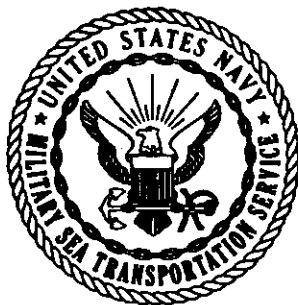


ENGINE ROOM LOG

GEARED TURBINE DRIVE



USNS GEN. John Pope (T-EP-110)

FROM 0000 19 67 TO 19

INSTRUCTIONS

1. The entries in this book will be made neatly and legibly by the engineer or other person directly in charge of the machinery of the vessel, and with pen and ink or indelible pencil. No erasures nor the removal of any leaves will be permitted. Incorrect entries may be changed by drawing a single line through same with ink or indelible pencil and writing in the correct data, followed by the initials of the person making the change. The greatest care shall be used in keeping the log book to insure absolute accuracy in all particulars.

2. All entries of time shall be made on the 24-hour basis, noon to noon.

3. Under the heading "Remarks" a careful, detailed record of the events occurring daily in the engine department shall be entered in the log book, together with notation of any violation of orders or regulations. Remarks should be preceded by the time when pertaining to important tests, casualties, injuries, etc.

4. Entries regarding the following shall also be made when occurring:

(a) Repairs, cleaning, and painting, including machinery outside the engine spaces.

(b) Faulty or erratic operation or failure of machinery.

(c) Any important changes in machinery of any nature, or additions thereto.

(d) Remetalling of bearings; fitting new piston rings; reboring cylinders; renewing pump parts, metallic packing, important valves, propeller, shafting, stern bearing, zinc protection bars and rings outboard, strainers, etc.; data to show in all cases exactly what parts have been attended to or repaired, material or article used and reasons.

(e) Pumping of bilges.

(f) Blowing of tubes.

(g) Examining holding down bolts.

(h) Fuel and water taken aboard. The fuel account shall be carefully kept and the quantity consumed each day accurately ascertained.

(i) Grade and quality of fuel oil and lubricating oil used; also type of filtering and cleaning elements installed in both fuel and lube oil lines; results obtained from use thereof.

(j) Record of special tests ordered made.

(k) Defects in supplies received.

(l) Derelictions or deficiencies developed on the part of any member of the engine department.

5. In twin screw vessels when both engines are in the same engine space, alternate pages will be used for recording the readings from the starboard machinery, the other pages being used for the port machinery. In such cases, each sheet of the log book will bear the notation either "Port Machinery" or "Starboard Machinery." In the event that the machinery for each propeller is in a separate engine room, two books shall be utilized and each page of each such book shall be properly marked to indicate to which engine room it applies. For such ships, in addition to individual fuel, water, and lube oil summaries, the sheets covering the control engine room shall carry a consolidated figure reflecting the status of these materials for both machinery spaces.

6. The log books shall be retained on board unless required temporarily by the administrative commander and destroyed when three years old.

WATCH							WATCH						
1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200	
RUNNING TIME							AFT. H. P. ROTOR BEARING						
DETENTION TIME							FORWARD L. P. ROTOR BEARING						
REVOLUTION COUNTER (END OF WATCH)							AFT. L. P. ROTOR BEARING						
TOTAL REVOLUTIONS (FOR WATCH)							HOTTEST GEAR BEARING FORWARD						
AVERAGE RPM							HOTTEST GEAR BEARING AFT						
F.O. METER (END OF WATCH)							AUX. COND. CONDENSATE						
F.O. CONSUMED							1ST STAGE FEED WATER HEATER						
MACHINERY PARTICULARS	PRESSURES	THROTTLE					MACHINERY PARTICULARS (CONT'D)	TEMPERATURES (CONT'D)					
		H.P. AHEAD											
		L.P. AHEAD											
		VACUUM											
		L.O. TO TURBINES											
		AUX. STEAM											
		BACK PRESSURE											
		GLAND STEAM											
		H.P. BLEEDER											
		L.P. BLEEDER											
MACHINERY PARTICULARS	TEMPERATURES	STEAM AT THROTTLE					BOILER PARTICULARS	PRESSURES					
		L.P. EXHAUST											
		CONDENSATE											
		CIRC. WATER IN											
		CIRC. WATER OUT											
		L.O. TO COOLERS											
		L.O. FROM COOLERS											
		TEMPERATURE THRUST BEARING											
		FORWARD H.P. ROTOR BEARING											
MACHINERY PARTICULARS	TEMPERATURES						MISCELLANEOUS						

WATCH	GENERATORS												FUEL - WATER AND LUBE OIL															
	GENERATOR NUMBER	R.P.M.	STEAM PRESSURE	STEAM TEMP.	L.O. PRESSURE	L.O. TO COOLER	L.O. FROM COOLER	TEMP. OF HOTTEST BEARING	L.O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL	FUEL OIL	BOILER WATER	ON HAND AT START OF DAY	EVAPORATED OR RECEIVED	ON HAND	CONSUMED	ON HAND AT START OF DAY	RECEIVED	ON HAND	CONSUMED					
1200 TO 1600																												
1600 TO 2000																												
2000 TO 2400																												
2400 TO 0400																												
0400 TO 0800																												
0800 TO 1200																												
DOMESTIC WATER														ON HAND AT START OF DAY														
														EVAPORATED OR RECEIVED														
														ON HAND														
														CONSUMED														
														LOW PRESS. EVAPORATORS (No. of hrs. operated)(Fresh water made gals.)														
														L.O. CENTRIFUGE - HOURS OPERATED														
														1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200									
														SUMMARY														
														RUNNING TIME				PERCENT OF SLIP										
														DETENTION TIME				BBL FUEL/MI										
														TOTAL REVOLUTIONS				WIND DIRECTION										
														AVERAGE R.P.M.				STATE OF SEA										
														TOTAL MILES BY ENGINE				STATE OF WEATHER										
														TOTAL MILES BY OBSERVATION														

REMARKS

1200-1600 WATCH

WATCH ENGR'S SIGNATURE-

1600-2000 WATCH

WATCH ENGR'S SIGNATURE-

2000-2400 WATCH

WATCH ENGR'S SIGNATURE-

2400-0400 WATCH

Plant Secured made Inspections of machinery & spaces

WATCH ENGR'S SIGNATURE-

0400-0800 WATCH

Plant Secured made Inspections of machinery & spaces

WATCH ENGR'S SIGNATURE-

0800-1200 WATCH

Plant Secured made Inspection of machinery & spaces

WATCH ENGR'S SIGNATURE-

CHIEF ENGINEER

BOILER WATER READINGS

STB'D	PORT
HOURS	HOURS
AKL	AKL
T- AKL	T- AKL
SAL.	SAL.
PHOS.	PHOS.
R. ph	R. ph

CHIEF ENGR'S SIGNATURE-

L. L. Clement

WATCH							WATCH						
1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200	
RUNNING TIME							AFT. H. P. ROTOR BEARING						
DETENTION TIME							FORWARD L. P. ROTOR BEARING						
REVOLUTION COUNTER (END OF WATCH)							AFT. L.P. ROTOR BEARING						
TOTAL REVOLUTIONS (FOR WATCH)							HOTTEST GEAR BEARING FORWARD						
AVERAGE RPM							HOTTEST GEAR BEARING AFT						
F.O. METER (END OF WATCH)							AUX. COND. CONDENSATE						
F.O. CONSUMED							1ST STAGE FEED WATER HEATER						
MACHINERY PARTICULARS	PRESSURES	THROTTLE					MACHINERY PARTICULARS (CONT'D)	TEMPERATURES (CONT'D)					
		H.P. AHEAD											
		L.P. AHEAD											
		VACUUM											
		L.O. TO TURBINES											
		AUX. STEAM											
		BACK PRESSURE											
		GLAND STEAM											
		H.P. BLEEDER											
		I.P. BLEEDER											
		L.P. BLEEDER											
MACHINERY PARTICULARS	TEMPERATURES	STEAM AT THROTTLE					BOILER PARTICULARS	PRESSURES					
		L.P. EXHAUST											
		CONDENSATE											
		CIRC. WATER IN											
		CIRC. WATER OUT											
		L.O. TO COOLERS											
		L.O. FROM COOLERS											
		TEMPERATURE THRUST BEARING											
		FORWARD H.P. ROTOR BEARING											
MACHINERY PARTICULARS	TEMPERATURES						MISCELLANEOUS						

WATCH	GENERATORS												FUEL - WATER AND LUBE OIL							
	GENERATOR NUMBER	R. P. M.	STEAM PRESSURE	STEAM TEMP.	L. O. PRESSURE	L. O. TO COOLER	L. O. FROM COOLER	TEMP. OF HOTTEST BEARING	L. O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL		DOMESTIC WATER		LUBE OIL		BOILER WATER	
1200 TO 1600													METER AT NOON		ON HAND AT START OF DAY		METER PREVIOUS NOON		EVAPORATED OR RECEIVED	
													CONSUMED BY METER		ON HAND					
													ON HAND AT START OF DAY		CONSUMED					
													RECEIVED DURING DAY		ON HAND AT START OF DAY					
													EXPENDED DURING DAY		RECEIVED					
													REMAINING ON BOARD		ON HAND					
													ON HAND AT START OF DAY		CONSUMED					
													EVAPORATED OR RECEIVED		DIESEL OIL					
													ON HAND		ON HAND					
													CONSUMED		CONSUMED					
													LOW PRESS. EVAPORATORS (No. of hrs. operated)(Fresh water made gals.)							
													L. O. CENTRIFUGE - HOURS OPERATED							
													1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200		
2400 TO 0400																				
0400 TO 0800																				
0800 TO 1200																				

SUMMARY			
RUNNING TIME		PERCENT OF SLIP	
DETENTION TIME		BBL FUEL/MI	
TOTAL REVOLUTIONS		WIND DIRECTION	
AVERAGE R.P.M.		STATE OF SEA	
TOTAL MILES BY ENGINE		STATE OF WEATHER	
TOTAL MILES BY OBSERVATION			

REMARKS

1200-1600 WATCH

Port Relief Watch - Plant Secured

WATCH ENGR'S SIGNATURE-

1600-2000 WATCH

Port Relief Watch - Plant Secured

WATCH ENGR'S SIGNATURE-

2000-2400 WATCH

Port Relief Watch - Plant Secured

WATCH ENGR'S SIGNATURE-

2400-0400 WATCH

Plant Secured made Inspections of machinery & spaces

WATCH ENGR'S SIGNATURE-

0400-0800 WATCH

Plant Secured made Inspections of machinery & spaces

WATCH ENGR'S SIGNATURE-

0800-1200 WATCH

Plant Secured made Inspection of machinery & spaces.
Pumped Bilges

WATCH ENGR'S SIGNATURE-

CHIEF ENGINEER

BOILER WATER READINGS

STB'D	PORT
HOURS	HOURS
AL	AKL
T	T-AKL
SAL.	SAL.
PHOS.	PHOS.
R.ph	R.ph

CHIEF ENGR'S SIGNATURE-

L. L. Clemon

USNS		VOYAGE NO.		FROM		TO		TYPE OF VESSEL		DATE												
		WATCH						WATCH														
		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200	1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200									
RUNNING TIME																						
DETENTION TIME																						
REVOLUTION COUNTER (END OF WATCH)																						
TOTAL REVOLUTIONS (FOR WATCH)																						
AVERAGE RPM																						
F.O. METER (END OF WATCH)																						
F.O. CONSUMED																						
MACHINERY PARTICULARS	PRESSURES	THROTTLE						MACHINERY PARTICULARS (CONT'D)	TEMPERATURES (CONT'D)	AFT. H. P. ROTOR BEARING												
		H.P. AHEAD								FORWARD L. P. ROTOR BEARING												
		L.P. AHEAD								AFT. L.P. ROTOR BEARING												
		VACUUM								HOTTEST GEAR BEARING FORWARD												
		L.O. TO TURBINES								HOTTEST GEAR BEARING AFT												
		AUX. STEAM								AUX. COND. CONDENSATE												
		BACK PRESSURE								1ST STAGE FEED WATER HEATER												
		GLAND STEAM								D. C. FEED WATER HEATER												
		H.P. BLEEDER								3RD STAGE FEED WATER HEATER												
		I.P. BLEEDER																				
	L.P. BLEEDER																					
	TEMPERATURES	STEAM AT THROTTLE						BOILER PARTICULARS	TEMPERATURES	F.O. TO BURNERS												
		L.P. EXHAUST								F. O. BACK PRESSURE												
		CONDENSATE								AIR TO FURNACE												
		CIRC. WATER IN								UPTAKE												
		CIRC. WATER OUT								MAIN STEAM												
		L.O. TO COOLERS								SUPER HEAT												
		L.O. FROM COOLERS								F.O. TO BURNERS												
		TEMPERATURE THRUST BEARING								F.O. TEMP. IN SETTLING TANKS												
		FORWARD H.P. ROTOR BEARING								PORT BOILER UPTAKE												
							STBD. BOILER UPTAKE															
TEMPERATURES							MISCELLANEOUS		ENGINE ROOM TEMPERATURE													
								FIRE ROOM TEMPERATURE														
								NOZZLES IN USE														
								NO. OF BURNERS IN USE														
								BURNER TIP SIZE														
								CO ₂ % PORT BOILER														
								CO ₂ % STBD. BOILER														
								OIL LEVEL MAIN SUMP														
WATCH	GENERATORS											FUEL - WATER AND LUBE OIL										
	GENERATOR NUMBER	R. P. M.	STEAM PRESSURE	STEAM TEMP.	L.O. PRESSURE	L.O. TO COOLER	L.O. FROM COOLER	TEMP. OF HOTTEST BEARING	L.O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL		DOMESTIC WATER		BOILER WATER		LUBE OIL			
	1200 TO 1600												METER AT NOON				ON HAND AT START OF DAY					
													METER PREVIOUS NOON				EVAPORATED OR RECEIVED					
													CONSUMED BY METER				ON HAND					
													ON HAND AT START OF DAY				CONSUMED					
													RECEIVED DURING DAY				ON HAND AT START OF DAY					
													EXPENDED DURING DAY				RECEIVED					
													REMAINING ON BOARD				ON HAND					
													ON HAND AT START OF DAY				CONSUMED					
													EVAPORATED OR RECEIVED				DIESEL OIL					
													ON HAND				ON HAND					

REMARKS

1200-1600 WATCH

Port Relief Watch, - Plant Secured

WATCH ENGR'S SIGNATURE-

1600-2000 WATCH

Port Relief Watch, - Plant Secured

WATCH ENGR'S SIGNATURE-

2000-2400 WATCH

Port Relief Watch, - Plant Secured

WATCH ENGR'S SIGNATURE-

2400-0400 WATCH

PLANT SECURED

WATCH ENGR'S SIGNATURE-

0400-0800 WATCH

PLANT SECURED

WATCH ENGR'S SIGNATURE-

0800-1200 WATCH

Plant Secured crew working as per work list.

