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4-10-06 * LPI W&P CHECK *

Resin 73 % Reagents 46 % STD 10 %

- Replaced Reagents U2 CPD SiO_2 analyzer
- Replaced Reagents U1 Boiler SiO_2 analyzer
- Replaced Resin U1 Econ Inlet CAT Cond Analyzer

4-11-06 Calibrated U3 Sodium Analyzers

Boiler slope 98 % CPD Sfe 102 %

Calibrated Demin Nat Analyzer

Slope 59.2 Fe 121

- New Solution, Tubing, O-rings, etched electrode

4-12-06 - Replaced Resin LPI CAT COND Analyzer @ SHERLO

- Replaced Resin U2 Econ Inlet CAT COND analyzer
- Replaced Resin Survey U1 CAT COND analyzer

Calibrated U1 Nat Analyzers

Boiler 98 % slope

CPD 103 % slope

Calibrated U2 Nat Analyzers

Boiler 99 % slope

CPD 120 % slope

4-13-06 * LPI W&P CHECK *

- established flows after outage

Reagent 43 % Resin 65 % STD - 10 %

4-17-06 * LPI W&P CHECK *

- Replaced STD + Reagents in SiO_2 analyzer
- Resin 50 %

- New Electrodes U2 Boiler pH analyzer

4-18-06	Replaced STD Reagents Demin SiO ₂ Analyzer
4-20-06	Replaced Reagents U3 CPD SiO ₂ analyzer
	LPI WQP CHECK
	Resin 35% STD 100% Reagent 95%
	- CHANGED RESIN LPI CAT COND Analyzer - 100%
	- New Temp Compensator Installed U2 Boiler pH analyzer
	- Buffered U2 BCR pH analyzer
4-21-06	New lamp put in Unit 1 CPD silica analyzer
4-24-06	- New STD U3 CPD SiO ₂ analyzer
	- Replaced Resin 11, 12 polisher CAT COND analyzers
4-24-06	new DO probe for portable meter on Unit 2 (serial #31113-54899)
4-27-06	*LPI WQP CHECK*
	Resin 70% STD 90% Reagent 84%
4-28-06	Replaced Resin 21, 22 polisher CAT COND analyzers
5-2-06	*LPI WQP CHECK*
	Reagent -75% Resin 49% STD 80%
5-4-06	Replaced Reagents U2 Boiler SiO ₂ analyzer
	" " U3 Boiler " "
	" " LPI @ SHERLO " "
5-4-06	Installed & calibrated a new DO probe on U3 (serial #31110-55459)
5-5-06	*LPI WQP CHECK*
	Reagent 70% Resin 35% STD 80%

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5-8-06 - New Resin U2 BLR. CAT. COND. Analyzer
 - New STD U1 BLR SiO₂ analyzer
 New D.O. probe Unit one SN# 56512

5-9-06 * LPI WQP CHECK *
 Resin 100% ← STD 70% Reagent 64%
 - CHANGED Resin
 - Replaced Resin U3 Boiler CAT COND. Analyzer

5-10-06 Replaced Reagents U1 CPD SiO₂ analyzer

5-11-06 Replaced Resin U1 CPD CAT COND Analyzer
 " " " BLR " " "
 " " U2 CPD " " "

5-15-06 * LPI WQP CHECK *
 Resin 70% STD 60% Reagent 54%
 New Resin 7th Floor U3 Boiler Econ. Downcomer Sample

5-17-06 Calibrated Demin Na⁺ Analyzer 1811 EL
 - Etched electrode also
 Slope 61.4 E₀ -3.6

5-18-06 Calibrated Na⁺ Analyzers

	U1	U2	U3
BLR	94%	99%	95%
CPD	101%	111%	96%

5-22-06 New Resin U1 Econ Inlet CAT. COND Analyzer
 " " U2 " " " " "
 " " LPI @ SHERCO " " "

5-24-06 - New Resin @ LPI CAT COND Analyzer
 - New Reagents @ LPI SiO₂ Analyzer

Wold 000278

5-25-06	- Replaced Resin U3 main steam CAT COND Analyzer. - Replaced Reagent U1 Boiler SiO ₂ analyzer - Replaced Reagent U2 CPD SO ₂ analyzer
5-30-06	* LPI WQP CHECK * Resin - 75% Reagent 90% STD 40%
5-31-06	Replaced In-line Filters U3 CPD + Boiler Na ⁺ Analyzers
6-1-06	* LPI WQP Check * Resin 70% Reagent 87% STD 40%
	- Replaced in-line filters U2 CPD + Boiler Na ⁺ analyzers - Replaced Reagents Demin SO ₂ analyzer - Replaced STD, Demin SO ₂ analyzer
6-7-06	* LPI WQP CHECK * Resin 50% Reagent 77% STD 30%
	- New SiO ₂ reagents U3 CPD analyzer - Replaced Resin 11, 12, 22, 21 polish or CAT COND analyzers
6-12-06	Replaced Cal Std Unit 3 Boiler SO ₂ analyzer - * LPI WQP CHECK * Resin 30% STD 20% Reagent 69%
	- Replaced CAL STD Unit One CPD SO ₂ analyzer
6-13-06	- Calibrated U3 Na ⁺ Analyzers CPD Slope → 100% Boiler Slope → 96%
	- Calibrated U2 Na ⁺ Analyzers CPD Slope → 113% Boiler Slope → 96%
	- Calibrated U1 Na ⁺ Analyzers CPD Slope → 109% Boiler Slope → 101%

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6-14-06 - New O-rings, Solution, Tubing, and etched electrode
on 1811 EL Demin Nat Analyzer.
Calibrated - Slope 59.9 E_0 -2.2

6-15-06 - Replaced Resin at LPI WQP CAT. COND Analyzer
* LPI WQP CHECK *
Resin - 100 Reagent 64 STD. 20

6-20-06 - Replaced Reagents LPI SiO₂ analyzer @ SHERCO

* LPI WQP CHECK *
Resin - 80 Reagent 55 STD 10

6-21 - Replaced Resin U2 Survey Cation Cond. Analyzer
- Replaced Resin U2 CPD CAT. Cond. Analyzer
- Replaced Reagent U2 Boiler SiO₂ analyzer

6-26-06 - Replaced Resin U3 Econ Inlet CAT COND Analyzer.
" " 33 Polisher " " "

* LPI WQP CHECK
- Resin 60 Reagent 30 STD 100
- Replaced SiO₂ STD

6-27-06 - Replaced Resin U1 CPD CAT. COND. Analyzer.
" " " ECON " " "
" " U2 Econ " " "
" " U2 BLR " " "
" " LPI @ SHERCO " " "

6-28-06 - New Resin 7th Floor CAT COND. Analyzer
- New Reagents U1 CPD SiO₂ Analyzer

* LPI WQP CHECK *
- New Resin CAT COND Analyzer
- New Reagents SiO₂ Analyzer
Resin - 100 Reagent 100 STD 100

6-29-06	- Replaced Reagents U3 Balance SiO_2 analyzer
7-3-06	LPI WQP ✓ Reag- 90% Std= 92% Resin- 75%
7-5-06	- Replaced STD. U3 CPD SiO_2 analyzer - New Resin U3 CPD CAT. COND. Analyzer
7-7-06	* LPI WQP CHECK * Resin - 65 Reagent 87 STD - 90
7-10-06	LPI WQP check Resin → 50% Reagents → 82% STD → 80%
7-12-06	- new resin for U1 Boiler column - new resin for U2 #21 polisher column - new SiO_2 reagents for Unit 2 CPD analyzer
7-13-06	Etched electrode & calibrated Demin Na Sodium Analyzer Slope → 59.9 E_0 → -1.4
7-18-06	Calibrated U3 Nat Analyzers Boiler slope → 96% CPD slope → 101%
	Calibrated U1 & U2 Nat Analyzers U1 Boiler slope → 89% U2 Boiler slope → 91% U1 CPD slope → 102% U2 CPD slope → 113%
	new cation resin for #11 & #12 polisher columns new cation resin for #22 polisher column
7-19-06	- new reagents for Demin SiO_2 analyzer - new cation resin @ LPI Reagents → 67% STD → 70% Cation Resin → 100%
	- new cation resin for #31 & #32 polisher columns

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7-25-06	new cation resin for U2 Economizer column
7-26-06	new reagents for LPI SiO ₂ analyzer in old lab
	new DO probe installed & calibrated on U1 (serial# 48277)
7-27-06	Check of LPI WQP SiO ₂ Reagents → 55% STD → 60% Cation → 70%
7-31-06	new reagents for Unit 3 CPD SiO ₂ analyzer
8-1-06	new SiO ₂ standard for U1 Boiler analyzer
8-2-06	new cation resin for U1 Econ, U2 CPD and LPI column in old lab
8-3-06	LPI WQP check SiO ₂ Reagents → 43% STD → 50% Cation → 45%
8-9-06	- new SiO ₂ Reagents for U1 CPD analyzer - new resin for U2 Boiler cation column - new cation resin @ LPI - new SiO ₂ reagents @ LPI SiO ₂ Reagents → 100% STD → 40% Cation → 100%
8-14-06	new STD for Demin SiO ₂ analyzer new tubing, o-rings, monoethylamine, etched electrode & calibrated Demin Nat analyzer. Slope → 59.8 E ₀ → 0.9
	LPI check SiO ₂ Reagents → 92% SiO ₂ STD → 30% Cation → 80%
8-15-06	- new resin for U1 CPD cation column - new resin for #21 Polisher cation column

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8-16-06	new reagents and standard for U3 Boiler SiO ₂ analyzer
8-17-06	*LPI check* SiO ₂ Reagents → 87% SiO ₂ STD → 30% Cation Resin → 70%
8-21-06	calibrated U3 Nat Analyzers Boiler slope → 96% CPD slope → 101%
	new STD for U1 CPD silica analyzer
	calibrated U1 & U2 nat analyzers U1 Boiler slope → 89% U2 Boiler slope → 87% U1 CPD slope → 95% U2 CPD slope → 113%
8-22-06	-new reagents for U1 Boiler SiO ₂ analyzer -new cation resin for U1 Boiler column, #11 & #12 polisher columns
8-23-06	*LPI check* SiO ₂ Reagents → 77% SiO ₂ STD → 20% Cation Resin → 50%
8-29-06	new cation resin for U2 Economizer & #22 polisher columns
8-30-06	new reagents for Demin SiO ₂ analyzer new SiO ₂ STD for LPI SiO ₂ analyzer @ LPI new cation resin for LPI column @ LPI *LPI check* SiO ₂ Reagents → 65% SiO ₂ STD → 100% Cation Resin → 100%
9-5-06	-new Reagents for LPI SiO ₂ analyzer in U1/U2 Chem Lab -new resin for LPI column in U1/U2 lab -new cation resin for U1 Economizer
9-7-06	*LPI check* SiO ₂ Reagents → 52% STD → 90% Cation Resin → 65%

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9-11-06	etched electrode & calibrated Demin Na^+ analyzer Slope \rightarrow 60.1 $E_0 \rightarrow$ 5.9
9-13-06	replaced drain line on U1 Boiler Boiler SiO_2 analyzer and cleaned up due to eaten away old drain line
9-14-06	*LPI check* new SiO_2 Reagents & Cation Resin Reagents \rightarrow 100% STD \rightarrow 80% Cation Resin \rightarrow 100%
Series 5000	
9-18-06	rebuilt (Unit 2) Boiler SiO_2 analyzer with new capillary module, reagent valve fittings, sample cell cover & reagent tubing
Rebuilds	
9-19-06	rebuilt Unit 2 CPD SiO_2 analyzer same as Boiler above
9-20-06	-new reagents for U1 CPD SiO_2 analyzer -new reagents for U3 CPD SiO_2 analyzer (Standard also) calibrated U3 Na^+ analyzers: Boiler slope \rightarrow 92% CPD slope \rightarrow 101% calibrated U1 Na^+ analyzers: Boiler slope \rightarrow 84% CPD slope \rightarrow 95% new in-line filter for U3 Boiler Na^+ analyzer
9-21-06	*LPI Weekly check* SiO_2 Reagents \rightarrow 90% STD \rightarrow 70% Cation \rightarrow 75%
9-27-06	new cation resin for #11 & #12 polisher columns
9-28-06	*LPI check* SiO_2 Reagents \rightarrow 79% STD \rightarrow 60% Cation \rightarrow 50%
10-5-06	*LPI check* SiO_2 Reagents \rightarrow 69% STD \rightarrow 50% Changed cation resin \rightarrow 100%

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10-6-06 Cation Resin changes: U-3 Econ Inlet
U-1 Boiler, Econ Inlet, CPD

10-11-06 - DEMIN Sodium analyzer:
New tubing + Solution, O-rings, etched sodium electrode.
Calibration: Slope \rightarrow 59.9 $E_0 \rightarrow$ 24.0

- New Cal Std. for U-1 Boiler Silica analyzer.

