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The Natural Energy Laboratory of Hawaii

April 10, 1989

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89 APR 12 A8:18
DIVISION OF LAND & NATURAL RESOURCES
STATE OF HAWAII

The Honorable William Paty, Chairperson
Board of Land and Natural Resources
Kalanimoku Building
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Paty:

Please find enclosed copies of the HGP-A Operating Figures for January, 1988 through March, 1989. We understand these reports have not been sent to you since management changes occurred at the Research Corporation of the University of Hawaii (RCUH). An HGP-A Fact Sheet which covers the years 1982 through February, 1989 is also enclosed for your information.

We hope the information provided will be of interest to you. We will continue to keep you apprised of the operating figures.

Best regards,

Jack

Jack P. Huizingh
Executive Director

JPH:gym
Enclosures

cc: Mr. Roy N. Nakanishi

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89 APR 14 A10:51
DIV. OF WATER & LAND DEVELOPMENT

☑ 220 South King Street, Suite 1280 * Honolulu, HI 96813 * (808) 548-7017
☐ P.O. Box 1749 * Kailua-Kona, HI 96745 * (808) 329-7341
☐ P.O. Box 2172 * Pahoa, HI 96778 * (808) 965-9699

NATURAL ENERGY LABORATORY OF HAWAII

Puna Geothermal Facility

HGP-A Fact Sheet

Year	Net Kwh Generated	Cumulative Kwh	Months Operating
1982	15,252,800		9
1983	19,327,608	34,580,408	12
1984	20,646,000	55,226,408	12
1985	18,854,200	74,080,608	12
1986	17,534,600	91,615,208	12
1987	14,106,400	105,721,608	12
1988	16,225,300	121,946,908	12
1989	2,654,800	124,501,708	2
			83 months or 6 years 11 months thru Feb., 1989
Average	17,991,575		

Barrels of Oil Conserved To Date $\frac{124,501,708 \text{ kwh}}{500 \text{ kwh/bbl}} = 249,000 \text{ bbl}$

Barrels of Oil Conserved per Year $\frac{17,991,575 \text{ kwh/yr.}}{500 \text{ kwh/bbl}} = 35,980 \text{ bbl/year}$

According to HELCO, 2,000 homes are serviced by HGP-A power.

HGP-A power plant typically operates at well over 90% reliability factor.

NELH - Puna/Feb. 1989

HAWAII ELECTRIC LIGHT COMPANY, INC. • PO BOX 1027 • HILO, HI 96721-1027

HEI

March 1, 1989

RECEIVED
MAR - 3 1989
NELH

The Natural Energy Laboratory of Hawaii
220 South King Street, Suite 1280
Honolulu, HI 96813

Attention: Mr. Jack P. Huizingh
Executive Director

Gentlemen:

Operating figures for the month of February 1989 are as follows:

Net Kwh Generated	Revenues $	Operating Hours (Hours:Min.)
1,255,300	$ 77,351	622:12

Also attached please find the monthly maintenance summary.

Very truly yours,

Frank G. Kennedy, Manager
Production Department

FGK:mh
Attachment
cc: Roy Nakanishi
Cora Chai (RCUH)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

FEBRUARY 1989

A. Work Accomplished

1. Repaired three gas leaks during the month on the John Zink scrubber column.

2. Repaired one gas leak on the John Zink incinerator.

3. The unit developed problems this month from a plugged flash separator brine line that resulted in two outages.

   The unit was taken off line on Friday, February 10, to reroute the brine flow and clean the separator. (Open venting occurred from 8:09 a.m. until 2:10 p.m. that day.) During the outage, the following work was performed:

   a. Flow was rerouted from the plugged 3-inch brine line into the existing 4-inch brine line.
   b. The flash separator was cleaned.
   c. The circulating water pump inlet screens were cleaned.
   d. The 10% caustic pump motor was replaced.
   e. Two control valves on the John Zink gas line were replaced.
   f. A frozen gear box on the cooling tower fan was replaced.
   g. Distribution tray nozzles were cleaned on the cooling tower.
   h. A 4-inch block valve was installed on LV-1.
   i. Miscellaneous small piping and electrical repairs were performed around the plant.
   j. The unit was put back into service at 6:48 p.m. the next day.

4. A shop overhaul was performed on the LV-1 butterfly valve.

B. Plans For Next Month

1. Perform corrective maintenance as required.

NMU 2/27/89

HAWAII ELECTRIC LIGHT COMPANY, INC. · PO BOX 1027 · HILO, HI 96721-1027

FUEL 1-3
H-G/Y

HEI

February 1, 1989

RECEIVED
FEB -6 1989
NELH

The Natural Energy Laboratory of Hawaii
220 South King Street, Suite 1280
Honolulu, HI 96813

Attention: Mr. Jack P. Huizingh
Executive Director

Gentlemen:

Operating figures for the month of January 1989 are as follows:

Net Kwh Generated	Revenues $	Operating Hours (Hours:Min.)
1,399,500	86,391	725:39

Also attached please find the monthly maintenance summary.

Very truly yours,

Frank G. Kennedy, Manager
Production Department

FGK:NMU:mh
Attachment
cc: Jan War (NELH-Kona)
Cora Chai (RCUH)

/89 cc R. Nakanish.

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JANUARY 1989

A. Work Accomplished

1. Replaced a section of deteriorated propane tubing on the emergency generator.
2. Cleaned the circulating water pump inlet screens.
3. Repaired a gas leak on the John Zink scrubber column.
4. Replaced the main 4" City water shutoff valve.
5. Repaired a deteriorated section of air conditioning ductwork in the motor control center cab.

B. Plans For Next Month

1. Perform corrective maintenance as required.

NMU 2/03/89

GENPP 17-1
H-G/G

HAWAII ELECTRIC LIGHT COMPANY, INC.
INTEROFFICE CORRESPONDENCE

JANUARY 17, 1989

RECEIVED
JAN 20 1989
NELH

TO: TOM JEZIERNY, MANAGER
PRODUCTION DEPARTMENT, HECO

FROM: FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT, HELCO

SUBJECT: HELCO 1989 OVERHAUL SCHEDULE, REVISION 1

UNIT	DATES	WEEKS	REMARKS	MANPOWER REQ'D FROM HECO
HAMAKUA SUGAR	MAR 12-APR 8 1	4	ANNUAL OVERHAUL	N/A
HILO COAST PROCESSING	APR 9-MAY 6 1	4	ANNUAL OVERHAUL	N/A
SHIPMAN #3	MAY 8-19 1	2	BOILER INSPECTION, TURBINE MINOR, CLEAN CONDENSER	1 FOREMAN 1 WELDER 2 BOILER
HILL #5	MAY 22-JUN 9	3	BOILER INSPECTION, TURBINE MINOR, CLEAN CONDENSER, REPLACE EXCITER	1 FOREMAN 1 WELDER 2 BOILER
HILL #6	JUN 13-23	2	BOILER INSPECTION, TURBINE MINOR, CLEAN CONDENSER	1 FOREMAN 1 WELDER 2 BOILER
PUNA	JUN 26-JUL 21	4	BOILER TUBE REPAIR, ACID CLEAN BOILER, EVAPORATOR, & CONDENSER (FOAM), TAKE TURBINE SHAFT SEAL CLEARANCES	1 FOREMAN 6 WELDERS 2 BOILER 2 MACHINIST
SHIPMAN #4	JUL 24-AUG 4	2	BOILER INSPECTION, TURBINE MINOR, CLEAN CONDENSER	1 FOREMAN 1 WELDER 2 BOILER
SHIPMAN #1	AUG 7-SEP 1	4	TURBINE MAJOR, REPL TURBINE SHAFT SEALS, REPAIR BOILER REFRACTORY, CLEAN CONDENSER, REPL SUPERHEATER	1 FOREMAN 2 MACHINIST 2 WELDERS 1 BOILER
HGP-A	SEP 5-22	3	TURBINE MAJOR, CLEAN CONDENSER, CLEAN & REPAIR COOLING TOWER, OVERHAUL H2S ABATEMENT INCINERATOR & SCRUBBERS, DREDGE PONDS, CLEAN FLASH SEPARATOR	1 FOREMAN 2 WELDER 1 BOILER

FRANK G. KENNEDY, MANAGER

PREPARED BY NMU

C: HECO (A. NAKAMURA, R. IMAI, R. HARRIS, R. ARAKAKI, V. TEVES)
HELCO (N. OSS, J. PAUOLE, C. NAKAYAMA, D. BARNES, C. NAGATA, H. MATSUDA, H. KAMIGAKI)
HAMAKUA SUGAR (T. BENNETT)
FACTORY MUTUAL (E. BLYTHYN)
MECO (T. JOAQUIN)
HCPC (R. HILL)
RCUH (J. HUIZINGH)

1/20/89 FAX to R. Nakansh

HAWAII ELECTRIC LIGHT COMPANY, INC. · PO BOX 1027 · HILO, HI 96721-1027

FUEL 1-3
H-G/Y

HEI

January 4, 1989

The Natural Energy Laboratory of Hawaii
220 South King Street, Suite 1280
Honolulu, HI 96813

JAN - 9 1989
NELH

Attention: Mr. Jack P. Huizingh
Executive Director

Gentlemen:

Operating figures for the month of December 1989 are as follows:

Net Kwh Generated	Revenues $	Operating Hours (Hours:Min.)
1,391,700	85,911	705:24

Also attached please find the monthly maintenance summary.

Very truly yours,

Frank G. Kennedy, Manager
Production Department

FGK:NMU:mh
Attachment
cc: Jan War (NELH-Kona)
Cora Chai (RCUH)

1/9/89 - fax to Roy Akamishi

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

DECEMBER 1988

A. Work Accomplished

1. Changed discharge hoses on both 10% caustic pumps and upgraded the hose to braided stainless steel reinforced.

2. Cleaned circulating water pump inlet screens.

3. Changed feather valves on the Joy air compressor.

4. Patched small leaks on the John Zink PVC gas line.

B. Plans For Next Month

1. Perform corrective maintenance as required.

NMU 1/05/89

HAWAII ELECTRIC LIGHT COMPANY, INC. • PO BOX 1027 • HILO, HI 96721-1027

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DEC 12 1988
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December 8, 1988

The Natural Energy Laboratory of Hawaii
220 South King Street, Suite 1280
Honolulu, HI 96813

Attention: Mr. Jack P. Huizingh
Executive Director

Gentlemen:

Operating figures for the month of November 1988 are as follows:

Net Kwh Generated	Revenues $	Operating Hours (Hours:Min.)
1,421,500	87,725	700:50

Also attached please find the monthly maintenance summary.

Very truly yours,

Frank G. Kennedy, Manager
Production Department

FGK:cr
Attachment
cc: Jan War (NELH-Kona)
Cora Chai (RCUH)

12/12/88 cc: Roy Nakanishi

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

NOVEMBER 1988

A. Work Accomplished

1. Replaced mechanical seals on both 10% caustic supply pumps.
2. Overhauled the "A" 10% caustic pump.
3. Repaired gas leaks on the John Zink oxidizer scrubber.

B. Plans For Next Month

1. Perform corrective maintenance as required.

NMU 12/2/88

HAWAII ELECTRIC LIGHT COMPANY, INC. • PO BOX 1027 • HILO, HI 96721-1027

FUEL 1-3
H-G/Y

HEI

RECEIVED
NOV - 4 1988
NELH

November 1, 1988

The Natural Energy Laboratory of Hawaii
220 South King Street, Suite 1280
Honolulu, HI 96813

Attention: Mr. Jack P. Huizingh
Executive Director

Gentlemen:

Operating figures for the month of October 1988 are as follows:

Net Kwh Generated	Revenues $	Operating Hours (Hours:Min.)
1,258,400	77,550	664:30

Also attached please find the monthly maintenance summary.

Very truly yours,

Kare Bader

for Frank G. Kennedy, Manager
Production Department

FGK:NMU:mh
Attachment
cc: Jan War (NELH-Kona)
Cora Chai (RCUH)
11/4/88 Cory Akamishi

HAWAII ELECTRIC LIGHT CO., INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

OCTOBER 1988

A. Work Accomplished

1. High condenser backpressure was experienced following September's overhaul, and maximum load was limited to 1.1 MW. The unit was taken offline for 3 days during the first week of October for condenser cleaning. Following the cleaning, normal backpressure was attained and the unit's output was raised to 2.1 MW.

2. Replaced the "B" caustic tank suction valve.

3. Replaced the "B"caustic tank sight glass.

4. Replaced the impeller on the John Zink recycle pump.

5. Callibrated all of the turbine/generator temperature measuring circuits.

6. Finished installation of the new back-up H_2S abatement system.

7. Repaired the telephone buzzer.

B. Plans for Next Month

1. Perform corrective maintenance as required.

NMU 11/01/88

HAWAII ELECTRIC LIGHT COMPANY, INC. · PO BOX 1027 · HILO, HI 96721-1027

FUEL 1-3
H-G/Y

HEI

October 4, 1988

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OCT - 6 1988
NELH

The Natural Energy Laboratory of Hawaii
220 South King Street, Suite 1280
Honolulu, HI 96813

Attention: Mr. Jack P. Huizingh
Executive Director

Gentlemen:

Operating figures for the month of September 1988 are as follows:

Net Kwh Generated	Revenues $	Operating Hours (Hours:Min.)
739,600	45,534	400:05

Also attached please find the monthly maintenance summary.

Very truly yours,

Frank G. Kennedy, Manager
Production Department

FGK:NMU:cr
Attachment
cc: Jan War (NELH-Kona)
Cora Chai (RCUH)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

SEPTEMBER 1988

A. Work Accomplished

1. Completed a two-week general overhaul at the plant (see attached list of work performed during the overhaul).

2. Repaired a gas leak on the John Zink furnace manhole.

3. Installed a newly fabricated replacement section for the steel twin exhaust stack.

4. Re-installed a loose discharge hose on the 10% caustic pump discharge after the fitting failed under pressure and sprayed the operator. Minor injuries were sustained by D. Borges as a result of the incident which occurred on September 6, 1988.

5. Overhauled the "A" circulating water pump.

6. Overhauled the emergency shower and eyewash station.

B. Plans For Next Month

1. Correct low condenser vacuum condition.

2. Perform corrective maintenance as required.

NMU 10/4/88

HAWAII ELECTRIC LIGHT COMPANY, INC.

