LABORATORY NOTEBOOK

NOTEBOOK NO.

CONTINUED FROM NOTEBOOK NO. CONTINUED TO NOTEBOOK NO.

ASSIGNED TO:

NAME Yi-Ming Pan

SIGNATURE Yi-Ming Pan DATE

DATE ISSUED BY

PHONE EMAIL

COMPANY

DEPARTMENT

ADDRESS

CITY STATE ZIP

DATE NOTEBOOK COMPLETED NUMBER OF PAGES FILLED IN

NOTES: Continuation of Notebook 712

Steve Young / ~~Steve Young~~ / SBY

CNWRA CONTROLLED COPY 732

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BOOK NO. PROJECT

Initial Entry for Crevice Corrosion Repassivation Potential Measurements

Title: Alloy 22 Repassivation Tests

Tests Performed by: Yi-Ming Pan (Div 20); Darrell Dunn and Steve Young (Div 18)

Objectives: Evaluate the effect of post-weld heat treatment on the crevice corrosion repassivation potential for Alloy 22. Solution annealing of test specimens at 1100-1350 °C. Crevice corrosion repassivation potential measurements using potentiostatic hold followed by reverse potentiodynamic sweep and the criteria defined as the potential where the current density remained below $2x10^{-6}$ A/cm^2, as described by Dunn, et al.*

Equipments: Potentiostat (Solartron 1287/1480, EG&G 273, PAR 263 or equivalent); CorrView Software or equivalent; Electrochemical test cells; Keithley 614/617; Laboratory ovens calibrated with thermocouple and thermocouple meter.

Materials: Alloy 22, heat to be identified in each test, under mill-annealed, welded, and solution-annealed conditions.

Specimen Specifications: Specimens will be equivalent to 20-06002-01-322-02 or 20-1402-571-027 or a similar crevice corrosion specimen unless otherwise specified.

Measurement Parameters: Potential and current of specimen during test; Temperature and time of exposure for solution-annealed specimens.

Required Level of Accuracy: Temperature ± 5 °C; Time of exposure ± 1 minute; Potential ± 1 mV; Current ± 0.1 microamp.

Uncertainty and Sources of Error: Current measurement error can occur for localized corrosion processes because the actively corroding area is not the same as the surface area of the test specimen.

* Dunn, D.S., L. Yang, Y.M. Pan, G.A. Cragnolino. Localized Corrosion Susceptibility of Alloy 22. Paper No. 03697. CORROSION 2003, Houston, Texas: NACE. 2003.

INVENTOR SIGNATURE Yi Pan PRINTED NAME DATE 8/22/05

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BOOK NO. PROJECT

Test No.	Material Condition	Chloride Concentration (M)	Test ID
37	weld+1125°C/1h	0.001	SA1HA
38	weld+1125°C/1h	0.01	SA1HB
39	weld+1125°C/1h	0.1	SA1HC
40	weld+1125°C/1h	0.5	SA1HD
41	weld+1125°C/1h	1.0	SA1HE
42	weld+1125°C/1h	4.0	SA1HF
43	weld+1125°C/4h	0.001	SA4HA
44	weld+1125°C/4h	0.01	SA4HB
45	weld+1125°C/4h	0.1	SA4HC
46	weld+1125°C/4h	0.5	SA4HD
47	weld+1125°C/4h	1.0	SA4HE
48	weld+1125°C/4h	4.0	SA4HF

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BOOK NO. PROJECT

Thermally Aged Procedure For Alloy C22

Quanity/Specimens = (12) C22 HT# 2277-3-3292
Roben GTAW welded filler HT# WN813

OVEN= Lindburg, SN: 909172, Model: 51333

OVEN SETPOINT= 1130°C

OVEN TEMPERATURE= 1137° C

SBY 8/2/5

Measurement taken with ~~OMEGA~~ Fisher MICROPROCESSOR THEMOMETER MODEL# N/A
SN#= 41523645 CAL= 6/7/05 DUE= 6/7/06

Thermocouple=
SN: 330 Cal: 7/26/05, Due: 1/26/06

AMOUNT OF TIME = 4 hrs. @ oven set point

DETAILS= Held (6) specimens at temp for 1 hr. and (6) specimens at temp. for 4 hrs. and water quenched all.

All specimens were polished to 600 grit prior to thermally aged proceedure.

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POTENTIAL SCAN AND HOLD

Objective: Same as page 1.

Alloy / Heat No. : C-22 Heat# 2277-3-~~3268~~ 3292 SBY 10/5/05 #20.06002.01.322.002

Specimen Preparation: Specimen machined to dimensions specified in CNWRA Drawing. Specimen surfaces polished to 600 Grit finish using SiC paper. Specimen cleaned in acetone and rinsed in DI water. PTFE crevice forming washers attached to specimen using insulated C-276 hardware. Hardware Torgue to 50 in-oz.

Torque Screwdriver:	Proto 6104 **Cal:** 4/11/05	**SN:** 139072 **Due:** 10/11/05
Initial Weight: 22.03374 g **Final Weight:** 22.03356 g	**Model:** Sartorius Genius **Cal:** 5/11/05	**SN:** 12809099 **Due:** 11/11/05

Solution: 0.001 M NaCl
0.117 g NaCl Lot: 045904
+ DI. to 2L

Reagents measured with	**Model:** OHAUS **Cal:** 7/12/05	**SN:** 2883 **Due:** 1/12/06
Initial pH: 5.8 **Final pH:** 7.9	**Model:** Orion EA 940 **Cal:** 7/25/05 **pH Probe:** #13-620-296	**SN:** 2330 **Due:** 7/25/06 **SN:** 4079126
Test Temperature: 95° C	**Measured with Hg Thermometer** **Cal:** 10/14/04	**SN:** 323007 **Due:** 10/14/05

Counter Electrode: Platinum Flag

Reference Electrode: Fisher 13-620-52 **SN:** 4028036

Gas: 99.999% Nitrogen Gas

Ecorr: -323 mV$_{SCE}$ **Ept:** -80 mV$_{SCE}$	**Model:** Keithley 617 **Cal:** 5/27/05	**SN:** 537418 **Due:** 11/25/05
Potentiostat: Solartron 1480		**SN:** 00240551

DATA FILE: C22SA1HA

Number of Crevice Corrosion Sites: 0 /24 (24 max.)

Very light staining only.

* Repolish for further testing.

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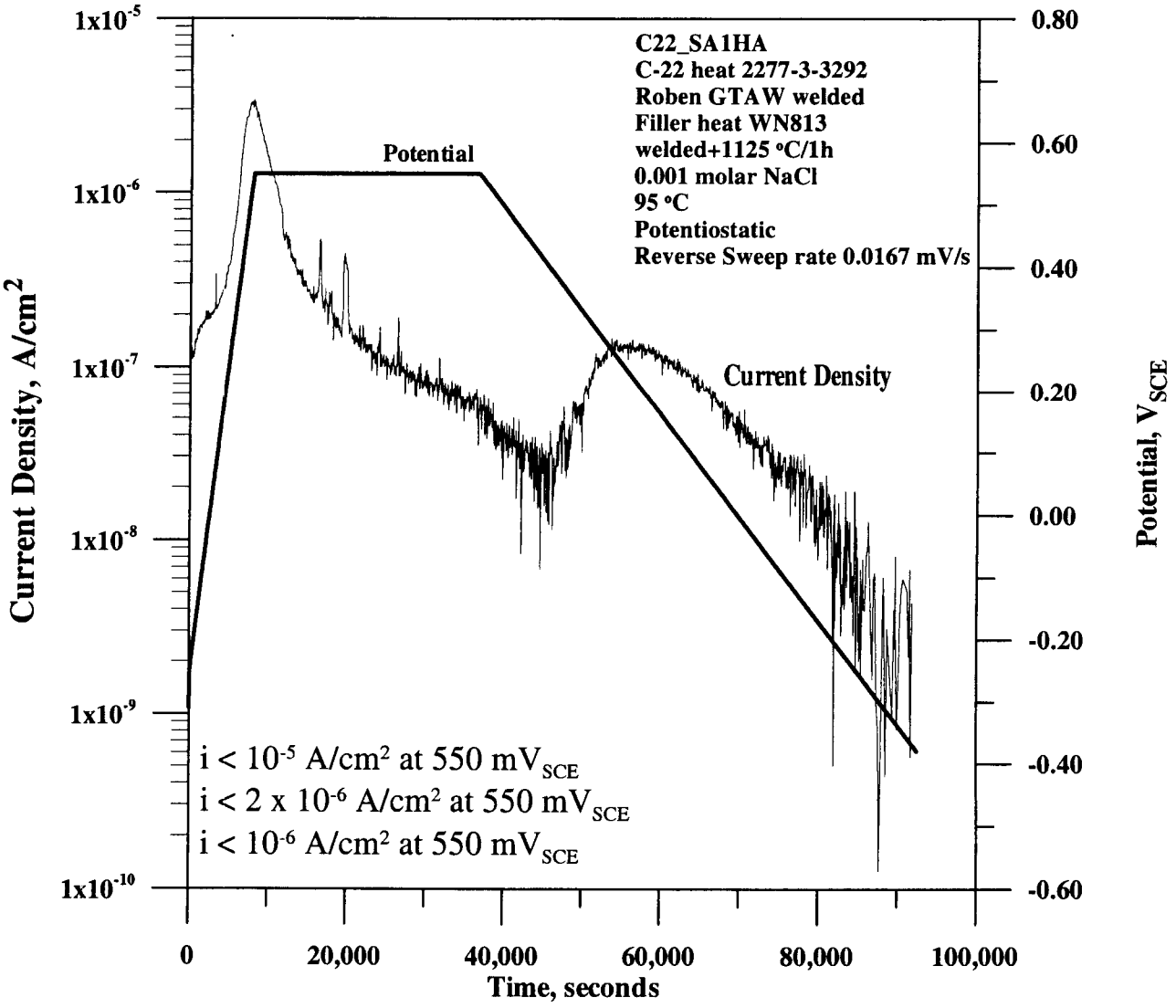

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POTENTIAL SCAN AND HOLD

Objective: Same as page 1.