10-12-06 - New SiO_2 Reagents - U-3 Boiler Silica analyzer

- LPI Check - Reagent level - 50% Std. level - 40%
Resin Column - 63%

10-18-06 - Cation Resin changes: U-3 CPD, 33 Polisher

- LPI check - Reagent level 30% Std level - 40%
Resin column - 40%

10-19-06 LPI WQP maintenance - Old Chem Lab
* New Reagents * Cation Resin changed

10-20-06 New Silica Reagents: U-2 CPD Silica analyzer
+ CAL Stds \rightarrow U-2 Boiler Silica analyzer
Demin Silica analyzer

Re-installed Na electrodes on U-2 CPD Na analyzer.
* Performed "Sample Cal".

10-24-06 Installed new measuring + reference electrodes on U-2 CPD Na analyzer. Etched the measuring electrode for the U-2 Boiler Na analyzer before installation. Changed KCl solution in the reference electrode and soaked in hot water.

10-25-06 Changed KCl solution + soaked in hot water - Ref. electrode for U-2 CPD Na analyzer.

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10-25-06 Changed cation resin at LPI WQP. (100%)
Also installed new reagents + std. (100%)

Calibrated U-2 Na Analyzers:

CPD slope → 113%

Boiler slope → 87%

10-26-06 U-1 Sodium Analyzers:
- etched measuring electrodes
- fresh solution in reference electrodes
- CPD slope → 95%
- Boiler slope → 84%

- New DO₂ probe installed + calibrated in U-3 WQP.
Serial # 52678

10-29-06 New Silica reagents in U-1 Boiler SiO₂ analyzer.

10-30-06 Installed new Reference + pH electrodes on the Unit 2
Economizer Inlet pH holder.

10-31-06 New Cal Standard for U-1 CPD Silica analyzer.

11-1-06 LPI Check - Cation Column - 75%
Silica Reagents - 88%

11-7-06 - New in line filters installed on the Unit 2
Sodium analyzers. (Boiler + CPD)

- New cation resin on Unit 1 Polishers + Econ Inlet
cation conductivities.

11-8-06 New cation resin on Unit 3 31 + 32 polisher cation
conductivities.

11-9-06 - Calibrated Sodium analyzers - UNIT 3
CPD slope \rightarrow 101 %
Boiler slope \rightarrow 92 %

- DEMW Sodium analyzer - etched measuring electrode
calibration \rightarrow slope = 59.2 E_0 = 37.1

11-10-06 New reagents in Unit 3 CPD silica analyzer.

11-14-06 LPI check : Cation Resin - 40 %
Reagents + Std - 70 %

11-15-06 Cation Resin changed on LPI WQP in old Chem Lab.

11-16-06 Cation Resin changed : * U-2 Boiler, Econ Inlet + CPD
* U-1 Boiler
* LPI WQP at LPI

11-22-06 * LPI CHECK CAT Resin 60 %
Reagent 50 %
STD 60 %

11-28-06 LPI Check Cation resin : 30 %
Reagent 35 %
Std 50 %

11-29-06 Cation Resin Changed : U-3 Boiler Water
U-3 Main Steam

11-30-06 Cation Resin Changed : U-1 CPD C. Conductivity
U-2 21 + 22 Polisher conductivities

12-1-06 New Reagents - U3 Boiler SiO₂ analyzer.

12-4-06 Cation Resin changed today at LPI WQP by John K.

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12-5-06 New Silica Reagents: LPI WQP (Old Chem Lab)
LPI WQP at LPI
Unit 2 CPD + Boiler silica analyzers.

12-12-06 New cation resin: U1 + U2 Eon Inlet cat. cond.

New Silica Reagents: Demin. Silica analyzer (Old Lab)

LPI check: Reagents 89 %
Standard 40 %
Cation Column 65 %

12-13-06 DEMIN Na analyzer: changed reagent and tubing.
Etched measuring electrode.
Calibrated: slope \rightarrow 59.5 $E_0 \rightarrow$ 30.5

12-14-06 Na analyzer calibrations (slope)

	<u>U1</u>	<u>U2</u>	<u>U3</u>
Boiler	84 %	87 %	92 %
CPD	95 %	113 %	101 %

12-19-06 New Silica Reagents: U1 Boiler SiO₂ analyzer
(+ New Cal Std)

12-19-06 New Cation Resin at LPI WQP: 100 %
SiO₂ Reagents: 77 %
SiO₂ Cal Std: 30 %

12-21-06 - New in-line Filter installed on U3 Boiler Na analyzer.
- New Reagents on U1 CPD silica analyzer.

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* 2007 *

1-2-07	Replaced SiO_2 std in Unit 3 Boiler SiO_2 analyzer.
1-2-07	LPI SiO_2 analyzer had no sample flow.
1145	Reestablished flow, restarted system. Resin \rightarrow 50% Std \rightarrow 30% Reag. \rightarrow 64%
1-4-07	LPI \checkmark -WQP Reag. \rightarrow 61% Std \rightarrow 30% Resin \rightarrow 40%
1-5-07	New reagents in Unit 3 CPD SiO_2 analyzer LPI WQP \checkmark Replaced cation resin Adjusted amount for SiO_2 std to 40%. There's enough for another cal in the bottle. Reagent \rightarrow 59% Resin \rightarrow 100%
1-8-07	LPI WQP \checkmark Reag \rightarrow 54% Std \rightarrow 40% Resin \rightarrow 85%
1-9-07	Replaced resin in Econ. In. Unit 3 cation col. Installed new pH measuring & reference electrodes on Unit 3 Boiler sample. cleaned pot & buffered elec.
1-10-07	Replaced cal. std. on U-1 CPD SiO_2 analyzer.
1-11-07	New resin for U-2 Econ. In. cation col.
1-12-07	LPI WQP \checkmark Reagents \rightarrow 48% Std \rightarrow 40% Resin \rightarrow 60%

Wold 000289

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* TOOLS *

- 1-15-07 SHERCO SITE LPI WQP
 • New cation resin
 • Replaced silica reagents
 Replaced U-2 CPD SiO₂ reagents
 Demineralizer Na⁺
 Etched electrode
 Calibrated
 SLOPE → 59.4 E₀ → 48
- 1-16-07 Replaced cation resin in Unit 1 Econ. In.
- 1-16-07 LPI WQP ✓ - Good
- 1-17-07 Calibration of U-3 Na⁺ analyzers
 slope ← Boiler 93%
 CPD 98%
- Rinsed cation resin for old lab → faster response
- 1-19-07 Replaced resin in Unit 1 CPD & Pol. 11 Col.
 LPI WQP ✓ - Good
- 1-22-07 LPI WQP ✓
 Resin replaced → 100%
 Reag & std in silica analyzer replaced
 100% 100% Calibrated again @ 1145 hrs
 494.5 ppb
- 1-23-07 Replaced cation resin in Unit 3:
 CPD & Pol. 33 col's.

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1-18-07	calibrated Unit 1 & 2 Na analyzers u-1 Boiler CPD Unit 2 Boiler CPD Slope 92% 106% 102% 115%
1-24-07	Replaced: Silica reagents in Unit 2 Boiler SiO ₂ Recalibrated 440ppb Resins: Unit 1 12 Pol. Unit 2 CPD cleaned flows in Unit 2 WQP.
1-25-07	LPI WQP ✓ Cat. Resin → 85% SiO ₂ Reag. → 95% Std → 90% New pH electrodes in Unit 3 Econ. In. Calibrated Recalibrated u-3 Boiler pH
1-26-07	Cleaned in-line filters on #2 SiO ₂ analyzers Unit 1 Blr & CPD Unit 2 Blr & CPD Unit 3 Blr & CPD LPI Good
1-29-07	Demin SiO ₂ analyzer ^{got} new reagents
1-31-07	LPI WQP ✓ SiO ₂ Reag → 85% Std → 80% Resin 50%
2-2-07	Unit 1 Boiler SiO ₂ → new reagents Unit 2 → replaced cation resin in 22 Pol. Col.

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2-5-07 new SiO₂ reagents in U1 CPD Silica analyzer

2-6-07 Replaced Resin @ LPI
 Reagents = 55%
 STD. = 70%
 Resin = 100%

2-8-07 Replaced Reagents U2 Econ + Boiler CAT. COND. Analyzer

2-12-07 Replaced cation resin on Unit 3 Polishers 31 & 32

2-14-07 Replaced cation resin on Unit 1 Boiler
 Demin Na⁺ analyzer
 Etched electrode & calibrated
 SLOPE → 59.2 E₀ → 36.1

LPI WQP ✓
 Reag → 42% Std → 60% Resin → 60%

2-19-07 New resin in Pol. 21 cation col.

2-20-07 sampled turbine oils & EHC

2-22-07 New pH & measuring electrodes at LPI WQP → buffered
 Unit 3 Na analyzer calibrations
 Boiler 89% CPD 98% SLOPES

2-23-07 LPI WQP ✓ recheck of pH
 Reag → 38% Std → 60% Resin 100%

Replaced cation resin @ LPI
 Outage over there 2-21- to 2-22

Wold 000292

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2-23-07	calibrated Na ⁺ analyzers Unit 1 & 2																
	<table border="1"> <thead> <tr> <th colspan="2">SLOPE</th> <th colspan="2">SLOPE</th> </tr> <tr> <th>Unit 1</th> <th></th> <th>Unit 2</th> <th></th> </tr> </thead> <tbody> <tr> <td>Boiler</td> <td>92%</td> <td>Boiler</td> <td>97%</td> </tr> <tr> <td>CPD</td> <td>106%</td> <td>CPD</td> <td>106%</td> </tr> </tbody> </table>	SLOPE		SLOPE		Unit 1		Unit 2		Boiler	92%	Boiler	97%	CPD	106%	CPD	106%
SLOPE		SLOPE															
Unit 1		Unit 2															
Boiler	92%	Boiler	97%														
CPD	106%	CPD	106%														
2-26-07	<p>Unit 2 CPD Silica analyzer The analyzer was displaying a variety of confusing messages. Powered it down to start I cleaned the sample cell replaced stir bar Powered it back up & it got its "brain" back.</p> <p>Replaced resin in Econ. In. U-1 cation col.</p> <p>Replaced tubing, orings, & reagent of Bemin Na⁺ analyzer</p> <p>Buffered pH electrodes on Sherco site LPI - WQP</p>																
2-28-07	Worked on LPI pH?																
3-01-07	<p>LPI pH - buffers great! Have found its like the HB, takes awhile to stabilize.</p> <p>Replaced resin on Unit 1 Pol. II col.</p> <p>Replaced Unit 2 CPD SiO₂ reagents</p>																
3-2-07	<p>Cleaned sample cell on Unit Boiler SiO₂ full of magnetite.</p> <p>Have noticed all SiO₂ analyzer measure std at a high rate → over 510ppb. Funny stds??</p>																