WATCH ENGR'S SIGNATURE-

CHIEF ENGINEER

BOILER WATER READINGS

STE'D	PORT
HOURS	HOURS
AKL	AKL
T-	T-AKL
SAL.	SAL.
PHOS.	PHOS.
R.ph	R.ph

CHIEF ENGR'S SIGNATURE-

L. H. Clemens

[illegible]

REMARKS

1200-1600 WATCH

Plant Secured

WATCH ENGR'S SIGNATURE-

L. H. HARRIS

1600-2000 WATCH

Per - Reling Watch - Plant Secured

WATCH ENGR'S SIGNATURE-

R. H. HARRIS

2000-2400 WATCH

Per - Reling Watch - Plant Secured

WATCH ENGR'S SIGNATURE-

R. H. HARRIS

2400-0400 WATCH

PLANT SECURED

WATCH ENGR'S SIGNATURE-

C. J. LAUGHLIN

0400-0800 WATCH

PLANT SECURED

WATCH ENGR'S SIGNATURE-

C. J. LAUGHLIN

0800-1200 WATCH

PLANT SECURED

WATCH ENGR'S SIGNATURE-

C. J. LAUGHLIN

CHIEF ENGINEER

BOILER WATER READINGS

STE'D

PORT

HOURS

HOURS

AL

AKL

T

T-AKL

SAL.

SAL.

PHOS.

PHOS.

R.ph

R.ph

CHIEF ENGR'S SIGNATURE-

L. H. HARRIS

		WATCH								WATCH							
		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200			1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200		
RUNNING TIME				608			60	MACHINERY PARTICULARS (CONT'D)		TEMPERATURES (CONT'D)		AFT. H. P. ROTOR BEARING					
DETENTION TIME												FORWARD L. P. ROTOR BEARING					
REVOLUTION COUNTER (END OF WATCH)							2895					AFT. L.P. ROTOR BEARING					
TOTAL REVOLUTIONS (FOR WATCH)				5540			5540					HOTTEST GEAR BEARING FORWARD					
AVERAGE RPM				92.3			92.3					HOTTEST GEAR BEARING AFT					
F.O. METER (END OF WATCH)							1278					AUX. COND. CONDENSATE					
F.O. CONSUMED							9700					1ST STAGE FEED WATER HEATER					
							1320	D. C. FEED WATER HEATER									
								3RD STAGE FEED WATER HEATER									
MACHINERY PARTICULARS	PRESSURES	THROTTLE						BOILER PARTICULARS		TEMPERATURES		F.O. TO BURNERS					
		H.P. AHEAD										F. O. BACK PRESSURE					
		L.P. AHEAD										AIR TO FURNACE					
		VACUUM										UPTAKE					
		L.O. TO TURBINES										MAIN STEAM					
		AUX. STEAM										SUPER HEAT					
		BACK PRESSURE										F.O. TO BURNERS					
		GLAND STEAM										F.O. TEMP. IN SETTLING TANKS					
		H.P. BLEEDER										PORT BOILER UPTAKE					
	TEMPERATURES	L.P. BLEEDER						STBD. BOILER UPTAKE									
		STEAM AT THROTTLE						ENGINE ROOM TEMPERATURE									
		L.P. EXHAUST						FIRE ROOM TEMPERATURE									
		CONDENSATE						NOZZLES IN USE									
		CIRC. WATER IN						NO. OF BURNERS IN USE									
		CIRC. WATER OUT						BURNER TIP SIZE									
		L.O. TO COOLERS						CO ₂ % PORT BOILER									
		L.O. FROM COOLERS						CO ₂ % STBD. BOILER									
		TEMPERATURE THRUST BEARING						OIL LEVEL MAIN SUMP									
		FORWARD H.P. ROTOR BEARING															

WATCH	GENERATORS												FUEL - WATER AND LUBE OIL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	GENERATOR NUMBER	R. P. M.	STEAM PRESSURE	STEAM TEMP.	L. O. PRESSURE	L. O. TO COOLER	L. O. FROM COOLER	TEMP. OF HOTTEST BEARING	L. O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL	DOMESTIC WATER	FUEL OIL	BOILER WATER	LUBE OIL	ON HAND AT START OF DAY	EVAPORATED OR RECEIVED	ON HAND	CONSUMED	ON HAND AT START OF DAY	RECEIVED	ON HAND	CONSUMED																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
1200 TO 1600																										METER AT NOON		METER PREVIOUS NOON		CONSUMED BY METER		ON HAND AT START OF DAY		RECEIVED DURING DAY		EXPENDED DURING DAY		REMAINING ON BOARD		ON HAND AT START OF DAY		EVAPORATED OR RECEIVED		ON HAND		CONSUMED		ON HAND		CONSUMED																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
1600 TO 2000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

REMARKS

1200-1600 WATCH

Port Relief Watch - Plant Secured

WATCH ENGR'S SIGNATURE-

1600-2000 WATCH

Port Relief Watch - Plant Secured

WATCH ENGR'S SIGNATURE-

2000-2400 WATCH

Port Relief Watch - Plant Secured

WATCH ENGR'S SIGNATURE-

2400-0400 WATCH

Port Watch, At 0001 Lit off No. 3-4 Boiler and aux; at 0200 started Main Core Pump Fuel Oil Suction from Stbd Settler, at 0210 started L.O. Purifier at 0130 started Main L.O. Pump and started Jacking Main engine; at 0400 started Aux. Cond. Pump & Circ. Pump and Air ejectors.

WATCH ENGR'S SIGNATURE-

0400-0800 WATCH

Oiler-Mecham. F.W.T. —

PORT WATCH

LIT OFF MAKE UP EVAP @ 0630 at 0723 Tested Engine Room telegraph, at 0730 tested steering gear; at 0740 opened Hkhd Stop and Main Boiler Stops Rolling Main engines TIME CHECK @ 0744.

WATCH ENGR'S SIGNATURE-

0800-1200 WATCH

OILER-BORR F.W.T.-McGrawis

maneuvering watch Leaving Oakland

Stbdy cat 28936120 FOM 12788380 Total

Dept cat 29932650 FOM 12789540 Total

WATCH ENGR'S SIGNATURE-

CHIEF ENGINEER

BOILER WATER READINGS

Mr Butter^{F.W.T.} did not show up for 122400-0400 Sea Watch.

STE'D	PORT
HOURS	HOURS
A	AKL
T	T-AKL
S	SAL.
PHOS.	PHOS.
R.ph	R.ph

CHIEF ENGR'S SIGNATURE-

L. L. Clemons

		WATCH								WATCH						
		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200			1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200	
RUNNING TIME		240	240	240	240	240	240	MACHINERY PARTICULARS (CONT'D)	AFT. H. P. ROTOR BEARING	130	128	134	124	126	128	
DETENTION TIME										FORWARD L. P. ROTOR BEARING	126	126	125	124	126	127
REVOLUTION COUNTER (END OF WATCH)		2896 0850	2898 0280	2900 1890	2902 3350	2904 4490	2906 6150	TEMPERATURES (CONT'D)	AFT. L. P. ROTOR BEARING	126	126	125	125	126	126	
TOTAL REVOLUTIONS (FOR WATCH)		25660	19430	21610	21460	21440	21360		HOTTEST GEAR BEARING FORWARD	040	012	142	142	113	140	
AVERAGE RPM		94.4	88.3	90.0	89.4	89.4	89.0	HOTTEST GEAR BEARING AFT	132	112	136	136	117	139		
F.O. METER (END OF WATCH)		1279 2790	1279 5460	1279 8210	1280 1006	1280 1230	1280 1480	AUX. COND. CONDENSATE	44/85	29/87	54/88	84/88	93/95	86/90		
F.O. CONSUMED		3090	2670	2750	2790	2810	2670	1ST STAGE FEED WATER HEATER			175	168		165		
MACHINERY PARTICULARS		PRESSURES	THROTTLE	410	400	400	406	400	400	D. C. FEED WATER HEATER	236	237	237	238	238	238
			H.P. AHEAD	410	400	400	406	400	400	3RD STAGE FEED WATER HEATER						
			L.P. AHEAD	16	20	20	19	19.5	19.5	F.O. TO BURNERS	154	160	140	140	155	156
			VACUUM	29.4	29.5	29.5	29.4	29.5	29.5	F. O. BACK PRESSURE	280 200					
			L.O. TO TURBINES	12.5	12.5	12.5	12.5	12.5	12.5	AIR TO FURNACE	2.8	5.0	4.2 3.0	4.6 4.5	4.8 4.4	9.4 3.8
			AUX. STEAM	150	150	150	150	150	150	UPTAKE						
			BACK PRESSURE	9.5	9	9	9	9	9	MAIN STEAM	440		440	446	440	440
			GLAND STEAM	1.	2	1.5	1.5	1.5	2.0	SUPER HEAT	735	720	710	725	710	720
			H.P. BLEEDER	74	75	70	70	70	70	F.O. TO BURNERS	184	170	170	170	170	170
			I.P. BLEEDER							F.O. TEMP. IN SETTLING TANKS	102 108	101 110		103 103	103 103	100 106
TEMPERATURES		PRESSURES	L.P. BLEEDER	6	6	5	5	5	5	PORT BOILER UPTAKE	315	292	290	300	295	285
			STEAM AT THROTTLE	4735	720	710	725	710	720	STBD. BOILER UPTAKE	314	282	200	285	288	280
			L.P. EXHAUST	96°	95	94	94°	98	99	ENGINE ROOM TEMPERATURE	77	74	74	78	78	96
			CONDENSATE	88°	90	92	92°	96	99	FIRE ROOM TEMPERATURE	42		74	"	78	86
			CIRC. WATER IN	58°	60	60	60°	67	68	NOZZLES IN USE	42	18	18	18	18	18
			CIRC. WATER OUT	68°	71	70	70°	77	78	NO. OF BURNERS IN USE	6	6	6	6	6	6
			L.O. TO COOLERS	128	126	126	126	125	127	BURNER TIP SIZE	33/60	51/55	51/55	51/55	51/55	51/55
			L.O. FROM COOLERS	110	110	110	110	109	110	CO ₂ % PORT BOILER						
			TEMPERATURE THRUST BEARING	136	112	107	115	110	113	CO ₂ % STBD. BOILER						
			FORWARD H.P. ROTOR BEARING	126	122	120	126	122	123	OIL LEVEL MAIN SUMP			1.5			1.5

WATCH	GENERATORS												FUEL - WATER AND LUBE OIL					
	GENERATOR NUMBER	R.P.M.	STEAM PRESSURE	STEAM TEMP.	L.O. PRESSURE	L.O. TO COOLER	L.O. FROM COOLER	TEMP. OF HOTTEST BEARING	L.O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL	DOMESTIC WATER	BOILER WATER	LUBE OIL		
1200 TO 1600	3	1200		735	180	112	114		65	900	900	240	METER AT NOON	1280648	ON HAND AT START OF DAY			
		10											METER PREVIOUS NOON	1278970	EVAPORATED OR RECEIVED			
	4	1200		735	10	130	116		45	900	900	240	CONSUMED BY METER	16780	ON HAND			
													ON HAND AT START OF DAY		CONSUMED			
													RECEIVED DURING DAY		ON HAND AT START OF DAY			
													EXPENDED DURING DAY		RECEIVED			
													REMAINING ON BOARD		ON HAND			
1600 TO 2000	3	1200		735	9	123	110		64	950	950	240	ON HAND AT START OF DAY		CONSUMED			
													EVAPORATED OR RECEIVED		DIESEL OIL			
													ON HAND		ON HAND			
	4	1200		735	10	135	115		45	950	950	240	CONSUMED		CONSUMED			
2000 TO 2400	3	1200	440	710	9	132	110		64	950	950	240	LOW PRESS. EVAPORATORS (No. of hrs. operated) (Fresh water made gals.)					
	4	1200	440	710	10	132	116		45	950	950	240						
2400 TO 0400	3	1200	440	725	8	133	115		64	900	900	240	L.O. CENTRIFUGE - HOURS OPERATED					
	4	1200	440	725	10	133	115		45	600	600	240	1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400		
													0400 TO 0800	0800 TO 1200				
													4	4	4	4		
0400 TO 0800	3	1200	440	710	10	138	120		64	1000	1000	240	SUMMARY					
													RUNNING TIME		PERCENT OF SLIP			
	4	1200	440	710	10	136	120		45	1000	1000	240	DEFENTION TIME		BBL FUEL/MI			
0800 TO 1200	3	1200	440	720	8	129	110		65	1000	1000	240	TOTAL REVOLUTIONS		WIND DIRECTION			
	4	1200	440	720	10	132	114		45	1000	1000	240	AVERAGE R.P.M.		STATE OF SEA			
													TOTAL MILES BY ENGINE		STATE OF WEATHER			
													TOTAL MILES BY OBSERVATION					

REMARKS

Fuel Oil Suction from ^{Angd} Settlor at 1400

1200-1600 WATCH

Machinery in service: No. 3-4 Boilers and aux.; No. 3-4 D.C. Generator and aux.; No. 3 Main Cond. Pump, Mn. Circ. Pump, Mn. Air Ejectors, Mn. Lub. Pump, L.O. Purifier; Made routine watch tests and inspections; S.S. Air Compressor, in service

WATCH ENGR'S SIGNATURE-

Harold J. DeMord.

1600-2000 WATCH

UNDERWAY ON 18 NOZZLES MACH. IN OPERATION AS BEFORE.

TUNE UP ON NEW JOINTS JOINT BLOWERS - 21.65 CLASS

STBY @ 1915

BLOW TUBES IN PORT & STBD BLS

400 COMPOUND 7-15 & 15-15 TO 100 KLP

#2 STBD = 16'-0" - TEST = .41 MAIN COND. .41

#2 PORT = 12'-0" - TEST = .41 SUCT ON PORT

WATCH ENGR'S SIGNATURE-

J. Karsten

2000-2400 WATCH

UNDERWAY 18 NOZZLES MACHINERY AS BEFORE changed top FO burners & Port FO discharge strainers, Pumped bilges, made routine tests, checks & inspections. All conditions normal.

Routine underway steaming watch

WATCH ENGR'S SIGNATURE-

J. L. Pickett

2400-0400 WATCH

At 2400 shifted F.O. Settlers, In board settler in service, at 0100 Completed Pumping settlers; at 0200 cleaned and shifted Main Lub Oil Strainers; shifted and cleaned Fuel Oil Strainers, Cleaned and changed Burners; Made routine watch tests and inspections of Engine Room, Engineering spaces;

WATCH ENGR'S SIGNATURE-

Harold J. DeMord

0400-0800 WATCH

UNDERWAY ON 18 NOZZLES. MACHINERY IN OPERATION AS BEFORE.