Alloy / Heat No. : C-22 Heat# 2277-3-~~3266~~ 3292 SBY 10/5/05 #20.06002.01.322.002

Specimen Preparation: Specimen machined to dimensions specified in CNWRA Drawing. Specimen surfaces polished to 600 Grit finish using SiC paper. Specimen cleaned in acetone and rinsed in DI water. PTFE crevice forming washers attached to specimen using insulated C-276 hardware. Hardware Torgue to 50 in-oz.

Torque Screwdriver:	Proto 6104 **Cal:** 4/11/05	**SN:** 139072 **Due:** 10/11/05
Initial Weight: 21.53339 g **Final Weight:** 21.53160 g	**Model:** Sartorius Genius **Cal:** 05/11/05	**SN:** 12809099 **Due:** 11/11/05

Solution: 0.01M NaCl
1.168g NaCl Lot: 045904
+ DI. to 2L

Reagents measured with	**Model:** OHAUS **Cal:** 7/12/05	**SN:** 2883 **Due:** 1/12/06
Initial pH: 5.7 **Final pH:** 7.9	**Model:** Orion EA 940 **Cal:** 7/25/05 **pH Probe:** #13-620-296	**SN:** 2330 **Due:** 7/25/06 **SN:** 4079126
Test Temperature: 95°C	**Measured with Hg Thermometer** **Cal:** 5/06/05	**SN:** H98-182 **Due:** 5/05/06

Counter Electrode: Platinum Flag

Reference Electrode: Fisher 13-620-51 **SN:** 7282317

Gas: 99.999% Nitrogen Gas

Ecorr: -382 mVSCE **Ept:** -5.8mVSCE	**Model:** Keithley 617 **Cal:** 5/27/05	**SN:** 537418 **Due:** 11/25/05
Potentiostat: Solartron 1480		**SN:** 00240551

DATA FILE: C22SA1HB

Number of Crevice Corrosion Sites: Ø /24 (24 max.)

Very light staining only.

* Repolish for further testing.

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	Steve Young	8/23/05
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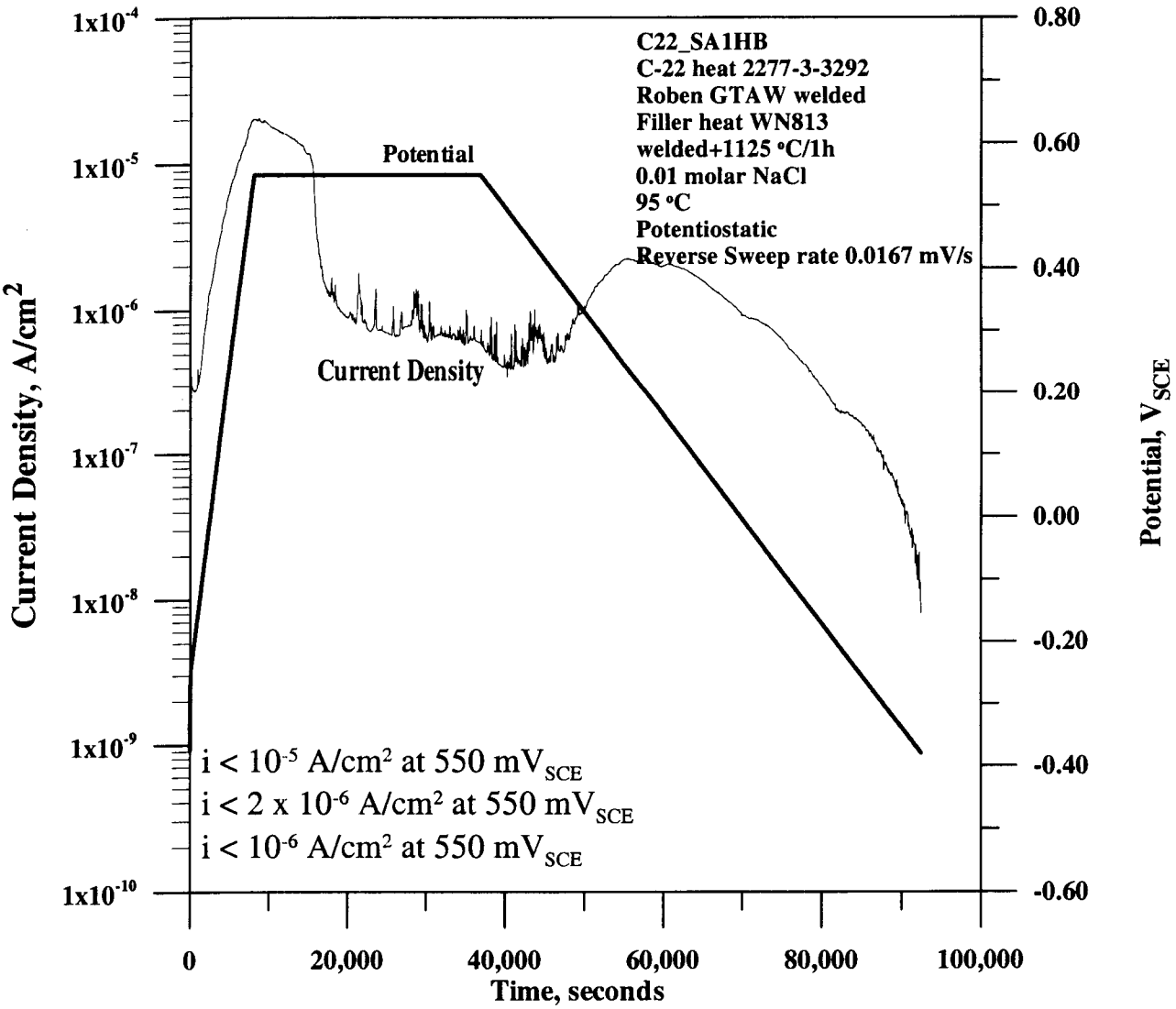

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POTENTIAL SCAN AND HOLD

Objective: Same as page 1.

Alloy / Heat No. : C-22 Heat# 2277-3-~~3266~~ 3292 SBY 10/5/05 #20.06002.01.322.002

Specimen Preparation: Specimen machined to dimensions specified in CNWRA Drawing. Specimen surfaces polished to 600 Grit finish using SiC paper. Specimen cleaned in acetone and rinsed in DI water. PTFE crevice forming washers attached to specimen using insulated C-276 hardware. Hardware Torgue to 50 in-oz.

Torque Screwdriver:	Proto 6104 **Cal:** 4/11/05	**SN:** 139072 **Due:** 10/11/05
Initial Weight: 22.26762 g **Final Weight:** 22.25765 g	**Model:** Sartorius Genius **Cal:** 5/11/05	**SN:** 12809099 **Due:** 11/11/05

Solution: 0.1M NaCl
11.689 g NaCl Lot: 045904
+ DI. to 2L

Reagents measured with	**Model:** OHAUS **Cal:** 7/12/05	**SN:** 2883 **Due:** 1/12/06
Initial pH: 5.6 **Final pH:** 8.2	**Model:** Orion EA 940 **Cal:** 7/25/05 **pH Probe:** #13-620-296	**SN:** 2330 **Due:** 7/25/06 **SN:** 4079126
Test Temperature: 95°C	**Measured with Hg Thermometer** **Cal:** 10/14/04	**SN:** 323007 **Due:** 10/14/05

Counter Electrode: Platinum Flag

Reference Electrode: Fisher 13-620-52 **SN:** 4028036

Gas: 99.999% Nitrogen Gas

Ecorr: −470 mV$_{SCE}$ **Ept:** +110 mV$_{SCE}$	**Model:** Keithley 617 **Cal:** 5/27/05	**SN:** 537418 **Due:** 11/25/05
Potentiostat: Solartron 1480		**SN:** 00240551

DATA FILE: C22SA1HC

Number of Crevice Corrosion Sites: 1 /24 (24 max.)

One crevice corrosion site.
Light staining.