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3-5-07	Replaced resin in: Unit 1 Polisher 12 Unit 2 CPD
3-7-07	Replaced reagents & std in LPI site WQP SiO ₂
3-8-07	Replaced reagents & std in Unit 3 Boiler SiO ₂ Cleaned sample cell on Unit 2 Boiler SiO ₂ . During cleaning noticed slow drip of sample from straw. Replaced sample solenoid then.
	Replaced cation resin for Unit 3 Mainsteam
3-9-07	LPI WQP ✓ Reag → 97% std → 100% Replaced cation resin
	Replaced cation resin for Unit 2: Econ. In Pol. 22
	Replaced cation resin in both Unit 1 & 2 Survey columns.
3-12-07	New reagents on Unit 2 Boiler Silica analyzer Calibration of Sodium Analyzers
	Unit 1
	Boiler
	CPD
	SLOPE
	94%
	99%
	Unit 2
	Boiler
	CPD
	SLOPE
	97%
	107%

3-13-07	Turbine Oil samples & EHC's
	Unit 3 Sodium Analyzer Calibrations Boiler → 90% CPD → 98%
3-14-07	LPI WQP ✓ Good. Reag → 89% Std → 90% Resin → 75%
3-15-07	Replaced resin for Cat. col on Unit 1 CPD New pH measuring & reference electrodes on Unit 1 Boiler sample.
3-16-07	Demin Sodium Analyzer Replaced ref. elec. sol'n Etched electrode Calibrated Slope → 59.7 E ₀ 49
3-21-07 1480	LPI SiO ₂ Mon = 23 ppb 22 ppb = Lab Resin → 45% New pH measuring & reference electrodes on Unit 1 Econ. In.
3-22-07	New SiO ₂ reagents & std on Demin analyzer
3-23-07	LPI WQP ✓ Res → 74% Std → 80% Res → 40% Replaced SiO ₂ reagent & std in Unit 1- Boiler Replaced SiO ₂ reagent (only) in Unit 1 CPD
3-27-07	Replaced Resin @ LPI WQP Reagent - 47 STD - 70% Resin - 100% - Adjusted Reagent amount reading to reflect levels in the bottles

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3-28-07 Replaced Resin LPI CAT COND Analyzer @ SHERCO

- Replaced Resin U2 Balox CAT COND Analyzer
- Replaced Resin 21 polisher " " "

4-2-07 *LPI WQP CHECK*

Resin 65 %
Reagent 37 %
STD 60 %

4-5-07 *LPI WQP CHECK*

Resin 50 %
Reagent 32 %
STD 60 %

- Replaced Reagents U3 CPD SiO₂ Analyzer
- Replaced Resin U1 Balox, Econ, 11 polisher
- Replaced Reagents LPI SiO₂ Analyzer @ SHERCO

4-10-07 *LPI WQP CHECK*

Resin -30 %
STD -50 %
Reagent -24 %

4-11-07 Replaced Resin U3 Survey CAT COND Analyzer

4-9-07 Tightened leaking fittings on LPI SHERCO SiO₂ analyzer

4-11-07 Replaced Resin U2 CPD, Econ CAT COND. Analyzers

4-12-07 *LPI WQP CHECK*

Replaced Resin CAT COND Analyzer 100% Adjusted to
Replaced Reagent SiO₂ analyzer 100% → 80%
STD = 50%

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4-12-07 - Replaced Resin 12 gal CAT COND Analyzer
 - Replaced Reagents U2 CPD S₂O₂ Analyzer

4-16-07 * LPI WQP CHECK
 Resin - 80 %
 Reagent - 73 %
 STD - 40 %

4-17-07 - Calibrated U3 Sodium Analyzers
 CPD Slope → 93 %
 Boiler Slope → 86 %

- Calibrated 1811 EL Slope - 59.7
 E₀ 39.0
 New Solution, Tubing, O-rings, etched electrode

Calibrated U1 Boiler Nat Analyzer Slope - 94
 Calibrated U1 CPD Nat Analyzer Slope - 101

Calibrated U2 Boiler Nat Analyzer Slope - 97
 Calibrated U2 CPD Nat Analyzer Slope - 100

4-19-07 - Replaced Resin 22 gal CAT COND Analyzer

* LPI WQP CHECK
 Resin - 70
 Reagent - 68
 STD - 40

4-23-07 Replaced CAL STD U2 Boiler S₂O₂ Analyzer

* LPI WQP CHECK *
 Resin - 55
 Reagent - 61
 STD - 30

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4-26-07 * LPI WQP CHECK *

Resin - 45

Reagent - 57

STD - 30

- New Reagents U2 Boiler SiO_2 analyzer4-30-07 New SiO_2 STD U3 CPD analyzer

* LPI WQP CHECK *

Resin - 35

Reagent - 50

STD - 20

5-2-07 * LPI WQP CHECK * - CHANGED Resin CAT. COND. Analyzer

Resin - 100

Reagent - 47

STD - 20

- Replaced Resin 21 pol CAT. COND. Analyzer

5-7-07 New Reagents U1 Boiler SiO_2 analyzer

New Resin U1 CPD CAT COND Analyzer

New Resin U1 11 polished CAT COND Analyzer

5-8-07 Replaced Resin U3 Econ CAT. COND. Analyzer

5-9-07 * LPI WQP CHECK * (During outage)

Resin 60 %

Reagent 35 %

STD - 100 % (Replaced)

- Cleaned Stainless Steel Sample Filter

- Cleaned Flow sightglass and sample pressure and temperature gauges

- Replaced broken inlet sample line # in SiO_2 analyzer- adjusted sample cooler flow ^{was} 165°- cleaned sample cell + inside of SiO_2 analyzer

Wold 000298

5-10-07	- Replaced Reagents Demin SiO_2 analyzer
	* LPI WQP CHECK
	- Resin 50%
	Reagent 35%
	STD 100%
	- Adjusted Sample cooler flow temp was 60° after outage. now $\approx 70^\circ\text{F}$
5-15-07	Calibrated U3 Na^+ Analyzers
	CPD Slope - 89%
	Boiler Slope - 86%
5-15-07	- Replaced Resin U1 Econ CAT COND Analyzer
	* LPI WQP CHECK
	Resin - 30
	Reagent - 25
	STD - 90
5-16-07	Calibrated U1 + U2 Na^+ Analyzers
	CPD slope Boiler Slope
	U1 U1 110 106
	U2 U2 97 89
5-17-07	- Replaced Resin U2 BLR, ECON, CPD, CAT, COND. Analyzers
	- Replaced SiO_2 Reagents LPI PANEL @ SHERCO
	* LPI WQP CHECK*
	- Replaced Resin 100%
	- Replaced Reagents SiO_2 analyzer 100%
	- STD Level 90%
	- Wiped down panel areas and sample lines
	Calibrated 1811EL Demin Na^+ Analyzer
	Slope \rightarrow 59.7 $E_0 \rightarrow$ 26.9
	- Replaced Refer. Soln

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- 5-21-07 - Replaced SiO_2 STD U3 CPD.
 - Replaced Resin U3 BLR, CPD, 31, 32, 33 polisher
 CATION COND. Analyzers
- * LPI WRP CHECK *
 Resin - 80
 Reagent - 73
 STD. - 80
- 5-22-07 - Replaced in-line filters U3 Na^+ Analyzers
 - Replaced in line filters U2 Na^+ Analyzers
 - Replaced in line filters U1 Na^+ Analyzers
- 5-23-07 - Replaced Resin 12 polisher CAT. COND Analyzer
 - Replaced Resin 22 polisher CAT. COND. Analyzer
- 5-24-07 - Replaced SiO_2 Reagents U1 CPD Analyzer
 Replaced Reagents U2 CPD SiO_2 Analyzer
- * LPI WRP CHECK *
 Resin - 75
 Reagent - 68
 STD - 80
- 5-29-07 - Replaced Reagents U3 CPD SiO_2 analyzer
- * LPI WRP CHECK *
 Resin - 60
 Reagent - 60
 STD - 70
- 5-31-07 * LPI WRP CHECK *
 Reagent - 57
 Resin - 50
 STD - 70
- Sample Temp - 72 - adjusted flow ↑ ~~was~~

6-4-07	* LPI WQP CHECK *
	Resin - 35
	Reagent - 50
	STD - 60
6-5-07	Replaced STD. U1 Boiler + Demin SiO ₂ analyzers
6-7-07	* LPI WQP CHECK *
	Resin - 100 % (Replaced)
	Reagent - 46 %
	STD - 60 %
	Replaced Reagents U2 Boiler SiO ₂ analyzer
6-11-07	New SiO ₂ Std U1 CPD Analyzer
	* LPI WQP CHECK *
	Resin - 80 %
	Reagent - 30 %
	STD - 50 %
6-12-07	Replaced Resin 11 pol, 21 pol, U1 ECON CAT. COND. Analyzers
6-13-07	Replaced Reagents U3 Boiler SiO ₂ analyzer
6-19-07	- New Reagent, Tubing, Orings, etched electrode 1811 EL Demin Na ⁺ Analyzers.
	- Calibrated 1811 EL Demin Na ⁺ Analyzer Slope → 59.7 E ₀ → 10.8
6-19-07	* LPI WQP CHECK
	Resin - 50
	Reagent - 80 - Replaced Reagent + adjusted Level to 80 %
	STD - 40

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6-19-07 - Replaced Resin LPI CAT COND Analyzer @ SHERCO

- Calibrated U1 + U2 Nat Analyzers

Slope U1 Boiler = 95

Slope U1 CPD = 107

Slope U2 Boiler = 91

Slope U2 CPD = 107

6-20-07 Calibrated U3 Nat Analyzers:

Boiler Slope → 94

CPD Slope → 93

6-21-07 New Reagents U1 Boiler $S.O_2$ analyzer
New Reagents LPI $S.O_2$ analyzer @ SHERCO

* LPI WRP CHECK *

Resin - 45 Temp - 71

Reagent - 76

STD - 40

6-25-07 - New D.O. probe installed & calibrated in Unit One WRP
Serial # 56513 Model 3110.02

- New $S.O_2$ STD U2 Boiler Analyzer

* LPI WRP CHECK *

Resin - 30

Reagent - 70

STD - 30

6-26-07 Replaced Resin U3 MAIN STEAM CAT COND Analyzer

6-28-07 Replaced Resin 12 polisher CAT COND Analyzer

- Replaced Reagents Demin $S.O_2$ analyzer

6-28-07 * LPI WQP CHECK *
Resin - 100% (new)
Reagent - 65%
STD - 30%

7-3-07 * Replaced Resin 12 polisher CAT COND. Analyzer
- Replaced Resin U1 CPD CAT COND Analyzer
- Replaced Reagents U2 CPD S.D₂ analyzer
- Replaced Resin U2 Boiler CAT COND Analyzer

* LPI WQP CHECK *
Resin - 80%
Reagent - 63%
STD - 30%
Temp - 74°F

7-9-07 * LPI WQP check *
Resin - 65%
Reagent - 60%
STD - 30%

7-10-07 repaired drain line on U3 CPD silica analyzer
fitting below plastic block was corroded away

7-12-07 * LPI WQP check *
changed resin → 100%
reagent → 54%
STD → 30%
- cleaned filter on LPI WQP sample supply line.
- verified LPI specific conductivity with portable lab instrument

7-16-07 new cation resin for U1 Boiler, Econ & #11 polisher

* LPI WQP check *
Resin → 85%
Reagent → 48%
STD → 20%

150

7-17-07 - new reagents for Unit 1 CPD silica analyzer

- etched electrode and calibrated Demin Nat analyzer
Slope \rightarrow 58.9 $E_0 \rightarrow$ 25.5

7-18-07 - new reagents & STD for U3 CPD SiO₂ analyzer
- new cation resin for U2 ECM & #21 polisher

LPI Wgp Check

Reagents \rightarrow 44% STD \rightarrow 20% Cation \rightarrow 75%

7-24-07 Calibrated U3 Nat Analyzers

Boiler slope \rightarrow 91% CPD slope \rightarrow 83%

Calibrated U2 Nat Analyzers

Boiler slope \rightarrow 89% CPD slope \rightarrow 99%

Calibrated U1 Nat Analyzers

Boiler slope \rightarrow 95% CPD slope \rightarrow 107%

7-25-07 - new resin for LPI cation column in old chem lab
- new resin for U2 CPD cation column