44 @ 0542

#2 PORT = 16'-0" - TEST = .41

#2 STBD = 22'-0" - TEST = .41

WATCH ENGR'S SIGNATURE-

J. Karsten

0800-1200 WATCH

18 NOZZLES, underway machinery as before S.P.T. plant operation. Blew tubes Pk's 0805-0830. pumped bilges and shaft alley's. Made routine rounds tests & inspections. all condition normal & satisfactory.

WATCH ENGR'S SIGNATURE-

J. L. Pickett

CHIEF ENGINEER

BOILER WATER READINGS

STE'D	PORT
F S F-276 HOURS W-276	F-36 W-36
A 7.6 AKL 10.5	
T 10.5 T-AKL 15.7	
S 5.39 SAL. 5.39	
Pi 30 PHOS. 40	
R.ph 10.5 R.ph 10.5	

CHIEF ENGR'S SIGNATURE-

L. L. Clement

USNS Gen. John Pope (TAP-110) VOYAGE NO. FROM Oakland, Calif TO San Diego, Calif TYPE OF VESSEL DATE 7-2-1-67

WATCH							WATCH						
1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200	
RUNNING TIME							AFT. H. P. ROTOR BEARING						
DETENTION TIME							FORWARD L. P. ROTOR BEARING						
REVOLUTION COUNTER (END OF WATCH)							AFT. L. P. ROTOR BEARING						
TOTAL REVOLUTIONS (FOR WATCH)							HOTTEST GEAR BEARING FORWARD						
AVERAGE RPM							HOTTEST GEAR BEARING AFT						
F.O. METER (END OF WATCH)							AUX. COND. CONDENSATE						
F.O. CONSUMED							1ST STAGE FEED WATER HEATER						
							D. C. FEED WATER HEATER						
							3RD STAGE FEED WATER HEATER						
MACHINERY PARTICULARS	PRESSURES	THROTTLE					MACHINERY PARTICULARS (CONT'D)	TEMPERATURES (CONT'D)					
		H.P. AHEAD											
		L.P. AHEAD											
		VACUUM	25	24	23	23.2							
		L.O. TO TURBINES	13	13	13.5	13							
		AUX. STEAM	150	150	150	145							
		BACK PRESSURE	9	7	9	9							
		GLAND STEAM	1.8	1.5	1.8	1							
		H.P. BLEEDER											
		L.P. BLEEDER											
		L.P. BLEEDER											
		STEAM AT THROTTLE											
		L.P. EXHAUST	118		110	110							
		CONDENSATE	84	87	88	89							
TEMPERATURES		CIRC. WATER IN	70	72	68	68	MISCELLANEOUS						
		CIRC. WATER OUT	70	70	70	70							
		L.O. TO COOLERS	119	112	114	114							
		L.O. FROM COOLERS	110	110	110	116							
		TEMPERATURE THRUST BEARING											
		FORWARD H.P. ROTOR BEARING											

GENERATORS													FUEL - WATER AND LUBE OIL					
WATCH	GENERATOR NUMBER	R.P.M.	STEAM PRESSURE	STEAM TEMP.	L.O. PRESSURE	L.O. TO COOLER	L.O. FROM COOLER	TEMP. OF HOTTEST BEARING	L.O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL		BOILER WATER		LUBE OIL	
1200 TO 1600	3	1200	440		8	130	116		65	900	900	240	METER AT NOON	1281110		ON HAND AT START OF DAY		
	4	1200	440		10	135	118		45	900	900	240	METER PREVIOUS NOON	12806480		EVAPORATED OR RECEIVED		
													CONSUMED BY METER	4630		ON HAND		
1600 TO 2000	3	1200	440		8	132	110		64	900	860	240	ON HAND AT START OF DAY			CONSUMED		
	4	1200	440		10	136	118		45	900	860	240	RECEIVED DURING DAY			ON HAND AT START OF DAY		
													EXPENDED DURING DAY			RECEIVED		
2000 TO 2400	3	1200	440		8	132	110		64	900	860	240	REMAINING ON BOARD			ON HAND		
	4	1200	440		10	136	118		45	900	860	240	ON HAND AT START OF DAY			CONSUMED		
													EVAPORATED OR RECEIVED			DIESEL OIL		
2400 TO 0400	3	1200	440	570	8	130	114		64	800	800	240	ON HAND			ON HAND		
	4	1200	440	570	16	136	118		45	800	800	240	CONSUMED			CONSUMED		
													LOW PRESS. EVAPORATORS (No. of hrs. operated)(Fresh water made gals.)					
0400 TO 0800	3	1200	440		9	132	110		64	1000	1000	240	L.O. CENTRIFUGE - HOURS OPERATED					
	4	1200	440		10	136	118		45	1000	1000	240	1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200
													4	4	4	4	4	4
0800 TO 1200	3	1200	440		9	132	110		64	1100	1100	240	SUMMARY					
	4	1200	440		10	136	118		45	1100	1100	240	RUNNING TIME		PERCENT OF SLIP			
													DETENTION TIME		BBL FUEL/MI			
												TOTAL REVOLUTIONS		WIND DIRECTION				
												AVERAGE R.P.M.		STATE OF SEA				
												TOTAL MILES BY ENGINE		STATE OF WEATHER				
												TOTAL MILES BY OBSERVATION						

REMARKS

1200-1600 WATCH

Machinery in service: No. 3 and 4 Boilers and aux; No. 3-4 D.C. Gen. and aux; Maint Lub. Oil Pump, Air ejectors No. 3 Cond. Pump, Circ Pump; No. 2 F.W. Pump; Lub. Oil Purifier; At 1315 Secured Main Steam Stop No. 3-4 Boiler Blhd. Stops Engaged, Jacking Gear Secured. 1st stage Air Ejector; Made routine watch tests and inspections of Engineering Spaces.

WATCH ENGR'S SIGNATURE-

Harold J. DuMond

1600-2000 WATCH

IN PORT WATCH MACH. IN OPERATION AS BEFORE EXCEPT STEAM FROM WATER PUMP ON LINE DEC 19 12 50 FRESH WATER PUMP. TAKING ON FRESH WATER FROM TANK.

WATCH ENGR'S SIGNATURE-

H. R. St.

2000-2400 WATCH

IN PORT WATCH machinery in operation as before. Fresh water from deck to #3 S. Suction #3. Made rounds conditions normal and satisfactory.

WATCH ENGR'S SIGNATURE-

D. L. Puckett

2400-0400 WATCH

Taitague Oiler McLeod F.W.T. In Port Watch; at 0020 Pumped up. In board Settlor Fuel Oil Suction Out Board Settlor. Recorded Machinery in service; Made routine watch tests of engine room machinery spaces; 0630 started Fuels.

WATCH ENGR'S SIGNATURE-

Harold J. DuMond

0400-0800 WATCH

Oiler - Mr. Mechem, F.W.T. Mr. Trapp IN PORT WATCH MACH. IN OPERATION AS BEFORE TAKING ON FRESH WATER FUELING #3 & 4. AFD COMBINE TO #2 PUR #9-#15 SALTIE.

WATCH ENGR'S SIGNATURE-

H. R. St.

0800-1200 WATCH

OILER - B. R. - 2 MUF - S = 23'-0" = 41 9/16 SOOT EN STOP
F.W.T. - 40' CIVV'S - 2 MUF - P = 17'-0" = 41 9/16
IN PORT WATCH machinery as before at 1034 Set Clock, at 1043 wheel clearance from motor watch. jacking gear out at 1055 tested main Eng & steering gear at 1100 all satisfactory. Tested Tele graph at 1107 all tests satisfactory. jacking gear Back in at 1120. Made routine rounds tests & inspections.

WATCH ENGR'S SIGNATURE-

D. L. Puckett

CHIEF ENGINEER

Oiler Taitague F.W.T. McLeod
Arrival at 1200 FOM-P-4465260, S-H-8341550
Boiler Water Readings
Cntr. P-29068030, S-30176190
F.W.E. at 1310 F.O.M.-P-4465480; S-8341770
Cntr. P-29070150; S-30178280

STF'D	PORT	HOURS	AKL	T-AKL	SAL.	PHOS.	R.ph
F-300	F-20						
H-300	H-20						
A	10.5	AKL	7.3				
T	13.4	T-AKL	14				
S	5.4	SAL.	4.5				
PHOS.	40	PHOS.	50				
R.ph	10.5	R.ph	10.5				

CHIEF ENGR'S SIGNATURE-

WATCH							WATCH						
	1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200
RUNNING TIME		<i>190</i>	<i>250</i>	<i>260</i>	<i>260</i>	<i>240</i>	MACHINERY PARTICULARS (CONT'D)	AFT. H. P. ROTOR BEARING	<i>127</i>	<i>126</i>	<i>124</i>	<i>126</i>	<i>126</i>
DETENTION TIME		<i>240</i>	<i>240</i>					FORWARD L. P. ROTOR BEARING	<i>122</i>	<i>126</i>	<i>120</i>	<i>126</i>	<i>128</i>
REVOLUTION COUNTER (END OF WATCH)		<i>2911</i>	<i>2911</i>	<i>2913</i>	<i>2916</i>	<i>2918</i>		AFT. L. P. ROTOR BEARING	<i>126</i>	<i>126</i>	<i>124</i>	<i>125</i>	<i>125</i>
TOTAL REVOLUTIONS (FOR WATCH)		<i>15430</i>	<i>23690</i>	<i>23350</i>	<i>23700</i>	<i>21645</i>		HOTTEST GEAR BEARING FORWARD	<i>139</i>	<i>140</i>	<i>140</i>	<i>144</i>	<i>144</i>
AVERAGE RPM		<i>93.8</i>	<i>91.1</i>	<i>89.8</i>	<i>91.1</i>	<i>90.2</i>		HOTTEST GEAR BEARING AFT	<i>132</i>	<i>135</i>	<i>135</i>	<i>135</i>	<i>138</i>
F.O. METER (END OF WATCH)	<i>1281</i>	<i>1281</i>	<i>1281</i>	<i>1282</i>	<i>1282</i>	<i>1282</i>		AUX. COND. CONDENSATE	<i>100/16</i>	<i>99/16</i>	<i>99/16</i>	<i>98/16</i>	<i>96/16</i>
F.O. CONSUMED	<i>1310</i>	<i>2360</i>	<i>3090</i>	<i>2960</i>	<i>2980</i>	<i>2780</i>		1ST STAGE FEED WATER HEATER	<i>174</i>	<i>170</i>			<i>168</i>
PRESSURES	THROTTLE	<i>430</i>	<i>430</i>	<i>424</i>	<i>420</i>	<i>425</i>		D. C. FEED WATER HEATER	<i>236</i>	<i>238</i>	<i>238</i>	<i>238</i>	<i>238</i>
	H.P. AHEAD	<i>420</i>	<i>420</i>	<i>420</i>	<i>420</i>	<i>425</i>		3RD STAGE FEED WATER HEATER	<i>41</i>	<i>41</i>	<i>41</i>	<i>41</i>	<i>41</i>
	L.P. AHEAD	<i>23</i>	<i>23</i>	<i>19</i>	<i>19</i>	<i>20</i>		F.O. TO BURNERS	<i>140</i>	<i>155</i>	<i>160</i>	<i>160</i>	<i>155</i>
	VACUUM	<i>26.5</i>	<i>29.5</i>	<i>29.4</i>	<i>29.5</i>	<i>29.5</i>		F. O. BACK PRESSURE	<i>1</i>				
	L.O. TO TURBINES	<i>13</i>	<i>12.5</i>	<i>12.5</i>	<i>12.5</i>	<i>12.5</i>		AIR TO FURNACE	<i>4.9</i>	<i>4.9</i>	<i>4.9</i>	<i>4.9</i>	<i>4.3</i>
	AUX. STEAM	<i>156</i>	<i>145</i>	<i>145</i>	<i>150</i>	<i>150</i>		MAIN STEAM	<i>440</i>	<i>440</i>	<i>440</i>	<i>440</i>	<i>440</i>
	BACK PRESSURE	<i>9</i>	<i>9</i>	<i>9</i>	<i>9</i>	<i>9</i>		SUPER HEAT	<i>680</i>	<i>710</i>	<i>710</i>	<i>712</i>	<i>710</i>
	GLAND STEAM	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>		F.O. TO BURNERS	<i>172</i>	<i>174</i>	<i>174</i>	<i>170</i>	<i>170</i>
	H.P. BLEEDER	<i>65</i>	<i>65</i>	<i>65</i>	<i>65</i>	<i>65</i>		F.O. TEMP. IN SETTLING TANKS	<i>113</i>	<i>100</i>	<i>106</i>	<i>107</i>	<i>107</i>
	L.P. BLEEDER	<i>6</i>	<i>6</i>	<i>6</i>	<i>6</i>	<i>6</i>		PORT BOILER UPTAKE	<i>286</i>	<i>305</i>	<i>305</i>	<i>310</i>	<i>300</i>
TEMPERATURES	STEAM AT THROTTLE	<i>680</i>	<i>720</i>	<i>710</i>	<i>710</i>	<i>760</i>	MISCELLANEOUS	STBD. BOILER UPTAKE	<i>300</i>	<i>300</i>	<i>305</i>	<i>305</i>	<i>290</i>
	L.P. EXHAUST	<i>112</i>	<i>98</i>	<i>98</i>	<i>98</i>	<i>99</i>		ENGINE ROOM TEMPERATURE	<i>81</i>	<i>75</i>	<i>76</i>	<i>76</i>	<i>76</i>
	CONDENSATE	<i>90</i>	<i>95</i>	<i>96</i>	<i>92</i>	<i>94</i>		FIRE ROOM TEMPERATURE	<i>81</i>	<i>75</i>	<i>76</i>	<i>76</i>	<i>76</i>
	CIRC. WATER IN	<i>70</i>	<i>71</i>	<i>63</i>	<i>62</i>	<i>65</i>		NOZZLES IN USE	<i>18</i>	<i>18</i>	<i>18</i>	<i>18</i>	<i>18</i>
	CIRC. WATER OUT	<i>90</i>	<i>75</i>	<i>74</i>	<i>74</i>	<i>76</i>		NO. OF BURNERS IN USE	<i>6</i>	<i>6</i>	<i>6</i>	<i>6</i>	<i>6</i>
	L.O. TO COOLERS	<i>110</i>	<i>122</i>	<i>122</i>	<i>122</i>	<i>126</i>		BURNER TIP SIZE	<i>51/55</i>	<i>51/55</i>	<i>51/55</i>	<i>51/55</i>	<i>51/55</i>
	L.O. FROM COOLERS	<i>110</i>	<i>110</i>	<i>110</i>	<i>110</i>	<i>110</i>		CO ₂ % PORT BOILER					
	TEMPERATURE THRUST BEARING	<i>112</i>	<i>112</i>	<i>110</i>	<i>110</i>	<i>113</i>		CO ₂ % STBD. BOILER					
	FORWARD H.P. ROTOR BEARING	<i>121</i>	<i>122</i>	<i>120</i>	<i>125</i>	<i>120</i>		OIL LEVEL MAIN SUMP	<i>1'4"</i>	<i>1'6"</i>	<i>1'4"</i>	<i>1'4"</i>	<i>1'6"</i>

