
가는 것 않는 것 것 것 같이다. 같은 것 같은 것 것 같은 것 같은 것	Mixed Bed Cation IR-1	20 28 (793)
	Anion TRA-A	02 26 (670

# Condensate Demineralizer

	Å	nion IRA-4	02 24 (679)	
f. <u>Condensate Demine</u>	eralizer			
*Pre-filter type	None	N	one	
*Condensate demineralizer	1400 (318)	x 3 1	400 (318) x 4	
capacity x number GPM (m <sup>3</sup> /H)				
*Regeneration Equipment	2 sets in G	SSTP		

5.1.3 <u>Malaya Power P</u>	lant Equipment		
		Unit No. 1	Unit No. 2
1) <u>Boiler Eq</u> i	<u>iipment</u>		
a. <u>Boile</u> i	Proper		
*Type		Meander Waterwall	Single drum, E
		radiant type	pass, radiant
			type
<u>Steam Pressure</u> at 100	) % load		
*Design pressure	psig(kg/cm <sup>2</sup> )	3,425 (240.8)	2,910 (204.6)
*Final superheater	<pre>psig(kg/cm<sup>2</sup>)</pre>	2,770 (194.76)	2,471 (173.8)
outlet			
*Reheater outlet	psig(kg/cm <sup>2</sup> )	544.3 (38.27)	465 (32.7)
Steam temperature at	100% load		
*Rating temperature	°F (°C)	1,005 (540.5)	1,005 (541)
*Economizer inlet	°F (°C)	481 (249.4)	518.4 (270.2)
*Reheater inlet	°F (°C)	627 (330.5)	606 (318.9)
*Reheater outlet	°F (°C)	1,005 (540.5)	1,005 (541)
*Final superheater	°F (°C)	1,005 (540.5)	1,005 (541)
outlet			
<u>Evaporation</u>			
*Boiler MCR	1bs/h (t/h)	2,278,780	2,657,500
		(1,033.636)	(1,305.423)
*Unit 4/4 load	t/h		
Heating surface area			
*Contact heat	ft <sup>2</sup> (m <sup>2</sup> )	186,600 (17,335)	321,850 (29,90
transfer area			
*Radiant heat	ft <sup>2</sup> (m <sup>2</sup> )	11,330 (1,052.5)	17,300 (1,610
transfer area			

<u>Malaya</u>			
Superheater_		<u>Unit No. 1</u>	<u>Unit No. 2</u>
*Primary superheater			
Туре		Horizontal continu-	Horizontal conti-
		ous tube type	nuous multi-loop
			tube, drainable
			type
Heating surface	ft <sup>2</sup> (m <sup>2</sup> )	52,560 (4,883.0)	107,700 (10,010)
*Top and Roof Super	neater		
Туре		Tangent type	
Heating surface	ft <sup>2</sup> (m <sup>2</sup> )	9,860 (916.0)	
*Secondary Superheat	ter		
Туре		Pendant continuous	Horizontal conti-
		tube type	nuous multi-loop
			type, drainable
	9 9		type
Heating surface	ft <sup>2</sup> (m <sup>2</sup> )	26,570 (2,468.4)	25,530 (2,370)
*Materials		Austenitic Alloy	STBA 12, 22, 24
		Steel tubes	SUS 321 HTB
<u>Reheater</u>			
*Type		Horizontal & pen-	Continuous multi- drop drainable
		dant continuous tube	
*Heating surface	ft <sup>2</sup> (m <sup>2</sup> h)	42,900 (3,985.5)	type 36,330 (3,380)
*Materials	L - XHI XI X	STBA 35, 123, 23,	STB 35
		1996년 1월 2016년 전 1996년 1996년 1997년 1997년 1997년 - 1997년 19 1997년 1997년 19	
		SUS 27 HTB	