7-26-07 new standard for silica analyzer @ LPI

LPI Weekly Check

Cation \rightarrow 50% Reagents \rightarrow 31% STD \rightarrow 100%

7-30-07 *Weekly LPI Check*

Cation \rightarrow 25% Reagents \rightarrow 25% STD \rightarrow 90%

7-31-07 new reagents and standard for Unit 3 Boiler silica analyzer

8-1-07 - new cation resin for #12 polisher and #22 polisher
- new reagents and STD for LPI SiO₂ analyzer in old lab

8-1-07 new reagents and cation resin @ LPI panel

* Reagents \rightarrow 100% STD \rightarrow 90% Cation \rightarrow 100% *

Wold 000304

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8-7-07 * LPI Panel Surveillance *

Cation → 75% Reagents → 92% STD → 80%

- new reagents and standard for U1 Boiler SiO₂ analyzer
- new reagents for U2 CPD silica analyzer

8-9-07 * LPI Panel Check

Cation → 65% Reagents → 88% STD → 80%

8-14-07 New solution, ^{and tubing} etched electrode and calibrated Demin
Nat analyzer Slope → 58.2 E₀ → 22.3

Calibrated U1, U2 & U3 Nat Analyzers

U1 Boiler → 91% U1 CPD → 105%

U2 Boiler → 83% U2 CPD → 99%

U3 Boiler → 91% U3 CPD → 83%

8-15-07 new reagents for U2 Boiler SiO₂ analyzer

- new cation resin for U1 CPD & #11 polisher
- new cation resin for U2 Boiler and Economizer

- new cation resin @ LPI

Cation → 100% Reagents → 86% STD → 80%

8-16-07 new cation resin for U3 Economizer, CPD, #31, #32, & #33 polishers

8-27-07 * LPI Panel Check *

Cation → 48% Reagents → 65% STD → 60%

8-28-07 - new cation resin for U1 Boiler & Economizer

- new reagents and standard for U1 CPD SiO₂ analyzer
- replaced sample celeroid valve on U1 Boiler SiO₂ analyzer
(sample was continually weeping through)

8-29-07 new cation resin for U2 CPD & #21 polisher

Wold 000305

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8-29-07 - new cation resin for LPI panel in old lab
 - new cation resin for U1 & U2 survey conductivity

8-30-07 LPI Panel check
 Reagents → 61% STD → 60% Cation → 35%

9-4-07 LPI panel check
 Reagents → 52% STD → 50% Cation → 100%

9-5-07 new cation resin for #12 polisher
 new reagents for LPI SiO₂ analyzer in old lab

9-6-07 LPI Panel check
 Reagents → 49% STD → 50% Cation → ~95%

9-11-07 - new resin for #22 polisher
 - Etched electrode & calibrated Demin Nat Analyzer
 slope → 59.1 E₀ → 33.5

New silica reagents @ LPI
 Reagents → 100% STD → 40% Cation → 75%

9-12-07 new reagents for U3 Boiler Silica analyzer

9-13-07 new pH electrodes for U2 Economizer

LPI Panel check
 Reagents → 96% STD → 40% Cation → 65%

9-14-07 LPI WQP Temp Check = 72° OK

9-18-07 Calibrated U3 Nat Analyzers & installed new in-line filters on each. Boiler Slope → 86% CPD slope → 84%

Calibrated U2 Nat Analyzers & installed new in-line filters
 Boiler Slope → 83% CPD slope → 97%

Wold 000306

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9-18-07 - new standard for U2 Boiler SiO₂ analyzer
 - new reagents for U2 CPD SiO₂ analyzer
 - new cation resin for U2 Economizer

* LPI Panel Check *

Reagents → 88% STD → 30% Cation → 45%

9-21-07 * LPI Panel Check *

Reagents → 83% STD → 30% Cation → 35%

9-25-07 * LPI Panel Check *

Reagents → 77% STD → 100% Cation → 100%

9-26-07 new cation resin for U3 Main Steam

9-28-07 * LPI Panel Check *

Reagents - 72 STD - 100 Resin - 92

10-3-07 LPI Panel Check

Reagents 64% Std 90% Resin 70%

10-5-07 - Fresh Reagents → U-3 CPD Silica analyzer.

- LPI Panel Check

Reagents 60% Std 90% Resin 62.5%

10-9-07 - Changed cation resin on LPI WQP - U1+2 chem lab.

- Changed CAL Std on U-3 Boiler Silica analyzer.

- LPI WQP Check:

Reagents 53% Std 80% Resin 48%

10-10-07 Installed DIPA Retrofit Kit on 1811EL Sodium analyzer.

Etched Na measuring electrode.

Calibration Slope → 56.7 E₀ → 1.7

Wold 000307

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10-10-07 Fresh DO probe installed in U-3 WQP by JPW.
Serial # 48932.

10-11-07 - Cation Resin columns refreshed for U-2 CPD, Boiler +
21 Polisher.

- New Reagents in U-2 Boiler SiO₂ analyzer.

10-17-07 LPI Panel Check: (Changed cation resin)
Reagents → 46% Std → 80% Resin → 100%

10-18-07 Calibrated U-2 Na Analyzers
Boiler - slope → 83%
CPD - slope → 97%

Calibrated U-3 Na Analyzers
Boiler - slope → 86%
CPD - slope → 84%

10-19-07 LPI Panel Check:
Reagents → 40% Std → 80% Resin → 90%

10-23-07 LPI Panel Check:
Reagents → 35% Std → 70% Resin → 63%

10-25-07 * New Reagents at LPI WQP
Reagents → 100% Std → 70% Resin → 55%

10-26-07 New Cation resin: 22 Polisher C.C.
U-2 Econ Inlet C.C.

10-30-07 LPI Panel Check
Resin → 37%

10-31-07 New Reagents in U-3 Boiler SiO₂ analyzer.

11-2-07	LPI Panel Check
(Am)	Reagents 87% Std 60% Resin 25%
(Pm)	* Changed Resin at LPI. New Resin reading → 100%
11-7-07	LPI ✓
	Reagents → 79% Std → 50% Resin 75%
11-9-07	Replaced reagents in Unit 2 CPD SiO ₂ analyzer
11-12-07	new reagents and standard for Demin SiO ₂ analyzer
11-16-07	LPI Panel Check
	Reagents 67% Std 50% Resin 37%
11-19-07	Resin column changes for today:
	- LPI WQP (Unit 1 + 2 chem lab)
	- 21 Polisher Cation Cond.
	- LPI WQP at LPI plant
	- Unit 3 Boiler Cation Cond.
11-19-07	LPI Panel - LPI
	Reagents 62% Std 40% Resin 100%
11-20-07	Resin change for U-2 CPD Cation Cond.
	- Calibrated Demin Na Analyzer.
	Slope → 54.9 E ₀ → 7.7
11-27-07	Cal std replaced on U-2 CPD Silica analyzer.
11-28-07	- New Silica Reagents - U-3 CPD Silica analyzer
	- LPI WQP check Reagents 40% Std. 40% Resin 70%
	- Fresh cation resin on U-2 Econ Inlet + 22 Pol. Cat. C.

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- 11-29-07 Na analyzer calibrations:
 U-3 Boiler: slope 86% CPD: 84%
 U-1 Boiler: slope 91% CPD: 105%
- 11-30-07 New Reagents in U-2 Boiler Silica analyzer.
- 12-4-07 WQP check at LPI
 Reagents 25% Std 30% Resin 50%
- 12-6-07 New Reagents at LPI WQP
 Reagents 100% Std 30% Resin 40%
- 12-11-07 - New cation resin - U2 Boiler C.C.
 U1 Econ Inlet C.C.
 - New cal std on U2 Boiler SiO₂ analyzer
 - WQP check at LPI
 Reagents 92% Std 20% Resin 25%
- 12-12-07 U2 Na Analyzer calibrations:
 Boiler: slope 83%
 CPD: slope 97%
- 12-13-07 - New Resin in U3 CPD, 31 Polisher, 33 Polisher Cat. Cond.
 - New Resin at LPI WQP
 - New Std at LPI WQP SiO₂ analyzer.
- 12-18-07 - New Resin in U3 Econ Inlet and 32 Pol. Cat. Cond.
 - New Reagents in U3 Boiler Silica analyzer.
 - New Cal Std in U1 CPD Silica analyzer.
 - WQP check at LPI:
 Reagent 80% Std 90% Resin 70%

Wold 000310

* 2005 *

12-19-07 - Changed all cation resin on U2 WQP Co. Cond. in prep. for holidays and minimal staff. Will be doing the same on U1 WQP.

- Demin Na analyzer (etched Na electrode)
CAL → Slope → 57.1 E₀ → 26.9

- New Reagents on U2 CPD Silica analyzer

12-20-07 Topped off resin at LPI WQP
Reagents 80% Std 90% Resin 100%

12-24-07 Replaced Cal Std on Blr U-1 SiO₂

12-27-07 LPI WQP ✓ - Good resin → ~70%

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* 2008 *

1-4-08

LPI WQP

Replaced cation resin.

SiO₂ → Reag. = 55% STD = 70%New SiO₂ reagents in Unit 1 CPD analyzer.New SiO₂ reagents in Demin analyzer.

1-8-08

new SiO₂ reagents for LPI analyzer in old lab

1-10-08

* LPI Weekly check *

SiO₂ Reagents → 46% STD → 60% Cation Resin → 70%

new cation resin for U1 & U2 Economizer

1-14-08

* LPI check & maintenance *

Replaced Silica Reagents, cation resin and cleaned sample filter.

SiO₂ Reagents → 100% STD → 60% Cation → 100%
Condensate dumped @ Sherco from 1347-1521

1-15-08

Calibrated U1, U2 & U3 Nat Analyzers

U1 Boiler Slope → 89% U2 Boiler Slope → 81% U3 Boiler Slope → 96%

U1 CPD Slope → 105% U2 CPD Slope → 98% U3 CPD Slope → 89%

Also changed all in-line filters except on U3 Boiler which was replaced on 1-4-08

replaced Main Steam cation resin on Unit 3

1-16-08

- new cation resin for #11, #12 polishers, and U1 CPD

- new cation resin for #21 & #22 polishers

- new cation resin for LPI column in old lab

- Replaced DIPA solution, diffusion tubing assembly and etched electrode on Demin Nat analyzer. Also calibrated
Slope → 59.5 E₀ → 30.8

Wold 000312

1-16-08	new reagents for U2 Boiler silica analyzer
1-17-08	* LPI check * SiO ₂ Reagents → 95% STD → 60% Cation → 90%
1-22-08	new standard for U3 CPD SiO ₂ analyzer
1-24-08	* LPI check * SiO ₂ Reagents → 84% STD → 50% Cation → 55%
	- new cation resin for U1 Boiler & U2 Boiler and CPD
	- new SiO ₂ reagents for U1 Boiler Series 5000
	Calibrated the new 2111LL Thermo Electron Nat Analyzer on Unit 3 Main Steam sample: Slope → 57.7 E ₀ → -34.9
1-28-08	* LPI check * SiO ₂ Reagents → 80% STD → 50% Cation → 100% replenished cation resin had ops. invert place return valve in manual from ~1257-1420 until cation alarm cleared from resin changeout
1-29-08	DD probes locations and serial #'s portable # 54899 Unit 1 # 48277 Unit 3 # 48932
	new SiO ₂ standard in Demin Series 5000
1-30-08	new reagents Unit 3 Boiler silica analyzer
2-4-08	* LPI check * SiO ₂ Reagents → 68% STD → 40% Cation → 70%
2-7-08	New cation resin @ LPI & cleaned sample filter SiO ₂ Reagents → 65% STD → 40% Cation → 100%
2-11-08	new standard for U2 CPD SiO ₂ analyzer

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2-11-08 I & C (Mark Weis) replaced sample pressure sensor assembly on SiO₂ analyzer @ LPI. He also replaced the sample pressure gauge which was not working.
SiO₂ Reagents → 59% STD → 30% Cation → 85%
return valve in manual back to Sherco from ~1000-1045

2-12-08 new cation resin for U1 & U2 Economizer columns

1 2-13-08 * LPI panel check *
Reagents → 55% STD → 30% Cation → 75%
1 all flows, temps & pressures look good

new measuring electrode etched and installed in the U3 Main steam Nat analyzer Slope → 60% E₀ → -54.8 after calibration

new reagents in Demin SiO₂ analyzer and the LPI SiO₂ analyzer in the old chem lab