LIST OF WORK PERFORMED DURING
ANNUAL OVERHAUL OF HGP-A
SEPTEMBER 19 - 30, 1988

1. Open venting occurred during the hours of 0732 and 1447 on Wednesday, September 21, 1988.
2. Inspected the generator bearings and gear box internals.
3. Replaced two main steam line drain valves. (This work required open venting.)
4. Replaced the LV-1 brine level control valve.
5. Repaired the ladder into the condensate tank pit.
6. Made repairs to various small sections of deteriorated conduit and piping.
7. Repaired defective light fixtures.
8. Calibrated the 50% caustic pump mixing control.
9. Repaired an oil leak on the turbine reduction gear.
10. Changed the turbine lube oil filters.
11. Replaced the ceramic packing in the John Zink scrubber column.
12. Replaced rusted pipe brackets in the Dow scrubber.
13. Overhauled the "A" 10% caustic pump.
14. Calibrated vibration and displacement sensors on the turbine.
15. Changed the charcoal generator air filter.
16. Overhauled the generator air blower.
17. Changed oil on the cooling tower fan gear boxes.
18. Inspected the turbine lube oil cooler.
19. Calibrated miscellaneous gauges and pressure switches.

NMU 10/4/88

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

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SEP - 6 1988
NELH

SEPTEMBER 1, 1988

THE NATURAL ENERGY LABORATORY OF HAWAII
220 SOUTH KING STREET, SUITE 1280
HONOLULU, HI 96813

ATTENTION: MR. JACK P. HUIZINGH
EXECUTIVE DIRECTOR

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF AUGUST 1988.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
27,267	34,876	1,318,300	81,296	660:19

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NMU:MN
ATTACHMENT
CC: JAN WAR (NELH-KONA)
CORA CHAI (RCUH)

9-6-88 cc: Roy Yokoyoshi

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

AUGUST 1988

A. Work Accomplished

1. Overhauled the John Zink scrubber recycle pump.
2. Cleared an obstructed John Zink oxidizer propane line.
3. Adjusted the turbine control valve actuator linkage.
4. Changed oil on the station air compressor.
5. Made minor repairs to the bridge crane.
6. Repaired the outside telephone horn.
7. Replaced a faulty supervisory control circuit card after the card malfunctioned and caused a unit trip on Saturday, August 20. The outage lasted 2 hours and 47 minutes.
8. Replaced a defective hydraulic turbine governor which caused a unit trip on Sunday, August 28. The outage lasted 12 hours and 46 minutes.

B. Plans For Next Month

1. Repair piping leaks on the turbine main steam line. The work will require unabated venting of the well.
2. Perform corrective maintenance as required.

NMU 9/06/88

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

AUGUST 2, 1988

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AUG - 4 1988
NELH

THE NATURAL ENERGY LABORATORY OF HAWAII
220 SOUTH KING STREET, SUITE 1280
HONOLULU, HI 96813

ATTENTION: MR. JACK P. HUIZINGH
EXECUTIVE DIRECTOR

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JULY 1988.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
32,131	41,099	1,553,500	95,756	736:20

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NMU:MN
ATTACHMENT
CC: JAN WAR (NELH-KONA)
CORA CHAI (RCUH)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JULY 1988

A. Work Accomplished

1. Tightened air compressor drive belts.

2. Replaced 50% caustic transfer pump motor with temporary unit borrowed from Puna Biomass.

3. Repaired 10% caustic pump.

4. Overhauled John Zink scrubber recycle pump.

5. Responded to a unit trip on July 25, 1988, after a downed pole caused the 34.5KV line to trip and MOS 3702 and ACB 409 would not reclose. Checked out the circuit breakers and placed the unit on line after a 7 hr. 40 min. outage.

B. Plans For The Coming Month

1. Perform corrective maintenance as required.

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

RECEIVED
JUL - 7 1988
NELH

JULY 5, 1988

THE NATURAL ENERGY LABORATORY OF HAWAII
220 SOUTH KING STREET, SUITE 1280
HONOLULU, HI 96813

ATTENTION: MR. JACK P. HUIZINGH
EXECUTIVE DIRECTOR

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JUNE 1988.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
31,079	39,752	1,502,600	92,740	702:33

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NMU:MN
ATTACHMENT
CC: JAN WAR (NELH-KONA)
CORA CHAI (RCUH)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JUNE 1988

A. Work Accomplished

1. Replaced a faulty recirculation pump on the Dow scrubber.
2. Repaired a leaking section of piping on the 50% caustic tank unloading line.
3. Installed a new flame scanner on the John Zink oxidizer.
4. Replaced a defective caustic supply solenoid valve on the John Zink scrubber.
5. Installed new bearings on the 10% caustic supply pump.

B. Plans For Next Month

1. Perform corrective maintenance as required.

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

RECEIVED
JUN - 7 1988
NELH

JUNE 2, 1988

THE NATURAL ENERGY LABORATORY OF HAWAII
220 SOUTH KING STREET, SUITE 1280
HONOLULU, HI 96813

ATTENTION: MR. JACK P. HUIZINGH
EXECUTIVE DIRECTOR

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF MAY 1988.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
31,219	39,932	1,509,400	93,037	714:28
		2 =		96%
			31 x 24 = 744	

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NMU:MN
ATTACHMENT
CC: JAN WAR (NELH-KONA)
CORA CHAI (RCUH)

RECEIVED
JUN - 7 1988
NELH

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

MAY 1988

A. Work Accomplished

1. Replaced a leaking hose on the John Zink scrubber recycle pump.

2. Worked on the John Zink scrubber recycle pumps after experiencing numerous trips. Repaired an erratic flow switch and placed the pumps back into operation.

3. Disabled the John Zink scrubber high temperature interlock.

4. Removed the flame scanner from the John Zink thermal oxidizer.

5. Investigated the cause of three unit trips during the week ending May 29, that caused a total outage time of 16 hours, 22 minutes. No apparent cause of the trips has been found.

B. Plans For Next Month

1. Continue the investigation into the unit generator trips.

2. Perform corrective maintenance as required.

HEI NMU 6/02/88

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

RECEIVED
MAY - 9 1988
NELH

MAY 3, 1988

THE NATURAL ENERGY LABORATORY OF HAWAII
220 SOUTH KING STREET, SUITE 1280
HONOLULU, HI 96813

ATTENTION: MR. JACK P. HUIZINGH
EXECUTIVE DIRECTOR

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF APRIL 1988.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
28,208	36,080	1,363,800	84,070	713:06

1,363,800 x 12 mo./yr.
x 24 hr/day · 365

= 1.87

30days x24 720

99.02 %

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NMU:MN
ATTACHMENT
CC: JAN WAR (NELH-KONA)
CORA CHAI (RCUH)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

APRIL 1988

A. Work Accomplished

1. Removed an obstruction from within the John Zink furnace propane supply line.

2. Repaired a bad furnace flame sensor.

3. Ran unit isochronously on Thursday, April 14, for approximately four (4) hours, at reduced load, in conjunction with switching and isolation work on the Puna 34KV line.

B. Plans For Next Month

1. Perform corrective maintenance as required.

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

APRIL 7, 1988

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APR 11 1988
NELH

THE NATURAL ENERGY LABORATORY OF HAWAII
220 SOUTH KING STREET, SUITE 1280
HONOLULU, HI 96813

ATTENTION: MR. JACK P. HUIZINGH
EXECUTIVE DIRECTOR

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF MARCH 1988.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
30,044	38,429	1,452,600	89,577	740:36

31 days = 744 hrs
/ 99.5%

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NMU:MN
ATTACHMENT
CC: JAN WAR (NELH-KONA)
CORA CHAI (RCUH)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

MARCH 1988

A. Work Accomplished

1. Replaced and tested various control relays in the John Zink control panel.

2. Repaired defective phone ringer control.

3. Cleaned John Zink flame scanner and flame scanner relay.

B. Plans For Next Month

1. Perform corrective maintenance as required.

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

RECEIVED
MAR 23 1988
NELH

MARCH 1, 1988

THE NATURAL ENERGY LABORATORY OF HAWAII
P. O. BOX 1749
KAILUA-KONA, HI 96740-1749

ATTENTION: MR. JACK P. HUIZINGH
EXECUTIVE DIRECTOR

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF FEBRUARY 1988.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
28,669	36,670	1,386,100	85,506	696:00

27 x 24 = 648.00
100%

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NMU:MN
ATTACHMENT
CC: JAN WAR

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

FEBRUARY 1988

A. Work Accomplished

1. Repaired a worn coupling on the 50% caustic pump.

B. Plans For Next Month

1. Perform corrective maintenance as required.

HEI NMU 3/03/88

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

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FEB - 5 1988
NELH

FEBRUARY 1, 1988

THE NATURAL ENERGY LABORATORY OF HAWAII
P. O. BOX 1749
KAILUA-KONA, HI 96740-1749

ATTENTION: MR. JACK P. HUIZINGH
EXECUTIVE DIRECTOR

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JANUARY 1988.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
27,463	35,128	1,327,800	81,810	656:20 656.33

31d x 24 = 744 = 88.2%

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NMU:CR
ATTACHMENT
CC: JAN WAR

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JANUARY 1988

A. Work Accomplished

1. Changed Dow scrubber pH probe.
2. Recalibrated cooling tower pH probe.
3. Repaired leak on underground section of circulating water discharge piping.
4. Replaced cooling tower caustic supply solenoid valve.
5. Replaced leaking sections of after-condenser cooling water piping.
6. Fabricated new circulating water drain line and installed it on main condenser.
7. Changed the 50% caustic transfer pump coupling.
8. Replaced defective ignition transformer on the John Zink furnace. Also replaced miscellaneous small electrical components on furnace control panel.
9. Installed new caustic piping and automatic control valves for steam bypass line abatement system.
10. Replaced caustic mixing station water valve.
11. Waterproofed condenser level controls electrical junction box.
12. Troubleshot condenser temperature circuit and tagged several defective R.T.D.s.

B. Plans For Next Month

1. Peform corrective maintenance as required.

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

JANUARY 8, 1988

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF DECEMBER 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
14,120	18,061	682,700	41,883	341.57
14120	18061	682,700	41,883	46% 341.57

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

DECEMBER 1987

A. Work Accomplished

1. Completed turbine inspection and general overhaul on Monday, December 14.
   a. Install new brine line from flash separator to LV-1.
   b. Completed sandblasting of turbine components and installation of new turbine seals.
   c. Replaced cooling tower distribution trays and repaired rotted areas in cooling tower structure.
   d. Dredged main brine percolation pond.
   e. Calibrated turbine and generator vibration and temperature probes.
   f. Replaced Dow scrubber flow switches and pH probes.
   g. Installed new turbine condensate drip tank level probes.
   h. Replaced faulty Woodward actuator on main steam control valve.
   i. Repaired worn cooling tower fiberglass blades.
   j. Overhauled static exciter.
   k. Installed propane gas pressure switch on John Zink incinerator.
   l. Replaced incinerator purge relay.
   m. Placed unit on line and took vibration readings.
   n. Calibrated and tested generator protective relays.
2. Installed new pH probe in cooling tower basin.
3. Vented the well through twin stacks on December 1 (2 hours), December 8 (7 hours), and December 10 (7 hours).

B. Plans For Next Month

1. Repair sections of gas ejector cooling water line.
2. Perform corrective maintenance as required.

WL

Telephone: (808) 955-6344 286

RECEIVED

The Research Corporation of the University of Hawaii

RECEIVED
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

January 15, 1987

Mr. Willaim Paty
Director
Dept. of Land &
Natural Resources
P.O. Box 621
Honolulu, HI. 96809

RECEIVED
88 JAN 19 AM 1:16
DIV. OF WATER & LAND DEVELOPMENT

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of December.

Sincerely,

William R. Coops
Director of Administration

WRC:lsc

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olson
P. Helfrich
J. Craven
G. Mooers

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

DECEMBER 1987

A. Work Accomplished

1. Completed turbine inspection and general overhaul on Monday, December 14.
   a. Install new brine line from flash separator to LV-1.
   b. Completed sandblasting of turbine components and installation of new turbine seals.
   c. Replaced cooling tower distribution trays and repaired rotted areas in cooling tower structure.
   d. Dredged main brine percolation pond.
   e. Calibrated turbine and generator vibration and temperature probes.
   f. Replaced Dow scrubber flow switches and pH probes.
   g. Installed new turbine condensate drip tank level probes.
   h. Replaced faulty Woodward actuator on main steam control valve.
   i. Repaired worn cooling tower fiberglass blades.
   j. Overhauled static exciter.
   k. Installed propane gas pressure switch on John Zink incinerator.
   l. Replaced incinerator purge relay.
   m. Placed unit on line and took vibration readings.
   n. Calibrated and tested generator protective relays.
2. Installed new pH probe in cooling tower basin.
3. Vented the well through twin stacks on December 1 (2 hours), December 8 (7 hours), and December 10 (7 hours).

B. Plans For Next Month

1. Repair sections of gas ejector cooling water line.
2. Perform corrective maintenance as required.

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

JANUARY 8, 1988

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF DECEMBER 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
14,120	18,061	682,700	41,883	341:57

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

Telephone: (808) 955-6344

RECEIVED

87 DEC 11 AM 8:28

DIV. OF WATER & LAND DEVELOPMENT

RECEIVED

87 DEC 10 A 8: 48

STATE OF HAWAII

The Research Corporation of the University of Hawaii

December 9, 1987

Mr. William Paty
Director
Dept. of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of November, 1987.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olson
P. Helfrich
J. Craven
G. Mooers

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

DECEMBER 1, 1987

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF NOVEMBER 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
10,943	13,998	529,100	32,592	330:34

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

NOVEMBER 1987

A. Work Accomplished

1. Vented the well through twin stacks on Thursday, November 5, to allow Arakaki Mechanical to install Thermal Power's steam connection.

2. Completed repairs on the emergency power transfer switch.

3. Repaired "B" recycle pump starter.

4. Repaired leaking brine line valve. The well was vented through twin stacks on Wednesday, November 11, to allow HELCO crews to perform the repair.

5. Replaced PV-1 bypass piping on Wednesday, November 18. The well was vented through twin stacks to allow HELCO crews to perform the work.

6. Began turbine inspection and general overhaul

   a. Vented well through twin stacks on November 24 & 25, to allow cleaning of the flash separator.

   b. Sandblasted turbine diaphragms and rotor.

   c. Removed cooling tower fan blades for fiberglass repairs.

   d. Cleaned condenser tubes.

   e. Began work to repair John Zink scrubber tower internals.

   f. Installed new neutral grounding resistor.

   g. Replaced main step-up transformer sudden pressure switch.

   h. Serviced emergency propane generator.

   i. Repaired bridge crane brakes.

   j. Began overhaul of static exciter.

   k. Installed repaired Woodward trip valve control.

   l. Repaired substation fence grounding.

   m. Welded cracks in turbine diaphragms.

   n. Inspected generator bearings.

   o. Replaced sections of circulating water line.