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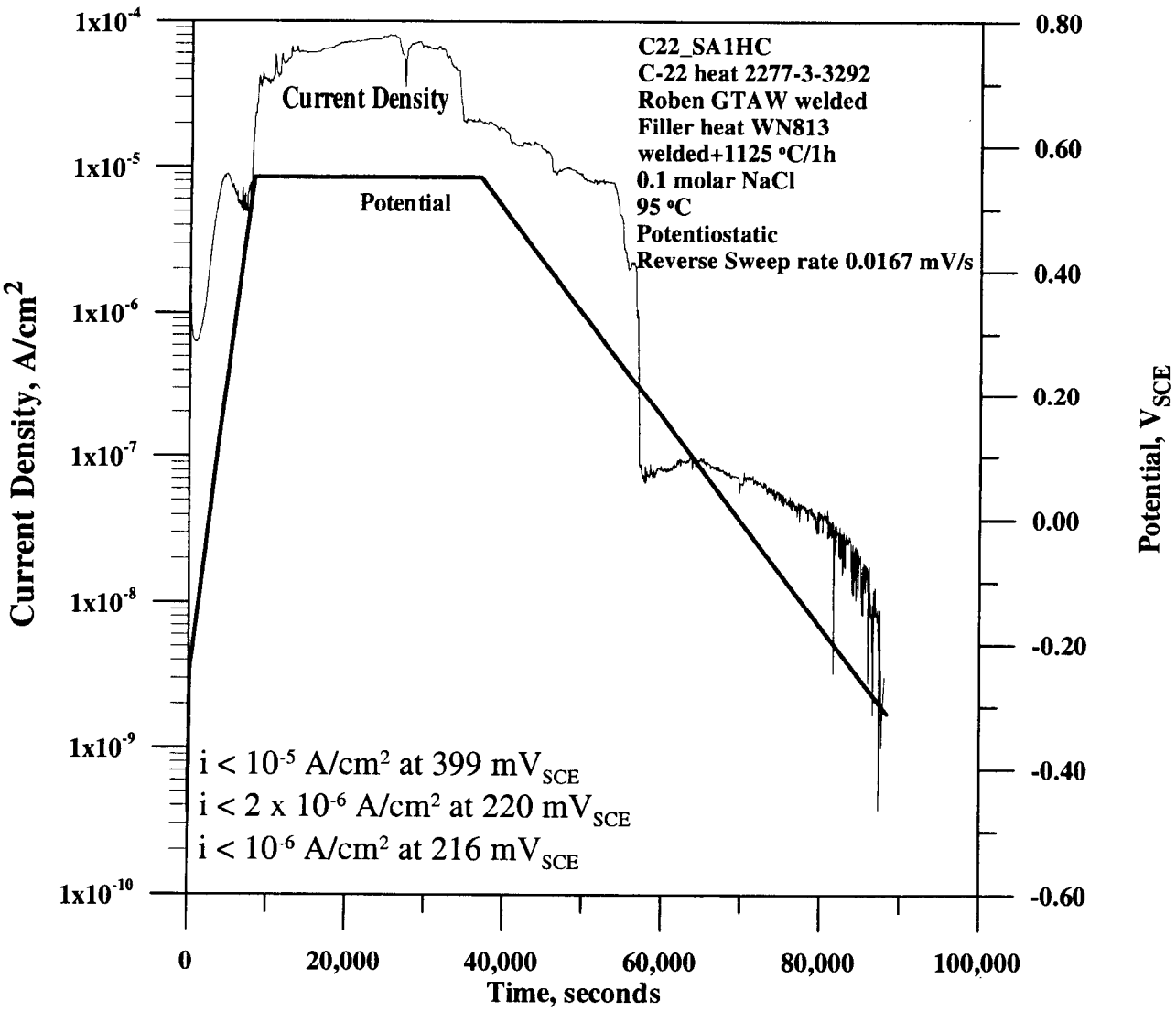

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POTENTIAL SCAN AND HOLD

Objective: Same as page 1.

Alloy / Heat No. : C-22 Heat# 2277-3-~~3266~~ 3292 SBY 10/5/05 #20.06002.01.322.002

Specimen Preparation: Specimen machined to dimensions specified in CNWRA Drawing. Specimen surfaces polished to 600 Grit finish using SiC paper. Specimen cleaned in acetone and rinsed in DI water. PTFE crevice forming washers attached to specimen using insulated C-276 hardware. Hardware Torgue to 50 in-oz.

Torque Screwdriver:	Proto 6104 **Cal:** 4/11/05	**SN:** 139072 **Due:** 10/11/05
Initial Weight: 22.71584 g **Final Weight:** 22.29647 g	**Model:** Sartorius Genius **Cal:** 05/11/05	**SN:** 12809099 **Due:** 11/11/05

Solution: 0.5M NaCl
58.44g NaCl Lot: 045904
+ DI. to 2L

Reagents measured with	**Model:** OHAUS **Cal:** 7/12/05	**SN:** 2883 **Due:** 1/12/06
Initial pH: 6.0 **Final pH:** 8.3	**Model:** Orion EA 940 **Cal:** 7/25/05 **pH Probe:** #13-620-296	**SN:** 2330 **Due:** 7/25/06 **SN:** 4079126
Test Temperature: 95°C	**Measured with Hg Thermometer** **Cal:** 5/06/05	**SN:** H98-182 **Due:** 5/05/06

Counter Electrode: Platinum Flag

Reference Electrode: Fisher 13-620-51 **SN:** 7282317

Gas: 99.999% Nitrogen Gas

Ecorr: − 530 mV_{SCE} **Ept:** + 144 mV_{SCE}	**Model:** Keithley 617 **Cal:** 5/27/05	**SN:** 537418 **Due:** 11/25/05
Potentiostat: Solartron 1480		**SN:** 00240551

DATA FILE: C22SA1HD

Number of Crevice Corrosion Sites: 1 /24 (24 max.)

One crevice corrosion site.

Mild staining.

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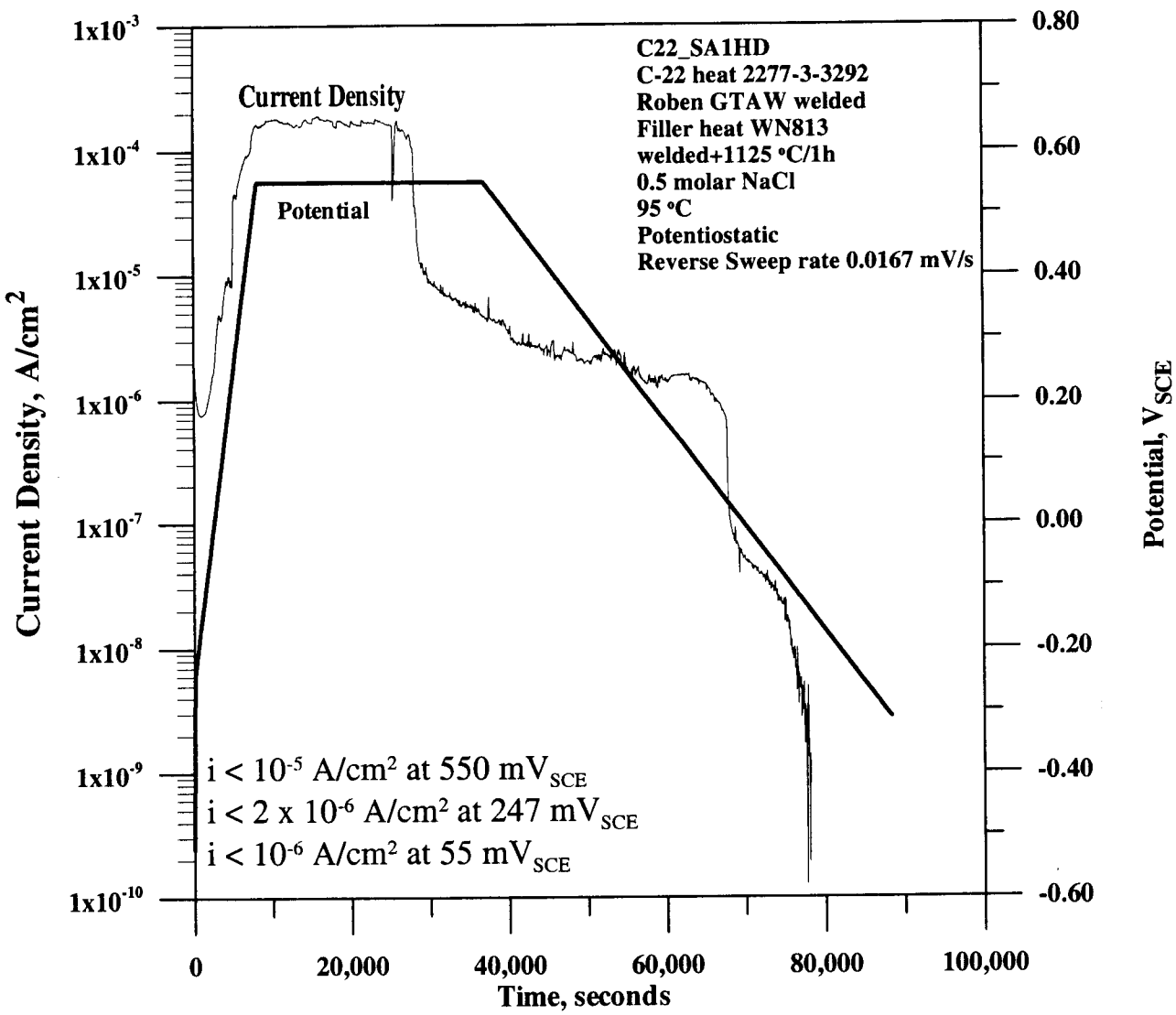

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POTENTIAL SCAN AND HOLD

Objective: Same as page 1.

Alloy / Heat No. : C-22 Heat# 2277-3-~~3200~~ 3292 SBY 10/5/05 #20.06002.01.322.002

Specimen Preparation: Specimen machined to dimensions specified in CNWRA Drawing. Specimen surfaces polished to 600 Grit finish using SiC paper. Specimen cleaned in acetone and rinsed in DI water. PTFE crevice forming washers attached to specimen using insulated C-276 hardware. Hardware Torgue to 50 in-oz.