GENERATORS													FUEL - WATER AND LUBE OIL					
WATCH	GENERATOR NUMBER	R.P.M.	STEAM PRESSURE	STEAM TEMP.	L.O. PRESSURE	L.O. TO COOLER	L.O. FROM COOLER	TEMP. OF HOTTEST BEARING	L.O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL		BOILER WATER		LUBE OIL	
1200 TO 1600	3	1200	440	640	8	130	118		65	1100	1100	240	METER AT NOON	122470	ON HAND AT START OF DAY			
	4	1200	440	690	10	135	118		45	1100	1100	240	METER PREVIOUS NOON	122110	EVAPORATED OR RECEIVED			
													CONSUMED BY METER	5500	ON HAND			
1600 TO 2000	5	1200	440		9	134	112		64	1200	1000	240	ON HAND AT START OF DAY		RECEIVED			
													RECEIVED DURING DAY		ON HAND AT START OF DAY			
	4	1200	440		10	136	119		45	1200	1000	240	EXPENDED DURING DAY		RECEIVED			
2000 TO 2400	3	1200	440		8	132	110		64	1050	1000	240	REMAINING ON BOARD		ON HAND			
													ON HAND AT START OF DAY		CONSUMED			
	4	1200	440		9.5	134	118		45	1050	1000	240	EVAPORATED OR RECEIVED		DIESEL OIL			
2400 TO 0400	3	1200	440		8	135	110		64	1100	1100	240	ON HAND		ON HAND			
													CONSUMED		CONSUMED			
	4	1200	440		10	135	118		45	1000	1000	240	LOW PRESS. EVAPORATORS (No. of hrs. operated) (Fresh water made gals.)					
0400 TO 0800	5	1200	440		9	130	107		64	1150	1150	240	L.O. CENTRIFUGE - HOURS OPERATED					
													1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200
	4	1200	440		10	135	118		45	1050	1050	240	4	A	4	4	4	4
0800 TO 1200	3	1200	440		8	132	110		64	1150	1150	240	SUMMARY					
													RUNNING TIME		PERCENT OF SLIP			
	4	1200	440		10	135	118		45	1050	1050	240	DETENTION TIME		BBL FUEL/MI			
												TOTAL REVOLUTIONS		WIND DIRECTION				
												AVERAGE R.P.M.		STATE OF SEA				
												TOTAL MILES BY ENGINE		STATE OF WEATHER				
	4	1200	440		10	135	118		45	1050	1050	240	TOTAL MILES BY OBSERVATION					

REMARKS

1200-1600 WATCH

Machinery in service: No. 3-4 Boilers and aux.; No. 3-4 D.C. Generators and aux.; Main Lub. Oil, Cond. and Circ. Pumps; Main Air ejectors; Steam Recip. F.W. Pump; Stby L.O. Pump; Lub. Oil Purifier. at 1315. Disengaged Jacking Gears; Opened Blhd. and Main Steam stops. 3-4; started rolling Engines; Standby 1505

WATCH ENGR'S SIGNATURE-

1600-2000 WATCH

UNDERWAY ON 18 NOZZLES. MACH. IN OPERATION AS BEFORE. LEAVING PORT BEARS PER BILL BOOK. BOAT DRILL @ 1600
RECEIVED 18.10.41, 18.10.41 #3 BURNER (RATIONS)

MVF. S = 20' 0" = .41 90

MVF. P = 23' 0" = .41 90

WATCH ENGR'S SIGNATURE-

2000-2400 WATCH

UNDERWAY 18 NOZZLES mach. in operation as before, split plant operation. Shifted F.O. Settlers at 2045, pumped out-bd settler from #2 P/S DB TANK 2130-2200, Retarded clock 20 mins. at 2300 made rounds, Routine tests & inspections, all conditions satisfactory. Cleaned & changed burners & F.O. discharge strainers.

Port Boiler: ALK 11.10 Sd 5.39 Std. ALK 12.26 Sd 5.80 P/S Feed Tanks .41

Regular underway steaming watch routine

WATCH ENGR'S SIGNATURE-

2400-0400 WATCH

Underway 18 Nozzles Recorded Machinery in service; at 0100 Retarded clock 20 min.; Changed and Cleaned Burners, F.O. Strainers, and L.O. Oil Strainer; Made routine watch tests and inspections of engine room machinery spaces

WATCH ENGR'S SIGNATURE-

0400-0800 WATCH

UNDERWAY ON 18 NOZZLES MACH. IN OPERATION AS BEFORE.
RETARD CLOCK 20 MIN. @ 0500. CLEAN F.O. BURNER. CLEAN F.O. SUCT. STRAINER. MADE ROUTINE WATCH PER BILL BOOK.

#2 MVF S = 17' = .41 Sd 5.39

#2 MVF P = 22' = .41

WATCH ENGR'S SIGNATURE-

0800-1200 WATCH

UNDERWAY 18 NOZZLES mach. as before changed & cleaned burners F.O. Discharge strainers, Gen. L.O. strainers. pumped inbd settlers from #2 P/S DB. Blew tubes P/S boilers 0755-0825. made rounds, tests & inspections of machinery space. All conditions normal & satisfactory.

WATCH ENGR'S SIGNATURE-

Regular underway steaming watch routine

CHIEF ENGINEER

BOILER WATER READINGS

DEPARTURE @ 1630 - FOM. P = 4467260

STE'D PORT
HOURS = 8.1
W = 324 W = 2.1

FOM S = 8344570

CTR P = 29074470

CTR S = 30122350

A 10.5 AKL 9.9

T 14.6 T-AKL 13.4

S L. 5.7 SAL. 4.5

PHOS. 50 PHOS. 50

R.ph 10.5 R.ph 10.5

Sd 5.39 Sd 5.39

Standby at 1505 FOM. P-4467880, S-8344100
Ctr. P-29070510; S-30179010

CHIEF ENGR'S SIGNATURE-

USNS Gen. John Pope (TAP-110) VOYAGE NO. FROM San Diego, Calif. TO TYPE OF VESSEL DATE 7-8-9-67

		WATCH								WATCH									
		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200			1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200				
RUNNING TIME		240	240	260	260	260	260	MACHINERY PARTICULARS (CONT'D)		TEMPERATURES (CONT'D)		AFT. H. P. ROTOR BEARING	130	128	128	128	127	126	
DETENTION TIME												FORWARD L. P. ROTOR BEARING	125	129	128	128	128	128	128
REVOLUTION COUNTER (END OF WATCH)		2920 4190	2922 5310	2924 9655	2927 3420	2929 7250	2931 9095					AFT. L.P. ROTOR BEARING	125	126	126	126	126	126	126
TOTAL REVOLUTIONS (FOR WATCH)		21405	21710	23755	25765	28550	22075					HOTTEST GEAR BEARING FORWARD	142	146	145	145	146	146	140
AVERAGE RPM		89.2	90.4	91.3	91.4	90.7	92.0					HOTTEST GEAR BEARING AFT	135	140	140	140	139	139	135
F.O. METER (END OF WATCH)		1282 9306	1283 2060	1283 5010	1283 8030	1284 1060	1294 3960					AUX. COND. CONDENSATE	96/94	96/97	96/99	92/98	102/102	98/100	98/100
F.O. CONSUMED		2710	2760	2950	3020	3030	2900	MACHINERY PARTICULARS		TEMPERATURES		1ST STAGE FEED WATER HEATER	170	169	170	170	170	170	
MACHINERY PARTICULARS		PRESSURES		D. C. FEED WATER HEATER	238	237	238					238	238	238					
				3RD STAGE FEED WATER HEATER Conf.								.41			.41				
						F.O. TO BURNERS	160					145	150	160	160	175			
				F. O. BACK PRESSURE															
						AIR TO FURNACE	4.9/4.10					4.9/4.10	4.0/5.2	4.7/6.8	4.4/6.1	4.3/4.5			
				UPTAKE															
						MAIN STEAM	440					440	440	440	440	440			
				SUPER HEAT		732	725					720	722	725	726				
						F.O. TO BURNERS	172					170	170	172	172	170			
				F.O. TEMP. IN SETTLING TANKS		105	90/102	105/96	105/95	100/104	109/110								
PORT BOILER UPTAKE	300	293	300			300	305	300											
STBD. BOILER UPTAKE		290	290	290	290	295	285												
		ENGINE ROOM TEMPERATURE	78	78	76	78	79	79											
FIRE ROOM TEMPERATURE		-	-	36			79												
		NOZZLES IN USE	18	18	18	18	18	18											
NO. OF BURNERS IN USE		6	6	6	6	6	6												
		BURNER TIP SIZE	51/55	51/55	51/55	51/55	51/55	51/55											
CO ₂ % PORT BOILER																			
		CO ₂ % STBD. BOILER																	
OIL LEVEL MAIN SUMP		1'6"	1'6"	1'6"	1'5"	1'5"	1'5"												

GENERATORS													FUEL - WATER AND LUBE OIL							
WATCH	GENERATOR NUMBER	R.P.M.	STEAM PRESSURE	STEAM TEMP.	L.O. PRESSURE	L.O. TO COOLER	L.O. FROM COOLER	TEMP. OF HOTTEST BEARING	L.O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL			DOMESTIC WATER				
1200 TO 1600	3	1200	440		8	136	114	114	65	1150	1150	240	METER AT NOON	1284	3960	BOILER WATER	ON HAND AT START OF DAY			
													METER PREVIOUS NOON	1282	6590		EVAPORATED OR RECEIVED			
	4	1200	440		10	135	118	118	45	1150	1150	240	CONSUMED BY METER			LUBE OIL	ON HAND			
													ON HAND AT START OF DAY				CONSUMED			
1600 TO 2000	3	1200	440		8	132	110		64	1100	1100	240	RECEIVED DURING DAY				ON HAND AT START OF DAY			
													EXPENDED DURING DAY				RECEIVED			
	4	1200	440		10	136	120		45	1100	1100	240	REMAINING ON BOARD				ON HAND			
													ON HAND AT START OF DAY				CONSUMED			
2000 TO 2400	3	1200	440		8	132	110		64	1000	950	240	ON HAND AT START OF DAY				DIESEL OIL			
													EVAPORATED OR RECEIVED				ON HAND			
	4	1200	440		10	135	118		45	1000	950	240	ON HAND				ON HAND			
													CONSUMED				CONSUMED			
LOW PRESS. EVAPORATORS (No. of hrs. operated) (Fresh water made gals.)																				
L.O. CENTRIFUGE - HOURS OPERATED																				
1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200															
4	4	4	4	4	4															
SUMMARY																				
RUNNING TIME															PERCENT OF SLIP					
DETENTION TIME															BBL FUEL/MI					
TOTAL REVOLUTIONS													136310		WIND DIRECTION					
AVERAGE R.P.M.															STATE OF SEA					
TOTAL MILES BY ENGINE															STATE OF WEATHER					
TOTAL MILES BY OBSERVATION																				

- At Sea -

REMARKS

1200-1600 WATCH

Machinery in service: No. 3-4 Boilers and aux.; No. 3-4 Generators and aux.; Main Circ. Cond. Lub. Oil Pumps, and Air Ejectors; Steam Recip. F. W. Pump; L. O. Purifier; at 1500 shifted Fuel Oil Suction from Stbd Outboard to in Board. Changed and Burners and F. O. Strainer. Made routine watch tests and inspections of engine room machinery spaces Pumped Outboard ^{S. W. L.} from No. 4 P/S Deep tanks.

Added 2 gals. Lub. Oil to Port Feed Pump.

WATCH ENGR'S SIGNATURE

1600-2000 WATCH

UNDERWAY ON 18 NOZZLES. MACH. IN OPERATION AS BEFORE. CLEAN & CHANGE #5 F.O. BURNER. WORK ON SCOT PUMPS. PUMP RULERS. MADE IN THE CASES OF FUEL OIL PUMP FOR H. BLOW TUBES P/S PARS.

#2 M/F = 5 - 14' = 41

#2 M/F = R - 22' = 41

WATCH ENGR'S SIGNATURE

2000-2400 WATCH

Underway 18 Nozzles machinery as before except as follows. Crossed-over main circulating water, main condensate system, main air ejector system (crossed-plant operation in effect.) Chief & 1st A/E in space 2100-2140 Changed & Cleaned burners & f.o. discharge strainers, made rounds, tests & inspections All condition normal & satisfactory. Retarded clock 30 min. at 2300. Complied with night standing orders & coms. Instr. 4700.7

Regular Underway Steaming Watch Routine

WATCH ENGR'S SIGNATURE

2400-0400 WATCH

Recorded Machinery in service; At 0020 Changed Settlers, Fuel Oil Suction from Outboard settler. Pumped Inboard Settler from No. 4 S/P Deep tanks; At 0100 Retarded clock 30 min.; Added 2 gals Oil each to Port-Stbd Feed Pumps. Made routine watch tests. Inspections of engine room machinery spaces; Cleaned and changed Burners, F. O. and L O Strainers.

Flange leaking, line from Port Boiler to control board.

Str

WATCH ENGR'S SIGNATURE

0400-0800 WATCH

UNDERWAY ON 18 NOZZLES. MACH. IN OPERATION AS BEFORE. RETARD CLOCK 20 MIN. AT 0500. CHANGED & CLEAN #2 F.O. BURNER. CLEAN F.O. DISCH. STRAINER.

#2 - S = 22' - 0" = 41 7/8. SWT ON 700.

#2 - P = 22' - 0" = 41 9/16

WATCH ENGR'S SIGNATURE

0800-1200 WATCH

Underway 18 Nozzles machinery in operation as before. Blew tubes P/S boilers 0800-0820 Changed & Cleaned burners & F.O. Discharge strainers & Gen L.O. strainers. Fire Alarm sounded in space welder on deck accidentally broke Fire Alarm heat sensing device. Bridge informed. Put upper Hot water circulating pump in operation. pumped bilges & shaft Alley's. All conditions normal & satisfactory. 1st A/E in space at 0800, Chief Eng. in space at 1040. Staked over Idle Pumps. Regular Underway Steaming Watch Routine. Complied with standing orders & construction.

CHIEF ENGINEER

WATCH ENGR'S SIGNATURE

BOILER WATER READINGS

STB'D

PORT

HOURS

HOURS

AKL

AKL

T. VL

T-AKL

SPL.

SAL.

PECS.

PHOS.