B. Plans For Next Month

1. Complete unit overhaul and place unit back in service.

2. Perform corrective maintenance as required.

#15 AR WL

480

DIVISION OF AQUATIC RESOURCES		
DIRECTOR		Response Date:
COM FISHERIES		Draft Reply ☐
AQ RES/ENV		Reply Direct ☐
AQ RECR'N		Comments ☑
STAFF SVCS		Information ☐
FISH DEV		Comp. Act & File ☐
STATE HCS		Response:
APRC		Copies to:
SECRETARY		Remarks:
OFFICE SVCS		
PUBLIC		

The Research Corporation of the University of Hawaii

Telephone: (808) 955-6344

RECEIVED
87 NOV 13 A9:00
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

November 9, 1987

Mr. William Paty
Director
Dept. of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

RECEIVED
87 NOV 17 A8:14
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII
FISCAL OFFICE

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of October, 1987.

Sincerely,

William R. Coops
Director of Administration

RECEIVED
87 DEC 3 P2:53
DIV. OF WATER & LAND DEVELOPMENT

WRC:tmn

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olson
P. Helfrich
J. Craven
G. Mooers

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Div. of Aquatic Resources

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

NOVEMBER 3, 1987

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF OCTOBER 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
25,335	32,405	1,224,900	75,663	700:04

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

OCTOBER 1987

A. Work Accomplished

1. Repaired gas leak on John Zink scrubber flange.
2. Repaired 50% caustic transfer pump coupling.
3. Removed gas furnace flame detector for repairs.
4. Repaired main step-up transformer temperature probe.
5. Installed new recycle pump motor.
6. Began repairs on emergency standby power auto transfer switch.
7. Fabricated 10% caustic pump starter panel board.
8. Installed new brackets for 10% caustic pumps.
9. Replaced corroded wiring and fittings on John Zink furnace.
10. Replaced John Zink furnace flame sensor.
11. Repaired main steam control valve actuator.
12. Repaired flash separator pressure control.
13. Installed new spark plug on John Zink incinerator.

B. Plans For Next Month

1. Assist Thermal Power contractor with tie-in on main steam line. (November 5)
2. Perform annual overhaul.

ADP

10260

Telephone: (808) 955-6344

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87 OCT 15 A8:11

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The Research Corporation of the University of Hawaii

DIV. OF WATER &
LAND DEVELOPMENT

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

October 8, 1987

Mr. William Paty
Director
Dept. of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of September, 1987.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olson
P. Helfrich
J. Craven
G. Mooers

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

OCTOBER 1, 1987

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF AUGUST 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
25,871	33,091	1,250,800	77,105	688:57

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

SEPTEMBER 1987

A. Work Accomplished

1. Pumped out waste oil tank.
2. Installed new 10% caustic pump.
3. Tightened drive belts on air compressor.
4. Replaced defective ignitors on John Zink furnace.
5. Repaired eyewash flow switch.
6. Repaired leak on circulating water line.
7. Installed new sump pumps and plastic piping on John Zink scrubber. (RCUH personnel)

B. Plans For Next Month

1. Repair gas leak on John Zink scrubber column.
2. Perform corrective maintenance as required.

ADP

887

Telephone: (808) 955-6344

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87 SEP 11 P4:27

The Research Corporation of the University of Hawaii

DIV. OF WATER &
LAND DEVELOPMENT

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87 SEP 10 A8:34
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

September 8, 1987

Mr. William Paty
Director
Dept. of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of August, 1987.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olson
P. Helfrich
J. Craven
G. Mooers

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

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SEP. 3 1987
RESEARCH CORP.
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SEPTEMBER 1, 1987

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF AUGUST 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
24,547	31,397	1,186,800	73,064	647:15

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

AUGUST 1987

A. Work Accomplished

1. Installed two new Dow scrubber pump and motor sets.

2. Repaired water leak on above grade section of 12" circulating water line. The unit was off line from 6:07 p.m., August 2, to 1:10 p.m., August 3, due to the leak.

3. Cleaned lube oil cooler.

4. Adjusted safety relief valve on Joy air compressor.

5. Repaired and cleaned Worthington air compressor unloading solenoids.

6. Repaired gas leaks on John Zink scrubber and furnace exhaust pipe.

7. Repaired circulating water leak on gas ejector inter-condenser. The unit was off line from 7:51 p.m., August 22, to 6:43 p.m., August 24, as a result of the leak.

B. Plans For Next Month

1. Perform corrective maintenance as required.

ADP

374

Telephone: (808) 955-6344

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87 AUG 14 A10:04

The Research Corporation of the University of Hawaii

DIV. OF WATER &
LAND DEVELOPMENT

RECEIVED
87 AUG 11 A8:41
DEPARTMENT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

August 7, 1987

Mr. William Paty
Director
Dept. of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of July, 1987.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olson
P. Helfrich
J. Craven
G. Mooers

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

AUGUST 3, 1987

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JULY 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
28,177	36,040	1,362,300	84,008	732:44

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JULY 1987

A. Work Accomplished

1. No work performed this month.

B. Plans For Next Month

1. Repair leaking circulating water line.
2. Repair 10% caustic supply pump.
3. Repair condensate pump.
4. Repair Dow scrubber circulating pump.

1708

WL

Telephone: (808) 955-6344

RECEIVED
87 JUL 16 A7:59
DIV. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

The Research Corporation of the University of Hawaii

July 15, 1987

Mr. William Paty
Director
Department of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

RECEIVED
87 JUL 20 P1:16
DIV. OF WATER &
LAND DEVELOPMENT

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of June, 1987.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olson
P. Helfrich
J. Craven
G. Mooers

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

JULY 1, 1987

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JUNE 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
22,801	29,165	1,102,400	67,936	604:18

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JUNE 1987

A. Work Accomplished

1. Replaced the underground portion of the 12" steel circulating water line after the pipe developed a large leak. The unit was off line from 2:15 p.m. on June 5, until 9:57 a.m. on June 8.

2. Replaced No. 2 control valve hydraulic actuator.

3. Began work to repair and modify Dow scrubber sump pumps and caustic injection system. Pumps will be relocated away from the scrubber unit to lessen motor bearing corrosion problems and caustic feed sensor will be relocated to permit smoother pH control.

4. Repaired plugged backup abatement system gas line.

B. Plans For Next Month

1. Pump down silica pond to prevent spillover into plant. (This is a temporary measure and is not expected to have long lasting results.)

2. Perform corrective maintenance as required.

1029

Telephone: (808) 955-6344

RECEIVED
87 JUN 10 A10:24
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

The Research Corporation of the University of Hawaii

June 9, 1987

Mr. William Paty
Director
Department of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

RECEIVED
87 JUN 12 P3:15
DIV. OF WATER & LAND DEVELOPMENT

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of May, 1987.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olsen
P. Helfrich
J. Craven
G. Mooers

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

JUNE 1, 1987

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF MAY 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
28,758	36,784	1,390,400	85,726	738:51

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

MAY 1987

A. Work Accomplished

1. Completed installation of two air compressor inlet filter/silencer assemblies. The potassium permanganate filters will be used to remove sulfur compounds and other impurities from the air.

2. Overhauled "B" air compressor cooling water pumps.

3. Repaired defective recycle pump contactor.

4. Replaced leaking gasket on main steam pressure transmitter line.

5. Tightened packing on turbine steam control valve.

6. Took unit off line for five (5) hours on Wednesday, May 13, to repair a leaking water line to the generator air cooler.

7. Installed overhauled tank mixer into 10% caustic soda tank.

8. Repaired gas leaks on John Zink scrubber column.

9. Repaired main door on turbine building.

10. Removed "B" recycle pump for repairs.

11. Installed new packing water line on "A" recycle pump.

B. Plans For Next Month

1. Perform corrective maintenance as required.

WL

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Telephone: (808) 955-6344

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87 MAY 7 A7:25

The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

May 6, 1987

Mr. William Paty
Director
Department of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of April, 1987.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olsen
P. Helfrich
J. Craven
G. Mooers

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

MAY 1, 1987

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF APRIL 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
27,877	35,657	1,347,800	83,087	706:47

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

APRIL 1987

A. Work Accomplished

1. Installed a new moisture separator drain line.

2. Installed new "B" recycle pump.

3. Installed new Dow scrubber sump pump No. 4.

4. Repaired damaged conduit on John Zink control panel.

5. Experienced two generator trips on April 7, 1987. The cause of the brief outages was suspected to be a faulty governor control panel card. A new card is on order.

6. Replaced defective flow switch on Dow scrubber.

7. Attempted to repair faulty pH controller on Dow scrubber without success. Placed scrubber on outage.

8. Performed unabated venting on Thursday, April 16, and installed a new 1" drain valve on the main steam line upstream of PV-601. Also installed a new 3" ball valve on the flash separator brine line and repaired flash separator high level trip. Total outage was limited to 6 hours 33 minutes.

9. Removed newly installed "B" recycle pump for repairs. An error was made by the factory in furnishing proper internals for the pump.

10. Began work to install plant air compressor potassium permanganate filters.

11. Received generator grounding resistor. Installation will be done during the annual overhaul.

B. Plans For Next Month

1. Install air compressor inlet air filters.

2. Perform corrective maintenance as required.

Telephone: (808) 955-6344

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87 APR 8 A8:56

The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

April 7, 1987

Mr. William Paty
Director
Department of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of March, 1987.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olsen
P. Helfrich
J. Craven
G. Mooers

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

APRIL 1, 1987

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF MARCH 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
29,343	37,532	1,418,700	87,446	712:07

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

MARCH 1987

A. Work Accomplished

1. Overhauled air compressor cooling water pump.
2. Overhauled 10% caustic pump motors.
3. Replaced outside annunciator horn.
4. Installed new Dow scrubber flow switch.
5. Installed new starter for caustic tank mixer.
6. Overhauled cast iron caustic pump.
7. Repaired leaking caustic tank mixer packing.
8. Installed temporary high separator level trip device in place of existing unit that is not functioning.
9. Repaired caustic pump control switch.
10. Cleaned John Zink scrubber ceramic elements.
11. Cleaned John Zink loop drain by cutting out plugged section.
12. Isolated cause of three unit outages (total 9 hrs. & 51 min.) to faulty vibration sensor in generator outboard. Confirmed faulty sensor operation using handheld IRD unit and disconnected sensor.

B. Plans For Next Month

1. Recalibrate faulty vibration sensor and place in service.
2. Perform corrective maintenance as required.

~~ADD~~
DOWALD

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Telephone: (808) 955-6344

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87 MAR 13 A9:15

87 MAR 9 A8:19

The Research Corporation of the University of Hawaii

DIV. OF WATER & LAND DEVELOPMENT

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

March 6, 1987

Mr. William Paty
Department of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of February, 1987.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olsen
P. Helfrich
J. Craven
G. Mooers

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

MARCH 3, 1987

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF FEBRUARY 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
26,638	34,072	1,287,900	79,373	635:11

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

FEBRUARY 1987

A. Work Performed

1. Experienced flashover on substation bushings on February 2, at 12:53 a.m. The unit was out until 7:43 p.m. that evening due to a 34 KV fuse that blew during the flashover. Cleaned all P.T. bushings and lead acid batteries during the outage.
2. Overhauled 10% caustic pump motor.
3. Experienced another 34 KV bushing flashover on February 13, at 2:31 a.m. Replaced the bushings and placed the unit back on at 7:30 p.m.
4. Installed new "A" recycle pump.
5. Repaired "A" 10% caustic motor.
6. Began work to overhaul "B" 10% caustic pump and motor.
7. Removed "B" air compressor cooling water pump for overhaul.
8. Cleaned circulating water screens.
9. Repaired gas leak on John Zink scrubber.
10. Replaced visitor center's lighting switch.
11. Replaced low pressure switch on condensate line.

B. Plans For Next Month

1. Repair leak on 10% caustic tank.
2. Perform corrective maintenance as required.

HEI NMU 3/04/87

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Telephone: (808) 955-6344

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87 FEB 9 A7:52

The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

February 6, 1987

Mr. William Paty
Department of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of January, 1987.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olsen
P. Helfrich
J. Craven
G. Mooers

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

FEBRUARY 2, 1987

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JANUARY 1987.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
27,356	34,990	1,322,600	81,537	650:40

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JANUARY 1987

A. Work Accomplished

1. Repaired piping leak on after-condenser cooling water line. The loss of cooling water and subsequent loss of vacuum resulted in a 24-hour outage on January 1st.

2. Unit was taken off line on January 6th, to perform maintenance on the John Zink system. Installed new transfer valves and repaired a gas leak from the scrubber tower.

3. Cleaned cooling tower distribution tray.

4. Adjusted lube oil centrifuge drive belts.

5. Cleaned insulators on MOS 3702 and step-up transformer.

6. Replaced 3702 control box fuse and DC switchgear relays.

7. Recharged lead acid batteries.

8. Installed overhauled 10% caustic pumps.

9. Replaced defective flow switches on Dow scrubber.

10. Repaired main building roll-up door control.

11. Tightened drive belts on Joy air compressor.

B. Plans For Next Month

1. Repair 100 feet of fencing adjacent to Visitors Center.

2. Shop overhaul caustic pumps.

3. Shop overhaul recycle pumps.

4. Perform corrective maintenance as required.

5. Repair damaged transformer PT.

10

Telephone: (808) 955-6344

The Research Corporation of the University of Hawaii

January 8, 1987

Mr. William Paty
Department of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Paty:

Enclosed is a copy of the HGP-A operating figures for the month of December, 1986.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: R. Ulveling
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olsen
P. Helfrich
J. Craven
G. Mooers

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

JANUARY 2, 1987

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF DECEMBER 1986.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
30,448	38,945	1,472,100	90,813	708:35

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

DECEMBER 1986

A. Work Accomplished

1. Completed overhaul of "B" air compressor cooling water motor.
2. Repaired generator metering circuit after unit failed to synchronize.
3. Overhauled 10% caustic pump motor.
4. Repaired high temperature trip relay on John Zink furnace.
5. Replaced rupture disc on condenser.
6. Replaced leaking water valve on cooling tower.
7. Repaired main steam trip valve gasket leak.
8. Repaired leaking Dow scrubber caustic supply piping.
9. Replaced Dow scrubber sump pump Nos. 2 and 3.
10. Repaired defective cooling tower fan circuit breaker.
11. Installed new solenoid water valve on station air compressor cooling water.
12. Received two complaints of odor from steel sparger box supply piping leak.