Torque Screwdriver: Proto 6104 **SN:** 139072
Cal: 4/11/05 **Due:** 10/11/05

Initial Weight: 21.43450 g **Model:** Sartorius Genius **SN:** 12809099
Final Weight: 21.41288 g **Cal:** 5/11/05 **Due:** 11/11/05

Solution: 1M NaCl
116.88g NaCl Lot: 051510
+ DI to 2L

Reagents measured with **Model:** OHAUS **SN:** 2883
Cal: 7/12/05 **Due:** 1/12/06

Initial pH: 6.0 **Model:** Orion EA 940 **SN:** 2330
Final pH: 8.0 **Cal:** 7/25/05 **Due:** 7/25/06
pH Probe: #13-620-296 **SN:** 4079126

Test Temperature: 95°C **Measured with Hg Thermometer** **SN:** 323007
Cal: 10/14/04 **Due:** 10/14/05

Counter Electrode: Platinum Flag

Reference Electrode: Fisher 13-620-52 **SN:** 4028036

Gas: 99.999% Nitrogen Gas

Ecorr: -484 mV SCE **Model:** Keithley 617 **SN:** 537418
Ept: +80.6 mV SCE **Cal:** 5/27/05 **Due:** 11/25/05

Potentiostat: Solartron 1480 **SN:** 00240551

DATA FILE: C22SA1HE

Number of Crevice Corrosion Sites: 5 /24 (24 max.)

Five crevice corrosion sites.

Mild staining.

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	Steve Young	8/23/05
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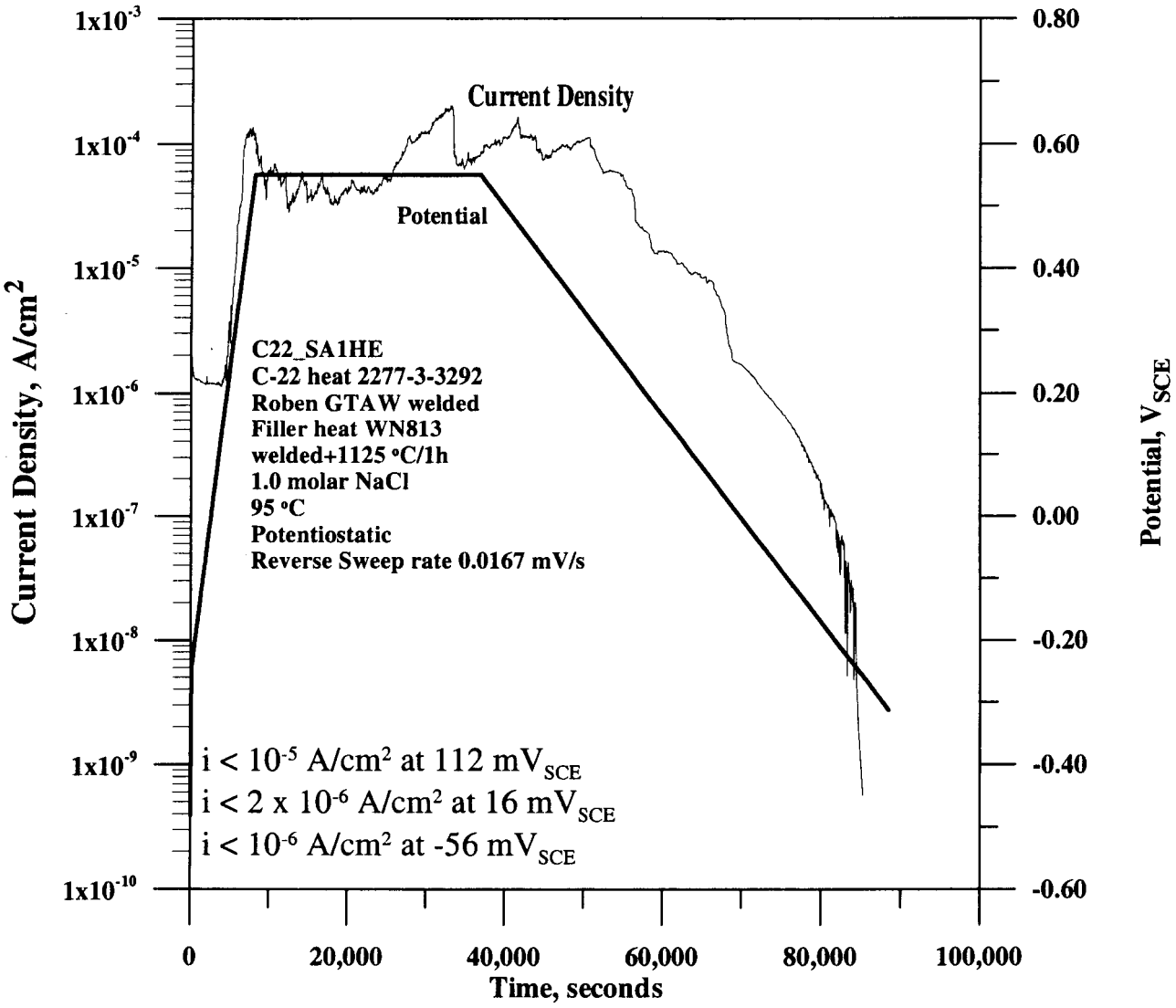

INVENTOR SIGNATURE	PRINTED NAME	DATE
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POTENTIAL SCAN AND HOLD

Objective: Same as page 1.

Alloy / Heat No. : C-22 Heat# 2277-3-~~3266~~ 3292 SBY 10/5/05 #20.06002.01.322.002

Specimen Preparation: Specimen machined to dimensions specified in CNWRA Drawing. Specimen surfaces polished to 600 Grit finish using SiC paper. Specimen cleaned in acetone and rinsed in DI water. PTFE crevice forming washers attached to specimen using insulated C-276 hardware. Hardware Torgue to 50 in-oz.

Torque Screwdriver:	Proto 6104 **Cal:** 4/11/05	**SN:** 139072 **Due:** 10/11/05
Initial Weight: 21.85067g **Final Weight:** 21.77844g	**Model:** Sartorius Genius **Cal:** 05/11/05	**SN:** 12809099 **Due:** 11/11/05

Solution: 4M NaCl
467.52g NaCl Lot: 051510
+ DI. to 2L

Reagents measured with	**Model:** OHAUS **Cal:** 7/12/05	**SN:** 2883 **Due:** 1/12/06
Initial pH: 6.4 **Final pH:** 7.5	**Model:** Orion EA 940 **Cal:** 7/25/05 **pH Probe:** #13-620-296	**SN:** 2330 **Due:** 7/25/06 **SN:** 4079126
Test Temperature: 95° C	**Measured with Hg Thermometer** **Cal:** 5/06/05	**SN:** H98-182 **Due:** 5/05/06

Counter Electrode: Platinum Flag

Reference Electrode: Fisher 13-620-51 **SN:** 7282317

Gas: 99.999% Nitrogen Gas

Ecorr: −327 mVSCE **Ept:** +154 mVSCE	**Model:** Keithley 617 **Cal:** 5/27/05	**SN:** 537418 **Due:** 11/25/05
Potentiostat: Solartron 1480		**SN:** 00240551

DATA FILE: C22SA1HF

Number of Crevice Corrosion Sites: 10 /24 (24 max.)

Ten crevice corrosion sites.

Mild staining.

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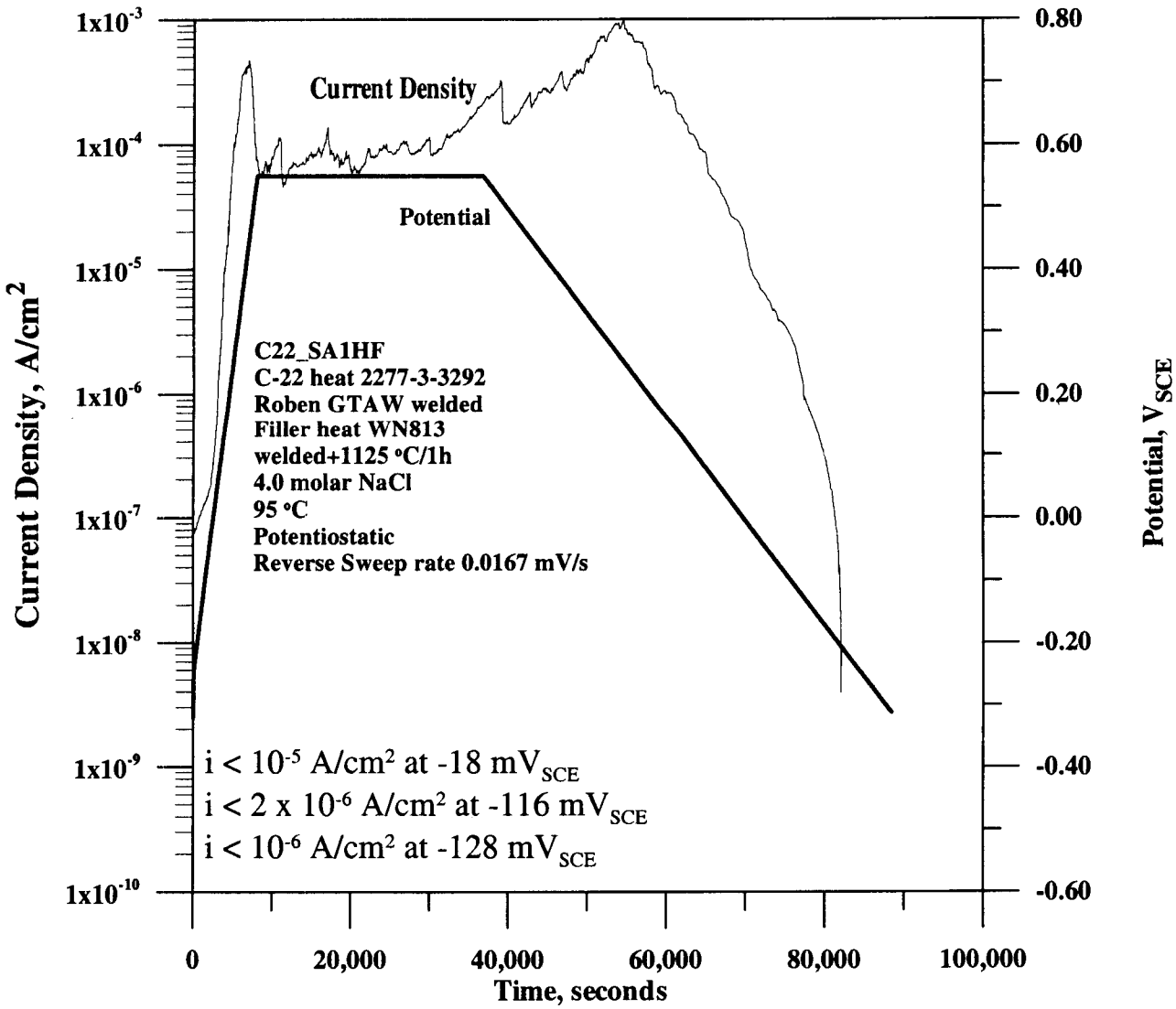