2-14-08 etched electrode and calibrated Demin Nat analyzer
Slope → 59.6 E₀ → 51.9

2-19-08 calibrated U3 Boiler & CPD Nat analyzers
Boiler Slope → 93% CPD Slope → 94%

2-20-08 calibrated U1 & U2 Boiler & CPD Nat analyzers
U1 Boiler Slope → 87% U2 Boiler Slope → 81%
U1 CPD Slope → 105% U2 CPD Slope → 94%

1 - new SiO₂ STD for U2 Boiler SiO₂ analyzer
- new cation resin for #11, #12, #21, #22 polishers and the LPI cation column in old lab

2-21-08 * LPI panel check *
Reagents → 42% STD → 20% Cation → 45%

new Reagents for U3 CPD SiO₂ analyzer

2-25-08	- new standard for U3 Boiler SiO ₂ analyzer - replaced reagents, standard and cation resin @ LPI Reagents → 100% STD → 100% Cation Resin → 100%
2-26-08	- new reagents for U2 Boiler SiO ₂ analyzer
2-28-08	* LPI Panel check * Reagents → 95% STD → 100% Cation → 90%
3-3-08	- new standard for U1 BPO silica analyzer
3-5-08	- new reagents for U1 CPD silica analyzer - new cation resin for U1 Boiler & CPD and U2 CPD columns
3-6-08	* LPI WSP check * Reagents → 84% STD → 100% Cation → 55%
3-11-08	- Calibrated U3 Nat Analyzers: Boiler Slope → 93% CPD Slope → 93%
3-12-08	- Calibrated U2 Nat Analyzers: Boiler Slope → 108% CPD Slope → 97% - Calibrated U1 Nat Analyzers: Boiler Slope → 67% CPD Slope → 104% - Etched electrode and calibrated Demin Nat Analyzer: Slope → 56.9 E ₀ → 38.8
	- New cation resin for U1 Economizer, U2 Boiler & U2 Economizer
	- New STD for U1 Boiler SiO ₂ analyzer
	- New Reagents for U2 CPD SiO ₂ analyzer
	- new cation resin @ LPI
	* Weekly LPI check * Reagents → 74% STD → 80% Cation → 100%

WATER QUALITY PANEL

MAINTENANCE

LOGBOOK

WQP LOG BOOK

1

3-18-08	- New Resin U3 Survey Cat Cond Analyzer
3-16-08	Unit 1 CPB Silica Cleaned: sample cell, cover, stir bar
	Unit 1 Boiler Silica Cleaned: sample cell, housing, cover, stir bar
3-17-08	Replaced cation resin 32 Polisher Boiler Silica Analyzer Unable to calibrate Checked all flows → no leaks Cleaned sample cell Replaced interference filter Recalibrated → 463 ppb
3-18-08	New Resin 21, 22 polisher cat cond Analyzers
3-19-08	Replaced cation resin @ CPD Unit 3
3-20-08	LPI H ₂ O ✓ - Looks good Levels: Reagent → 65% Std → 70% Resin → 75%
	Replaced SiO ₂ reagents on U-3 Boiler
	Replaced cation resin on Polisher 31
3-26-08	Replaced cation resin on Pol. 33
3-25-08	Replaced tubing of sample pinch valve out @ LPI SiO ₂ analyzer.
3-27-08	New sample solenoid for Unit 1 Boiler SiO ₂ analyzer
3-28-08	Replaced cation resin in Unit 1 Pol 11 & 12

Wold 000317

2

3-31-08	New reagents Unit 1 Boiler SiO ₂ analyzer
4-1-08	LPI WQP ✓ - Good Reagent- 45% Std- 40% Resin- 40%
	Unit 3 Main Steam Sodium Analyzer (2111L) Etched electrode Calibrated slope → 58.5 E ₀ → -64.8
	New reagents in sherco LPI WQP SiO ₂ analyzer.
4-3-08	New reagents in Demin SiO ₂ analyzer
4-4-08	LPI WQP ✓ Reagent 40% std 40% New cation resin.
4-11-08	LPI WQP * New set of Reagents Std. 40% Resin 70%
4-09-08	Replaced cation resin unit 3 Economizer Inlets
4-14-08	Replaced cation resin in Unit 2 CPD & Pol 22 col's. New lamp installed in Unit 1 Boiler SiO ₂ analyzer LPI WQP ✓ Reagents → 95% Std → 30% Resin 60%.
4-15-08	Calibrated Unit 3 Sodium Analyzers SLOPE Boiler 92% CPD 92%

4-15-08	Sodium Analyzers Unit 1 & 2			
	Calibrated	Date	Slope	
	U1 Boiler	4-16	88%	
	U1 CPD	4-15	100%	
	U2 Boiler	4-15	85%	
	U2 CPD	4-15	104%	
4-16-08	Demin Na ⁺	4-16	59.2	E ₀ 23.7
4-17-08	New SiO ₂ std for Unit 3 Boiler			
	Replaced SiO ₂ reagents and stds on Unit 3 CPD			
	New resin in Unit 1 Econ In. Cation Col.			
4-18-08	LPI WQP			
	Reagent 89%	Std. 30%	Resin 40%	
4-22-08	New SiO ₂ Reagents in U-2 Boiler SiO ₂ analyzer.			
4-23-08	Replaced poly tubing to 32 Boiler Sodium analyzer. (Leak Hole)			
	LPI WQP check			
	Reagent 80%	Std. 20%	* Resin 20%	
4-24-08	New cation resin in U-1 Boiler C.C. and 21 Polisher C.C.			
	* New Resin over AT LPI WQP.			
	Fresh Reagents in U-1 CPD SiO ₂ analyzer.			
4-28-08	Replaced cation resin in U-3 Boiler & M. Steam			
	New SiO ₂ std in Demin SiO ₂ analyzer			

4		
4-29-08	Replaced resin in U-1 CPD Cation Col.	
4-30-08	LPI WQP Check: Reagent 69% Std 10% Resin 75%	
5-5-08	New Reagents + Std for U-2 SiO ₂ analyzer. (CPD) New Std for LPI WQP SiO ₂ analyzer. * Reagents 50% Std. 100% Resin 50%	
5-8-08	Replaced U-2 Boiler pH Reference electrodes	
5-9-08	LPI WQP Check: Reagent 46% Std 100% Resin 40%	
	Replaced resin for the following cation columns: - LPI WQP (Unit 1+2 chem lab) - 11 + 12 Polisher columns - U-2 Boiler Water	
5-12-08	New reagent U-3 Boiler SiO ₂ analyzer	
5-13-08	LPI WQP Resin-30% Std-90% Reag-?	
	Replaced all upper tubing; cleaned sample cell & stir bar checked all flows. Calibrated- 499.6 ppb	
	LPI-in-house Reading negative ## ^s found no sample flow. Changed pinch valve tubing- restored flow. Replaced all C-flex tubing; sample cell & stir bar. Calibrated 513.8 ppb	5-

5-15-08	LPI WQP ✓		
	Reag → 36% Std → 90% Resin 100%		
	Replaced cation resin		
	Sodium Analyzer Calibrations		
	<u>Site</u>	<u>Slope</u>	
Unit 1	Boiler	87%	
	CPD	100%	
Unit 2	Boiler	85%	
	CPD	106%	
	Demin	59.2	E ₀ 23.7
	Unit 3		
5-16-08	Boiler	86%	
	CPD	92%	
5-16-08	LPI WQP SiO ₂ analyzer check - Reagents	25%	
	Unit 3 CPD SiO ₂ analyzer		
	Cleaned sample cell & stir bar.		
	* NOTE: The stir bars are being "plated" by a silver coating. I've found this on 3 separate analyzers this week.		
	cleaned in-line filter on Unit 3 Boiler SiO ₂ analyzer.		
5-19-08	LPI WQP ✓		
	Adjusted % SiO ₂ reagent to 26% Std → 80% Resin → 80%		
	Replaced filter for sample of <u>all</u> panel.		

6

5-19-08	Unit 1 Boiler SiO ₂ analyzer will NOT calibrate. Checked all flows. They all stop/start correctly. Measured reagent delivery amounts. They are all correct, although the Am. Acid was a little on the low side. Cal. value = 531ppb
5-21-08	Replaced AD probe on Unit 1 S/N → 50232 New resin for Unit 1 Econ In. Cation Col.
5-22-08	LPI WQP ✓ new reagents (only) in SiO ₂ analyzer Resin = 70% Std → 80%
5-23-08	New resin (Cation) Unit 2 CPD & Pol. 22 Unit 1 Boiler SiO ₂ analyzer Overhaul
5-27-08	Unit 1 Boiler SiO ₂ analyzer developed a leak in the tubing module manifold. Since there were not enough parts available for a module change-out I crimped down on the amino acid fitting on the bottom half of that unit. It seem to be holding tight. After clean-up I reestablished Boiler flow and calibrated it. Cal reading = 505ppb.
5-28-08	LPI WQP check: Reagents 90% Std 70% Resin 50%
5-29-08	Replaced cation resin Unit 2 Pol 21

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5-30-08 LPI WQF Check:
 Reagents 87% Std 70% Resin 40%

6-2-08 Unit 3 Boiler SiO_2 - unable to calibrate
 Cleaned sample cell - stir bar
 Silver plating on stir bar again.

Unit 2 Boiler SiO_2 - unable to calibrate

New inline filter on Unit 2 Na analyzers

6-2-08 Replaced #31 Boiler - sodium pre-filter

6-3-08 Replaced cation resin for Unit 3 Polisher 31

New SiO_2 std Boiler Unit 3
 Recalibrated: 511ppb

Unit 2 Boiler Silica analyzer

The discharge hose from the sample cell was compromised. Reagent had flowed in & around compartment. Taken apart & cleaned. Replaced: hose, sample cell, stir bar, cover assembly
 NOTE: all silver-plated again
 Called Hach again

Nemin Sodium Analyzer

Replaced meas. and ref. electrodes; ref. fill. solution; O-rings; reagent.
 Cleaned all of sample block.
 Calibrated Slope \rightarrow 60.2 $E_0 \rightarrow$ 29.6

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6-5-08	Unit 3 Main Steam Sodium Analyzer Etched electrode Developed leak @ shut off valve site, ferrel let loose. No new one, had to reuse. Stopped leak, ↓
6-6-08	Calibrated slope → 60.3 E ₀ -56.1 Replaced all reagents in Unit 3 CPD SiO ₂ Ana. Unit 2 CPD SiO ₂ analyzer Cleaned sample cell NOTE: straws (on cover) and stir bar are silver plated LPI WQP ✓ Reagent 70% Std 60% Resin 100% Changed cation resin in col. ↑
6-9-08	Unit 2 Boiler SiO ₂ analyzer Changed interference filter. It looked OK. This thing is "unable to calibrate" Replaced SiO ₂ reagents in: Unit 1 CPD Unit 2 Boiler ↳ Tried new reagents for calibration. Didn't work.
6-10-09	Sampled turbine oils and EHC fluids.
6-12-09	Unit 2 Boiler SiO ₂ - Replaced interference filter Replaced std. Called Hach - they suggested doing a default cal. Then the gain will be reset. Recalled again - successful @ 505 ppb. Sent 'plated' stir bar; cover assem; & sample cell w/ reagent lot # ⁵ to Hach today

Wold 000324

6-12-08	Replaced cation resin in Unit 1 Boiler, Pol 12 & 11
6-13-08	LPI WQP ✓ Reagent 64% Std 50% Resin 75%
6-13-08	Unit 2 Na Analyzer Calibrations Boiler → CPD →
6-16-08	Unit 1 Na Analyzer Calibrations Boiler → 89% CPD → 105%
6-17-08	Unit 3 Na Analyzer Calibrated Boiler → 90% CPD → 96%
	Replaced SiO ₂ reagents in U-2 CPD SiO ₂ .
	Replaced cation resin for both U1 & 2 Survey Col.
6-19-08	Replaced cation resin: Unit 1 → Econ In & CPD LPI → Sherco on-site
6-23-08	LPI WQP ✓ Resin → 25% Reag. → 47% Std → 30%
6-25-08	Replaced cation resin in Unit 2 Econ In Col LPI WQP ✓ <u>Resin replaced</u> 100% Reag. 43% Std 30%