B. Plans for Next Month

1. Perform corrective maintenance as required.

WL
cc

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Telephone: (808) 955-6344

RECEIVED 86 DEC 9 A8:26 DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

RECEIVED 86 DEC 10 A9:51 DIV. OF WATER & LAND DEVELOPMENT

The Research Corporation of the University of Hawaii

December 8, 1986

Mr. Susumu Ono
Department of Land &
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Ono:

Enclosed is a copy of the HPG-A operating figures for the month of November, 1986.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: K. Keith
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olsen

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

DECEMBER 1, 1986

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF NOVEMBER 1986.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
27,654	35,371	1,337,000	82,302	664:35

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

NOVEMBER 1986

A. Work Accomplished

1. Continued October cleaning and painting work on piping and structural steel components.
2. Completed overhaul of both recycle pumps and placed units back in service.
3. Overhauled both air compressor cooling water pumps.
4. Completed reconditioning work on four Dow scrubber pumps.
5. Rewound "A" air compressor motor and placed unit into service.
6. Dredged silica ponds.
7. Spread gravel and cinder cover over plant grounds.
8. Completed installation of new air compressor and placed unit in service.
9. Repaired sections of deteriorated fencing (550 lineal feet total).
10. Installed turbine trip valve power supply rheostat.
11. Repaired broken condensate level control positioner.
12. Changed control oil filters.
13. Replaced No. 2 control valve actuator after faulty unit caused three unit trips. (Total outage time of 33 hours & 32 minutes.)
14. Repaired defective float switch on Dow scrubber basin.
15. Replaced recycle pump control switches.
16. Repaired condenser high level switch.
17. Began overhaul of 10% caustic pump "B".
18. Repaired cooling water line piping leaks.

B. Plans For Next Month

1. Perform corrective maintenance as required.

Telephone: (808) 955-6344

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The Research Corporation of the University of Hawaii

DIV. OF LAND & NATURAL RESOURCES STATE OF HAWAII

DIV. OF WATER & LAND DEVELOPMENT

November 12, 1986

Mr. Susumu Ono
Department of Land and
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of October, 1986.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: K. Keith
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olsen

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

RECEIVED
86 NOV 13 A9:19

NOVEMBER 3, 1986

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF OCTOBER 1986.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
29,302	37,479	1,416,700	87,188	713:42

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

OCTOBER 1986

A. Work Accomplished

1. Rewound shorted motor on "A" air compressor.

2. Removed compressor cooling water pump motor for overhaul.

3. Repaired and recalibrated caustic low pressure switch.

4. Exercised wellhead valves on Thursday, October 23, in preparation for maintenance outage.

5. Performed one-week overhaul. (See attached separate report.)

6. Poured foundation for new station air compressor.

B. Plans For Next Month

1. Continue general cleanup of area in preparation for November 13th Department of Energy ceremony.

2. Install new station air compressor.

HGP-A OVERHAUL

October 27 - 31, 1986

WORK ACCOMPLISHED

1. Installed steel collar on 20" steam bypass line after PV-1 to seal steam leak.
2. Installed 1/4" steel cover plate on 20" steam line entrance into steel muffler box.
3. Replaced PV-1 control valve and actuator with reconditioned unit.
4. Repaired main steam line target plate flange steam leak.
5. Repacked turbine throttle valve drain lines.
6. Cleaned cooling tower basin and distribution trays.
7. Inspected cooling tower fiberglass fan blades. Blades are in good condition showing very little signs of erosion.
8. Inspected steel muffler box internals. Supports for rocks have collapsed and the drain line is completely plugged.
9. Cleaned flash separator internals and downcomer to brine lines.
10. Cleaned concrete brine settling basin.
11. Excavated rock muffler brine outlet and re-covered with rocks after clearing silica deposits with jackhammer.
12. Removed both recycle pumps for shop overhaul.
13. Repaired gas leaks on John Zink incinerator and scrubber by welding rolled stainless steel patches.
14. Disassembled Dow scrubber and reworked all joints to seal gas leaks. Replaced all flange O-rings with new design O-rings. Installed additional cover bolts.
15. Repaired and replaced scrubber pumps and motors.
16. Replaced PV-601 pneumatic actuator with new unit.
17. Replaced flash separator upper and lower level sensor and transmitter.
18. Replaced moisture separator upper and lower level sensor and transmitter.
19. Replaced deteriorated propane piping to John Zink pilot.
20. Replaced deteriorated propane piping to emergency generator.

HEI

21. Repaired broken caustic injection line to PV-1 steam bypass line.

22. Repaired steam leak from instrument well on PV-1 steam bypass line.

23. Installed three (3) new brine line 1" ball valves.

24. Removed moisture separator drain line and cleared pipe obstruction.

25. Exercised wellhead M.O.V.'s. Grease fittings and plastic packing fittings are plugged and valve cannot be greased or packed.

26. Rewound one wellhead M.O.V. motor after motor overloaded while exercising valve.

27. Replaced concrete covers over PV-1 trench. Wooden trench shoring is giving way.

28. Replaced test lever on air receiver safety relief valve.

29. Installed a new LV-1 valve and actuator on brine line to concrete sparger.

30. Installed new reverse power protective relay and placed in service.

31. Calibrated and checked metering and protective relays.

32. Megger tested plant motors from plant MCC.

33. Inspected and serviced generator exciter.

34. Replaced conduit to caustic valve solenoid at steam bypass line and replaced terminal blocks in caustic tank area terminal box.

35. Began installation of turbine trip valve power supply rheostat.

36. Removed and cleaned condenser hotwell high level trip.

37. Removed and cleaned flash separator high level trip.

38. Repacked 2" lower gate valve at moisture separator.

39. Overhauled air compressor separator moisture float traps.

40. Performed general cleaning and painting.

OUTAGE TIMES

Monday, October 27, 1986	10:25 am - 6:11 pm
Tuesday, October 28, 1986	7:42 am - 5:36 pm
Wednesday, October 29, 1986	3:59 am - 2:38 pm

VENTING THROUGH STEEL MUFFLERS

Tuesday, October 28, 1986	8:30 am - 4:00 pm
Wednesday, October 29, 1986	9:20 am - 2:00 pm

COMPLAINTS RECEIVED

Two (2) complaints were received and responded to on Monday and Wednesday. The plant was on line at full load on both occasions and abatement was being accomplished through the backup caustic spray system. The caustic flow to the unit was increased to obtain better abatement.

Telephone: (808) 955-6344

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86 OCT 14 P5:12

86 OCT 10 A8:15

The Research Corporation of the University of Hawaii

DIV. OF WATER & LAND DEVELOPMENT

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

October 9, 1986

Mr. Susumu Ono
Department of Land and
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of September, 1986.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: K. Keith
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olsen

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

OCTOBER 1, 1986

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF SEPTEMBER 1986.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
29,248	37,411	1,414,100	87,270	706:57

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

SEPTEMBER 1986

A. Work Accomplished

1. Completed installation of emergency shower stations.
2. Repaired gas leak on John Zink furnace.
3. Completed engineering on newly purchased air compressor.
4. Repaired starting problem on propane emergency generator.
5. Replaced defective photo-electric sensor on outside lighting system.
6. Repaired two existing cooling tower light fixtures and installed six new quartz lamps.
7. Repaired discharge hose leak on 10% caustic pump.

B. Plans For Next Month

1. Overhaul unit during the period October 20 - 31, 1986.
2. Perform corrective maintenance as required.

136

Telephone: (808) 955-6344

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86 SEP 17 A8: 06

The Research Corporation of the University of Hawaii

DIV. OF WATER &
LAND DEVELOPMENT

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

September 11, 1986

Mr. Susumu Ono
Department of Land and
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of August, 1986.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: K. Keith
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh
H. Olsen

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

SEPTEMBER 2, 1986

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF AUGUST 1986.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
28,675	36,678	1,386,400	85,447	735:17

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAW)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

AUGUST 1986

A. Work Accomplished

1. Repaired defective unloading solenoids on both air compressors.
2. Repaired cracked nipple on "A" air compressor aftercooler piping.
3. Repaired cooling tower fan No. 2 control circuit.
4. Cleaned John Zink scrubber column.
5. Repaired "B" air compressor low oil pressure switch.
6. Repaired faulty circulating water pump starter.
7. Changed mechanical seals on both 10% caustic pumps.
8. The unit was isolated from the system feeding the Kapoho area as part of planned maintenance work on the 34 KV line. The work took place on August 26, and lasted four hours.

B. Plans For Next Month

1. Repair both air compressors.
2. Complete installation of emergency showers.
3. Change 10% caustic pump seals.
4. Perform corrective maintenance as required.

552

Telephone: (808) 955-6344

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The Research Corporation of the University of Hawaii

DIV. OF WATER & LAND DEVELOPMENT

August 7, 1986

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

Mr. Susumu Ono
Department of Land and
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of July, 1986.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

Enclosures

cc: K. Keith
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

AUGUST 1, 1986

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JULY 1986.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
29,275	37,445	1,415,400	87,131	712:33

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT
CC: JAN WAR (NATURAL ENERGY LAB)

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JULY 1986

A. Work Accomplished

1. Continued work on both station air compressors. Overhauled compression top half and calibrated unloaders.
2. Installed new rubber hoses on recycle pumps.
3. Repaired gas leak from John Zink scrubber flange.
4. Repaired leak in 10% caustic piping.
5. Changed lube oil centrifuge pulley bearing.
6. Replaced emergency caustic scrubber packing with plastic fill.
7. Repaired air dryer control circuit.
8. Repaired annunciator horn.
9. Switched Dow scrubber motors.
10. Repaired 10 kw emergency generator starting solenoid.
11. Removed cast iron 10% caustic pump and replaced with spare unit.
12. Overhauled air compressor cooling water pump.
13. Repaired defective sensor on moisture separator level control.
14. Installed new sample valves on moisture separator.

B. Plans For Next Month

1. Repair PV-601 (main steam stop) actuator.
2. Perform corrective maintenance as required.

ADP

1725

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The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

DIV. OF WATER & LAND DEVELOPMENT

July 14, 1986

Mr. Susumu Ono
Department of Land and
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of June, 1986.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

cc: K. Keith
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

JULY 1, 1986

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JUNE 1986.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
30,568	39,099	1,477,900	91,261	689:36

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JUNE 1986

A. Work Performed

1. Repaired gas leak from PVC piping on SO_2 scrubber.
2. Placed rental air compressor in service due to failure of both station compressors.
3. Repaired steam valve PV-601 locking device.
4. Cleaned oil from instrument air dryers.
5. Began overhaul of recycle pump "A".

B. Plans For Next Month

1. Perform corrective maintenance as required.

Dorrell

970

Telephone: (808) 955-6344

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DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

The Research Corporation of the University of Hawaii

June 5, 1986

Mr. Susumo Ono
Department of Land and
Natural Resources
P. O. Box 621
Honolulu, HI 96809

RECEIVED
86 JUN 9 A11:02
DIV. OF WATER & LAND DEVELOPMENT

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of May, 1986.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

cc: K. Keith
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

JUNE 2, 1986

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF MAY 1986

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
35,250	45,088	1,704,300	105,095	730:00

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

MAY 1986

A. Work Accomplished

1. Replaced Dow scrubber pump motor after motor bearing failed.
2. Replaced defective pH sensor on Dow scrubber.
3. Cut in portable screw compressor to supply station air. Both station compressors have been out of service since May 26, 1986, awaiting repair parts.
4. Replaced lube oil centrifuge V-belts.

B. Plans For Next Month

1. Design and bid out new station air compressor (1 each) with water cooled aftercooler.
2. Perform repairs as required.

Telephone: (808) 955-6344

340

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The Research Corporation of the University of Hawaii

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

May 6, 1986

Mr. Susumu Ono
Department of Land and
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of April, 1986.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

cc: K. Keith
D. Yamamoto
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh

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86 MAY 8 P2:47
DIV. OF WATER &
LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

MAY 1, 1986

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF APRIL 1986.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
28,100	35,942	1,358,600	83,873	589:22

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

APRIL 1986

A. Work Accomplished

1. The plant experienced a generator trip when the main step-up transformer was damaged on Sunday, April 13, at 4:14 pm. A burned load tap changer was temporarily bypassed and the unit was placed back on line at 7:26 pm on Friday. The total outage was 123 hours.

2. Changed step-up transformer oil.

3. Repaired 20" diameter below grade piping from PV-1 to steel sparger box. (This work was done during the transformer repair outage and unabated venting took place during that time.)

4. Repaired starter on caustic transfer pump.

B. Plans For Next Month

1. Perform corrective maintenance as required.

1539

Telephone: (808) 955-6344

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86 APR 7 A8:50

The Research Corporation of the University of Hawaii

April 4, 1986

DEPT. OF LAND AND NATURAL RESOURCES
STATE OF HAWAII

Mr. Susumu Ono
Department of Land and
Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of March, 1986.

Sincerely,

William R. Coops
Director of Administration

RECEIVED
86 APR 8 A6:53
DIV. OF WATER & LAND DEVELOPMENT

WRC:tmn

cc: K. Keith
A. Konishi
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

APRIL 2, 1986

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF MARCH 1986.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
32,280	41,289	1,560,700	96,371	729:52

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

MARCH 1986

A. Work Accomplished

1. Repaired leaking piping on John Zink recycle line.
2. Corrected electrical problem with No. 3 Dow scrubber pump.
3. Rewired H_2S abatement system to provide for separate annuciation from John Zink.
4. Overhauled "B" recycle pump.
5. Repaired sections of deteriorated electrical conduit.
6. Performed general cleanup.

B. Plans For Next Month

1. Perform maintenance as required.

HEI NMU 4/02/86

1032

Telephone: (808) 955-6344

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86 MAR 12 A 8: 57

STATE OF HAWAII

The Research Corporation of the University of Hawaii

March 10, 1986

Mr. Susumu Ono
Department of Land and
Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of February, 1986.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

cc: K. Keith
A. Konishi
J. Shupe
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh

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86 MAR 12 A10: 43
DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

MARCH 4, 1986

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF FEBRUARY 1986.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
30,204	38,633	1,460,300	88,905	671:04

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

FEBRUARY 1986

A. Work Accomplished

1. Changed condensate pump bearings.
2. Replaced defective Dow SO_2 scrubber pH controller and sensor.
3. Repaired faulty control room fire detector.
4. Replaced cooling tower fan motor overload heaters due to intermittent fan trips. (This work required 50% derating of units for approximately 8 hours.)

B. Plans For Next Month

1. Maintenance as required.

HEI

NMU 3/04/86

561

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The Research Corporation of the University of Hawaii

DIV. OF WATER & LAND DEVELOPMENT

February 14, 1986

DIV. OF LAND & NATURAL RESOURCES STATE OF HAWAII

Mr. Susumu Ono
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of January, 1986.

Sincerely.