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POTENTIAL SCAN AND HOLD

Objective: Same as page 1.

Alloy / Heat No. : C-22 Heat# 2277-3-~~3266~~ 3292 SBY 10/5/05 #20.06002.01.322.002

Specimen Preparation: Specimen machined to dimensions specified in CNWRA Drawing. Specimen surfaces polished to 600 Grit finish using SiC paper. Specimen cleaned in acetone and rinsed in DI water. PTFE crevice forming washers attached to specimen using insulated C-276 hardware. Hardware Torgue to 50 in-oz.

Torque Screwdriver:	Proto 6104 **Cal:** 4/11/05	**SN:** 139072 **Due:** 10/11/05
Initial Weight: 20.29973 g **Final Weight:** 20.29950 g	**Model:** Sartorius Genius **Cal:** 5/11/05	**SN:** 12809099 **Due:** 11/11/05

Solution: 0.001 M NaCl
0.119 g NaCl Lot: 051510
+ DI to 2L

Reagents measured with	**Model:** OHAUS **Cal:** 7/12/05	**SN:** 2883 **Due:** 1/12/06
Initial pH: 6.0 **Final pH:** 7.4	**Model:** Orion EA 940 **Cal:** 7/25/05 **pH Probe:** #13-620-296	**SN:** 2330 **Due:** 7/25/06 **SN:** 4079126
Test Temperature: 95°C	**Measured with Hg Thermometer** **Cal:** 10/14/04	**SN:** 323007 **Due:** 10/14/05

Counter Electrode: Platinum Flag

Reference Electrode: Fisher 13-620-52 **SN:** 4028036

Gas: 99.999% Nitrogen Gas

Ecorr: -507 mV_{SCE} **Ept:** -455 mV_{SCE}	**Model:** Keithley 617 **Cal:** 5/27/05	**SN:** 537418 **Due:** 11/25/05

Potentiostat: Solartron 1480 **SN:** 00240551

DATA FILE: C22SA4HA

Number of Crevice Corrosion Sites: Ø /24 (24 max.)

Very light staining only.

* Repolish for further testing.

INVENTOR SIGNATURE	PRINTED NAME	DATE
	Steve Young	8/24/05
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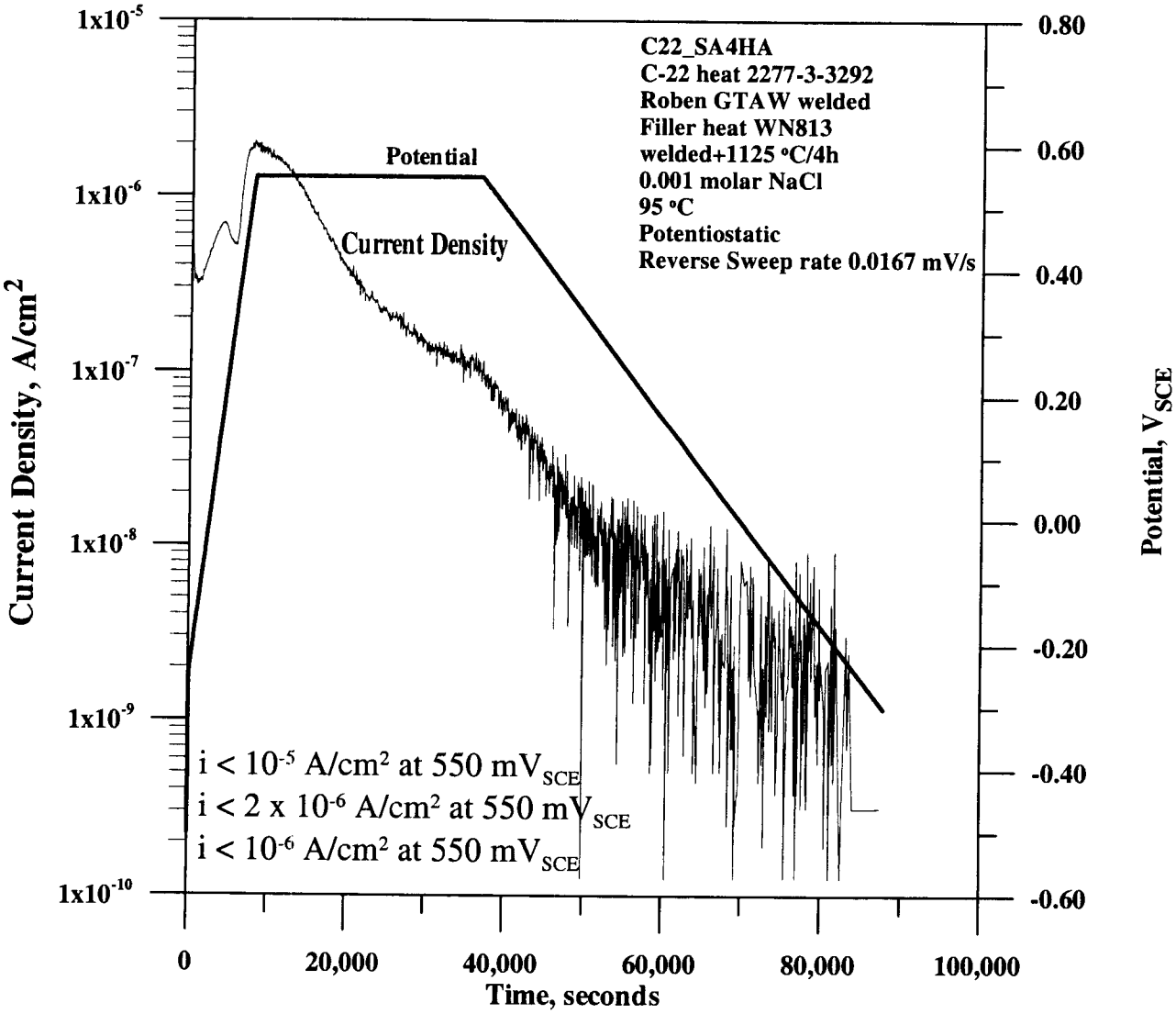

INVENTOR SIGNATURE | PRINTED NAME | DATE

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POTENTIAL SCAN AND HOLD

Objective: Same as page 1.

Alloy / Heat No. : C-22 Heat# 2277-3-~~3266~~ 3292 SBY 10/5/05 #20.06002.01.322.002

Specimen Preparation: Specimen machined to dimensions specified in CNWRA Drawing. Specimen surfaces polished to 600 Grit finish using SiC paper. Specimen cleaned in acetone and rinsed in DI water. PTFE crevice forming washers attached to specimen using insulated C-276 hardware. Hardware Torgue to 50 in-oz.

Torque Screwdriver: Proto 6104 **SN:** 139072
Cal: 4/11/05 **Due:** 10/11/05

Initial Weight: 21.45334g **Model:** Sartorius Genius **SN:** 12809099
Final Weight: 21.45289g **Cal:** 05/11/05 **Due:** 11/11/05

Solution: 0.01 M NaCl
1.166g NaCl Lot: 051510
+ DI to 2L

Reagents measured with **Model:** OHAUS **SN:** 2883
Cal: 7/12/05 **Due:** 1/12/06

Initial pH: 5.8 **Model:** Orion EA 940 **SN:** 2330
Final pH: 7.7 **Cal:** 7/25/05 **Due:** 7/25/06
pH Probe: #13-620-296 **SN:** 4079126

Test Temperature: 95°C **Measured with Hg Thermometer** **SN:** H98-182
Cal: 5/06/05 **Due:** 5/05/06

Counter Electrode: Platinum Flag

Reference Electrode: Fisher 13-620-51 **SN:** 7282317

Gas: 99.999% Nitrogen Gas

Ecorr: -552 mV$_{SCE}$ **Model:** Keithley 617 **SN:** 537418
Ept: -307 mV$_{SCE}$ **Cal:** 5/27/05 **Due:** 11/25/05

Potentiostat: Solartron 1480 **SN:** 00240551

DATA FILE: C22SA4HB

Number of Crevice Corrosion Sites: 0 /24 (24 max.)