R.ph

R.ph

SULFITE - 22 SULFITE - 40

CHIEF ENGR'S SIGNATURE

USNS SSC John Pope (TAP-110) VOYAGE NO. San Diego, Calif. TO TYPE OF VESSEL DATE 7-9-66

		WATCH								WATCH								
		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200			1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200			
RUNNING TIME		240	240	260	260	260	240	MACHINERY PARTICULARS (CONT'D)		TEMPERATURES (CONT'D)		AFT. H. P. ROTOR BEARING	128	128	126	126	126	128
DETENTION TIME												FORWARD L. P. ROTOR BEARING	128	130	129	129	129	129
REVOLUTION COUNTER (END OF WATCH)		2934 1860	2936 2970	2938 6920	2941 0710	2943 4230	2945 6750					AFT. L.P. ROTOR BEARING	126	127	126	126	126	128
TOTAL REVOLUTIONS (FOR WATCH)		21965	21970	24010	23890	23720	22120					HOTTEST GEAR BEARING FORWARD	145	146	145	145	145	150
AVERAGE RPM		91.5	91.1	92.3	91.9	92.0	92.1					HOTTEST GEAR BEARING AFT	140	139	135	135	135	140
F.O. METER (END OF WATCH)		1284 6880	1284 9570	1285 2630	1285 5750	1285 8860	1286 1800					AUX. COND. CONDENSATE	98	101/103	98	98	98	106
F.O. CONSUMED		2840	2770	3060	3120	3110	2940					1ST STAGE FEED WATER HEATER	170	170	170	170	170	172
												O. C. FEED WATER HEATER	238	239	238	238	239	238
								3RD STAGE FEED WATER HEATER										
MACHINERY PARTICULARS	PRESSURES	THROTTLE	446	425	425	424	425	425	TEMPERATURES	P	F.O. TO BURNERS	145	160	150	150	150	155	
		H.P. AHEAD	420	420	420	422	422	420		F. O. BACK PRESSURE								
		L.P. AHEAD	20.5	22	22	22	22	23		AIR TO FURNACE	4.9 2.10	5.9 4.30	5.5 4.8	5.8 5.8	5.2 4.9	5.0 5.0		
		VACUUM	29.6	29	29.5	29.4	29.4	29.5		UPTAKE								
		L.O. TO TURBINES	12.5	12.5	12.5	12.5	12.5	12.5		MAIN STEAM	440	440	440	440	440	440		
		AUX. STEAM	150	150	150	140	140	150		T	SUPER HEAT	426	730	730	717	720	730	
		BACK PRESSURE	9	9	9	9	9	9		F.O. TO BURNERS	170	170	170	170	170	170		
		GLAND STEAM	1	1.5	1.5	1.4	1.5	1.3		F.O. TEMP. IN SETTLING TANKS	105 115	103 102	109 114	109 118	109 118	110 110		
		H.P. BLEEDER	65	65	60	66	70	60		PORT BOILER UPTAKE	300	300	310	305	310	305		
	L.P. BLEEDER							STBD. BOILER UPTAKE	295	290	300	305	300	295				
	TEMPERATURES	STEAM AT THROTTLE	426	430	730	717	720	730	MISCELLANEOUS	ENGINE ROOM TEMPERATURE	82	80	80	81	83	86		
		L.P. EXHAUST	98	100	101	105	102	105		FIRE ROOM TEMPERATURE	82	80	80	81	83	86		
		CONDENSATE	96	98	97	98	98	101		NOZZLES IN USE	18	18	18	18	18	18		
		CIRC. WATER IN	68	70	68	68	68	70		NO. OF BURNERS IN USE	6	6	6	6	6	6		
CIRC. WATER OUT		78	80	80	80	80	82	BURNER TIP SIZE		51/55	51/55	51/55	51/55	51/55	51/55			
L.O. TO COOLERS		126	126	125	124	124	128	CO ₂ % PORT BOILER								82.2		
L.O. FROM COOLERS		110	110	110	110	115	110	CO ₂ % STBD. BOILER								82.7		
TEMPERATURE THRUST BEARING		115	113	113	110	113	114	OIL LEVEL MAIN SUMP	1.5	1.5	1.5	1.5	1.5	1.5				
FORWARD H.P. ROTOR BEARING		124	122	120	126	120	122											

GENERATORS													FUEL - WATER AND LUBE OIL							
WATCH	GENERATOR NUMBER	R. P. M.	STEAM PRESSURE	STEAM TEMP.	L. O. PRESSURE	L. O. TO COOLER	L. O. FROM COOLER	TEMP. OF HOTTEST BEARING	L. O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL		BOILER WATER		LUBE OIL			
1200 TO 1600	3	1200	440	726	8	132	114		65	1156	1156	240	METER AT NOON	22018	ON HAND AT START OF DAY					
	4	1200	440	726	10	135	118		45	1100	1100	240	METER PREVIOUS NOON	128439	EVAPORATED OR RECEIVED					
1600 TO 2000	3	1200	440	730	8	133	110		65	1100	1100	240	CONSUMED BY METER	17240	ON HAND					
	4	1200	440	730	10	138	117		45	1100	1100	240	ON HAND AT START OF DAY		CONSUMED					
2000 TO 2400	3	1200	440	730	8	132	110		64	1000	1000	240	RECEIVED DURING DAY		ON HAND AT START OF DAY					
	4	1200	440	730	10	137	116		45	1000	1000	240	EXPENDED DURING DAY		RECEIVED					
2400 TO 0400	3	1200	440	717	9	132	110		65	1050	1000	240	REMAINING ON BOARD		ON HAND					
	4	1200	440	717	10	136	115		45	1000	950	240	ON HAND AT START OF DAY		CONSUMED					
0400 TO 0800	3	1200	440	720	8	132	110		65	1050	1000	240	EVAPORATED OR RECEIVED		DIESEL OIL					
	4	1200	440	720	10	137	116		45	1000	1000	240	ON HAND		ON HAND					
0800 TO 1200	3	1200	440	730	8	133	110		64	1100	1050	240	CONSUMED		CONSUMED					
	4	1200	440	730	10	139	116		45	1100	1050	240	LOW PRESS. EVAPORATORS (No. of hrs. operated) (Fresh water made gals.)							
L. O. CENTRIFUGE - HOURS OPERATED																				
1200 TO 1600		1600 TO 2000		2000 TO 2400		2400 TO 0400		0400 TO 0800		0800 TO 1200										
4		4		4		4		4		4										
SUMMARY																				
RUNNING TIME															PERCENT OF SLIP					
DETENTION TIME															BBL FUEL/MI					
TOTAL REVOLUTIONS															WIND DIRECTION					
AVERAGE R. P. M.															STATE OF SEA					
TOTAL MILES BY ENGINE															STATE OF WEATHER					
TOTAL MILES BY OBSERVATION																				

REMARKS

1200-1600 WATCH

Underway at sea; Machinery in service: No. 3-4 Boilers and aux.; No. 3-4 Generators and aux.; Main Circ., Cond., Lub. Oil Pumps, and Air Ejectors; L.O. Purifier Steam recip. F.W. Pump; At 1430 Pumped settlers, Fuel Oil Suction from outboard settler. Cleaned Burners, Cleaned and changed F.O. and L.O. Strainers. Made routine watch tests and inspections of engine room machinery spaces

WATCH ENGR'S SIGNATURE

Harold J. DuMond

1600-2000 WATCH

UNDERWAY ON 18 NOZZLES MACH. IN OPERATION AS BEFORE. CHANGED & CLEANED #5 F.O. BURNER. CLEANED #3 L.O. STRAINER. BLEW BOTTOM BLOW THRU #4 AIR CAN BOTTOM BLOW THRU #4 AIR CAN. MADE ROUNDS. TESTS & INSPECTIONS. ALL CONDITIONS NORMAL + SATISFACTORY. COMPLIED WITH STANDING & NIGHT ORDERS AND COMSTS INSTR. 4700.7

WATCH ENGR'S SIGNATURE

H. R. Roston

2000-2400 WATCH

Under way 18 Nozzles mach. as before. Changed & cleaned burners & F.O. Discharge strainers. Shifted F.O. Settlers at 2330. Retarded clock 20 mins. at 2300. Made rounds tests & inspections all conditions normal + satisfactory. Complied with Standing & Night orders and Comsts Instr. 4700.7

Port Boiler Sst. 9.52% Condensate .41%

Starb. " " 7.46%

WATCH ENGR'S SIGNATURE

D. J. Pickett

Regular underway steaming watch Routine

2400-0400 WATCH

Underway; Recorded machinery in service; at 0100 Retarded clock 20 min. at 0130 stripped No. 4 P/s Deep tank. sounded all settlers. Fuel Oil suction from inboard settler; Added 1 gal. each to Port and starb. Feed Pumps L.O. Sump; Made routine watch tests and inspections of engine room machinery spaces. Cleaned and Changed Burner, Fuel Oil and Lub. Oil Strainers;

WATCH ENGR'S SIGNATURE

Harold J. DuMond

Cond tested. -.41

0400-0800 WATCH

UNDERWAY ON 18 NOZZLES MACH. IN OPERATION AS BEFORE. CHANGED & CLEANED #6 F.O. BURNER. CLEAN F.O. TIGHT STRAINER. #4 AIR CAN BOTTOM BLOW THRU #4 AIR CAN. ADDED COMPOUND TO #5 F.O. BURNER. MADE ROUNDS. TESTS & INSPECTIONS. ALL CONDITIONS NORMAL + SATISFACTORY. COMPLIED WITH STANDING & NIGHT ORDERS AND COMSTS INSTR. 4700.7

WATCH ENGR'S SIGNATURE

H. R. Roston

0800-1200 WATCH

UNDERWAY 18 NOZZLES - MACH. AS BEFORE - CHANGED AND CLEANED F.O. BURNERS AND DISCHARGE STRAINERS - BLEW TUBES P+5 @ 0808-0825 - 1ST A/E IN SPACE AT 0845 - SHIFTED F.O. SETTLERS TO OUT'BD AT 0920 - Pumped ENG. RM. AND SHAFT ALLEY BILGES - MADE ROUNDS, TEST AND INSPECTION, ALL CONDITIONS NORMAL AND SATISFACTORY - COMPLIED WITH STANDING AND NIGHTS ORDERS - COMSTS INSTR. 4700.7

Cond. 4.1% Port boiler ^{Sst.} 7.46 Starb. 13.67

WATCH ENGR'S SIGNATURE

D. J. Pickett

Regular Underway Steaming Watch Routine

CHIEF ENGINEER

BOILER WATER READINGS

STE'D

PORT

HOURS

HOURS

AKL

AKL

T

T-AKL

SAL.

SAL.

PHOS.

PHOS.

R.ph

R.ph

CHIEF ENGR'S SIGNATURE

H. R. Roston

							WATCH														WATCH											
							1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200								1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200							
MACHINERY PARTICULARS																																
RUNNING TIME							240	240	240	240	240	240	MACHINERY PARTICULARS (CONT'D)							AFT. H. P. ROTOR BEARING							130	127	128	130	129	128
DETENTION TIME																				FORWARD L. P. ROTOR BEARING							130	130	130	130	130	130
REVOLUTION COUNTER (END OF WATCH)							2947	2952	2952	2954	2954	2958	TEMPERATURES (CONT'D)							AFT. L. P. ROTOR BEARING							128	128	128	128	129	129
TOTAL REVOLUTIONS (FOR WATCH)							22030	22111	22111	22030	22111	22090								HOTTEST GEAR BEARING FORWARD							145	146	146	146	146	146
AVERAGE RPM							91.8	92.1	92.1	91.8	91.8	92.0	HOTTEST GEAR BEARING AFT							140	139	138	138	139	140							
F.O. METER (END OF WATCH)							1286	1286	1287	1287	1287	1287	AUX. COND. CONDENSATE							108	99/98	105	104	111	108							
F.O. CONSUMED							2960	2910	2920	2940	2910	2950	1ST STAGE FEED WATER HEATER							170	170	175	175	175	175							
PRESSURES							THROTTLE							426	425	425	424	425	425	D. C. FEED WATER HEATER							238	238	238	238	239	238
							H.P. AHEAD							422	420	420	420	420	420	3RD STAGE FEED WATER HEATER							135	135	135	135	135	135
							L.P. AHEAD							23.5	23.5	24	24	23	24.5	F.O. TO BURNERS							160	160	165	160	160	
							VACUUM							29.2	29.2	29.5	29.2	29.2	29	F. O. BACK PRESSURE												
							L.O. TO TURBINES							12.5	12.5	12.7	12.5	12.5	12.5	AIR TO FURNACE							8.6	7.6	5.1	5.0	5.0	5.1
							AUX. STEAM							150	150	150	150	150	145	UPTAKE												
							BACK PRESSURE							9	9	9	9	9	9	MAIN STEAM							440	440	440	440	440	440
							GLAND STEAM							1.5	1.5	1.5	1.5	1.5	1.5	SUPER HEAT							732	725	730	722	722	725
							H.P. BLEEDER							62	68	60	70	70	60	F.O. TO BURNERS							170	175	174	170	173	170
							I.P. BLEEDER													F.O. TEMP. IN SETTLING TANKS							110	106	109	108	106	112
L.P. BLEEDER							5.5	5	5	5	5	5	PORT BOILER UPTAKE							300	305	305	305	307	305							
TEMPERATURES							STEAM AT THROTTLE							732	725	730	722	722	725	STBD. BOILER UPTAKE							305	295	300	300	307	295
							L.P. EXHAUST							104	106	106	105	106	108	ENGINE ROOM TEMPERATURE							87	86	85	86	86	87
							CONDENSATE							100	104	104	106	106	106	FIRE ROOM TEMPERATURE							87	86	85	86	86	87
							CIRC. WATER IN							74	75	75	74	77	76	NOZZLES IN USE							18	18	18	19	19	18
							CIRC. WATER OUT							84	84	86	86	85	89	NO. OF BURNERS IN USE							6	6	6	6	6	6
							L.O. TO COOLERS							128	126	127	124	127	127	BURNER TIP SIZE							5 1/55	5 1/55	5 1/55	5 1/35	5 1/55	5 1/55
							L.O. FROM COOLERS							110	110	110	110	110	110	CO2 % PORT BOILER							13.5%		82.25%	13.5%		14%
							TEMPERATURE THRUST BEARING							115	115	115	115	115	115	CO2 % STBD. BOILER							13.2%		82.25%	14.1%		13.5%
							FORWARD H.P. ROTOR BEARING							126	123	123	123	123	123	OIL LEVEL MAIN SUMP							1'5"	1.5	1.5	1.5	1'5"	1.5