William R. Coops
Director of Administration

WRC:tmn

cc: K. Keith
J. Shupe
A. Konishi
J. Katz
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance
J. Huizingh

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

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OF THE U OF H

FEBRUARY 5, 1986

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JANUARY 1986.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
32,909	42,093	1,591,100	96,777	733:55

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JANUARY 1986

A. Work Accomplished

1. Repaired hole in concrete brine sparger box.
2. Overhauled "B" 10% caustic pump.
3. Installed four new Dow scrubber recycle pumps. The original pump motors furnished by Harrington Plastics were not chemical duty and deteriorated rapidly. The replacement pumps were furnished as warranty items.
4. Charged plant batteries.
5. Repaired NCG valve on John Zink incinerator.
6. Performed general maintenance on standby propane generator.
7. Installed cooling tower basin level transmitter.
8. Reconditioned Dow scrubber pump motors for use as emergency spares.
9. Shut down generator for eight hours on January 30, 1986, to perform general maintenance work. Repaired leak on flash separator drain line, moisture separator level indicator, and Dow scrubber gas line. Also cleaned the John Zink sightglasses, reconditioned the air ejector steam stop valve, installed a new turbine exhaust hood rupture disc, and removed one lube oil pump for shop repair.
10. Began overhaul of one condensate pump.

B. Plans For Next Month

1. Repair Dow scrubber pH sensor.
2. Complete overhaul of condensate pump.

1600

Telephone: (808) 955-6344

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JAN 16 A 8: 37

The Research Corporation of the University of Hawaii

DEPT. OF LAND AND NATURAL RESOURCES
STATE OF HAWAII

January 14, 1986

Mr. Susumu Ono
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of December, 1985.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

cc: K. Keith
J. Shupe
A. Konishi
J. Katz
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

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JAN 8 1986
RESEARCH CORP
OF THE U OF H

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

JANUARY 3, 1986

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF DECEMBER 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
31,852	40,741	1,540,000	89,174	693:10

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

DECEMBER 1985

A. Work Accomplished

1. Fabricated temporary sheet metal rupture disc and placed unit on line after a 32-hour outage. Existing disc leaked to the point where the unit tripped on low condenser vacuum.

2. Rewound SO_2 scrubber motor and placed scrubber back in service. Also received 4 each warranty pump and motor sets from Harrington Plastics to replace present units.

3. "A" air compressor bearing retainer ring lock pin worked loose and caused minor damage to bearing cover. Retightened retainer and placed compressor in service.

4. Cleaned John Zink fire eye.

5. Placed turbine DC lube oil pump system in service.

6. Replaced 10% caustic pump with spare unit and overhauled pump.

7. Overhauled "B" air compressor.

B. Plans For Next Month

1. Overhaul 10% caustic pumps.

2. Repair concrete sparger box hole.

HEI

NMU 1/06/86

S30

Telephone: (808) 955-6344

The Research Corporation of the University of Hawaii

November 8, 1985

Mr. Susumu Ono
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of October, 1985.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
A. Konishi
J. Katz
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

NOVEMBER 1, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF OCTOBER 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
34,864	44,593	1,685,600	97,661	744:00

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

OCTOBER 1985

A. Work Performed

1. Repaired gas leak on top of John Zink incinerator scrubber column.
2. Provided temporary air compressor after portable unit failed. (Both "A" and "B" units also were down for repairs at the time.)
3. Continued work on "B" air compressor feather valves.
4. Repaired "A" air compressor unloader.
5. Overhauled recycle pump.
6. Removed #2 and #3 Dow scrubber pump and motor sets for shipment back to Harrington Plastics. This is most likely a warranty item.
7. Began testing SO_2 scrubber performance with the addition of small amounts of caustic directly to John Zink scrubber. This is being done to control SO_2 levels in recycle effluent being discharged on the "Hill". Preliminary readings indicate no large change in total caustic consumption.
8. Awaiting response from T. Adduci prior to commenting on County's proposed silica waste handling procedure.

B. Plans For Next Week

1. Complete repairs on air compressors.
2. Overhaul 10% caustic pump.
3. Repair building gutters.

NMU 11/01/85

Drawer

Telephone: (808) 955-6344

1066

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85 DEC 11 AM 8:22

The Research Corporation of the University of Hawaii

DIV. OF WATER & LAND DEVELOPMENT

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

December 9, 1985

Mr. Susumu Ono
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of November, 1985.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

cc: K. Keith
J. Shupe
A. Konishi
J. Katz
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

DECEMBER 2, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF NOVEMBER 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
34,448	44,062	1,665,500	96,486	718:59

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

NOVEMBER 1985

A. Work Performed

1. Overhauled 10% caustic pump.
2. Cleaned cooling tower screens.
3. Repaired turbine building rain gutter.
4. Installed new air compressor unloader filters.
5. Installed new feather valves on "A" air compressor.
6. Overhauled recycle pump "A".
7. Installed new unloader pressure switches for both air compressors.
8. Sealed gas leaks on SO_2 scrubber.
9. Replaced centrifuge breakover switch.
10. Rewired John Zink incinerator thermocouple.
11. Completed 30-day evaluation of Dow SO_2 scrubber with additional caustic feed to John Zink column. Consumption of caustic soda is down to 58% of "pre-scrubber" values.
12. Replaced NCG moisture tank ball valve.

B. Plans For Next Month

1. Overhaul "B" air compressor.
2. Replace rupture disc on turbine exhaust line. Unit tripped on December 1, 1985, due to failed disc.

NMU 12/02/85

HEI

1743

Telephone: (808) 955-6344

RECEIVED

85 OCT 9 A8:27

The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

October 8, 1985

Mr. Susumu Ono
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of September, 1985.

Sincerely,

William R. Coops
Director of Administration

WRC:tmn

cc: K. Keith
J. Shupe
A. Konishi
J. Katz
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance

RECEIVED
85 OCT 10 A10:26
DIV. OF WATER &
LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

OCTOBER 1, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF SEPTEMBER 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
16056	20537	776,300	49,242	337:50

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

SEPTEMBER 1985

A. HGP-A Overhaul (Sept. 3 - 18)

1. Disassembled turbine, inspected, and sandblasted internals.
2. Inspected condenser water side and hotwell. Cleaned condenser tubes by shooting "bullets".
3. Removed and re-fiberglassed all cooling tower fan blades. Reset pitch and changed gear box oil.
4. Overhauled generator air blower.
5. Cleaned John Zink incinerator and flame sensor.
6. Installed new 2" PVC recycle dump line.
7. Inspected and cleaned flash separator internals.
8. Inspected and cleaned moisture separator internals.
9. Replaced PV-1. (Separator pressure control valve to steel muffler.)
10. Dredged silica ponds.
11. Serviced unit breakers.
12. Replaced Dow scrubber packing.
13. Installed D.C. lube oil pump (wiring is not completed).
14. Started unit and placed on line. Unit is presently exporting 2.3 MW.

B. Worked on "A" air compressor feather valves and "A" & "B" unloading pressure switches.

C. Repaired cooling tower fan breaker.

D. Unit experienced a three-hour outage on September 23, following two separate trips on loss of circulating water and high moisture separator level. Both conditions were corrected.

E. Plans For Next Month

1. Test SO_2 scrubber with varying amounts of caustic addition in John Zink tower. Recycle dump effluent is SO_2 rich and testing will be performed to lower SO_2 levels inthe effluent.

NMU 10/2/85

Telephone: (808) 955-6344

RECEIVED

The Research Corporation of the University of Hawaii 85 SEP 11 A8:30

September 10, 1985

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

Mr. Susumu Ono
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of August, 1985.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
A. Konishi
J. Katz
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance

RECEIVED
85 SEP 11 P3:56
DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

SEPTEMBER 3, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF AUGUST 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
33,178	42,437	1,604,100	101,736	723:52

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

AUGUST 1985

A. Work Performed

1. Completed overhaul of "A" air compressor.
2. Fabricated and installed new air compressor inlet plenum and filter housing and relocated indoors.
3. Replaced carbon steel section of recycle dump line with stainless steel.
4. Overhauled "A" and "B" recycle pumps.
5. Cleaned John Zink flame sensor contacts following nuisance incinerator trips.
6. Work performed during August 14 & 15 shutdown
   a) Installed 3 each 3" brine ball valves.
   b) Cleaned out and replaced concrete sparger outlet spool pieces.
   c) Relocated emergency abatement caustic tower.
   d) Repaired caustic pump expansion joint.
7. Painted piping and structures in preparation for GRC tours.
8. Spread gravel over plant area to cover silica.

B. Plans For Next Month

1. Overhaul unit. (Three weeks commencing September 3)

NMU 9/03/85

575

Telephone: (808) 955-6344

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85 AUG 8 A9:07

The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

August 7, 1985

Mr. Susumu Ono
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of July, 1985.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
A. Konishi
J. Katz
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance

RECEIVED
85 AUG 12 P1:32
DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

AUGUST 1, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JULY 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
35,542	45,461	1,718,400	109,183	744:00

VERY TRULY YOURS,

Karl Bader
for FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JULY 1985

A. Work Accomplished

1. Repaired "A" and "B" air compressor unloading pressure switches.
2. Overhauled "B" air compressor top half.
3. Began work to overhaul top and bottom of "A" compressor. Will install a new piston liner due to excessive wear on existing unit.
4. Began installation of new stainless steel 2" recycle line.
5. Received Dow Chemical scrubber unit, installed and started-up. 30-day demonstration period began on July 25, 1985. Caustic usage down from about 3500 lbs/day to 1500 lbs/day.
6. Made temporary repairs to water, NCG, and caustic lines after brine sparger blew out and ejected rocks.
7. Issued purchase order to Elliot for service engineer to assist with September overhaul ($15,000).

B. Work Planned For Next Month

1. Relocate air compressor inlet and fabricate new inlet plenum and filter housing.
2. Complete work on "A" air compressor overhaul.
3. Conclude demonstration period for Dow scrubber.
4. Tie in research facility piping. Note: This will require unit shutdown.

NMU 8/01/85

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JUL 13 1984
AQUATIC RESOURCES

346

Telephone: (808) 955-6344

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84 JUL 12 P12: 43

The Research Corporation of the University of Hawaii

July 11, 1984

RECEIVED
84 JUL 16 A11: 29
DIV. OF WATER & LAND DEVELOPMENT
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of June, 1984.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
S. Kearns
A. Adduci
J. Katz
P. Takahashi
A. Smyklo

DIVISION OF AQUATIC RESOURCES		
DIRECTOR		Referral Date
FISH CHIEF		Suspense Date
MARINE SEC.		Draft Reply ☐
F.W. SEC.		Reply Direct ☐
AFRC		Comments ☐
FISH DEV.		Information ☐
		Comp. Act & File ☐
		Return To:
SECRETARY		Copies To:
OFF. SERV.		Remarks:
FED. AID		

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96720

JULY 2, 1984

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JUNE, 1984.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
36,225	46,334	1,751,400	111,146	11,115

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JUNE 1984

I. Maintenance Performed

A. Repaired 10% caustic batching water meter solenoid.

B. Repaired broken area lighting supports near wellhead.

C. Re-adjusted condensate pump low pressure switch.

D. Began ordering of long lead material for annual shutdown.

E. Isolated cause of erroneous vibration trip signal to erratic proximitor on generator inboard. (Overhaul item)

II. Plans for Next Month

A. Repair recycle pump seal.

B. Overhaul 10% caustic pump.

C. Scrape west side brine pond.

NU 6/29/84

1844

Telephone: (808) 955-6344

RECEIVED

85 JUL 10 A8:40

The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

July 9, 1985

Mr. Susumu Ono
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of June, 1985.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
A. Konishi
J. Katz
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance

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85 JUL 10 P4:03
DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

JULY 1, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JUNE 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
34,729	44,421	1,678,100	113,263	710:06

VERY TRULY YOURS,

Kane Baden
for FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JUNE 1985

A. Work performed in June

1. Repaired "B" air compressor unloading solenoid valve. Unit experienced a 3½-hour outage on June 20, following the loss of both compressors.

2. Dismantled and crated "Citrex" abatement unit and shipped back to Connecticut. (Note: Both filter presses have been left at the HGP-A site and were not shipped due to the weight of the components.)

3. Replaced inlet and exhaust valves on "B" air compressor.

4. Repaired both air drier exhaust solenoids.

5. Repaired condensate pump sensing fitting. Unit tripped on loss of vacuum and was down for two hours following the fitting break.

B. Plans for next month

1. Install and test Dow SO_2 scrubber unit.

NMU 7/01/85

767

Telephone: (808) 955-6344

RECEIVED

85 MAY 10 A8:06

The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of April, 1985.

Sincerely,

William R. Coops
Director of Administration

RECEIVED
85 MAY 13 A10:19
DIV. OF WATER & LAND DEVELOPMENT

WRC:ss

cc: K. Keith
J. Shupe
A. Konishi
J. Katz
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance

RECEIVED
85 MAY 13 A10:16
DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

OF THE U OF H

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

MAY 1, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF APRIL 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS (HOURS:MIN)
36,078	46,146	1,744,300	117,641	696:10

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

APRIL 1985

1. Work Accomplished

   A. Performed chipping and painting of piping and structures.

   B. Repaired John Zink scrubber flange leak.

   C. Repaired air compressor unloading solenoid.

2. Plans For Next Month

   A. Continue chipping and painting.

5/02/85
NU

Donald
AR

Date: May 30, 1985

Time:

TO Susumu Ono

FROM William Coops

The attached are amended copies of statements reflecting higher payments for electricity.

Research Corporation of the University of Hawaii
~~9872, 7942,~~ 955-6344

~~DOWALD~~ ~~Land Mgt~~ ~~Figueroa~~ 1186

RECEIVED

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

85 JUN 3 P1:44

APRIL 26, 1985

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A REVISED OPERATING FIGURES FOR THE MONTH OF JANUARY 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS
33,180	42,440	1,604,200	109,758	720:53 (HR:MIN)

RECEIVED
85 JUN 6 A8:34
DIV. OF WATER & LAND DEVELOPMENT

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

APRIL 26, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A REVISED OPERATING FIGURES FOR THE MONTH OF FEBRUARY 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS
27,083	34,641	1,309,400	89,576	634:31 (HR:MIN)

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

APRIL 26, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A REVISED OPERATING FIGURES FOR THE MONTH OF MARCH 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	OPERATING HOURS
36,059	46,123	1,743,400	119,187	735:17 (HR:MIN)

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR

100

Telephone: (808) 955-6344

RECEIVED

85 APR 11 P9:41

RECEIVED

85 APR 10 A8:35

The Research Corporation of the University of Hawaii

DIV. OF WATER & LAND DEVELOPMENT

April 9, 1985

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of March, 1985.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
A. Konishi
J. Katz
P. Takahashi
A. Smyklo
A. Adduci
G. Lesperance

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

APRIL 1, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF MARCH, 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
36,059	46,123	1,743,400	119,187	11,919

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

MARCH 1985

1. Work Accomplished

   A. Cleaned John Zink incinerator scrubber ceramic packing and replaced incinerator flame sensor.

   B. Began painting of piping, structures, and equipment.

   C. Repaired "B" recycle pump vibration.

   D. Replaced 20' section of 2" steel NCG line with PVC pipe.

   E. Overhauled gland seal steam drain line steam trap.

   F. Overhauled "B" 10% caustic pump.

   G. Overhauled "B" recycle pump.

   H. Overhauled "A" air compressor.

2. Plans For Next Month

   A. Continue chipping and painting of piping, structures and equipment.

Note: On 3/15/85, the well pressure suddenly increased 20 psi, resulting in a 300-400 kw increase in output. The pressure has been holding steady since that time, with total net output between 2.6 - 2.7 MW!