Very light staining only.

*Repolish for further testing.

INVENTOR SIGNATURE	PRINTED NAME	DATE
	Steve Young	8/24/05
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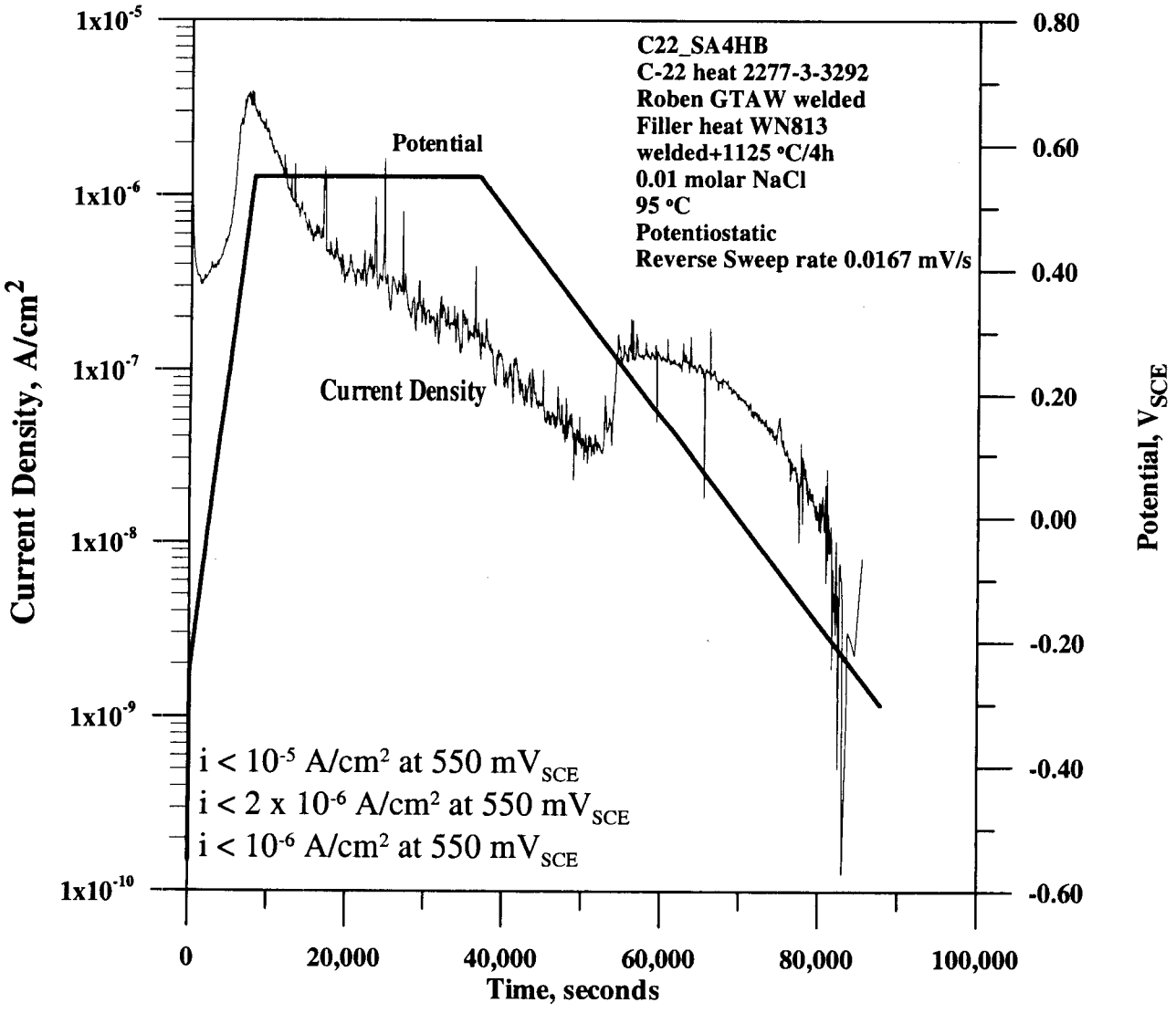

INVENTOR SIGNATURE	PRINTED NAME	DATE
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POTENTIAL SCAN AND HOLD

Objective: Same as page 1.

Alloy / Heat No. : C-22 Heat# 2277-3-~~3266~~ 3292 SBY 10/5/05 #20.06002.01.322.002

Specimen Preparation: Specimen machined to dimensions specified in CNWRA Drawing. Specimen surfaces polished to 600 Grit finish using SiC paper. Specimen cleaned in acetone and rinsed in DI water. PTFE crevice forming washers attached to specimen using insulated C-276 hardware. Hardware Torgue to 50 in-oz.

Torque Screwdriver:	Proto 6104 **Cal:** 4/11/05	**SN:** 139072 **Due:** 10/11/05
Initial Weight: 22.23766g **Final Weight:** 22.23755g	**Model:** Sartorius Genius **Cal:** 5/11/05	**SN:** 12809099 **Due:** 11/11/05

Solution: 0.1M NaCl
11.686g NaCl Lot: 051510
+ DI to 2L

Reagents measured with	**Model:** OHAUS **Cal:** 7/12/05	**SN:** 2883 **Due:** 1/12/06
Initial pH: 6.8 **Final pH:** 8.7	**Model:** Orion EA 940 **Cal:** 7/25/05 **pH Probe:** #13-620-296	**SN:** 2330 **Due:** 7/25/06 **SN:** 4079126
Test Temperature: 95°C	**Measured with Hg Thermometer** **Cal:** 10/14/04	**SN:** 323007 **Due:** 10/14/05

Counter Electrode: Platinum Flag

Reference Electrode: Fisher 13-620-52 **SN:** 4028036

Gas: 99.999% Nitrogen Gas

Ecorr: -450 mVSCE **Ept:** -157 mVSCE	**Model:** Keithley 617 **Cal:** 5/27/05	**SN:** 537418 **Due:** 11/25/05
Potentiostat: Solartron 1480		**SN:** 00240551

DATA FILE: C22SA4HC

Number of Crevice Corrosion Sites: 0 /24 (24 max.)

Mild staining only.

*Repolish for further testing.

INVENTOR SIGNATURE	PRINTED NAME	DATE
	Steve Young	8/24/05
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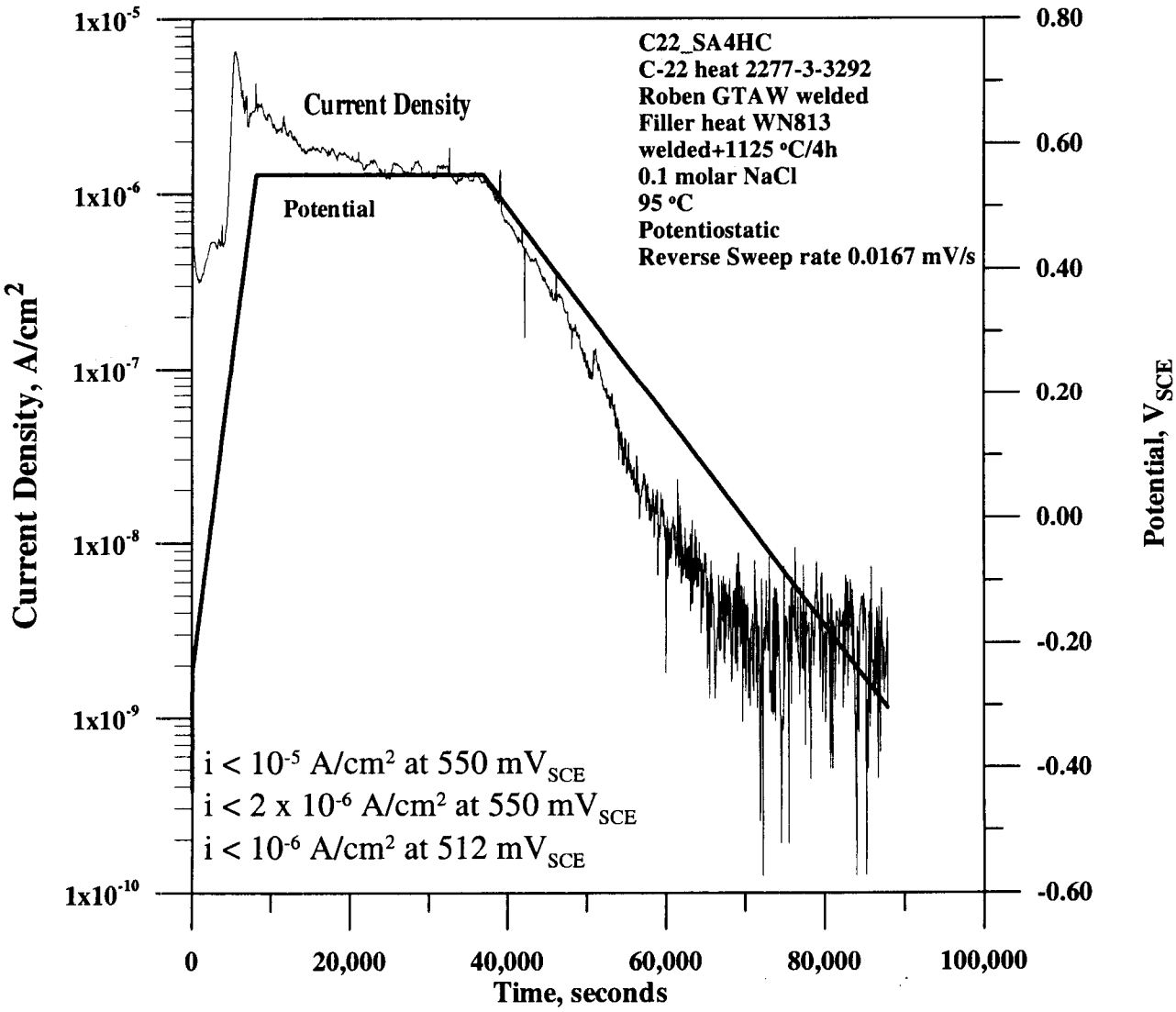

INVENTOR SIGNATURE	PRINTED NAME	DATE
	Steve Young	10/13/05
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POTENTIAL SCAN AND HOLD

Objective: Same as page 1.