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6-30-08	New Reagent LPI SiO ₂ analyzer @ SHERCO New Resin 21, 22 polisher Cat. Cond. analyzer New Resin U2 CPD, BLR CAT cond. analyzer
	New pressure regulator valve installed on Demin SiO ₂ analyzer by Kevin Backes.
7-1-08	New Reagent U3 Boiler SiO ₂ analyzer " " LPI SiO ₂ analyzer
	* LPI WQP Check * Reagent 80% (new) Resin 70% STD 20%
7-9-08	Replaced Reagents U1 Boiler SiO ₂ analyzer Replaced Reagents Demin SiO ₂ analyzer
7-10-08	Replaced Resin @ LPI WQP Resin 100% STD 10% (left New Bottle there) Reagent 65%
7-14-08	New SiO ₂ STD. U2 CPD New SiO ₂ STD. Demin SiO ₂ analyzer
7-15-08	LPI WQP Check: Reagents 75% Std. 100% (New) Resin 80%
7-17-08	New cation resin: 11 + 12 Polishers Econ. Inlet - U-1
7-18-08	Calibrated Demin Nat Analyzer 1811 EL Slope 59.2 E ₀ -28.1

Wold 000326

- 7-22-08 Replaced Resin U1 Boiler CAT. COND. Analyzer
Replaced Resin U2 Econ CAT. COND. Analyzer
- 7-23-08 Calibrated U3 Main steam nat analyzer
Also replaced DIPA reagent, tubing and etched electrode
Slope \rightarrow 60.1 $E_0 \rightarrow$ -53.5
- Changed U3 survey cation resin
- Calibrated U3 nat analyzers & installed new in-line filters. Boiler slope \rightarrow 90% CPD slope \rightarrow 94%
- 7-24-08 * LPI WQP CHECK *
Replaced Resin 100%
STD Level = 90
Reagent Level = 45
- Calibrated U1 nat analyzers & replaced in-line filters
Boiler slope \rightarrow 86% CPD slope \rightarrow 103%
 - Calibrated U2 nat analyzers
Boiler slope \rightarrow 89% CPD slope \rightarrow 98%
 - new cation resin for LPI in old lab
- 7-25-08 - new reagents in U1 CPD SiO₂ analyzer
- new reagents in U2 Boiler SiO₂ analyzer
- new reagents in U3 CPD SiO₂ analyzer
- 7-29-08 LPI WQP Check:
Reagents 37% Std 80% Resin 80%
- 7-31-08 New cation resin: 21 + 22 polisher C.C.
Unit 1 CPP C.C.

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8-5-08	LPI WQP check: Std. 70% Reagent 28% Resin 55%
8-8-08	Std. 70% Reagent 25% Resin 40%
8-11-08	LPI WQP: Replaced Reagents + Resin Std 60% Reagent 100% Resin 100%
8-15-08	New cation resin - U1 Econ Inlet C.C. Fresh Reagents - U2 CPD SiO ₂ analyzer
8-21-08	* New cation resin - 11 + 12 Polishers C.C. Cond. * Fresh Reagents - U3 Boiler SiO ₂ analyzer. * Electrode maintenance and calibration of DEMIN Na analyzer. Slope = 58.8 E ₀ = -35.3
	* LPI WQP check: Std 50% Reagent 83% Resin 50%
8-26-08	LPI WQP check: Std 40% Reagent 75% Resin 25%
8-28-08	* LPI WQP check: (Replaced) Std 40% Reagent 72% Resin 100%
	* Resin replaced for the following Cat. Columns: U-1 Boiler, U-2 Boiler, U-2 Econ Inlet, 21 + 22 Polishers
8-29-08	Fresh Reagents on U-2 Boiler SiO ₂ , DEMIN SiO ₂ analyzer
9-2-08	LPI WQP check: Std 30% Reagent 64% Resin 75%
9-3-08	U-3 Main Steam Sodium analyzer - Etched sensor + calibrated - Slope = 59.1 E ₀ = -58.0 mV

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9-5-08 - Changed resin column for LPI WQP (Backroom Chem Lab)

- WQP check at LPI:

Std 30% Reagent 59% Resin 60%

9-10-08 WQP check at LPI:

Std 30% Reagent 40% Resin 33%

9-11-08 Replaced Resin at LPI WQP - Resin 100%

9-12-08 Replaced Resin on U-1 CPD C. Cond.

Replaced Reagents for U-1 CPD SiO_2 + U-2 Boiler SiO_2
(Found a cracked cap on U-2 analyzer - Fixed)

Replaced Resin on 31 + 32 Polisher C. Cond. columns.

Startup of Main Steam 2111 LL Sodium Analyzer (Unit 1)

- Established sample flow
- Installed Sensing and Reference electrodes
- Installation of Reagent completed.
- Will allow analyzer to run over the weekend and calibrate next week.

9-16-08 - Replaced Resin on U-1 Econ Inlet Cat. Cond.

- Replaced Reagents + Standard at LPI WQP SiO_2 anal.
Resin Column at LPI - 70%

- Calibrated U-1 Main Steam Na analyzer:
Slope = 60.3 $E_0 = -46.4$ mv

9-17-08 Replaced resin on U-2 CPD Cat. Cond.

9-19-08 Calibration + Maintenance of DEMIN Na analyzer.

- New Reagent and tubing. Etched sensor.

* Slope 58.2 $E_0 = -36.5$

Wold 000329

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9-23-08 WQP check at LPI:
Reagents 89% Std 90% Resin 35%

9-24-08 Calibration of U1 + 2 Sodium analyzers.

U1 - Boiler	Slope -	86%
CPD	Slope -	103%
U2 - Boiler	Slope -	87%
CPD	Slope -	98%

9-25-08 Fresh cation resin in the following:

11+12 Polisher Cat. Cond.

U-2 Econ. Inlet Cat. Cond.

* LPI Cat. Cond. at LPI WQP

* Fresh Reagents installed in U-2 CPD Silica analyzer.

9-30-08 WQP check at LPI:
Reagents 77% Std 80% Resin 75%

* Installed sensing + ref. electrodes into New Unit 2 Main Steam sodium analyzer for conditioning.

10-1-08 Calibrated U1 + U2 Main Steam Sodium analyzers.

	<u>U1</u>	<u>U2</u>
slope	41.7	59.8
E ₀	-47.7	-43.8

10-2-08 Replaced the Temp Sensor on U2 M.S. Na analyzer with the sensor from U3 due to a sensor failure on U2. Seems to have fixed the problem. Will order a couple more temp sensors.

10-2-08	Replaced resin for 21 + 22 Polisher Cat. Cond.
10-3-08	WQP check at LPI: Reagents 72% Std 80% Resin 60%
	- Performed another calibration of the U2 Main St. Na analyzer. Slope 60.7 Eo -39.8
10-6-08	- Replaced S.O ₂ STD U2 CPD Analyzer
10-7-08	- Replaced Resin LPI CAT COND. Analyzer @ SHERCO
10-8-08	* LPI WQP CHECK * - Resin 30 - Reagent 54 - STD 70
10-9-08	- Replaced Resin @ LPI Cond. Analyzer - Cleaned flow meter @ LPI
10-13-08	* LPI WQP CHECK * Resin 50 Reagent 42 STD 60 - Replaced Reagents LPI S.O ₂ Analyzer @ SHERCO
10-15-08	* LPI WQP CHECK Resin 75 Reagent 39 STD 60 - CHANGED ALL CAT COND Analyzer Resin U3 WQP - New Resin U1 BLR, Econ CAT COND. Analyzers - New Reagents Demin S.O ₂ analyzer
10-15-08	Replaced sample filter and lamp on silica monitor. (LPI) - Replaced S.S. Sample filter with clean filter

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10-20-08

* LPI WAP CHECK *

Resin = 50

Reagent 26

STD 60

- reset SiO_2 Reagent Blank after Analyzer
Shutdown for service LAST week

- calibrated 1811 EL Nat Analyzer for Demin

- Slope 51.1

E_0 - 57.2

- etched electrode

- New SiO_2 STD'S for U1 CPD & U2 Boiler

- Replaced in-line filters U3 Nat Analyzers

- EDTA Cleaned LPI STAINLESS steel Sample Filter

10-21-08

Rebuild & PM of Unit 3 Baber SiO_2 analyzer

- Replaced upper reagent tubing

- Replaced sample cell & cover

- Replaced stir BAR

- Inspected lamp - no discoloration

- Replaced Interference filter

- Replaced lower tubing module

10-16-08

New Interference filter @ LPI Silica Analyzer

10-22-08

- Calibrated U2 Sodium Analyzers

Boiler Slope 94

CPD Slope 103

- Calibrated Unit one Sodium Analyzers

Boiler Slope - 86

CPD Slope - 110

10-25-08 - Replaced Resin U1 CPD CAT COND Analyzer
 - Replaced Reagents U2 BLR SiO₂ analyzer

LPI WQP CHECK

Replaced Resin 100
 Replaced Reagents 100
 STD. Level 60

11-27-08 - New SiO₂ Std U1 Balor SiO₂ analyzer
 - New Resin U2 Econ CAT COND Analyzer
 - New Resin 22 pol CAT COND Analyzer

LPI WQP check

Resin 75 Reagent 93 STD 60

10-27-08 Rebuild + PM of Unit 3 CPD SiO₂ analyzer

- Replaced upper reagent tubing
- New lower tubing module
- New sample cell
- Inspected Lamp
- Inspected Interference Filter
- New sample cell cover

10-31-08 *LPI WQP CHECK*

Resin = 65 Reagent 77 STD 60

11-3-08 New Resin U2 CPD, 21 pol CAT COND. Analyzers

11-5-08 New Reagents U2 CPD SiO₂ Analyzer

Calibrated U1 + U2 main steam Na⁺ Analyzers

11-6-08 *LPI WQP CHECK*

Replaced Resin = 100% Reagent = 77 STD 50

- Calibrated U3 CPD Na⁺ Analyzer Slope → 102%

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11-10-08	* LPI WQP CHECK *									
	Resin 80 Reagent 70 STD 60									
11-11-08	- Installed Temp Compensator U3 MAIN steam Nat Analyzer									
	- Calibrated U3 Boiler Nat Analyzer, Slope = 88%									
11-13-08	- New DIPA U3 MAIN steam Nat Analyzer									
	- New Reagents U1 Boiler SO ₂ Analyzer									
	- New Resin SHERCO LPI SO ₂ CAT COND Analyzer									
11-14-08	New Reagents and standards U3 Boiler SO ₂ analyzer									
11-18-08	Calibrated 1811 EC Demin Na Analyzer									
	slope -50.4									
	E ₀ -52.7									
11-19-08	* LPI WQP check *									
	Replaced Resin 100% STD 50 Reagent 45									
11-20-08	- Replaced Resin U1 + U2 MAIN steam CAT COND Analyzers									
	- Replaced Resin U1 Econ. CAT COND Analyzer									
11-24-08	Calibrated U1 + U2 Nat Analyzers									
	<table border="1"> <thead> <tr> <th></th> <th>U1</th> <th>U2</th> </tr> </thead> <tbody> <tr> <td>BLR</td> <td>92%</td> <td>110%</td> </tr> <tr> <td>CPD</td> <td>99%</td> <td>101%</td> </tr> </tbody> </table>		U1	U2	BLR	92%	110%	CPD	99%	101%
	U1	U2								
BLR	92%	110%								
CPD	99%	101%								
11-25-08	* LPI WQP check *									
	Resin 70% Reagents 100% STD-60									
	- Replaced Reagents									
	- new sample line LPI SO ₂ analyzer @ SHERCO (DSW)									

Wold 000334

11-25-08 New Reagents Demin SiO_2 analyzer
 New Reagents LPI @ SHERCO SiO_2 analyzer
 New Resin U2 Boiler, ECON, & 22 pol CAT COND Analyzer