4/01/85
NU

Telephone: (808) 955-6344

1207

The Research Corporation of the University of Hawaii

March 8, 1985

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of February, 1985.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
A. Konishi
J. Katz
P. Takahashi
A. Smyklo
G. Lesperance

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

MARCH 1, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF FEBRUARY, 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
27,083	34,641	1,309,400	81,173	8,117

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

FEBRUARY 1985

I. Work Accomplished

A. Completed work on cooling tower fan blade fiberglass repair.

B. Shut down unit for 8 hours on February 5 to clean concrete sparger outlet pipes, service LV-1B and three brine line butterfly valves.

C. Changed John Zink air filters.

D. Cleaned plugged non-condensible gas line to back up caustic scrubber.

E. Spread gravel over concrete sparger area to cover silica.

F. Changed section of PVC recycle line to stainless steel.

G. Repaired LV-1 positioner to keep control valve from hunting.

II. Plans for Next Month

A. Work on John Zink incinerator and scrubber column.

683

Telephone: (808) 955-6344

RECEIVED

The Research Corporation of the University of Hawaii 85 FEB 11 A9:59

February 8, 1985

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of January, 1985.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
A. Konishi
A. Adduci
J. Katz
P. Takahashi
A. Smyklo
G. Lesperance

RECEIVED
85 FEB 13 P3:54
DIV. OF WATER &
LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96721-1027

FEBRUARY 4, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96822

ATTENTION: MR. WILLIAM K. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JANUARY, 1985.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
33,180	42,440	1,604,200	99,465	9,947

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JANUARY 1985

I. Work Accomplished

A. Repaired and installed cooling tower forebay low level alarm transducer.

B. Repaired John Zink temperature indicator.

C. Completed work on enlarging and modifying brine pond. Contractor M. Sugimoto has constructed a 75' x 400' pond with earthen baffles and settling pond. Total cost is $12,300.

D. Ran new 1½" PVC line to new brine pond. Line will carry recycle pump water to mix with the brine effluent. This should help to settle silica out in the baffled section of the pond.

E. Serviced PV-601 actuator (M.O.V.).

F. Began work to remove and refiberglass cooling tower fan blades. Work is expected to take 10 days. Unit will be derated to 1.2 MW during that time.

II. Plans For Next Month

A. Shut down plant on March 5, 1985, for one day of open venting. Work to be done will include repair of brine line control valve, butterfly stop valves, and unplugging of sparger outlet pipes.

172

Telephone: (808) 955-6344

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The Research Corporation of the University of Hawaii

January 11, 1985

STATE OF HAWAII

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of December, 1984.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
A. Konishi
A. Adduci
J. Katz
P. Takahashi
A. Smyklo

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85 JAN 15 A11: 31
DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96720

JANUARY 2, 1985

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96822

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF DECEMBER, 1984.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
35,302	45,154	1,106,800	105,832	10,583

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

DECEMBER 1984

I. Work Accomplished

A. Repair John Zink furnace leak.

B. Overhaul eyewash station valves.

C. Cleaned plugged sparger box 6" outlet lines.

D. Overhauled "B" 10% caustic pump. Replaced mechanical seal, both bearings, and shaft.

E. Repaired leak on 10% caustic line.

F. Repaired broken nipple on air compressor receiver.

G. Fabricated 4" channel outriggers to keep air compressor vibration down.

H. Removed cooling tower basin level transducer for shop work.

II. Work Planned For Next Week

A. Excavate third brine pond outside of fenceline.

B. Enlarge existing brine pond and construct earthen baffles (tentative).

NU 1/02/85

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The Research Corporation of the University of Hawaii

December 19, 1984

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of November, 1984.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
A. Konishi
A. Adduci
J. Katz
P. Takahashi
A. Smyklo

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84 DEC 26 P 3: 19
DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96720

DECEMBER 3, 1984

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF NOVEMBER, 1984.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
33,699	43,104	1,629,300	101,099	10,110

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A Monthly Maintenance Summary

NOVEMBER 1984

I. Work Accomplished

A. Fabricated new shaft for 10% caustic pump.

B. Investigated low turbine output. From early November, the steam pressure at the separator is down by 20 psi and output is down by 90 kw as compared to one year ago.

C. Cleaned cooling tower inlet screens.

D. Welded cracked angle iron under #1 air compressor.

E. Contacted M. Sugimoto to begin excavation of third new brine pond outside of plant fence line.

II. Plans For Next Month

A. Excavate new brine pond.

NU 12/5/84

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DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

The Research Corporation of the University of Hawaii

November 9, 1984

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of October, 1984.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
S. Kearns
A. Adduci
J. Katz
P. Takahashi
A. Smyklo

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84 NOV 14 P 2: 44
DEPT. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96720

NOVEMBER 1, 1984

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF OCTOBER, 1984.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
36,574	46,781	1,768,300	109,292	10,929

VERY TRULY YOURS,

FOR FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

OCTOBER 1984

I. Work Accomplished

A. Overhauled plastic caustic supply pump.
B. Recalibrated hotwell level controls.
C. Overhauled 10% caustic transfer pump.
D. Repacked lube oil reservoir suction valve.
E. Repaired leak in waste gas line.
F. Completed 4" brine line installation.

II. Plans For Next Month

A. Install new air compressor liner.

11/01/84 NU

Telephone: (808) 955-6344

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The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

October 15, 1984

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of September, 1984.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
S. Kearns
A. Adduci
J. Katz
P. Takahashi
A. Smyklo

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DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96720

OCTOBER 1, 1984

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF SEPTEMBER, 1984.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
29,271	37,440	1,415,200	87,705	8,771

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:CR
ATTACHMENT

HAWAII ELECTRIC LIGHT COMPANY, INC.

HGP-A MONTHLY MAINTENANCE SUMMARY

SEPTEMBER 1984

I. Overhaul Work Performed

A. Turbine

1. Inspected bearings on turbine generator set.
2. Replaced RTD's on turbine thrust bearing.
3. Repacked control valve lower stem and seal welded cover plate.
4. Serviced steam trap on gland seal drain line.

B. Generator/Gear Reducer

1. Megger readings on generator excellent.
2. Changed activated charcoal in generator air filter.
3. Replaced generator inboard vibration probe.
4. Cleaned gear box breather

C. Control Oil Systems

1. Recharged accumulator and repacked shutoff valve.
2. Replaced activated charcoal in lube oil reservoir filter.

D. Flash Separator

1. Flash separator internal lower half cleaned.
2. Installed modified Vortex breaker by adding on 3# extension.
3. Removed lower section of brine line out of separator including brine flow venturi and replaced with 4" flanged section.

E. Wellhead Valves

1. Cleaned valve stems, repacked, and exercised M.O.V.'s.

F. Moisture Separator

1. Cleaned top and bottom pressure sensors.
2. Overhauled level control valve.
3. Service 1" manual drains.

G. Condensate Drain Tank

1. Cleaned level sight glass.

H. Condenser and Air Ejector System

1. Serviced vacuum breaker.
2. Cleared inter and after condenser drain and level control piping.

I. Air Compressor System

1. Overhaul No. 2 compressor.
2. Installed new end bell covers on cooling water pump motors.

J. Cooling Tower

1. Drained cooling tower basin.
2. Cleaned basin and distribution trays and nozzles.
3. Changed gear box oil.
4. Installed new fan guards.
5. Inspected fan blades. Will re-fiberglass at later date.

K. John Zink Abatement System

1. Cleaned furnace sight glass and fire-eyes.
2. Need to replace one fire-eye unit when available.
3. Cleaned aspirating air lines.
4. Overhauled combustion blower and motor.
5. Cleaned moisture accumulator tank and sight glass.
6. Cleaned out burner nozzle orifices.
7. Replaced electrical conduits with P.V.C.

L. Brine Line

1. Overhauled LV-1 and LV-1A control valves.
2. Paralleled the two existing brine lines discharging through control valve LV-1A.
3. Installed modified cross T-connection in place of extra heavy duty elbow below flash separator.
4. Installed new 4" brine line starting from modified cross T-connection and discharging through control valve LV-1.

M. Miscellaneous

1. Recalibrated protective relays and Kwh meters.
2. Serviced all unit breakers.
3. Tested emergency power transfer switch.

II. Maintenance Performed Outside of Overhaul Period

A. Repaired leaks on turbine control valves.
B. Checked thrust bearing RTD's. One lead was compressed during overhaul reassembly. New RTD on order.
C. Installed actuator on No. 1 turbine trip valve and realigned limit switch.
D. Installed unused positioner from circulating water reject valve to hot well recirculating control valve.

III. Plans For Next Month

A. Re-fiberglass cooling tower fan blades.
B. Recalibrate turbine steam seal pressure gauges.
C. Recalibrate condensate pump low pressure switch.
D. Replace motive steam valve to inter-condenser.
E. Replace filter cartridges on air dryer.

G. Jenkins
10/04/84

40

Telephone: (808) 955-6344

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The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

September 25, 1984

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Enclosed is a copy of the HGP-A operating figures for the month of August, 1984.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
S. Kearns
A. Adduci
J. Katz
P. Takahashi
A. Smyklo

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DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

AUGUST 1984

I. Maintenance Performed

A. Completed dredging of Pahoa side brine pond.
B. Overhauled No. 1 air compressor valves.
C. Changed "A" recycle pump mechanical seals.
D. Overhauled "B" recycle pump.

II. Plans For Next Month

A. Overhaul No. 2 air compressor.
B. Clean cooling tower basin screens.
C. Schedule annual maintenance for week of September 17, 1984. Unit will be off line for approximately one week and venting will occur on September 18 and 19. Tentative work list attached.

NU 9/6/84

HGP-A 1984 OVERHAUL WORKLIST
(REQUIRES 1 - 2 DAYS OPEN VENTING)

REV. 1 - SEPT 5, 1984
PREPARED BY: HELCO PRODUCTION DEPT.

I. TURBINE
1. REMOVE & INSPECT JOURNAL & THRUST BEARINGS AND RECORD CLEARANCES.
2. REPLACE RTD'S FOR ACTIVE AND INACTIVE THRUST BEARINGS.
3. TEST MECHANICAL OVERSPEED TRIP.
4. RECALIBRATE SEALING STEAM GAUGES.
5. INSTALL DC LUBE OIL PUMP.
6. REPACK #2 CONTROL VALVE LOWER PACKING.
7. FABRICATE NEW BASKET AND REPLACE EXISTING BASKET FOR 3/4" GLAND SEAL DRAIN STRAINER.
8. SERVICE 3/4" (T.E.) YARWAY TRAP ON GLAND SEAL DRAIN LINE.
9. TAKE VIBRATION READINGS

II. GENERATOR/GEAR REDUCER
1. MEGGER GENERATOR STATOR & ROTOR.
2. CHANGE REACTIVE CHARCOAL AIR FILTER.
3. OVERHAUL AIR BLOWER.
4. REPLACE INBOARD VIBRATION PROBE & PROXIMITOR (AS REQUIRED).
5. CLEAN GEAR BOX BREATHER.

III. CONTROL OIL SYSTEM
1. RECHARGE ACCUMULATOR.
2. REPACK ACCUMULATOR 1-1/2" SHUTOFF VALVE.
3. REPLACE LUBE OIL RESERVOIR AIR INTAKE FILTER (ACTIVATED CHARCOAL).

IV. FLASH SEPARATOR
1. INSPECT & CLEAN FLASH SEPARATOR.
2. REPLACE 4" SEPARATOR ROOT GATE VALVE (FLG).
3. REPLACE LOWER 2" ROOT GATE VALVE ON LEVEL COLUMN (FLG).
4. REPLACE PV-601 CHAIN BLOCK VALVE (8" GATE).
5. REMOVE LOWER BRINE PIPE SECTION & CLEAN.

V. WELHEAD VALVES
1. INSTALL 6" BLIND FLANGE AFTER MUFFLER WING VALVE.
2. EXERCISE M.O.V.'S & MAIN ROOT VALVE.
3. REPACK VALVES.
4. INSPECT M.O.V. GEAR BOXES.

VI. MOISTURE SEPARATOR
1. INSPECT & CLEAN VESSEL.
2. REMOVE DRIFT ELIMINATOR & WATER BLAST.
3. CLEAN TOP & BOTTOM PRESSURE SENSORS.
4. REPLACE TOP & BOTTOM 3" GATE VALVES (FLG) WITH BUTTERFLY VALVES & SPOOL PIECES.
5. REPLACE ENTIRE SEPARATOR LEVEL CONTROL VALVE MANIFOLD (WITH BYPASS & DRAIN) WITH NEW PIPING AND BALL VALVES (5 VALVES).
6. OVERHAUL LEVEL CONTROL VALVE.
7. SERVICE 1" MANUAL DRAINS ON SEPARATOR DRAIN LINE.

VII. CONDENSATE DRAIN TANK
1. DRAIN CONDENSATE TANK.
2. CLEAN SIGHT GLASS.
3. REPLACE LEVEL COLUMN GATE VALVES WITH BALL VALVES (6 EACH).
4. REPLACE EJECTOR DRAIN 3/4" GATE VALVE (TE) WITH BALL VALVE.

VIII. CONDENSER
1. RECALIBRATE CONDENSATE PUMP LOW PRESSURE SWITCH.
2. REMOVE WATERBOX COVERS & INSPECT WATER BOX.
3. SHOOT BULLETS.
4. SERVICE VACUUM BREAKER.
5. REMOVE AFTER CONDENSER HOTWELL PIPING, AND CHECK FOR BLOCKAGE. (AFTERCONDENSER LEVEL IS HIGH)

IX. AIR COMPRESSOR/DRIER
1. REPLACE AIR DRIER PRE- AND AFTER- FILTER CARTRIDGES.
2. OPEN AND CLEAN AUTOMATIC CONDENSATE DRAIN FROM AIR COMPRESSOR.
3. INSTALL NEW ENDBELL COVERS FOR CIRCULATING PUMP MOTORS.
4. CHANGE OIL AND CLEAN BREATHERS.
5. CHECK FAN BELTS.

X. COOLING TOWER
1. CLEAN & DRAIN TOWER, BASIN, DISTRIBUTION TRAYS, AND FILL, PERIODICALLY WETTING DOWN STRUCTURE.
2. INSPECT FAN BLADES & REFIBERGLASS IF NECESSARY.
3. INSTALL NEW FAN GUARDS.
4. CHANGE GEAR BOX OIL.
5. CHANGE OIL FOR CIRCULATING WATER PUMPS.