Alloy / Heat No. : C-22 Heat# 2277-3-~~3266~~ 3292 SBY 10/5/05 #20.06002.01.322.002

Specimen Preparation: Specimen machined to dimensions specified in CNWRA Drawing. Specimen surfaces polished to 600 Grit finish using SiC paper. Specimen cleaned in acetone and rinsed in DI water. PTFE crevice forming washers attached to specimen using insulated C-276 hardware. Hardware Torgue to 50 in-oz.

Torque Screwdriver: Proto 6104 **SN:** 139072
Cal: 4/11/05 **Due:** 10/11/05

Initial Weight: 22.01079g **Model:** Sartorius Genius **SN:** 12809099
Final Weight: 22.01007g **Cal:** 05/11/05 **Due:** 11/11/05

Solution: 0.5M NaCl
58.44g Lot: 051510
+ DI to 2L

Reagents measured with **Model:** OHAUS **SN:** 2883
Cal: 7/12/05 **Due:** 1/12/06

Initial pH: 7.0 **Model:** Orion EA 940 **SN:** 2330
Final pH: 7.6 **Cal:** 7/25/05 **Due:** 7/25/06
pH Probe: #13-620-296 **SN:** 4079126

Test Temperature: 95°C **Measured with Hg Thermometer** **SN:** H98-182
Cal: 5/06/05 **Due:** 5/05/06

Counter Electrode: Platinum Flag

Reference Electrode: Fisher 13-620-51 **SN:** 7282317

Gas: 99.999% Nitrogen Gas

Ecorr: −372 mVSCE **Model:** Keithley 617 **SN:** 537418
Ept: +47 mVSCE **Cal:** 5/27/05 **Due:** 11/25/05

Potentiostat: Solartron 1480 **SN:** 00240551

DATA FILE: C22SA4HD

Number of Crevice Corrosion Sites: Ø /24 (24 max.)

Mild staining only.

* Repolish for further testing.

INVENTOR SIGNATURE	PRINTED NAME	DATE
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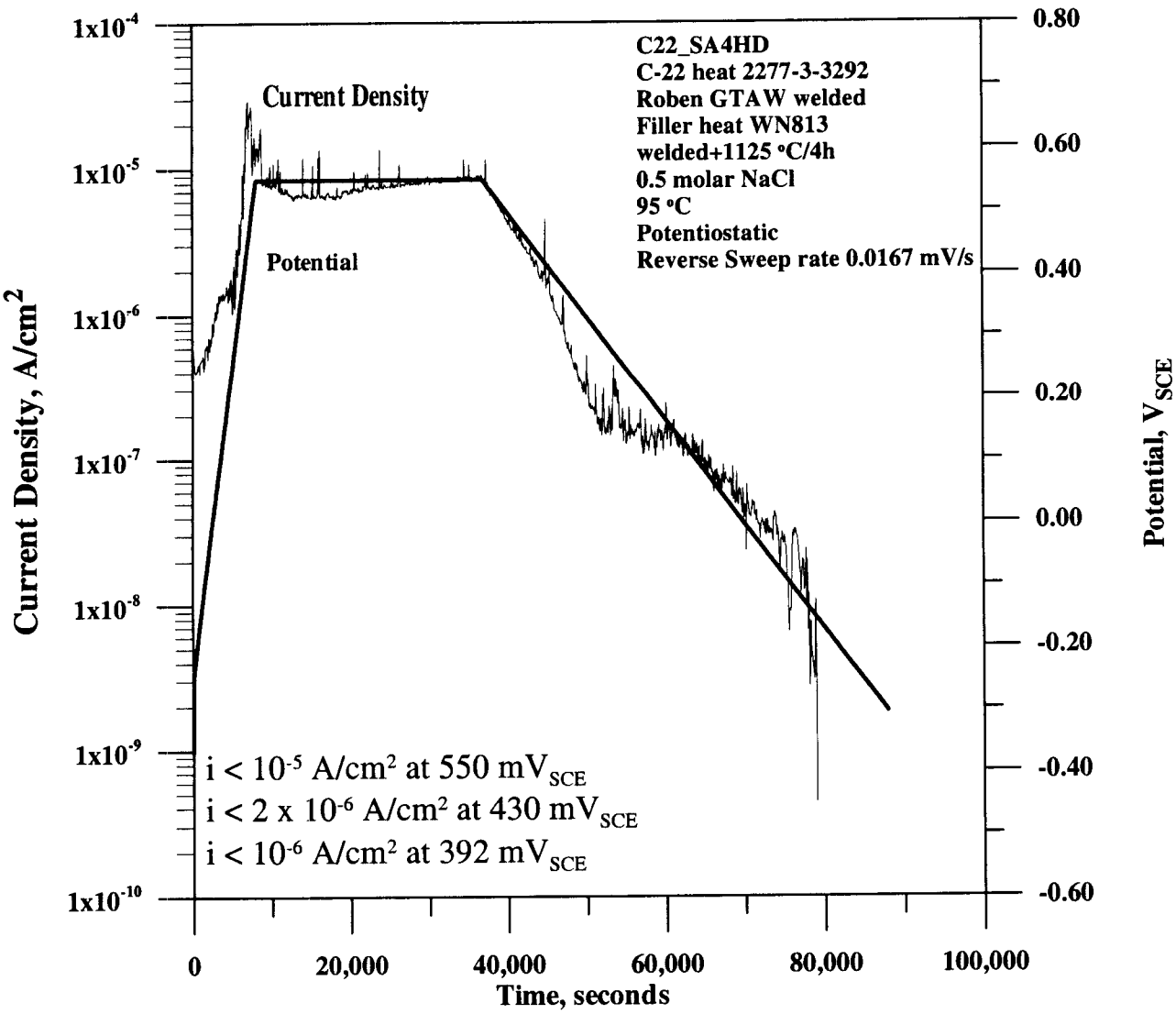

INVENTOR SIGNATURE	PRINTED NAME	DATE
	Steve Young	10/13/05
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POTENTIAL SCAN AND HOLD

Objective: Same as page 1.

Alloy / Heat No. : C-22 Heat# 2277-3-~~3266~~ 3292 SBY 10/5/05 #20.06002.01.322.002

Specimen Preparation: Specimen machined to dimensions specified in CNWRA Drawing. Specimen surfaces polished to 600 Grit finish using SiC paper. Specimen cleaned in acetone and rinsed in DI water. PTFE crevice forming washers attached to specimen using insulated C-276 hardware. Hardware Torgue to 50 in-oz.

Torque Screwdriver:	Proto 6104 **Cal:** 4/11/05	**SN:** 139072 **Due:** 10/11/05
Initial Weight: 21.36110 g **Final Weight:** 21.34722 g	**Model:** Sartorius Genius **Cal:** 5/11/05	**SN:** 12809099 **Due:** 11/11/05

Solution: 1 M NaCl
116.88g NaCl Lot: 051510
+ DI to 2L

Reagents measured with	**Model:** OHAUS **Cal:** 7/12/05	**SN:** 2883 **Due:** 1/12/06
Initial pH: 5.9 **Final pH:** 8.0	**Model:** Orion EA 940 **Cal:** 7/25/05 **pH Probe:** #13-620-296	**SN:** 2330 **Due:** 7/25/06 **SN:** 4079126
Test Temperature: 95° C	**Measured with Hg Thermometer** **Cal:** 10/14/04	**SN:** 323007 **Due:** 10/14/05

Counter Electrode: Platinum Flag

Reference Electrode: Fisher 13-620-52 **SN:** 4028036

Gas: 99.999% Nitrogen Gas

Ecorr: -344 mVSCE **Ept:** -18 mVSCE	**Model:** Keithley 617 **Cal:** 5/27/05	**SN:** 537418 **Due:** 11/25/05

Potentiostat: Solartron 1480 **SN:** 00240551

DATA FILE: C22SA4HE

Number of Crevice Corrosion Sites: 3 /24 (24 max.)

Three crevice corrosion sites.

Golden-brown staining.