Calibrated U3 MAIN steam Na^+ Analyzer
 Slope 60.2 E_0 -52.4

12-3-08 * LPI WQP CHECK *
 Resin - 100% Reagent - 67 STD - 60
 - Found Auto Calibration function disabled?
 - Reprogrammed to Run Monday mornings @ 0600

12-4-08 - New Resin U1 Boiler CAT COND. Analyzer
 - New Reagents U2 Boiler SiO_2 analyzer

12-5-08 - Calibrated U3 Na^+ Analyzers
 Boiler 93% Slope
 CPD 87% Slope
 - Replaced in line Filter U3 CPD & Boiler Na^+ Analyzers

12-8-08 Calibrated U2 MAIN steam Na^+ Analyzer
 Slope 55.5
 E_0 -29.0

12-9-08 Calibrated U1 MAIN steam Na^+ Analyzer
 Slope 57.7
 E_0 -15.1
 - replaced measuring electrode
 - Replaced Resin U1 CPD, 21 polisher 12 polisher

12-11-08 Replaced Resin U2 CPD CAT COND. Analyzer
 Replaced Resin 21 pol CAT COND Analyzer
 Replaced Reagents U1 CPD SiO_2 analyzer

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12-11-08 *LPI WQP CHECK*
Resin 60 Reagent 54 STD 50

12-12-08 Replaced Reagents U2 CPD SiO₂ analyzer

12-15-08 New Resin LPI CAT. COND. Analyzer @ SHERCO
New STD U2 CPD SiO₂ Analyzer

12-16-08 *LPI WQP CHECK*
Reagents 46% STD 40 Resin 100
- Replaced Resin CAT COND Analyzer

- New in-line filters U1 & U2 Nat Analyzers

- CALIBRATED 1811 EL Demin Nat Analyzer
Slope 58.8
E₀ -32.1

12-19-08 LPI WQP Check
Reag. 41% Std 40% Resin 90%

12-22-08 Replaced lamp in Silica Analyzer:
(LPI WQP in U1+2 chem lab)

12-24-08 Changed cation resin on the following:
U-1 Main Steam + U-1 Econ Inlet
U-2 Main Steam, U-2 Econ Inlet, 22 Polisher

12-24-08 Replaced reagents in Unit 3 CPD SiO₂ analyzer
LPI WQP ✓
Resin - 65% Reag 35% Std 30%
adjusted to 40%

12-29-08 LPI WQP ✓
Replaced SiO₂ reagent & std @ LPI.

Wold 000336

1-2-09 LPI WQP ✓

Replaced cation resin → 100%
SiO₂ reagent → 94% Std → 100%

1-5-09 New Reagents U3 Boiler SiO₂ analyzer

1-6-09 Calibrated U3 MAIN steam Nat Analyzer
Slope -59.0 E₀ -62.6
- new filling solution installed

1-8-09 LPI WQP CHECK

Resin 7070 Reagent 84 STD 90

- New Reagent LPI SiO₂ analyzer @ SHERLO
- New Reagent Demin SiO₂ analyzer

1-11-09 Replaced Resin U2 Boiler CAT. Cond. Analyzer

1-13-09 New Reagents U2 Boiler SiO₂ analyzer

LPI WQP Check

Resin 50 Reagent 75 STD 90

1-14-09 Replaced Resin U1 11, 12 pd CAT cond analyzers

- Calibrated 1811EL Nat Analyzer (Demin)
Slope 59.7
E₀ -30.8
- etched electrode

- Calibrated U2 MAIN steam Nat Analyzer
- Replaced electrode (measuring) E125
Slope 56.4
E₀ -37.6

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- 1-15-09 Calibrated U1 CPD Nat Analyzer Slope 82
Calibrated U1 Boiler Nat Analyzer Slope 101
- 1-16-09 Calibrated U2 Nat Analyzers CPD Slope 93
Boiler Slope 98
- New resin 31, 32 polish CAT. COND. analyzers
- 1-20-09 - New Resin U1 CPD, Econ, Boiler, MAIN steam
CAT. COND. Analyzers
- New Resin U2 MAIN steam, Econ, CPD
21 pol, 22 pol CAT COND Analyzers
- New Resin LPI (SHERVO) CAT COND Analyzer
- New Reagents U1 CPD SiO_2 analyzer
- New Reagents U2 CPD SiO_2 analyzer
- New CAL STD. U1 CPD SiO_2 analyzer
- 1-21-09 - Complete Rebuild of LPI SiO_2 analyzer
- 1-26-09 Replaced stir motor on unit 3 Boiler SiO_2 analyzer
Replaced lower manifold fitting for Citric Acid-LEAK
- 1-29-09 * LPI W&P check *
- Calibration 504 ppb (500)
- Resin 75
- New STD U1 Boiler SiO_2 Analyzer

2-4-09 - New Resin 33 polisher CAT. COND. Analyzer
 - New Reagents U3 CPD SiO₂ Analyzer

2-6-09 * CPI WQP Check *
 Replaced Reagents
 Resin 50%
 STD 40%

2-6-09 Replaced unit 2 Econ In pH meas. & ref. electrodes
 Calibrated

2-9-09 * CPI WQP Check *
 - Found broken cap on molybdate, replaced
 cap and trimmed lines on all
 reagent bottles

2-10-09 Calibrated U3 MAIN Steam Nat analyzer
 - new DIPA
 - slope 59.5 E₀ -56.3

Calibrated U1 MAIN Steam Nat analyzer
 - replaced Ref Electrode
 - New DIPA
 - slope 58.6 E₀ -16.9

ZES
 EAK

- Replaced Reagents U1 Boiler S.O₂ analyzer

2-11-09 Calibrated U2 MAIN Steam Sodium Analyzer
 - New DIPA
 - slope → 58.3 E₀ → -38.4
 - Replaced Reference Electrode

2-12-09 * CPI WQP Check *
 Resin 100% Reagent - 75% STD 100%

- Replaced Resin U3 CPD + MAIN Steam Cat. Cond. Analyzers

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- 2-19-09 Replaced Reagents LPI SO₂ Analyzer @ SHERCO
- 2-20-09 Replaced Reference Electrode U2 MAIN steam
Sodium Analyzer
- Calibrated U2 MAIN steam Nat Analyzer
- 2-23-09 * LPI WQP CHECK *
Reagents 45 STD 100 Resin 60
- Replaced Reagent Demin SO₂ analyzer
- 2-24-09 Replaced Resin U1 Econ CAT, COND, Analyzer
" " " Main steam CAT, COND Analyzer
" " " Polisher " " "
" " 12 Polisher CAT COND Analyzer
- 2-25-09 Replaced Resin U2 MAIN steam CAT COND Analyzer
" " " Boiler " " "
" " 21 Polisher " " "
Replaced Reagents U2 Boiler SO₂ Analyzer
- 2-26-09 New Resin U3 Econ Inlet CAT, COND, Analyzer
- Calibrated U1 Nat Analyzers CPD = 101 % slope
BLR 90 % slope
- Calibrated U2 Nat Analyzers CPD slope = 110 %
Boiler slope = 94 %
- 2-27-09 LPI WQP CHECK
- inconsistent Readings
- Replaced Check Valve on Amino Acid
- New CAPS on All Reagents (Broken this week)
- new filter Amino Acid
- New UAMP

Wold 000340

3-2-09	Calibrated U3 CPD Nat Analyzer slope = 117 Calibrated U3 Boiler Nat Analyzer slope = 111
3-3-09	Replaced resin in Unit 2 CPD Cation Col.
3-4-09	* LPI WQP CHECK * Replaced Resin 100 Reagents 30 STD 70
3-5-09	- New SiO ₂ Reagents U1 Boiler SiO ₂ analyzer - New electrodes U2 MAIN Steam Nat Analyzer - Calibrated U2 MAIN Steam Nat Analyzer Slope 59.2 E ₀ -49.9
3-6-09	New electrodes U1 MAIN Steam Nat Analyzer Calibrated by RLM Slope 59.4 E ₀ 43.8
3-10-09	New Reagents @ LPI - Resin 75 70 STD 60 70 Reagents 100 90
3-11-09	Replaced Resin U1 Boiler + CPD CAT COND. Analyzers
3-13-09	Calibrated U3 MAIN Steam Nat Analyzer 59.4 = Slope - 56.7 = E ₀
3-16-09	Replaced STD U2 Boiler SiO ₂ Analyzer * LPI WQP CHECK * Resin = 60 Reagent = 90 STD = 50

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3-19-09 CHANGED S_2O_2 Reagents U1 Boiler Analyzer

3-23-09 New Reagents Unit 3 Boiler S_2O_2 Analyzer

3-22-09 Unit 1 Sodium Analyzer Calibrations

Boiler Slope \rightarrow 101%

CPD Slope \rightarrow 106%

3-24-09 Calibrated Demin Sodium Analyzer
Slope \rightarrow 59.8 $E_0 \rightarrow$ -31.4

3-26-09 * LPI WQP CHECK *

Replaced Resin = 100%

STD = 40%

Reagent = 80%

3-26-09 Replaced Electrodes U1 Boiler Sodium Analyzer

- Ethanol Meas. Electrode

- Calibrated U1 Boiler Sodium Analyzer

Slope \rightarrow 81%

Replaced Electrodes U2 Boiler + CPD Nat Analyzer

- Calibrated

- CPD Slope = 94%

- Boiler Slope \rightarrow 92%

Replaced electrodes U1 CPD Nat Analyzer

Calibrated - Slope = 89%

Replaced Resin U1 Econ, MAIN Steam, 11 pol.

Cation cond Analyzers

Replaced Resin U2 Econ, MAIN Steam Nat Analyzers

3-27-09 Installed new In-Line Filters
on U3 BLR + CPD Nat Analyzers

3-27-09 Cleaned Unit 3 Diss. O₂ filter & ordered new sensor.

3-31-09 Replaced in-line filter U1 + U2 Nat Analyzers
Replaced SiO₂ Std U3 CPD SiO₂ Analyzers
Replaced Resin U3 CAT. COND. Analyzer (Survey)

4-2-09 New Reagents LPI SiO₂ Analyzer @ SHERCO
New Reagents U2 Boiler SiO₂ analyzer
New Reagents U2 CPD SiO₂ analyzer
New Resin 21 pol, 22 pol CAT. COND. Analyzer
New Resin 12 pol CAT COND. Analyzer

LPI WQP CHECK

Resin 70% Reagent 63% STD 30%

Replaced pH electrodes + Buffered Unit one
Boiler and Economizer

4-3-09 Replaced U3 A.O. probe
- New Serial # 71619

4-8-09 cleaned & replaced cover assemblies on Series 5000 SiO₂^S
for Unit 1- CPD & Unit 2 Boiler

Replaced Unit 3 Boiler Silica Std.

4-8-09 Replaced tubing module in Unit 3 CPD SiO₂ analyzer
" cover assembly also - silver plated.

4-9-09 Many problems with CPD SiO₂^{u-3}, replaced cover assem.
Calibrated, new stir bar. †

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4-10-09	LPI WQP ✓ Reag 49% Std 40% Resin 50%
4-13-09	LPI WQP cleaned: sample cell, cover assem, stir bar replaced resin
4-15-09	Replaced D.O. Probe on U-1 WQP. <u>S/N 72274</u>
4-17-09	Replaced resin in Unit 2 Boiler Col. Replaced resin in Pol 31 Cat. Col. on Wed 4-15-09 & it is <u>still</u> reading too high.
4-21-09	Demin Sodium Analyzer Etched Na electrode and calibrated Slope → 60.7 E_0 → -29.4 Unit 1 Main Steam Sodium Etched electrode, replaced NIPA reagent; tubing & O-rings. Calibrated SLOPE → 58.3 E_0 → -40.3
4-22-09	Replaced resin in Unit 3 Polisher 32 cat col Unit 3 CPD SiO_2 alarmed Mon AM @ 0300 hrs changed molybdate solenoid Reading 8.0ppb
4-23-09	Unit 3 Boiler SiO_2 Replaced lamp - twice! Replaced resin for Unit 3 Boiler cation

Wold 000344

4-23-09 Unit 3 Main Steam Sodium
Etched electrode and calibrated
Slope \rightarrow 58.5 $E_0 \rightarrow$ -56.5

Replaced Cation resin in: SHERCO LPI WAP
Main Steam Units 1 & 2
Unit 1 Econ. In.