GENERATORS											FUEL - WATER AND LUBE OIL										
WATCH	GENERATOR NUMBER	R.P.M.	STEAM PRESSURE	STEAM TEMP.	L.O. PRESSURE	L.O. TO COOLER	L.O. FROM COOLER	TEMP. OF HOTTEST BEARING	L.O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL			BOILER WATER			LUBE OIL		
1200 TO 1600	3	1200	440	730	8	130	115		45	1250	1250	240	METER AT NOON	2579.39		ON HAND AT START OF DAY			ON HAND		
	4	1200	440	730	10	135	117		45	1200	1200	240	METER PREVIOUS NOON	2861.00		EVAPORATED OR RECEIVED					
	3	1200	440	725	8	134	113		64	1250	1250	240	CONSUMED BY METER	1771.23							
1600 TO 2000	4	1200	440	725	10	140	117		43	1100	1100	240	ON HAND AT START OF DAY			CONSUMED			ON HAND AT START OF DAY		
	3	1200	440	730	8	134	110		64	1100	1100	240	RECEIVED DURING DAY			ON HAND			RECEIVED		
2000 TO 2400	4	1200	440	722	10	140	115		45	1000	1000	240	EXPENDED DURING DAY			CONSUMED					
	3	1200	440	722	8	135	110		64	1050	1050	240	REMAINING ON BOARD			ON HAND			ON HAND		
2400 TO 0400	4	1200	440	722	10	140	116		45	1100	1100	240	ON HAND AT START OF DAY			CONSUMED					
	3	1200	440	722	8	135	110		64	1050	1050	240	DOMESTIC WATER								
0400 TO 0800	4	1200	440	722	10	140	116		45	1050	1050	240	ON HAND AT START OF DAY			EVAPORATED OR RECEIVED			ON HAND		
	3	1200	440	722	8	133	110		64	1200	1150	240	CONSUMED			DIES. OIL			CONSUMED		
0800 TO 1200	4	1200	440	725	10	140	119		45	1200	1150	240	ON HAND			ON HAND					
	3	1200	440	725	8	133	110		64	1200	1150	240	CONSUMED			CONSUMED					

L.O. CENTRIFUGE - HOURS OPERATED					
1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200
4	4	4	4	4	4

SUMMARY			
RUNNING TIME		PERCENT OF SLIP	
DETENTION TIME		BBL FUEL/MI	
TOTAL REVOLUTIONS		WIND DIRECTION	
AVERAGE R.P.M.		STATE OF SEA	
TOTAL MILES BY ENGINE		STATE OF WEATHER	
TOTAL MILES BY OBSERVATION			

REMARKS

1200-1600 WATCH

Underway; Machinery in service: No. 3-4 Boiler and aux; No. 3-4 Generators and aux; Main Circ., Cond. L.O. Pumps, and Air ejector; L.O. Purifier, F.W. Steam Recip. Pump, Pumped settlers, F.O. Suction from outboard settlers. Made routine watch tests and inspections of engine room machinery spaces. Added 1 gal. each to Port and Stbd Feed Pumps.

Cond. tested - 2

WATCH ENGR'S SIGNATURE-

Harold J. DuMond

1600-2000 WATCH

Underway; 12 Nozzles machinery as before. Held Engineering Casualty Drill B-1. Loss of F.O. Pressure 4 Men Present at 1530-1540 hrs. Pumped outboard Settler from #4% Fuel Oil Suction from outboard settler. Added 1 gal. each to Feed Pump oil sump. Changed and Cleaned Burner, Fuel Oil and Lub. Oil Strainers. Made routine watch tests and inspections of engine room machinery spaces. Conditions Normal.

#2 P. 201-1000 Sump on D.B.

WATCH ENGR'S SIGNATURE-

H. K. Stettin

2000-2400 WATCH

Underway 18 Nozzles machinery as before. Held Engineering Casualty Drill B-1. 4 men present from 2015-2045. Bridge Notified. Changed & cleaned burners & F.O. discharge strainer's. Shifted F.O. Settler's @ 2140. Loosened packing gland on Port Stern tube. Pumped bilges. Made rounds, tests & inspections of machinery & mach. spaces. Conditions Normal. Condensate Sal. .41 Stbd Boiler 10.36 Port Boiler 9.94

Regular underway steaming watch routine

WATCH ENGR'S SIGNATURE-

R. J. Guckett

2400-0400 WATCH

Underway, Recorded Machinery in service: Held Engineering Casualty Drill B-1. Loss of F.O. Pressure 4 Men Present at 0130-0140 hrs. Pumped outboard Settler from #4% Fuel Oil Suction from outboard settler. Added 1 gal. each to Feed Pump oil sump. Changed and Cleaned Burner, Fuel Oil and Lub. Oil Strainers. Made routine watch tests and inspections of engine room machinery spaces.

Cond. tested - 2

WATCH ENGR'S SIGNATURE-

Harold J. DuMond

0400-0800 WATCH

Underway; 12 Nozzles machinery in operation as before. Held Engineering Casualty Drill B-1. Loss of F.O. Pressure. 4 Men Present. 0630-0640 hrs. Changed & cleaned #4% Fuel Oil burner. Added 1 gal. each to Feed Pump oil sump. Shifted F.O. Settler's to hold at 0635. Changed & Cleaned burner's & F.O. Discharge strainer's & L.O. gen strainer's. All conditions Normal.

#2 M.D.F. - S - 211-1000 Sump on D.B.

WATCH ENGR'S SIGNATURE-

H. K. Stettin

0800-1200 WATCH

Underway 18 Nozz. Machinery as before. Blew tube PB boiler's 0805-0830. Equalizing valve for #4 P/O Deep Tanks opened by PB Burway 2 1/2 DW. Steering Casualty Drill, went to Standby 1015 Pull ahead at 1025. Transferring oil from outbd. settler to Forward Eng. Rm. by 2 1/2 DW. at 1030 Pumped bilges & shaft alley's, shifted potable water suction to #3P to Relieve Port Lst. Shifted F.O. Settler's to hold at 0835. Changed & Cleaned burner's & F.O. Discharge strainer's & L.O. gen strainer's. All conditions Normal.

CHIEF ENGINEER

WATCH ENGR'S SIGNATURE-

D. L. Guckett

Cond. 41 P 11.60 S 8.29

BOILER WATER READINGS

STB'D PORT
HOURS 11.39 HOURS 11.39

AKL 7.2

T-AKL 13.4

SAL. 11.0

PHOS. 2.0

R.ph 1.05 R.ph 1.0

SULFITE-24 SULFITE-1.0

CHIEF ENGR'S SIGNATURE-

R. L. Clemens

USNS Gren John Pope (TAP 110) VOYAGE NO. San Diego, Calif TO TYPE OF VESSEL DATE 7-11-67

WATCH							WATCH						
	1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200
RUNNING TIME	240	240	260	260	260	240	MACHINERY PARTICULARS (CONT'D)	AFT. H. P. ROTOR BEARING	130	130	130	130	130
DETENTION TIME								FORWARD L. P. ROTOR BEARING	126	131	130	125	130
REVOLUTION COUNTER (END OF WATCH)	2961 6630	2963 2280	2965 2260	2968 0170	2970 4110	2972 6330		AFT. L. P. ROTOR BEARING	126	130	130	130	130
TOTAL REVOLUTIONS (FOR WATCH)	21990	21650	23980	23910	23930	22230		HOTTEST GEAR BEARING FORWARD	145	148	150	150	150
AVERAGE RPM	91.6	90.2	92.2	92.0	92.0	92.6		HOTTEST GEAR BEARING AFT	140	141	142	142	140
F.O. METER (END OF WATCH)	1288 2340	1288 5270	1288 8530	1289 1820	1289 5040	1289 9090		AUX. COND. CONDENSATE	88 106	111/110 110	110 112	100 112	110 114
F.O. CONSUMED	1950	2930	3260	3290	3270	3050		1ST STAGE FEED WATER HEATER	172	175	175	175	175
MACHINERY PARTICULARS	THROTTLE	424	420	430	426	425		D. C. FEED WATER HEATER	238	238	240	238	240
	H.P. AHEAD	420	415	424	422	420	BOILER PARTICULARS	3RD STAGE FEED WATER HEATER	051 135	051 133	05 14	051 135	051 135
	L.P. AHEAD	24	24.5	26	26	25		F.O. TO BURNERS	170	170	170	172	175
	VACUUM	29.2	29.0	29	29	29.0		F.O. BACK PRESSURE					
	L.O. TO TURBINES	12.5	12.5	12.7	12.5	11.5		AIR TO FURNACE	7.4 7.6	6.0 9.0	4.5 5.5	6.0 6.6	6.0 6.0
	AUX. STEAM	150	150	145	145	150		UPTAKE					
	BACK PRESSURE	9	9	9	9	9		MAIN STEAM	440	440	440	440	440
	GLAND STEAM	1.4	1.5	1.5	1.4	1.5		SUPER HEAT	725	736	730	727	730
	H.P. BLEEDER	62	60	60	60	60		F.O. TO BURNERS	172	175	170	175	174
	L.P. BLEEDER	5	5	10	5	5		F.O. TEMP. IN SETTLING TANKS	116 118	107 121	107 122	118 122	114 121
	L.P. BLEEDER	5	5	10	5	10	MISCELLANEOUS	PORT BOILER UPTAKE	305	310	305	310	305
PRESSURES	STEAM AT THROTTLE	725	736	730	727	730		STBD. BOILER UPTAKE	300	305	305	310	305
	L.P. EXHAUST	106	110	110	110	110		ENGINE ROOM TEMPERATURE	90	90	87	88	90
	CONDENSATE	104	108	109	108	108		FIRE ROOM TEMPERATURE	90	90	87	88	90
	CIRC. WATER IN	76	78	78	78	78		NOZZLES IN USE	18	18	18	18	18
	CIRC. WATER OUT	88	89	90	90	90		NO. OF BURNERS IN USE	6	6	6	6	6
	L.O. TO COOLERS	128	128	127	127	127		BURNER TIP SIZE	51 56	51 55	51 55	51 55	51 55
	L.O. FROM COOLERS	110	110	110	110	110		CO ₂ % PORT BOILER	13.5		13.5	14	13.5
	TEMPERATURE THRUST BEARING	115	116	116	116	116		CO ₂ % STBD. BOILER	14		14.8	14	14
	FORWARD H.P. ROTOR BEARING	124	123	122	120	122		OIL LEVEL MAIN SUMP		1.5	1.5	1.5	1.5

WATCH	GENERATORS												FUEL - WATER AND LUBE OIL					
	GENERATOR NUMBER	R.P.M.	STEAM PRESSURE	STEAM TEMP.	L.O. PRESSURE	L.O. TO COOLER	L.O. FROM COOLER	TEMP. OF HOTTEST BEARING	L.O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL	WATER	BOILER WATER	LUBE OIL		
1200 TO 1600	3	1200	440	725	8	146	118		65	1150	1150	240	METER AT NOON	12898090		ON HAND AT START OF DAY		
	4	1200	440	725	10	135	115		45	1100	1100	240	METER PREVIOUS NOON	12819390		EVAPORATED OR RECEIVED		
1600 TO 2000	3	1200	440	736	8	135	115		64	1250	1250	240	CONSUMED BY METER	18700		ON HAND		
	4	1200	440	736	10	143	120		43	1050	1050	240	ON HAND AT START OF DAY			CONSUMED		
2000 TO 2400	3	1200	440	730	8	134	112		64	1100	1100	240	RECEIVED DURING DAY			ON HAND AT START OF DAY		
	4	1200	440	730	9.5	172	119		45	1100	1100	240	EXPENDED DURING DAY			RECEIVED		
2400 TO 0400	3	1200	440	727	8	137	115		64	1200	1200	240	REMAINING ON BOARD			ON HAND		
	4	1200	440	727	9.5	140	118		65	1150	1150	240	ON HAND AT START OF DAY			CONSUMED		
0400 TO 0800	3	1200	440	730	8	137	115		64	1100	1100	240	DOMESTIC WATER			DIESEL OIL		
	4	1200	440	730	9.5	140	118		45	1000	1000	240	EVAPORATED OR RECEIVED			ON HAND		
0800 TO 1200	3	1200	440		8	135	113		64	1300	1250	240	ON HAND			CONSUMED		
	4	1200	440		9.5	143	120		43	1300	1250	240	CONSUMED					

LOW PRESS. EVAPORATORS (No. of hrs. operated) (Fresh water made gals.)					

L.O. CENTRIFUGE - HOURS OPERATED					
1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200
4	4	4	4	4	4

SUMMARY		
RUNNING TIME		PERCENT OF SLIP
DETENTION TIME		BBL FUEL/MI
TOTAL REVOLUTIONS		WIND DIRECTION
AVERAGE R.P.M.		STATE OF SEA
TOTAL MILES BY ENGINE		STATE OF WEATHER
TOTAL MILES BY OBSERVATION		

REMARKS

1200-1600 WATCH

Underway, Machinery in service: No. 3-4 Boilers and aux.; No. 3-4 Generators and aux.; Main Cond., Circ., Lub. Oil Pumps and Air ejectors; L.O. Purifier; Steam Recip. F.W. Pump; Plant cross connected; 1334 stby, Steering Casualty Drill, at 1345 secured from Standby and Drill; Pumped Out board settler from 40% D.T.; Fuel Oil suction from inboard settler.

Cond. tested - 41

WATCH ENGR'S SIGNATURE-

Harold J. Du Mond

1600-2000 WATCH

UNDERWAY ON 18 NOZZLES. MACH. IN OPERATION AS BEFORE. STEERING CASUALTY DRILL STBY @ 1601. 41 @ 1610. BLOW TUBES 1/2 BARS. RELAY ON PORT HALL DRAFT FAN KNOCKED OUT. 4 @ 1612. 41 @ 1623. CHANGED F.O. BURNERS. CLEAN F.O. BURNER. CLEAN F.O. STRAINER. CHANGE F.O. TO INBOARD F.O. SETTLER @ 1800. ADD 100% TO F.O. BAR CUTTER-REEFER ENGR. ON WATCH.

S.T.

STEER BAR - 4.1

P.T.

PORT BAR - 4.5

WATCH ENGR'S SIGNATURE-

H. Newton

2000-2400 WATCH

Under way 18 nozz. mach as before. Changed & cleaned burners, F.O. Strainers Gen. L.O. Strainer's pumped bilges & shaft alley's. Pumped inbd settlers from #4 C.P.B. Deep. Shifted to inbd settlers 2115. Retarded clock 20 mins at 2300. Made rounds, tests, & inspections of mach. & mach. space. All conditions normal & satisfactory. Cond. 41, stb B. 9.99. Complied with night & standing order & COMSTS Instr. 4700.7

Regular under way steaming watch routine

WATCH ENGR'S SIGNATURE-

D. L. Finkett

2400-0400 WATCH

Underway, Recorded machinery in service; 20100 Retarded clock 20 min.; Changed and cleaned Burners, Fuel Oil and Lub. Oil Strainers; Added 1 gal. each to No. 3-4 Feedwater Pumps. Made routine watch tests and inspections of engine room machinery spaces; Fuel Oil Suction Outboard Settler.

Cond. tested = (-, 41)

WATCH ENGR'S SIGNATURE-

Harold J. Du Mond

0400-0800 WATCH

UNDERWAY ON 18 NOZZLES. MACH. IN OPERATION AS BEFORE. 0500 RETARD CLOCK 20 MIN. CHANGE & CLEAN F.O. BURNER. CLEAN F.O. SUCT. STRAINER. ADD COND. TO #4-5 BARS. #4 B.R. COMPLETED. 0700 TESTED (M.C.)