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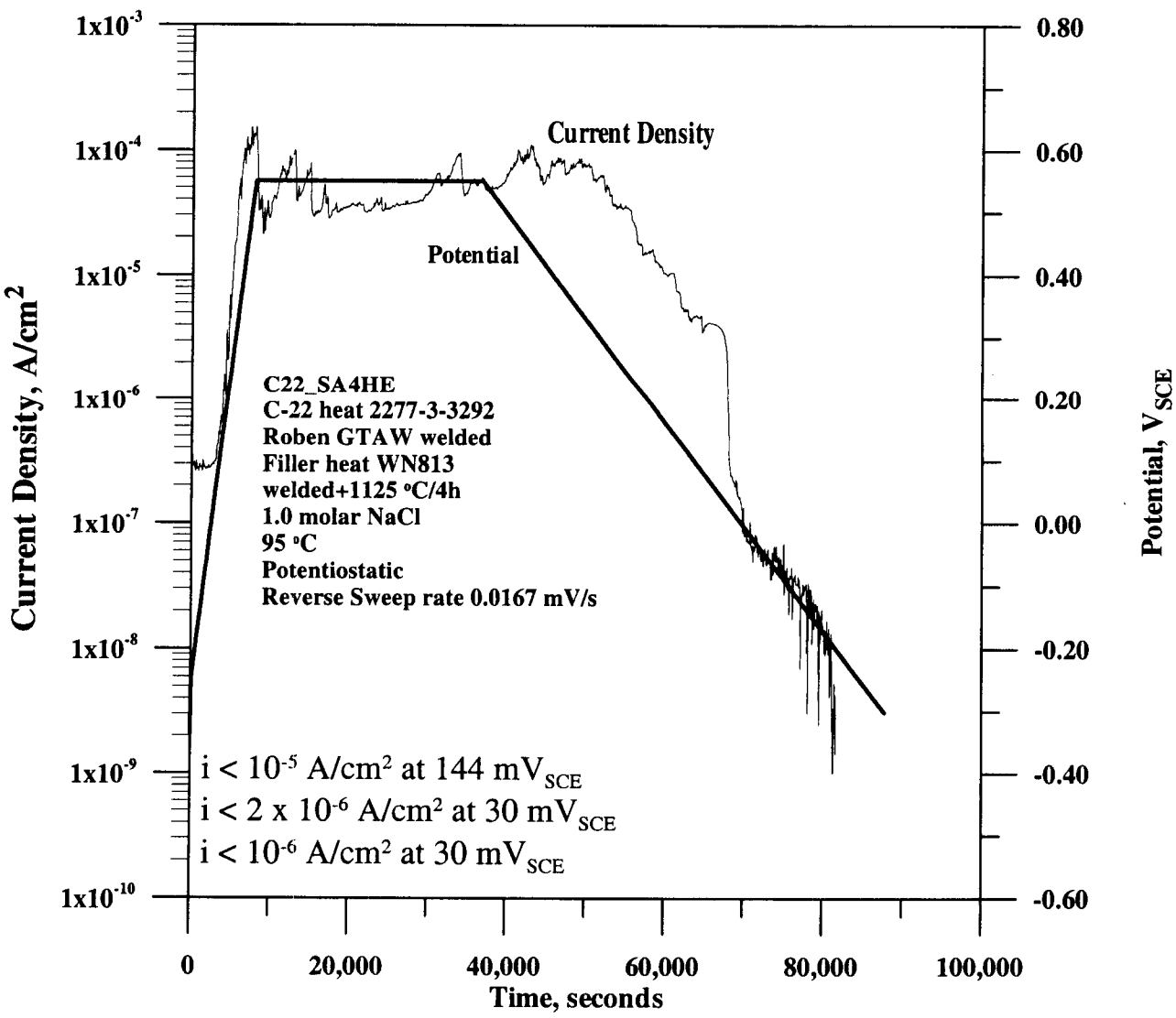

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POTENTIAL SCAN AND HOLD

Objective: Same as page 1.

Alloy / Heat No. : C-22 Heat# 2277-3-~~3266~~ 3292 SBY 10/5/05 #20.06002.01.322.002

Specimen Preparation: Specimen machined to dimensions specified in CNWRA Drawing. Specimen surfaces polished to 600 Grit finish using SiC paper. Specimen cleaned in acetone and rinsed in DI water. PTFE crevice forming washers attached to specimen using insulated C-276 hardware. Hardware Torgue to 50 in-oz.

Torque Screwdriver:	Proto 6104 **Cal:** 4/11/05	**SN:** 139072 **Due:** 10/11/05
Initial Weight: 20.23652g **Final Weight:** 20.18651g	**Model:** Sartorius Genius **Cal:** 05/11/05	**SN:** 12809099 **Due:** 11/11/05

Solution: 4M NaCl
467.52g NaCl Lot: 051510
+ DI to 2L

Reagents measured with	**Model:** OHAUS **Cal:** 7/12/05	**SN:** 2883 **Due:** 1/12/06
Initial pH: 6.2 **Final pH:** 7.5	**Model:** Orion EA 940 **Cal:** 7/25/05 **pH Probe:** #13-620-296	**SN:** 2330 **Due:** 7/25/06 **SN:** 4079126
Test Temperature: 95° C	**Measured with Hg Thermometer** **Cal:** 5/06/05	**SN:** H98-182 **Due:** 5/05/06

Counter Electrode: Platinum Flag

Reference Electrode: Fisher 13-620-51 **SN:** 7282317

Gas: 99.999% Nitrogen Gas

Ecorr: −294 mV$_{SCE}$ Ept: +126 mV$_{SCE}$	**Model:** Keithley 617 **Cal:** 5/27/05	**SN:** 537418 **Due:** 11/25/05

Potentiostat: Solartron 1480 **SN:** 00240551

DATA FILE: C22SA4HF

Number of Crevice Corrosion Sites: 12 /24 (24 max.)

Twelve crevice corrosion sites.

Gold tint staining.

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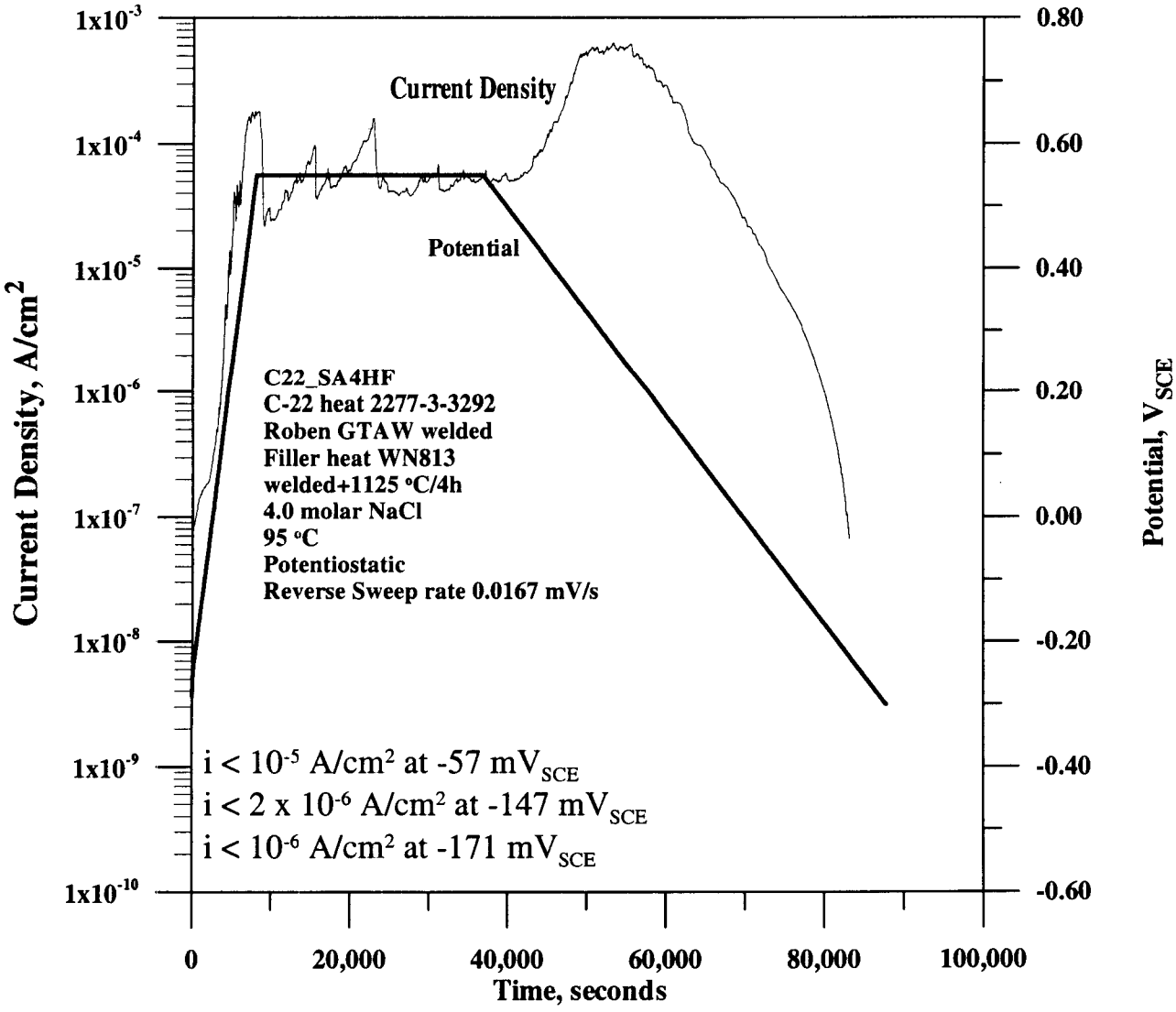

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