XI. CAUSTIC INJECTION
1. REPLACE ALL GATE VALVES ON COOLING TOWER CAUSTIC INJECTION MANIFOLD (5 EACH) WITH BALL VALVES.
2. SERVICE SWING CHECK.
3. TIGHTEN PACKING ON SCRUBBER CONTROL VALVE.

XII. JOHN ZINK

1. REPLACE HAND LEVERS & NUTS FOR 2" HILLS MCCANNA BALL VALVES (3 EACH) AT RECYCLE PUMPS.
2. SEAL WELD LEAKING THREADS & REPLACE LEAKING BALL VALVES AT RECYCLE PUMPS.
3. CLEAN SCRUBBER CERAMIC, INCINERATOR, & HOT GAS LINE AND REPAIR REFRACTORY.
4. CLEAN FIRE-EYES AND SIGHT GLASSES.
5. CLEAN AIR ASPIRATING LINES.
6. OVERHAUL JOHN ZINK BLOWER MOTOR.
7. UPGRADE NCG TRANSFER BALL VALVE ACTUATOR & CLEAN VALVE INTERNALS. (RAMCON)
8. CLEAN MOISTURE ACCUMULATOR TANK & SIGHT GLASS.

XIII. STEAM AND BRINE PIPING

1. REPAIR LV-1 PIPE SUPPORT.
2. CONSTRUCT PIPE SUPPORTS FOR LV-1A AND STRENGTHEN EXISTING SUPPORTS.
3. REPLACE 1" STEAM LINE DRAIN BY AIR COMPRESSOR (2 EACH BALL VALVES REQUIRED).
4. REPACK INTERCONDENSER STEAM SUPPLY VALVE (1" GATE).
5. INSTALL NEW 4" BRINE LINE.
6. REMOVE ORIGINAL 3" BRINE LINE.

XIV. OTHERS

1. CALIBRATE AND TEST RELAYS & METERS.
2. MEGGER ALL MOTORS FROM MCC.
3. REPLACE DETERIORATED 3/4" CONDUIT ON JOHN ZINK.
4. SERVICE UNIT BREAKERS.
5. TEST EMERGENCY POWER TRANSFER SWITCH.
6. SERVICE STANDBY GENERATOR.
7. CHIP AND PAINT AS REQUIRED.
8. INSPECCT JOHN ZINK BLOWER WINDING & REVARNISH IF NECESSARY.

MATERIAL LIST

QUANTITY	SIZE	DESCRIPTION	TAG
11 EA	1"	ANSI 300# BALL, ALL STAINLESS, T.E., TFE PACKING, RTFE SEAT, CLAYTON MARKS SS880.	COND. TK. COLUMN, RECYLE HEADER
1 EA	1-1/2"	SAME AS ABOVE, EXCEPT S.W.E.	COND. TK. COLUMN
5 EA	1/2"	SAME AS ABOVE, EXCEPT T.E.	COND. TK. COLUMN, RECYCLE HEADER, RECYCLE PP DRAIN, RECYCLE PP DRAIN COND. TK. COLUMN
1 EA	3/4"	SAME AS ABOVE (T.E.)	EJECTOR DRAIN
5 EA	1"	SAME AS ABOVE, EXCEPT S.W.E.	COND. TK. COLUMN DRAIN, C.T. CAUSTIC C.T. CAUSTIC C.T. CAUSTIC C.T. CAUSTIC
1 EA	1/2"	SAME AS ABOVE (S.W.E.)	C.T. CAUSTIC
3 SETS	---	HANDLE & HEX NUTS FOR HILL/MCCANNA 2" BALL VALVE	JOHN ZINK
6 EA	1"	300# SPLIT WEDGE GATE, ALL STAINLESS, TFE PACKING, OUTSIDE SCREW, RISING STEM, BOLTED FLANGED YOKE-BONNET, TE, POWELL 2466.	M.S. LINE DRAIN M.S. LINE DRAIN MOIST SEP LEVEL MOIST SEP LEVEL MOIST SEP LEVEL MOIST SEP LEVEL
1 EA	1/2"	SAME AS ABOVE	MOIST SEP LEVEL
1 EA	2"	300# SOLID WEDGE GATE, FLG. ENDS, TFE PACKING, STAINLESS STEEL TRIM, CAST STEEL BODY.	FLASH SEP LEVEL
2 EA	3"	300# ALL STAINLESS BUTTERFLY VALVES, FISHER 8500 WITH TFE SEATS & PACKING & 1082 HAND LEVER.	MOIST SEP LEVEL
2 EA	---	ENDBELL COVERS FOR AIR COMPRESSOR CIRC. PUMP MOTORS, BALDOUR CAT. NO. JM3545, FRAME 56J, SER. W880, SPEC. 34-795 3226, 1 HP, 3450 RPM, DESIGN B, CLASS A, CODE K.	AC PUMPS

1 EA	---	COMPRESSED AIR FILTER CARTRIDGE REPLACEMENT FOR DELTECH MODEL 150 AIR FILTER.	AC PRE-FILTER
1 EA	---	COMPRESSED AIR FILTER CARTRIDGE REPLACEMENT FOR DELTECH MODEL 511 E AIR FILTER.	AC AFTER-FILTER
1 EA	---	AIR FILTER CARTRIDGE REPLACEMENT FOR ELLIOT LUBE OIL RESERVOIR.	---
4 EA	3"	300# CS SLIP ON FLANGES, FLAT FACE.	MOIST.
3 EA	1"	TEES, SCH. 80, SWE, CS	M.S. MANIFOLD
4 EA	1"	UNIONS, SCH. 80, TE, STAINLESS STEEL	M.S. MANIFOLD
1 EA	1/2"	ELL, SCH. 80, TE, CS	M.S. MANIFOLD
2 EA	1"	ELL, SCH. 80, TE, CS	M.S. MANIFOLD
15 FT	1"	SCH. 80 BLACK PIPE	M.S. MANIFOLD
1 EA	1"	UNION, SCH. 80, TE, STAINLESS STEEL	RECYCLE HEADER
1 EA	2"	PNEUMATIC BALL VALVE ACTUATOR, SPRING RETURN, 400 IN-LB, 40 PSI SUPPLY, RAMCON R260-CFS.	EMERGENCY NCG LINE
100 LB	---	TYPE CJ ACTIVATED CHARCOAL FOR BARNABY CHENEY GENERATOR FILTER (ORDERED).	
1 EA	6"	300# BLIND FLANGE, CS, FLAT FACE	STEEL MUFFLER
2 EA	---	KINGSBURY THRUST PADS WITH IMBEDDED RTD & LEAD WIRE FOR ACTIVE & INACTIVE THRUST BEARINGS.	

1 EA	8"	300# FLANGED GATE, CAST STEEL BODY, 1/16" RAISED FACE, 316 SS SEAT STEAM, & LANTERN RING TFE PACKING WITH LANTERN RING, STEM THREAD LUBE FITTING, STAINLESS STEEL NUTS, CAPSCREWS, BOLTS, YOKE BUSHING, GLAND BUSHING, P.U.P. BUSHING, DISC HOLDER & FLEX WEDGE. UNIT TO BE FURNISHED WITH ACCESSORY DETACHABLE TYPE HANDWHEEL WITH CHAIN GUIDES. POWELL 3003N WITH FIG. 321 CHAINWHEEL.	PV-601 CB

1454

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DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96720

AUGUST 1, 1984

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF JULY, 1984.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
37,310	47,723	1,803,900	111,799	11,180

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84 SEP 11 A10:04
DIV. OF WATER &
LAND DEVELOPMENT

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:CR
Attachment

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Telephone: (808) 955-6344

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The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

August 9, 1984

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of July, 1984.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

cc: K. Keith
J. Shupe
S. Kearns
A. Adduci
J. Katz
P. Takahashi
A. Smyklo

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84 AUG 16 P2:41
DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY

JULY 1984

I. Maintenance Performed

A. Cut in both brine lines due to brine system plugging. Piping and material for replacement brine line delivered.

B. Began dredging Pahoa side brine pond with D-9 on July 27, 1984.

II. Plans For Next Month

A. Complete dredging.

B. Overhaul 10% caustic pump.

C. Repair recycle pump seal.

NU 8/01/84

PUNA GEOTHERMAL VENTURE, INC.
P. O. BOX 1027
HILO, HAWAII 96720

AUGUST 1, 1984

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96822

ATTENTION: MR. WILLIAM K. LOUPA
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND PGV'S OPERATING FIGURES FOR THE MONTH OF JULY, 1984.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH OPERATING	REVENUES $	ROYALTIES $
37,319	[illegible]	[illegible]	[illegible]	11,780

VERY TRULY YOURS,

[signature]

FRANK G. KENNEDY, MANAGER
ACCOUNTING DEPARTMENT

FGK:CR
Attachment -

1522

Telephone: (808) 955-6344

DOWALD

RECEIVED

84 JUN 12 P1:25

The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

June 8, 1984

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of May, 1984.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

Enclosure

cc: K. Keith
J. Shupe
S. Kearns
A. Adduci
J. Katz
P. Takahashi
A. Smyklo

RECEIVED
84 JUN 14 A9:43
DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96720

JUNE 1, 1984

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM K. COOPER
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF MAY, 1984.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
37,844	43,496	1,829,700	109,023	10,902

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

FGK:NU:cr
Attachment

HAWAII ELECTRIC LIGHT COMPANY, INC.

ATTACHMENT

HGP-A MONTHLY MAINTENANCE SUMMARY
MAY 1984

I. Maintenance Performed

A. Installed Citrex reactor level control valve and controller, and absorber heat exchanger.
B. Tested Citrex Abatement System with C. Vancini of Peabody Process Sytem present. Encountered problems with reactor plugging and filter leakage. Mechanical problems will be evaluated by Peabody and E. Baughman, and recommendations will be made to HELCO.
C. Replaced John Zink blower filters.
D. Serviced air conditioning for control room and motor control center.
E. Replaced 10% caustic pump with rebuilt unit.
F. Rewired generator vibration trip circuit to isolate faulty proximitor/ probe.
G. Repaired southside barbed wire on fence.
H. Switched over to newly dug brine percolation pond.
I. Purchased 4" pipe and fittings for replacement of original brine line.

II. Plans For Next Month

A. Repair caustic batching water meter.
B. Repair recycle pump seal.
C. Overhaul 10% caustic pump.
D. Begin ordering of parts for August overhaul.

NU:cr
6/01/84

Telephone: (808) 955-6344

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84 MAY 9 P1:31

The Research Corporation of the University of Hawaii

May 8, 1984

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DEPT. OF LAND AND NATURAL RESOURCES
STATE OF HAWAII

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of April, 1984.

Sincerely,

William R. Coops
Acting Executive Director

WRC:ss

Enclosure

cc: K. Keith
J. Shupe
S. Kearns
A. Adduci
J. Katz
P. Takahashi

RECEIVED
84 MAY 10 A9:56
DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96720

MAY 1, 1984

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF APRIL, 1984.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
37,180	47,556	1,797,600	107,082	10,708

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

Telephone: (808) 955-6344

RECEIVED

84 MAR 8 A8:45

The Research Corporation of the University of Hawaii

March 6, 1984

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

84 MAR 12 A10:01

RECEIVED

DIV. OF WATER & LAND DEVELOPMENT

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of February, 1984.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

Enclosure

cc: K. Keith
J. Shupe
S. Kearns
A. Adduci
B. Chen
P. Takahashi
N. Oss
J. Katz

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96720

MARCH 1, 1984

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF FEBRUARY, 1984.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
35,267	45,109	1,705,100	101,588	10,159

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

CC: ENG/R. UEMURA

HGP-A Operating Figures

Month / Year	Steam (1000 lbs.)	Brine (1000 lbs.)	Net KWH Generated	Gross Revenue $	Royalty $
Jun. 12-30, 1981	24,260	24,250			
Jul. 1-31, 1981	40,920	40,920			
Aug. 1-31, 1981	39,430	42,780			
Sep. 1-4, 1981	4,590	5,130	124,600	498.40	49.84
Dec. 11-31, 1981	25,300	42,850	—	—	—
Jan. 1982	37,940	49,990	116,600	466.40	46.64
Feb. 1982	34,270	41,930	227,400	909.60	90.96
Mar. 1982	37,940	45,350	866,000	46,738.02	4,673.80
Apr. 1982	36,720	43,890	1,440,000	77,716.80	7,771.68
May 1982	38,390	49,100	1,788,100	96,504	9,650
Jun. 1982	37,150	47,520	1,744,000	94,124	9,412
Jul. 1982	38,390	49,104	1,790,100	96,612	9,661
Aug. 1982	38,390	49,104	1,257,900	67,889	6,789
Sep. 1982	37,152	47,520	1,800,000	97,146	9,715
Oct. 1982	38,390	49,104	1,869,700	100,908	10,091
Dec. 1982	38,390	49,104	1,840,700	99,343	9,934
Jan. 1983	38,390	49,100	1,887,100	101,677	10,168
Feb. 1983	34,675	44,348	1,570,400	84,613	8461
Mar. 1983	38,390	49,104	1,903,600	102,566	10,257
Apr. 1983	34,550	44,200	1,713,400	92,317.99	9,232
May 1983	39,090	50,000	1,890,000	101,833	10,183
Jun. 1983	26,250	33,580	1,269,200	68,385	6,838
Sep. 1983	33,252	42,530	1,607,700	86,623	8,662
Oct. 1983	22,800	29,200	1,104,500	59,510	5,951

Telephone: (808) 955-6344

RECEIVED

83 NOV 7 P2: 3

The Research Corporation of the University of Hawaii

November 4, 1983

DEPT. OF LAND & NATURAL RESOURCE STATE OF HAWAII

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of October 1983.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

Enclosure

cc: K. Keith
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss
J. Katz

RECEIVED
83 NOV 15 P2: 14
DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT CO., INC.
P. O. BOX 1027
HILO, HAWAII 96720

NOVEMBER 2, 1983

THE RESEARCH CORPORATION OF THE
UNIVERSITY OF HAWAII
1110 UNIVERSITY AVENUE
402 VARSITY BUILDING
HONOLULU, HAWAII 96826

ATTENTION: MR. WILLIAM R. COOPS
DIRECTOR OF ADMINISTRATION

GENTLEMEN:

PLEASE FIND HGP-A OPERATING FIGURES FOR THE MONTH OF OCTOBER 1983.