LETTER 1/RE ON WATCH. OPEN INT. DOOR TO 2ND ORDER FROM BRIDGE.

#2 M.C.F. S = 41

#2 M.C.F. P = 41

COND. 41

WATCH ENGR'S SIGNATURE-

H. Newton

0800-1200 WATCH

UNDERWAY 18 NOZZLES - MACH AS BEFORE - CHANGED AND CLEANED F.O. BURNERS AND STRAINERS - BLEW TUBES P AND S BOILERS @ 0811-0829 - SHIFTED F.O. SETTLER TO INBD @ 0830 TESTED GOV. THROTTLE AND MAIN AHEAD THROTTLE @ 1044 - TESTED FIRE ALARM SYSTEM FROM BRIDGE @ 1046 - ADJUSTED STERN GLAND (PORT) - PUMPED ENG. ROOM AND SHAFT ALLEY BILGES - MADE ROUNDS, TESTS, AND INSPECTIONS OF MACH. AND SPACES - ALL CONDITION NORMAL AND SATISFACTORY - COMPLIED WITH NIGHT AND STANDING ORDERS - COMSTS INSTR. 4700.7

Regular under way steaming watch routine

WATCH ENGR'S SIGNATURE-

D. L. Finkett

CHIEF ENGINEER

BOILER WATER READINGS

STB'D

PORT

HOURS F-420 HOURS F-180

AKL 7.6 AKL 5.8

T-VL 2.3 T-AKL 9.3

S.L. 12.3 SAL. 10.8

PHOS. 1.5 PHOS. 1.5

R.ph 11 R.ph 10.0

SULFITE 18 SULFITE 26

CHIEF ENGR'S SIGNATURE-

L. H. Vlemmon

WATCH							WATCH								
	1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200		
MACHINERY PARTICULARS							MACHINERY PARTICULARS (CONT'D)	TEMPERATURES (CONT'D)							
RUNNING TIME								AFT. H. P. ROTOR BEARING	120	132	130	130	132	130	
DETENTION TIME								FORWARD L. P. ROTOR BEARING	128	131	130	130	132	130	
REVOLUTION COUNTER (END OF WATCH)								AFT. L. P. ROTOR BEARING	126	130	130	128	130	130	
TOTAL REVOLUTIONS (FOR WATCH)								HOTTEST GEAR BEARING FORWARD	145	148	150	150	146	148	
AVERAGE RPM								HOTTEST GEAR BEARING AFT	135	141	140	14	137	140	
F.O. METER (END OF WATCH)								AUX. COND. CONDENSATE	112	114	119	120	120	124	
F.O. CONSUMED								1ST STAGE FEED WATER HEATER	175	178	175	175	176	175	
PRESSURES	THROTTLE	424	425	430	428	425		420	D. C. FEED WATER HEATER	238	239	238	238	239	238
	H.P. AHEAD	422	422	425	424	420		420	3RD STAGE FEED WATER HEATER	103	103	105	105	105	105
	L.P. AHEAD	26	26	26	26.5	26.0		26.0	F.O. TO BURNERS	172	170	180	172	175	175
	VACUUM	29	29.0	28.7	28.6	28.5		28.0	F.O. BACK PRESSURE						
	L.O. TO TURBINES	12.5	12.5	12.7	12.5	12.5		12.6	AIR TO FURNACE	4.5	4.6	4.8	4.9	5.6	5.0
	AUX. STEAM	140	150	145	145	150		140	UPTAKE						
	BACK PRESSURE	9	9	9	9	9		9	MAIN STEAM	440	440	440	440	440	440
	GLAND STEAM	1.5	1.5	1.7	1.5	1.5		2.0	SUPER HEAT	715	730	720	710	732	710
	H.P. BLEEDER	60	60	60	60	60		60	F.O. TO BURNERS	170	176	170	182	176	176
	L.P. BLEEDER			5.5	5.2	5	5	F.O. TEMP. IN SETTLING TANKS	110	104	109	110	116	114	
L.P. BLEEDER	5	5	5.5	5	5	10	PORT BOILER UPTAKE	310	305	305	300	325	305		
TEMPERATURES	STEAM AT THROTTLE	715	730	720	712	732	710	STBD. BOILER UPTAKE	310	300	300	300	315	305	
	L.P. EXHAUST	110	112	112	112	112	116	ENGINE ROOM TEMPERATURE	92	92	90	92	92	94	
	CONDENSATE	110	109	108	108	107	108	FIRE ROOM TEMPERATURE			90	92	92	94	
	CIRC. WATER IN	75	80	79	79	79	80	NOZZLES IN USE	18	18	18	18	18	18	
	CIRC. WATER OUT	90	90	92	90	90	92	NO. OF BURNERS IN USE	6	6	6	6	6	6	
	L.O. TO COOLERS	128	129	127	127	127	127	BURNER TIP SIZE	51	55	51	51	51	51	
	L.O. FROM COOLERS	110	110	110	110	110	110	CO ₂ % PORT BOILER	13	15%	14.0			15%	
	TEMPERATURE THRUST BEARING	115	116	116	116	118	118	CO ₂ % STBD. BOILER	15	15%	14.5			14.0%	
	FORWARD H.P. ROTOR BEARING	124	124	123	125	123	123	OIL LEVEL MAIN SUMP	1.5	1.4	1.5	1.4	1.4	1.4	

GENERATORS													FUEL - WATER AND LUBE OIL					
WATCH	GENERATOR NUMBER	R.P.M.	STEAM PRESSURE	STEAM TEMP.	L.O. PRESSURE	L.O. TO COOLER	L.O. FROM COOLER	TEMP. OF HOTTEST BEARING	L.O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL		BOILER WATER		LUBE OIL	
1200 TO 1600	3	1200	440	715	8	135	115		65	1150	1150	240	METER AT NOON	12916100		ON HAND AT START OF DAY		
													METER PREVIOUS NOON	12898090		EVAPORATED OR RECEIVED		
1600 TO 2000	4	1200	440	715	10	140	120		45	1100	1100	240	CONSUMED BY METER			ON HAND		
													ON HAND AT START OF DAY			CONSUMED		
	3	1200	440	730	7	136	115		64	1200	1200	240	RECEIVED DURING DAY			ON HAND AT START OF DAY		
													EXPENDED DURING DAY			RECEIVED		
2000 TO 2400	4	1200	440	730	9.5	143	122		43	1050	1050	240	REMAINING ON BOARD			ON HAND		
													ON HAND AT START OF DAY			CONSUMED		
	3	1200	440	720	8	136	114		64	1350	1350	240	EVAPORATED OR RECEIVED			DIESEL OIL		
													ON HAND			ON HAND		
2400 TO 0400	4	1200	440	720	9.5	143	122		43	1350	1350	240	CONSUMED			CONSUMED		
													LOW PRESS. EVAPORATORS (No. of hrs. operated) (Fresh water made gals.)					
	3	1200	440	712	8	136	114		64	1400	1400	240	L.O. CENTRIFUGE - HOURS OPERATED					
													1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200
0400 TO 0800	4	1200	440	712	9.5	145	122		45	1350	1350	240	4	4	4	4	4	4
													SUMMARY					
	3	1200	440	730	10	136	117		64	1550	1550	240	RUNNING TIME		PERCENT OF SLIP			
													DETENTION TIME		BBL FUEL/MI			
0800 TO 1200	4	1200	440	730	9.5	144	124		43	1450	1400	240	TOTAL REVOLUTIONS		WIND DIRECTION			
													AVERAGE R.P.M.		STATE OF SEA			
	3	1200	440	710	8.5	138	118		64	1550	1500	240	TOTAL MILES BY ENGINE		STATE OF WEATHER			
													TOTAL MILES BY OBSERVATION					

REMARKS

1200-1600 WATCH

Underway, Machinery in service: No. 3-4 Boilers and aux.; No. 3-4 Generators and aux.; Main Circ., Cond., Lub. Oil Pumps, and Air ejectors; Lub. Oil Purifier; Steam Reap. F.W. Pump. Added 1 gal each L.O. to Feed Pumps. Cleaned Strainers F.O. and Burners. Pumped Settlers from Fwd. No. 3 P/s DB; Fuel Oil Suction from Out board settler. Made routine watch tests and inspections of engine room machinery spaces.

Cond. tested = (-.41)

WATCH ENGR'S SIGNATURE-

Harold J. DeMond

1600-2000 WATCH

UNDERWAY ON 18 NOZZLES. MACHINERY IN OPERATION AS BEFORE. BLOW TUBES IN PORT & STBD BLRS. #4 F.O. BURNER. BURN EXCESS COAL. FUEL F.O. REJECTER #3 BAR. ADD. COAL TO #2 BAR.

CUTTER 2/RE 20 WATCH (44)

#2 M/F 3 - 19'-0" = .4192 SUGAR ON D. B.

#2 M/F P - 22'-0" = .4192 BAY COND. 3.41

WATCH ENGR'S SIGNATURE-

H. K. K. K.

2000-2400 WATCH

Underway 18 nozzles machinery in operation as before shifted F.O. Settlers from #3 P/s DB. Changed & cleaned burner's, F.O. discharge strainers, Gen L.O. strainers. Held E.C.D. B-2 water in F.O. from 2200-2215 4 men present. Bridge in forward, pumped bilges & shaft alley's made rounds tests & inspections all conditions normal. Complied with Night & Standing orders & COMSTS Instr. 4700.7.

Cond. #1 started B. 8.7 Port B. 9.53

Regular underway steaming watch Routine

WATCH ENGR'S SIGNATURE-

D. J. Puckett

2400-0400 WATCH

Underway, Recorded machinery in service; 0055-0115 Held Engineering casualty instruction and Drill (B-2 Water in Fuel Oil) 4 men present. Cleaned and changed Burners. Cleaned and changed F.O. L.O. Strainers. Made routine watch tests and inspections. Pumped settlers. Fuel Oil suction out board settler.

WATCH ENGR'S SIGNATURE-

Harold J. DeMond

0400-0800 WATCH

UNDERWAY ON 18 NOZZLES. MACHINERY IN OPERATION AS BEFORE. OPEN WIT. DORS. BURNERS FROM BRIDGE. BURNER #4 F.O. BURNER. BURN EXCESS COAL. FUEL F.O. REJECTER #3 BAR. ADD. COAL TO #2 BAR. ADD. COAL TO #2 BAR.

CUTTER - 2/RE 20 WATCH.

#2 M/F 3 - 19'-0" = .4192 SUGAR ON D. B.

#2 M/F P - 22'-0" = .4192 BAY COND. 3.41

WATCH ENGR'S SIGNATURE-

H. K. K. K.

0800-1200 WATCH

Underway 18 NOZZLES - MACH. IN OPERATION AS BEFORE - 1ST A/E IN SPACE @ 0800 - BLEW TUBES P/s Boilers @ 0808-0825 - TESTED FIRE ALARM @ 0851-0853 - CH. ENGR. IN SPACE @ 0910 - CLEANED AND CHANGED F.O. STRAINERS AND BURNERS - CHANGED AND CLEANED L.O. STRAINERS ON #3 AND #4 AUX. GEN. - PUMPED E.R. AND SHAFT ALLEY BILGES - MADE ROUNDS, TESTS AND INSPECTION - ALL CONDITIONS NORMAL - Complied with Night Standing orders - COMSTS INSTR. 4700.7

REGULAR UNDERWAY STEAMING WATCH ROUTINE. M/V BURNY 24/24W took 0.3 min drag on Tanks # 748

Cond. .41 PB. 9.94 SB. 2.04

WATCH ENGR'S SIGNATURE-

D. J. Puckett

CHIEF ENGINEER

BOILER WATER READINGS

STB'D PORT

HOURS 10:44 HOURS 11:04

AKL 5.25 AKL 7.41

T-AKL 1.6 T-AKL 11.1

S.L. 1.2 SAL. 1.1

PHOS. .5 PHOS. .30

R-ph 10.5 R-ph 10.5

SULFITE .30 SULFITE .30

Taking F.W. Suction from Fore Peak from 1000-1100

Evap distilling to fore peak 1100-1130, adding four (4) gal.

Sodium Chloride via Evap distilling to #3 & at 1130 F.W. Suction on #3 & 4.

CHIEF ENGR'S SIGNATURE-

L. J. Clemens

		WATCH								WATCH								
		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200			1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200			
RUNNING TIME		226	240	260	260	280	240			AFT. H. P. ROTOR BEARING		130	132	132	134	134	134	
DETENTION TIME										FORWARD L. P. ROTOR BEARING		130	131	130	130	131	130	
REVOLUTION COUNTER (END OF WATCH)		2987	2990	2992	2994	2997	2999			AFT. L.P. ROTOR BEARING		128	130	130	130	131	130	
TOTAL REVOLUTIONS (FOR WATCH)		21770	21800	23940	23930	23750	22010			HOTTEST GEAR BEARING FORWARD		142	147	150	150	148	148	
AVERAGE RPM		90.7	90.5	92.1	92.0	91.7	91.7			HOTTEST GEAR BEARING AFT		150	138	140	140	141	140	
F.O. METER (END OF WATCH)		1291	1242	1292	1292	1293	1293			AUX. COND. CONDENSATE		128	124	118	120	124	122	
F.O. CONSUMED		3010	3030	3310	3316	3340	3070			1ST STAGE FEED WATER HEATER		175	179	175	175	176	175	
PRESSURES		THROTTLE	426	426	428	426	425	425	TEMPERATURES		D. C. FEED WATER HEATER		238	239	240	238	235	238
		H.P. AHEAD	422	422	424	422	422	420			3RD STAGE FEED HP WATER HEATER LP		185	185	185	185	185	185
		L.P. AHEAD	26	26.3	27	26.8	27	25.8			F.O. TO BURNERS		176	175	180	172	175	175
		VACUUM	28	28.0	28.5	28.4	28	28.0			F.O. BACK PRESSURE							
PRESSURES		L.O. TO TURBINES	12.5	12.5	12.7	12.6	12.6	12.7	TEMPERATURES		AIR TO FURNACE		5.7	5.6	5.2	6.5	5.6	5.6
		AUX. STEAM	150	150	150	150	150	150			UPTAKE							
		BACK PRESSURE	9	9	9	9	9	9			MAIN STEAM		440	440	440	446	440	440
		GLAND STEAM	1.5	1.5	2.5	2.2	2.2	2.2			SUPER HEAT		715	720	715	715	725	720
		H.P. BLEEDER	60	60	60	60	60	60			F.O. TO BURNERS		182	184	180	182	185	178
		I.P. BLEEDER	5		10			5			F.O. TEMP. IN SETTLING TANKS		118	108	112	115	116	107
		L.P. BLEEDER	-10	5	5.7	5.6	5.7	10			PORT BOILER UPTAKE		305	300	305	310	312	300
											STBD. BOILER UPTAKE		305	300	310	315	315	305
TEMPERATURES		STEAM AT THROTTLE	715	720	715	715	725	720	TEMPERATURES		ENGINE ROOM TEMPERATURE		95	94	91	91	91	95
		L.P. EXHAUST	112	116	114	114	115	116			FIRE ROOM TEMPERATURE		95		91	91	91	95
		CONDENSATE	108	109	110	110	107	110			NOZZLES IN USE		18	18	18	18	18	18
		CIRC. WATER IN	82	82	80	80	81	82			NO. OF BURNERS IN USE		6	6	6	6	6	6
		CIRC. WATER OUT	92	93	90	90	92	92			BURNER TIP SIZE		51	51	51	51	51	51
		L.D. TO COOLERS	124	127	127	127	125	127			CO ₂ % PORT BOILER				14.5	14.5	14.5	14.0
		L.O. FROM COOLERS	110	110	110	110	110	110			CO ₂ % STBD. BOILER				13.5	14.5	13.5	13.5
		TEMPERATURE THRUST BEARING	116	116	116	116	116	116			OIL LEVEL MAIN SUMP		1.5	1.4	1.5	1.5	1.5	1.5
FORWARD H.P. ROTOR BEARING		125	123	122	124	123	123											