		5 - 53	
Malaya			
		Unit No. 1	Unit No. 2
Economizer			<u>UNIL NOT A</u>
*Material		STB 42	STB 42
*Heating surface	ft <sup>2</sup> (m <sup>2</sup> )	54,600 (5,072.5)	
Furnace			
*Volume	ft <sup>3</sup> (m <sup>3</sup> )	116,400 (3,295.9)	148,700 (4,210.6
*Construction of wa	ter	Horizontal meander	Ribbed membrane
wall			wa11
*Manufacturer/erect	or	Babcock - Hitachi	Babcock - HItach
b. <u>Air</u>	b. <u>Air Preheater</u>		
Regenerative air heater			
*Type		Horizontal	Vertical
*Heating area	$ft^2 (m^2)$	149,210 (13,862)	172,000 (15,990)
*In/outlet air	°F (°C)	137/559	137/560
temperature		(58.3/292.8)	(58/293)
*Manufacturer/erect	or	Ljungstrom/	Ljungstrom/
		Gadelius	Gadelius
<u>Steam air heater</u>			
*Туре		Finned	Helically fined
			double U-tube
*Heating area	ft <sup>2</sup> (m <sup>2</sup> )	27,835 (2,586)	24,335 (2260.7)
*In/outlet air	°F (°C)	100/134	80/201
temperature		(37.8/56.7)	(26.7/93.9)
*Manufacturer/erect	or	GEA Luftkunklekgese	llschaft
c, <u>Soot</u>	<u>blower</u>		
*Type/units number		KK Type RSB	Single nozzle
가려가 같은 것이 같은 것이 있었다. 같은 것이 같은 것이 가지 않는 것이 같은 것이 있다. 같은 것이 같은 것이 같은 것이 같은 것이 같은 것이 같은 것이 같이		53A/18	swing type/20

# <u>Malaya</u>

<u>Malaya</u>		
	Unit No. 1	<u>Unit No. 2</u>
*Manufacturer/erector	Babcock - Hitachi	Babcock - Hitachi
d, <u>Boiler Automatic Co</u> r	<u>itrol</u>	
Combustion control		
*Type	Electronic	Pneumatic
*Manufacturer/erector	Siemens	Bailey
Temperature control		
*Туре	Pneumatic	Pneumatic/
		electronic
*Manufacturer/erector	Hitachi	Bailey
Feedwater control		
*Type	Electronic	Pneumatic/
		electronic
*Manufacturer/erector	Slemens	Bailey
e. <u>Fuel Supply &amp; Firing</u>	; System	
<u>Heavy oil storage tank</u>		
*Type	Pontoon type	
	Floating roof	
*Capacity, bb1, (m <sup>3</sup> ) x number	193,400 (30,750) x	3 sets
*Manufacturer/erector	ECCO - ASIA	
Light oil tank		
*Type	Fixed cone roof	
*Capacity m <sup>3</sup> x number		
*Manufacturer/erector	ECCO - ASIA	
<u>Heavy oil service tank</u>		
*Type	None	None
	승규는 이번 가슴에 있는 것이다. 같은 것이 같은 것은 것이 같은 것이다. 같은 것이 같은 것은 것은 것은 것을 같은 것이다.	

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### Malaya Unit No. 1 Unit No. 2 \*Capacity, number of m<sup>3</sup> tank \*Manufacturer/erector 물건 영상 관계 전 문 Heavy oil burner \*Type Baw Return flow Baw return flow atomizer atomizer \*Capacity, 1b/h (kg/h) 7,300 (3,310) 8,500 (3,855) number of burner 24 (24 nozzles) \*Manufacturer/erector Babcock, Hitachi Babcock, Hitachi Light oil burner Band w/oil fired \*Type Band w/air opeequipped with eleelectrically ctrode for sparked ignited lighter ignition \*Capacity, g/h (1/h) 1,585 (6,000) x 24 400 lbs/h (181.4 number of burner kg/h) x 12 sets \*Manufacturer/erector Babcock, Hitachi Babcock, Hitachi Main fuel oil pump \*Type Screw 1 Screw-rotary \*Discharge pressure psig(kg/cm<sup>2</sup>g) 765 (53.87) 821 (57.7) g/m (m<sup>3</sup>/g) 395 (89.7) x 2 sets 436 (99.03) x 2 Capacity & number of pump De Laval IMO Sier - Bath \*Manufacturer/erector Explosion - Proof \*Driver - Type TEFC - XP - Capacity HP (kW) 300 (223.8) 350 (261.1)

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		Unit No. 1	Unit No. 2
Light fuel oil pump			
*Type		Gear	Same as Ml
*In/outlet pressure	psig(kg/cm <sup>2</sup> g)	0/230 (0/16.2)	
Capacity & number	g/m (m <sup>3</sup> /h)	50 (11.4) x 2 sets	
of pump			
*Manufacturer/erector		Northern Ord	
*Driver - Type		AC motor	
		(TEFC _ XP)	
- Capacity HP	(kW)	15 (11.19)	
*Manufacturer/erector		Westinghouse	
Constant Differential	fuel oil pump		
*Type		Horizontal SVC type	Horizontal type,
			centrifugal pump
*Capacity	$g/m (m^3/h)$	400 (90.8)	480 (109.02)
*Suction pressure	psig(kg/cm <sup>2</sup> g)	755 (53.1)	725 (50.97)
*Discharge pressure	psig(kg/cm <sup>2</sup> g)	925 (65.0)	901 (53.35)
<u>Heavy oil heater</u>			
*Type		Horizontal	Horizontal
*Capacity & number	g/m (m <sup>3</sup> /h)	195 (44.3) x	205 (46.5) x
of heater		3 sets	3 sets
*Manufacturer/erector		MESCO	WELDON
f. <u>Boiler</u>	Draughting Eq	uipment	
형 물질 모양 물건 것 같은 말을			