TOTAL STEAM FLOW 1000 #	TOTAL BRINE FLOW 1000 #	NET KWH GENERATED	REVENUES $	ROYALTIES $
22,800	29,200	1,104,500	59,510	5,951

VERY TRULY YOURS,

FRANK G. KENNEDY, MANAGER
PRODUCTION DEPARTMENT

Telephone: (808) 955-6344

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83 OCT 12 A9: 23

The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

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83 OCT 14 P3: 02
DIV. OF WATER & LAND DEVELOPMENT

October 7, 1983

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of September 1983.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

Enclosure

cc: K. Keith
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss
J. Katz

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

Telephone: (808) 955-6344

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The Research Corporation of the University of Hawaii

83 OCT 13 P

DEPT. OF L
& NATURAL RES
STATE OF HA

October 7, 1983

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of September 1983.

Sincerely,

William R. Coops
Director of Administration

WRC:ss

Enclosure

cc: K. Keith
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss
J. Katz

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT COMPANY, INC.
P. O. BOX 1027 HILO, HAWAII-96720

FUEL 1-3
H-G/Y - M
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October 5, 1983

The Research Corporation of the
University of Hawaii
1110 University Avenue
402 Varsity Building
Honolulu, Hawaii 96826

Attention: Mr. William R. Coops
Director of Administration

Gentlemen:

Please find HGP-A operating figures for the month of September 1983.

Total Steam Flow 1000#	Total Brine Flow 1000#	Net KWH Generated	Revenues $	Royalties $
33,252	42,530	1,607,700	$86,623	$8,662

Very truly yours,

Frank G. Kennedy, Acting Manager
Production Department

FGK:NU:cr

DWALD

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Telephone: (808) 955-6344

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83 JUL 14 A 1: 38

The Research Corporation of the University of Hawaii

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

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83 JUL 14 P 3: 26
DIV. OF WATER &
LAND DEVELOPMENT

July 12, 1983

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of June 1983.

Sincerely,

Wytze Gorter

Wytze Gorter
Executive Director

WG:st

Enclosure

cc: K. Keith
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss
J. Katz

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT COMPANY, INC.
P. O. BOX 1027 HILO, HAWAII-96720

July 1, 1983

The Research Corporation
of the University of Hawaii
1110 University Avenue
402 Varsity Building
Honolulu, Hawaii 96826

Attention: Mr. William R. Coops
Director of Administration

Gentlemen:

Please find HGP-A operating figures for the month of June 1983.

Total Steam Flow 1,000 #	Total Brine Flow 1,000 #	Net KWH Generated	Revenues $	Royalties $
26,250	33,580	1,269,200	68,385	6,838

Frank G. Kennedy, Acting Manager
Production Department

1423

Telephone: (808) 955-6344

RECEIVED

83 JUL 1 A10: 49

The Research Corporation of the University of Hawaii

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

June 27, 1983

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of May 1983.

Sincerely,

Wytze Gorter
Executive Director

RECEIVED
83 JUL 6 A9: 59
DIV. OF WATER &
LAND DEVELOPMENT

WG:st

Enclosure

cc: H. Kono
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss
J. Katz

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT COMPANY, INC.
P. O. BOX 1027 HILO, HAWAII-96720

June 21, 1983

The Research Corporation
of the University of Hawaii
1110 University Avenue
402 Varsity Building
Honolulu, Hawaii 96826

Attention: Mr. William R. Coops
Director of Administration

Gentlemen:

Please find HGP-A operating figures for the month of May 1983.

Total Steam Flow 1,000 #	Total Brine Flow 1,000 #	Net KWH Generated	Revenues $	Royalties $
39,090	50,000	1,890,000	101,833	10,183

Frank G. Kennedy
Acting Production Manager

FGK:NU:hs

Do WAUD

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Telephone: (808) 955-6344

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83 MAY 11 P2:24

The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

RECEIVED 83 MAY 16 P2:48 DIV. OF WATER & LAND DEVELOPMENT

May 10, 1983

Mr. Susumu Ono, Chairman
Department of Land & Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of April 1983.

Sincerely,

Wytze Gorter
Executive Director

WG:st

Enclosure

cc: H. Kono
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss
J. Katz

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT COMPANY, INC.
P. O. BOX 1027 HILO, HAWAII-96720

May 3, 1983

The Research Corporation
of the University of Hawaii
1110 University Avenue
402 Varsity Building
Honolulu, Hawaii 96826

Attention: Mr. William R. Coops
Director of Administration

Gentlemen:

Please find HGP-A operating figures for the month of April 1983.

Total Steam Flow 1,000 #	Total Brine Flow 1,000 #	KWH Generated	Revenues $	Royalties $
34,550	44,200	1,713,400	92,317.99	9,232

Frank G. Kennedy
Acting Production Manager

FGK:NU:hs

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Telephone: (808) 955-6344

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83 APR 11 P2: 46

The Research Corporation of the University of Hawaii

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

April 8, 1983

Mr. Susumu Ono, Chairman
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of March 1983.

Sincerely,

Wytze Gorter
Executive Director

WG:st

Enclosure

cc: H. Kono
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss
J. Katz

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83 APR 13 A6: 47
DIV. OF WATER & LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT COMPANY, INC.
P. O. BOX 1027 HILO, HAWAII-967:

April 4, 1983

The Research Corporation
of the University of Hawaii
1110 University Avenue
402 Varsity Building
Honolulu, Hawaii 96826

Attention: Mr. William R. Coops
Director of Administration

Gentlemen:

Please find HGP-A operating figures for the month of March 1983.

Total Steam Flow 1,000 #	Total Brine Flow 1,000 #	KWH Generated	Revenues $	Royalties $
38,390	49,104	1,903,600	102,566	10,257

Very truly yours,

Frank G. Kennedy
Actg. Production Manager

FGK:hs

1291

Telephone: (808) 955-6344

RECEIVED
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83 MAR 10 P1:24
83 MAR 10 P1:24
DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII
DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

The Research Corporation of the University of Hawaii

March 7, 1983

Mr. Susumu Ono, Chairman
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of February 1983.

Sincerely,

Wytze Gorter
Executive Director

WG:st

encl.

cc: H. Kono
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss
J. Katz

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83 MAR 11 P3:41
DIV. OF WATER &
LAND DEVELOPMENT

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT COMPANY, INC.
P. O. BOX 1027 HILO, HAWAII-96720

March 2, 1983

The Research Corporation
of the University of Hawaii
1110 University Avenue
402 Varsity Building
Honolulu, Hawaii 96826

Attention: Mr. William R. Coops
Director of Administration

Gentlemen:

Please find HGP-A operating figures for the month of February 1983.

Total Steam Flow 1,000 #	Total Brine Flow 1,000 #	KWH Generated	Revenues $	Royalties $
34,675	44,348	1,570,400	84,613	8,461

Very truly yours,

Norman A. Oss

NORMAN A. OSS, MANAGER
PRODUCTION DEPARTMENT

NAO:FK:hs

Telephone: (808) 955-6344

Do WRCD

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83 FEB 8 P2:38

The Research Corporation of the University of Hawaii

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

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83 FEB 9 P3:52
DIV. OF WATER &
LAND DEVELOPMENT

February 4, 1983

Mr. Susumu Ono, Chairman
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of January 1983.

Sincerely,

Wytze Gorter

Wytze Gorter
Executive Director

WG:st

encl.

cc: H. Kono
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss
J. Katz

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT COMPANY, INC.
P. O. BOX 1027 HILO, HAWAII-96720

February 1, 1983

The Research Corporation
of the University of Hawaii
1110 University Avenue
402 Varsity Building
Honolulu, Hawaii 96826

Attention: Mr. William R. Coops
Director of Administration

Gentlemen:

Please find HGP-A operating figures for the month of January 1983.

Total Steam Flow 1,000 #	Total Brine Flow 1,000 #	KWH Generated	Revenues $	Royalties $
38,390	49,100	1,887,100	101,677	10,168

Very truly yours,

Norman A. Oss

NORMAN A. OSS, MANAGER
PRODUCTION DEPARTMENT

NAO:FK:hs

DOWA-J

391

Telephone: (808) 955-6344

RECEIVED

83 JAN 24 A 8: 52

The Research Corporation of the University of Hawaii

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

January 20, 1983

Mr. Susumu Ono, Chairman
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Please find enclosed a copy of the HGP-A operating figures for the month of December 1982.

Sincerely,

Wytze Gorter

Wytze Gorter
Executive Director

WG:st

encl.

cc: H. Kono
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss
J. Katz

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HAWAII ELECTRIC LIGHT COMPANY, INC.
P. O. BOX 1027 HILO, HAWAII-96720

January 4, 1983

The Research Corporation of the University of Hawaii
1110 University Avenue
402 Varsity Building
Honolulu, Hawaii 96826

Attention: Mr. William R. Coops
Director of Administration

Gentlemen:

Please find HGP-A operating figures for the month of December 1982.

Total Steam Flow 1,000 #	Total Brine Flow 1,000 #	KWH Generated
38,390	49,104	1,840,700

Revenues $	Royalties $
99,343	9,934

Very truly yours,

Norman A. Oss

Norman A. Oss, Manager
Production Department

NAO:FK:hs

6399-972

Telephone: (808) 955-6344

RECEIVED

82 NOV 25 P10: 19

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82 NOV 22 A10: 11

The Research Corporation of the University of Hawaii

DIV. OF WATER & LAND DEVELOPMENT

DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

November 17, 1982

Mr. Susumu Ono, Chairman
DEPARTMENT OF LAND AND NATURAL RESOURCES
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ono:

Pursuant to the Geothermal Mining Lease No. S-4602, we are informing you that the following amounts of geothermal fluid and electricity were produced from HGP-A from April thru October 1982. In addition, the gross revenue and the calculated royalties are included for your information:

MONTH	STEAM (Thousand Lbs)	BRINE (K Lbs)	NET KWH GENERATED	GROSS REVENUE	ROYALTY
May	38,390	49,100	1,788,100	$ 96,504	$ 9,650
June	37,150	47,520	1,744,000	$ 94,124	$ 9,412
July	38,390	49,104	1,790,100	$ 96,612	$ 9,661
August	38,390	49,104	1,257,900	$ 67,889	$ 6,789
September	37,152	47,520	1,800,000	$ 97,146	$ 9,715
October	38,390	49,104	1,869,700	$100,908	$10,091

Sincerely,

Wytze Gorter

Wytze Gorter
Executive Director

WG:st

cc: H. Kono
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

Telephone: (808) 955-6344

2911

The Research Corporation of the University of Hawaii

May 26, 1982

Mr. Susumu Ono
Chairman
DEPARTMENT OF LAND AND NATURAL RESOURCES
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Ono:

Pursuant to the Geothermal Mining Lease No. S-4602, we are informing you that the following amounts of geothermal fluid and electricity were produced from HGP-A since June 12, 1981. In addition, the gross revenue and the calculated royalties are included for your information:

DATES	STEAM (Million Lbs)	BRINE (Mlbs)	TOTAL (Mlbs)	NET KWH GENERATED	GROSS REVENUE	ROYALTY
6/12-30, 1981	24.26	24.25	51.19			
7/1-31, 1981	40.92	40.92	81.14	124,600	$ 498.40	$ 49.84
8/1-31, 1981	39.43	42.78	82.21			
9/1-4, 1981	4.59	5.13	9.72			
	109,200		224,260			
9/5-12/11, 1981	----------WELL SHUTDOWN----------					
12/11-31, 1981	25.30	42.85	68.15	--	--	--
1/1-31, 1982	37.94	49.99	87.93	116,600	466.40	46.64
2/1-28, 1982	34.27	41.93	76.20	227,400	909.60	90.96
3/1-31, 1982	37.94	45.35	83.29	866,000	46,738.02	4,673.80
4/1-30, 1982	36.72	43.89	80.61	1,440,000	77,716.80	7,771.68
	172,170		396,180			

Sincerely,

Wytze Gorter
Executive Director

cc: H. Kono
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826

HGP-A

July 2, 1982

Dr. Wytze Gorter
Executive Director
The Research Corporation of the
University of Hawaii
1110 University Avenue
Honolulu, Hawaii 96826

Dear Dr. Gorter:

HGP-A Production Report

Thank you for your letter of May 26, 1982, reporting the geothermal steam, electrical energy, and lease royalty computation as required under Geothermal Mining Lease No. S-4602.

Very truly yours,

SUSUMU ONO
Chairman of the Board

MEMO

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF WATER AND LAND DEVELOPMENT
P.O. BOX 373 HONOLULU, HAWAII 96809

TO Mr. James Detor

FROM Robert T. Chuck

DATE June 28, 1982

SUBJECT HGP-A Production Report

MESSAGE:

Attached is a letter from Mr. Wytze Gorter, RCUH, which was inadvertently routed to our office. A letter reply drafted for Sus' signature is also attached for transmittal through your office.

ROBERT T. CHUCK

DL:dh
Attach.

SIGNED

June 29, 1982

Mr. Wytze Gorter
Executive Director
The Research Corporation of the
University of Hawaii
1110 University Avenue
Honolulu, Hawaii 96826

Dear Mr. Gorter:

HGP-A Production Report

Thank you for your letter of May 26, 1982, reporting the geothermal steam, electrical energy, and lease royalty computation as required under Geothermal Mining Lease No. S-4602.

Very truly yours,

SUSUMU ONO
Chairman of the Board

Telephone: (808) 955-6344

2911

The Research Corporation of the University of Hawaii

May 26, 1982

STATE OF HAWAII

Mr. Susumu Ono
Chairman
DEPARTMENT OF LAND AND NATURAL RESOURCES
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Ono:

Pursuant to the Geothermal Mining Lease No. S-4602, we are informing you that the following amounts of geothermal fluid and electricity were produced from HGP-A since June 12, 1981. In addition, the gross revenue and the calculated royalties are included for your information:

DATES	STEAM (Million Lbs)	BRINE (Mlbs)	TOTAL (Mlbs)	NET KWH GENERATED	GROSS REVENUE	ROYALTY
6/12-30, 1981	24.26	24.25	51.19	124,600	$ 498.40	$ 49.84
7/1-31, 1981	40.92	40.92	81.14			
8/1-31, 1981	39.43	42.78	82.21			
9/1-4, 1981	4.59	5.13	9.72			
9/5-12/11, 1981	----------WELL SHUTDOWN----------					
12/11-31, 1981	25.30	42.85	68.15	--	--	--
1/1-31, 1982	37.94	49.99	87.93	116,600	466.40	46.64
2/1-28, 1982	34.27	41.93	76.20	227,400	909.60	90.96
3/1-31, 1982	37.94	45.35	83.29	866,000	46,738.02	4,673.80
4/1-30, 1982	36.72	43.89	80.61	1,440,000	77,716.80	7,771.68

Sincerely,

Wytze Gorter
Executive Director

cc: H. Kono
J. Shupe
S. Kearns
A. Adduci
B. Chen
L. Lopez
N. Oss

402 Varsity Building, 1110 University Avenue, Honolulu, Hawaii 96826