WATCH	GENERATORS												FUEL - WATER AND LUBE OIL					
	GENERATOR NUMBER	R.P.M.	STEAM PRESSURE	STEAM TEMP.	L.O. PRESSURE	L.O. TO COOLER	L.O. FROM COOLER	TEMP. OF HOTTEST BEARING	L.O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL	BOILER WATER	LUBE OIL			
1200 TO 1600	3	1200	440	715	8	138	120		65	1550	1550	240	METER AT NOON	2999.538	ON HAND AT START OF DAY			
													METER PREVIOUS NOON	2916.180	EVAPORATED OR RECEIVED			
													CONSUMED BY METER		ON HAND			
													ON HAND AT START OF DAY		CONSUMED			
													RECEIVED DURING DAY		ON HAND AT START OF DAY			
													EXPENDED DURING DAY		RECEIVED			
													REMAINING ON BOARD		ON HAND			
1600 TO 2000	4	1200	440	715	9.5	145	129		43	1500	1500	240	ON HAND AT START OF DAY		CONSUMED			
	3	1200	440	720	10	140	122		64	1500	1500	240	EVAPORATED OR RECEIVED		DIESEL OIL			
													ON HAND		ON HAND			
	4	1200	440	720	9.5	145	127		40	1400	1400	240	CONSUMED		CONSUMED			
2000 TO 2400	3	1200	440	715	8	138	118		64	1350	1300	240	LOW PRESS. EVAPORATORS (No. of hrs. operated) (Fresh water made gals.)					
													L.O. CENTRIFUGE - HOURS OPERATED:					
	4	1200	440	715	9.5	143	122		40	1350	1300	240	1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200
2400 TO 0400	3	1200	440	715	8	138	118		64	1400	1400	240	4	4	4	4	4	4
	4	1200	440	715	9.5	142	124		44	1350	1350	240	SUMMARY					
	3	1200	440	725	8	138	122		64	1550	1550	240	RUNNING TIME		PERCENT OF SLIP			
0400 TO 0800													DETENTION TIME		BBL FUEL/MI			
	4	1200	440	725	9.5	140	122		40	1400	1400	240	TOTAL REVOLUTIONS		WIND DIRECTION			
0800 TO 1200	3	1200	440	720	8	138	120		64	1500	1500	240	AVERAGE R.P.M.		STATE OF SEA			
													TOTAL MILES BY ENGINE		STATE OF WEATHER			
	4	1200	440	720	9.5	145	126		40	1500	1500	240	TOTAL MILES BY OBSERVATION					

REMARKS

1200-1600 WATCH

Underway, Machinery in service: No. 3-4 Boilers and aux.; No. 3-4 Generators and aux.; Main Circ., Cond., Lub. Oil Pumps, and Air ejectors; Steam Recip. F. Water Pump; Lub. Oil Purifier. at 1515 Abandon Ship Drill, Stby 1515; 1525 secured abandon ship drill. 1527 Fire and Emerg Drill, 1530 Fire Pump on line; secured from Drills and stby. at 1338; Pumped Settlers, Fuel Oil suction from Outboard settlers. Made routine watch tests and inspections of engine room machinery spaces.

Cond tested = (-.41)

WATCH ENGR'S SIGNATURE

1600-2000 WATCH

UNDERWAY ON 18 NOZZLES. MACH. IN OPERATION AS BEFORE. BLOW TUBES IN P/S BLRS. CHANGE + CLEAN #5-6 F.O. BURNERS. PORT BLR. ON BOTTOM BLOW THRU M.V. EVAP. ADD COMPOUND TO PORT BLR. - SAL. P = 8.21% S = 7.8%.

#2 M.U.F. S = 20'-0" = .41 % SUCT. ON D.B.

#2 M.U.F. P = 22'-0" = .41 % MAIN COND = .41

WATCH ENGR'S SIGNATURE

2000-2400 WATCH

under way 18 nozzles Machinery as before. Changed & cleaned burners, FO discharge strainers, G-346-4 LO. strainers. Put oil can dipping on #3 P Spring bearing pump bilges & shaft alley's. Made rounds tests & inspections of machinery space & machinery. Made hourly tests of condensate as per night order's. Complied with standing & night order's & COMSTS INSTR. 4700.7 All condition's Normal. Cond. .41 P.B. 10.36 S.B. 7.46 Retard Clock 20 min @ 2300 Regular Underway Steaming Watch Routine

WATCH ENGR'S SIGNATURE

2400-0400 WATCH

Underway, Records & Machinery in service; At 0100 Retarded clock 20 min.; Cleaned and changed Burners; F.O. and Lub. Oil Strainers. Crossed inter Date line; Made routine tests and inspections of engine room machinery spaces.

Cond. test hourly = (-.41)

WATCH ENGR'S SIGNATURE

0400-0800 WATCH

UNDERWAY ON 18 NOZZLES MACH. IN OPERATION AS BEFORE. CHANGE + CLEAN #5-6 F.O. BURNERS. RETARD CLOCK 20 MIN @ 0500. PORT BLR. ON BOTTOM BLOW THRU M.V. EVAP. MADE ROUTINE INSPECTIONS OF ENGINE RM & SHAFT ALLEY PUMP BILGES. COMPLIED WITH COMSTS INSTR. 4700.7. SHIFT SUCT. TO OUTBOARD SETTLER 0750

#2 M.U.F. S = 20'-0" SUCT. ON D.B.

#2 M.U.F. P = 22'-0" MAIN COND. .41

WATCH ENGR'S SIGNATURE

0800-1200 WATCH

UNDERWAY 18 NOZZLES - MACH. AS BEFORE - CHANGED AND CLEANED F.O. BURNERS AND STRAINERS - BLEW TUBES P/S BOILERS @ 0800-0816 - SHIFTED F.W. SUCTION TO FORE PEAK @ 0850 - SHIFTED F.O. SETTLER TO IN'RD @ 1015 - Pumped SETTLERS P/S @ 1050 - TESTED AHEAD AND GOV. THROTTLE @ 1110 - BILGES AT SAFE LEVEL - MADE ROUNDS TEST AND INSPECTIONS OF MACH. SPACE - Complied with STANDING AND NIGHT ORDERS - COMSTS INSTR. 4700.7 MADE HOURLY TEST OF CONDENSATE AS PER NIGHT ORDERS. UNDERWAY STEAMING WATCH ROUTINE

Cond. .41 SB 7.87 PB 6.63 ~~Reg~~ Splitout Circ. system 0910

WATCH ENGR'S SIGNATURE

CHIEF ENGINEER

BOILER WATER READINGS

STR'D	PORT
HOURS F-468	HOURS F-242
W-468	W-242
AKL 9.34	AKL 11.10
T-AKL 13.43	T-AKL 16.35
SAL. 7.04	SAL. 7.17
PHOS. 40	PHOS. 50
R-ph 11.0	R-ph 11.0
SULFITE 30	SULFITE 43

CHIEF ENGR'S SIGNATURE

WATCH							WATCH						
	1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200		1200 TO 1600	1600 TO 2000	2000 TO 2400	2400 TO 0400	0400 TO 0800	0800 TO 1200
MACHINERY PARTICULARS													
TEMPERATURES (CONT'D)													
MACHINERY PARTICULARS (CONT'D)													
TEMPERATURES													
PRESSURES													
MISCELLANEOUS													

WATCH	GENERATORS												FUEL - WATER AND LUBE OIL					
	GENERATOR NUMBER	R. P. M.	STEAM PRESSURE	STEAM TEMP.	L. O. PRESSURE	L. O. TO COOLER	L. O. FROM COOLER	TEMP. OF HOTTEST BEARING	L. O. GOVERNOR PRESSURE	AMPS POSITIVE	AMPS NEGATIVE	VOLTS	FUEL OIL	WATER	LUBE OIL			
1200 TO 1600	3	1200	440	720	8	138	119		65	1650	1650	240	METER AT NOON 12953680 METER PREVIOUS NOON 1293170 CONSUMED BY METER 222280	ON HAND AT START OF DAY	ON HAND			
1600 TO 2000	4	1400	440	720	9.5	148	124		40	1600	1600	240	ON HAND AT START OF DAY	EVAPORATED OR RECEIVED	ON HAND			
2000 TO 2400	3	1200	440	725	8	137	117		64	1500	1500	240	RECEIVED DURING DAY	ON HAND AT START OF DAY	CONSUMED			
2400 TO 0400	4	1200	440	725	9.5	143	122		40	1400	1400	240	EXPENDED DURING DAY	ON HAND	ON HAND			
0400 TO 0800	3	1200	440	720	8	137	116		64	1350	1300	240	REMAINING ON BOARD	ON HAND	ON HAND			
0800 TO 1200	4	1200	440	720	9.5	143	121		40	1350	1300	240	ON HAND AT START OF DAY	CONSUMED	CONSUMED			
LOW PRESS. EVAPORATORS (No. of hrs. operated) (Fresh water made gals.)													DIESEL OIL					
L. O. CENTRIFUGE - HOURS OPERATED													ON HAND					
1200 TO 1600	3	4	4	4	4	4	4						ON HAND	ON HAND	ON HAND			
1600 TO 2000	4	4	4	4	4	4	4						CONSUMED	CONSUMED	CONSUMED			
2000 TO 2400	3	4	4	4	4	4	4											
2400 TO 0400	4	4	4	4	4	4	4											
0400 TO 0800	3	4	4	4	4	4	4											
0800 TO 1200	4	4	4	4	4	4	4											

REMARKS

1200-1600 WATCH

Underway Machinery in service: Boiler B-3, B-4 and aux; Generators G-3 and G-4; M-2, MC-3, L-3, and ME-R; Aux Circ Pump, L.C. 2; W-3; Cleaned Lub Oil Purifier, back in service, Changed and Cleaned Burnpre and F.O. Strainer, Made routine watch tests and inspections of engine room machinery spaces. Fuel Oil Suction from inboard settler.

Cond. tested = -.41

WATCH ENGR'S SIGNATURE-

1600-2000 WATCH

UNDERWAY ON 18 NOZZLES MACHINERY IN OPERATION AS BEFORE. BLOW TUBES IN B-3 + B-4. - 3 3 BOTT. BLOW THRU M.V. #2. CHANGE + CLEAN #1 F.O. BURNER. SUCT. STRAINER SUCT. ON AFT. PEAK. FILL #3 STR. CLOS. W.T. DECKS. ORDERS FERRIS @ 1852. COMPT. WITH 2000 HOURS. DECK & AFT. 2. FILL #1 F.O. BURNER. BLOW BURNERS.

#2 MCF = 5:12 SUCT. ON DB.

WATCH ENGR'S SIGNATURE-

2000-2400 WATCH

UNDERWAY 18 NOZZLES - MACH. AS BEFORE - CHANGED AND CLEANED F.O. BURNERS AND STRAINERS - CHANGED AND CLEANED L.O. STRAINERS ON #3 AND #4 AUX. GEN. Pumped F.O. SETTLER #2 @ 1040 - MADE hourly TEST OF CONDENSATE AS PER NIGHT ORDERS - Pumped E.R. AND SHAFT ALLEY BILGES - MADE ROUNDS TESTS AND INSPECTION OF MACH. SPACE - COMPLIED WITH STANDING AND NIGHT ORDERS - COMSTS INSTR. 4700.7 - UNDERWAY STEAMING WATCH ROUTINE.

Cond. .41 P 9.04 S 5.80

WATCH ENGR'S SIGNATURE-

2400-0400 WATCH

Underway, Recorded machinery in service: at 0040 shifted to No. 4 Cond. Pump, replaced nipple 1/4" seal line changed back to No. 3 Cond. Pump. Changed and cleaned Burner, F.O. and L.O. Strainers; Made routine watch tests and inspections of engine room machinery spaces

Cond. tested = -.41

WATCH ENGR'S SIGNATURE-

0400-0800 WATCH

UNDERWAY ON 18 NOZZLES MACH. IN OPERATION AS BEFORE. CLEAN F.O. SUCT. STRAINER. CHANGE + CLEAN #6 F.O. BURNER. F.W. SUCTION ON #4 @ 0400 FILL #1 AFT. PEAK @ 0400. #4B ON BOTT. BLOW THRU M.V. EVAP. ADD COMPOUND TO #3 + 4 BLRS.

#2 MCF = 5:12 SUCT. ON DB.

#2 MCF = P = 22.

WATCH ENGR'S SIGNATURE-

0800-1200 WATCH

Underway 18 Nozz mach in operation as before. Blow Tubes on #3 boilers from 0800 - 0815, pumped up outboard settler from #3 & DB, cleaned and changed burners & F.O. discharge strainers. Changed & Cleaned Gen. L.O. Strainers. Tested ahead & Gov. throttles. Made regular inspection of mach & mach space. Pumped bilges and shaft alley's. probe cooling water union to #3 & spring bearing to admit more cooling capacity. Made routine test all conditions normal. 1st A/E in space at 1000. Regular Routine Steaming watch.

CHIEF ENGINEER

WATCH ENGR'S SIGNATURE-

Cond. .41 1/2 SB. 7.87 PB. 7.04 distilling to #3 &

BOILER WATER READINGS

STB'D

PORT

P - 492 P - 272

W - 492 W - 172

AKL 9.93 AKL 4.6

T-AKL 14.6 T-AKL 8.7

SAL. 6.63 SAL. 5.4

PHOS. 50 PHOS. 20

R.ph 11 R.ph 11

SULFATE 21.5 SULFATE 22.5

CHIEF ENGR'S SIGNATURE-