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Malaya			
		<u>Unit No. 1</u>	<u>Unit No. 2</u>
Forced Draught Fan			
*Type		Axial flow, 2 state	Horizontal cen-
		horizontal	trifugal type
			F-29B, 80-75, A <sub>3</sub>
			DWDI BX-VIV
*Capacity & number	ft <sup>3</sup> /m (m <sup>3</sup> /m)	380,000 (10,760)	394,000 (11,160)
		x 2 sets	x 2 sets
*Pressure	inwg (mmwg)	43 (1,092.2)	53.5 (1,105)
*Revolution speed	rpm	1,150	1,183
*Manufacturer/erecto	r	ĸwu	Honden Parson/
			Babcock-Hitachi
*Driver - Type		AC motor	AC motor
		Siemens RN5 634-	
		6не90-х	
- Capacity k	W x number	2,460 x 2 sets	2,600 x 2 sets
- Manufactur	er/	Siemens	Babcock - Hitach
erector			
Gas recirculation			
*Туре		Double suction	Double suction
		turbo-fan NV1CD,	with backward-
		16-1/2	curved air foil
			type blades
*Capacity x number	ft <sup>3</sup> /m (m <sup>3</sup> /m)	416,400 (11,790.8)	464,600 (13,160)
		xlset	x l set
*Pressure	inwg (mmwg)	12.2 (309.9)	11.8 (300)
*Revolution speed	rpm	870	1,180

# Malaya

<u>Malaya</u>			
		<u>Unit No. 1</u>	Unit No. 2
*Manufact	urer/erector	Nakashima	Howder Parson/
			BC Hitachi K.K.
*Driver -	Туре	AC Motor EFA-KK	AC motor
		NEMA type II	
에 문화한 것은 것은 이 가지 않는 것을 못 더 아이지 않는 것이 같이 있다.	Capacity kW x number	930 x 1 set	930 x 1 set
	Manufacturer/		Babcock - Hitachi
	erector		
<u>Stack</u>			
*Construc	tion	Tower supported	Consists of 2
		structure anchored	sections const-
		on a girder	ructed one on top
			of the other
*Top insi	de diameter ft (m)	15 (4.57)	17'-3/12" (5.25)
*Height	ft (m)	220 (67.06)	220 (67.06)
(Base of	<pre>stuck elevation ft (m))</pre>		
*Number		one	one
*Manufact	urer/erector	Pacific Engineering	/ ECCO ASIÀ
		PECCO	
	g, <u>Boiler Feed Water</u>	<u>Pump</u>	
<u>Turbine d</u>	<u>riven feed water pump</u>		
*Type & n	umber of stage	HDR8S, centrifugal	Impulse type
		6 stage	single flow con-
			densing turbine
			5 stage

<u>Malaya</u>			
		<u>Unit No. l</u>	Unit No. 2
*Capacity & number	lbs/m (m <sup>3</sup> /hr	) 2,600,000 (1,179.4)	6,850 g/m
of pump		x l set	(1,555.64m <sup>3</sup> /h)
			1 set
*Total head &	psig(m)	3,804 (1,674.6)	3,260 *2,292.1)
revolution	rpm	5,000	5,060
*Manufacturer/erector		Siemens	Hitachi
Turbine for BFP			
*Type		Axial, reaction,	
		single cylinder,	
		condensing type	
*Capacity & number	k₩	12,214 x 1 set	
of turbine			
*Manufacturer/erector		Siemens	
<u>T→BFP booster pump</u>			
*Type		YNKN 400/300	Horizontal type
		double suction	
		single stage	
*Capacity & number	1bs/m (t/h)	2,600,000 (1,179.4)	6,850 g/m
of pump		x 1 set	(1,555,64)m <sup>3</sup> /h
			1 set
*Total head &	psig(m)	96 (67.5)	125,2 (88)
revolution	rpm	1630	1,765
*Driver	kW	420	505
*Manufacturer/erector		KSB	Hitachi
<u>Motor driven feed wat</u>	<u>er pump</u>		
*Type & number of sta	ige	HDG h/11 - 11	Horizontal

<u>Malaya</u>			
		<u>Unit No. 1</u>	<u>Unit No. 2</u>
*Capacity & Number	1bs/h (t/h)		3,425 g/m
of pump		x 1 set	(777.8 m <sup>3</sup> /h)
			x 2 sets
	psi (m)	2,950 (2,074.1)	3,220 (2,264)
revolution	rpm	3,570	5,300
*Manufacturer/erector		Kelin, Achanzlin &	
*Driver - Type		Motor driven	Motor driven
- Capacity &		3,120 x 1 set	3,050 x 2 sets
number of m			
- Manufacture	r/	Siemens	Hitachi, Ltd.
erector			
<u>M-BFP booster pump</u>			
*Type		None	Horizontal type
*Capacity & Number	g/m(m <sup>°</sup> /h)		3,425 (777.8) x
of pump			2 sets
*Total head &	psig (m)/rpm		100 (70.3)/1800
revolution			
*Manufacturer/erector			Hitachi, Ltd.
*Drive - Type			FWP, Direct
h. <u>Feed I</u>	later Heaters	<u>Equipment</u>	
No. 1 LP Feed water 1	<u>neater</u>		
*Туре		Horizontal U-tube	Horizontal U-tube
*Heating surface are	$ft^2(m^2)$	7,410 (688.4) x	5,597 (519.98) x
& number of heater		1 set	2 sets
*Material of heating	tube	St 35.8	SUS 304 TB

	5	- 61	
Malaya			
		Unit No. 1	Unit No. 2
*Heating steam in/	°F (°C)	182.5/176.5	193.9/177.4
drain outlet		(83.6/80.3)	(89.94/80.8)
temperature			
*Condensate in/	°F (°C)	113.4/170.1	117.9/172.4
outlet temperature		(45.2/76.7)	(47.72/78.0)
*Condensate flow	lbs/h (kg/h)	1,863,520	1,859,101
		(845,295)	(845,045.9)
*Manufacturer/erecto	r	Atlas-Mak Mas-	Hitachi, Ltd.
自己的人们的"你们的高粱"。 一月,自己的"你们都是我们?		chinenbau GmbH	

*Type	Vwakl 115.2/750	Horizontal U-tube
	Horizontal U-tube	2 pass
	2 pass low pres-	
	sure	
*Heating surface area $ft^2$ (m <sup>2</sup> )	6,954 (646.0)	8,810 (818.5)
& number of heater	x l set	x 1 set
*Material of heating tube	St 35.8	0.5 M. Cs
		STBA 12
*Heating steam in/ °F (°C)	266.6/182.5	382.5/182.4
drain outlet	(130.3/83.6)	(194.7/83.5)
temperature		
*Condensate in/outlet °F (°C)	170.1/214	172.4/238.1
temperature	(76.7/101.1)	(78/114.5)
*Condensate flow 1bs/m (kg/h	) 1,863,520	1,859,101
	(845,295)	(845,045.9)

<u>Malaya</u>	Unit No. 1	
*Manufacturer/erector	Atlas-Mas Mas	Unit No. 2 Hitachi, Ltd.
	chinenbau GmbH	
No. 3 LP feed water heater		
*Type	Vwak1 125.2/900	Horizontal U-tube
	Horizontal U-tube	
	2 pass low pressure	
*Heating surface are ft <sup>2</sup> (m <sup>2</sup> )	8,880 (825.0)	5,904 (548.5)
& number of heater	x 1 set	x l set
*Material of heating tube	S. 35.8	0.5 M. CS
		STBA 12
*Heating steam in/ °F (°C)	499/226.6	485/248.1
drain outlet	(259.44/108.1)	(251.7/120.1)
temperature		
*Condensate in/outlet °F (°C)	214/299.3	238.1/270.8
temperature	(101.1/148.5)	(114.5/132.7)
*Condensate flow lbs/m (kg/h)	1,863,526	1,859,101
	(845,295)	(845,045.9)
*Manufacturer.erector	Atlas-Mak Maschi-	Hitachi, Ltd.
	nenbau GmbH	
<u>Deaerator</u>		
*Type	Spray, deaerator	Spray deaerator
	mounted on hori-	
	zontal storage tank	
*Outlet feed water lbs/h (t/h)		2,421,957
flow	(1,033.7)	(1,100.9)