New SiO_2 reagents for Unit 1 CPD

4-24-09 Unit 2 Main Steam Sodium
RLM Etched electrode and calibrated
Slope \rightarrow 58.6 $E_0 \rightarrow$ -52.8

Replaced Resin in Unit 3 Polisher 33 & Econ.

4-27-09 New resin in Unit 1: Boiler & CPD Cation Col
Unit 2: Econ. In.

4-28-09 Unit Sodium Analyzer Calibrations

	Unit 1		Unit 2		Unit 3	
	Boiler	CPD	Boiler	CPD	Boiler	CPD
%SLOPE \rightarrow	80	81	101	101	88	93

cleaned Demin SiO_2 analyzer
Replaced: sample stir bar, cover assembly, & upper tubing

Installed New D.O. probe on Portable Analyzer
Serial # 36137

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- 4-30-09 New cover assembly & stir bar in:
 SHERCO LPI SiO₂
 Unit 1 Boiler SiO₂
 Unit 2 CPD SiO₂
- New cation resin in Unit 1 Pol. II col.
- 5-1-09 Replaced cation resin in Unit 3 Main Stm
- Replaced reagents & std in Unit 1 Boiler SiO₂ Ana.
- Replaced SiO₂ std in Unit 1 CPD SiO₂ Ana.
- LPI WQP ✓
 SiO₂ → 34% Std → 90% Resin → 50%
- 5-4-09 LPI WQP ✓
 SiO₂ analyzer found w/ no reagent pressure
 ↳ Reagents replaced Std → 90%
 Cation resin → replaced 100%
- Replaced SiO₂ reagents in Unit 3 Boiler
- Cleaned cell, straws, & stir bar from Unit 3 CPD SiO₂. They were all plated w/ a gold color !!!
- 5-5-09 changed cell on U-3 CPD SiO₂ Analyzer
 Very erratic readings! Contacted Hach → suggest dry cell readings → empty cell then let it analyze. will indicate electronics problem.
 Dry cell read 2.2 ppb consistently.
 checked reagent delivery → Moly = 3.1 Cit = 2.1 FAT = 2.5
 (this is after 5 deliveries) ideal is ~ 2.5.
- Still problems!
 May be the colorimeter

Wold 000346

5-7-09 Replaced reagents in U-3 CPD SiO₂ analyzer
 just changing another variable for ✓.
 Lot#: FAA-A9028 Cit-A9027 Moly-A9023

5-8-09 LPI WQP ✓
 Resin → 90% Reagent → 98% Std → 90%
 Found again w/ no reagent pressure

5-11-09 LPI WQP ✓
 Resin → 80% Reagent → 93% Std → 80%

Replaced Std in Aemin SiO₂ analyzer

Replaced cation resin in col of Unit 2 Pol. 21 & 22.

5-14-09 Replaced Pol. 12 cation resin

New reagents in Unit 2 Boiler SiO₂ analyzer

Unit 3 CPD SiO₂ status:

One odd peak of 17ppb from 5ppb since 5-9-09
 @ noon. It happened yesterday @ 1620 PM.

5-18-09 Replaced cation resin for Unit 3 CPD

New SiO₂ std in Unit 2 Boiler SiO₂ analyzer

est
 ill

Unit 3 CPD → more peaks during weekend.

Replaced air pump on Mn. Steam Unit 2 Na⁺

-25

LPI WQP ✓
 Resin → 50% Reag → 81% Std → 70%

32

5-19-09 Replaced reagents in LPI (Sherco site) WQP SiO_2

5-20-09 New DIIPA in Main Steam Unit 3.

5-21-09 Replaced reagents in Demin SiO_2 analyzer.

New resin Unit 1 Main Steam cation col.
Unit 2 " " " "

Sodium Analyzers:

Unit 1 Main Steam

Etched elec.; calibrated Slope $\rightarrow 56.4$ $E_0 \rightarrow -17.9$

Unit 2 Main Steam

Replaced: DIIPA; tubing; O-rings

5-22-09 Calibrated Slope $\rightarrow 59.0$ $E_0 \rightarrow -36.1$

Unit 3 Main Steam (SEE 5-20-09)

Etched elec. & Calibrated

Slope $\rightarrow 59.7$ $E_0 \rightarrow -50.8$

Demin Sodium

Replaced: DIIPA; tubing; O-rings; ref. elec. fill sol'n.

Calibrated Slope $\rightarrow 60.3$ $E_0 \rightarrow -29.9$

LPI WQP \checkmark

Reagent $\rightarrow 75\%$ Std $\rightarrow 70\%$ Resin $\rightarrow 40\%$

Replaced cation resin in: Unit 1 Econ
Unit 2 CPD

5-26-09 LPI WQP \checkmark

Reagent $\rightarrow 69\%$ Std $\rightarrow 60\%$ Resin $\rightarrow 100\%$

Replaced cation resin

Replaced SiO_2 std in Unit 3 CPD SiO_2 analyzer

5-26-09 (28)	Sodiums Analyzers Unit 3
	Boiler CPD Slope = 93% Slope = 89%
	Unit 1
	Boiler CPD Slope = 80% 97%
	Unit 2
	Boiler CPD Slope = 98% 101%
5-28-09	New cation resin for: Unit 2 Econ In LPI Sherco's
5-29-09	Replaced reagents & std in Unit 2 CPD SiO ₂ analyzer LPI WQP ✓ Reagent → 63% Std → 60% Resin → 85%
6-5-09	Exchanged sample filter @ LPI
6-8-09	Replaced interface filter on Unit 3 CPD SiO ₂ analyzer This is still plagued by an unknown problem. Random spikes on readout caused alarm with ops this past week, so I'm trying things to "find" a problem.
6-9-09	Contacted Hach Tech Support about U-3 CPD SiO ₂ They suggest sending the unit in for ID of problem! LPI WQP ✓ Reagent → 45% Std → 40% Resin → 40%

34.

5-9-09	New cation resin in Unit 2 Boiler
6-10-09	Replaced reagents in Unit 1 CPD SiO_2 analyzer New cation resin in Unit 1 Pol. 11 col.
6-11-09	Replaced cation resin Unit CPD col. Replaced SiO_2 reagents in Unit 1 Boiler analyzer Unit 3 CPD SiO_2 Dry cell calibration from 6-9 to 6-11 showed all -2.44. Electronics prove to be functional. Replaced SiO_2 std solenoid.
6-12-09	Put new Moly. Reagent solenoid in U-3 CPD SiO_2
6-15-09	U-3 CPD SiO_2 has faulty microprocessor! Replaced cation resin for Unit 1 Main Steam. New reagents & std in U-3 Boiler SiO_2 analyzer LPI WAP \checkmark Reag. \rightarrow 35% Std \rightarrow 40% ^{adjusted} Resin \rightarrow 100% Replaced cation resin
6-19-09	LPI WAP changed SiO_2 analyzer reagents - RLM
6-19-09	Replaced cation resin for: Unit 1 - Boiler & Pol. 12 Unit 2 - Main Strm & Pol. 21 & 22 Demin Na^+ \rightarrow etched elec & Calibrated SLOPE \rightarrow 59.4 $E_0 \rightarrow$ -30.2

6-19-09 Unit 2 Main Steam Na⁺
 Put back in-service after long outage
 New DIIPA reagent
 " adapter installed w/ tubing

↑
 6-22-09 Calibrated above: slope → 60.0 E₀ → -26.0

Na⁺ Analyzer

UNIT	ANALYZER	SLOPE	
1	Boiler	80%	
1	CPD	104%	
2	Boiler	84%	
2	CPD	107%	
1	Main Steam	57.4	E ₀ -35.7
	↳ etched elec. & calibrated - only		

6-24-09 Replaced cation resin for Unit 1 Econ In

Unit 2 Boiler SiO₂ is in ^{out} alarm at -0.00
 May have been due to excess magnetite
 Cleaned inlet filter & sample cell (stir bar, straws)

6-25-09 LPI SiO₂ - it's a mess!
 Will replace whole instrument next week
 Replace Moly 3 sol. today, did no good.

6-26-09 Unit 3 Sodium Analyzer Calibration

Boiler	89%	} slopes
CPD	89%	
Main Stm	60.2%	E ₀ -47.5

322

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Unit 3 CPD Silica Analyzer

6-26-09 Kevin B. installed NEW control box on U-3 CPD Silica analyzer.

6-29-09 Replaced reagents in U-3 CPD SiO₂ Analyzer
checked weekend output on this thing
Lot# R9065 and there was one spike of 17ppb Sat. @ 3:30 PM
‡ A9070 this is very disturbing!
There was twice the amount of Molyb used.
Is there a solenoid problem?

Lot# 9121 Replaced reagents, only, in Sherco LPI SiO₂ Ana.
9124

6-30-09 cleaned sample cells on Unit 1 & 2 Boiler Silica's.
Fixed cation col. on Unit 2 Main steam (new cap)

7-1-09 New Reagents Demin SiO₂ analyzer
New Reagents U2 Boiler SiO₂ analyzer
New Resin LPI CAT COND Analyzer @ SHERCO

7-2-09 * New SiO₂ analyzer at LPI
1035 hrs Calibration = 502 ppb set to Cal on Mon AM's @ 0700
Mon = 15 ppb Lab = 9 ppb
just coming back up from down time 0630 to 0900

7-7-09 * LPI WQP *
Reagents 75 STD 60% Resin 60%

7-9-09 New Reagent U2 CPD SiO₂ analyzer

7-14-09 New Resin - U-2 Main Steam Cat. Cond.

7-15-09 Replaced O₂ Sensor on Unit 3 WQP.
(S/N 34241)

* Calibrated on 7-16-09

Wold 000352

7-15-09	LPI WQP*
	Reagents 55% Std. 50% Resin 30%
	Changed resin on U-2 Econ Inlet Cat. Cond.
7-16-09	Changed resin: - U-2 CPD Cat. Cond. - U-3 Econ Inlet Cat. Cond. (At LPI) - LPI WQP Cat. Cond. (100%)
7-21-09	Changed resin: U-1 Main Steam Cat. Cond. 32 Polisher Cat. Cond. New reagents in U-1 Boiler SiO ₂ analyzer. New Std. in DEMIN SiO ₂ analyzer.
7-22-09	Calibrated DEMIN Sodium analyzer. Etched measuring electrode. Slope 59.0 E ₀ -36.1
	changed resin: U-3 31 Polisher Cat. Cond
	LPI WQP Reagents 43% Std. 40% Resin 65%
7-23-09	changed resin: U-3 Main Steam Cat. Cond. U-1 11 Polisher Cat. Cond.
7-27-09	New SiO ₂ Std U1 Boiler, U1 CPD, U2 CPD
7-28-09	Calibrated U3 main steam Na ⁺ Analyzer Slope 59.8 E ₀ -42.7
7-29-09	New Resin 12 pol CAT COND Analyzer New Resin Unit one CPD CAT COND Analyzer New Resin Unit one Econ CAT COND Analyzer New Resin 21 + 22 pol CAT COND Analyzer

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7-30-09 * LPI WQP check
 Reagent 30 STD 30 Resin 100
 - replaced Resin CAT COND Analyzer

Calibrated U2 MAIN Steam Nat Analyzer
 Slope 57.8
 E_0 -55.1
 HAD to replace electrodes - Error 125

7-31-09 * LPI *
 Replaced Reagents @ LPI SiO_2 analyzer

8-6-09 LPI: Reagents 90% Std 20% Resin 70%
 New reagents in U-1 CPD SiO_2 analyzer.
 New resin in U-2 Main Steam Cat. Cond.

8-7-09 Changed Cat. Resin for 33 Polisher Cat. Cond.
 Performed maintenance and calibration on Unit 1 Main
 Steam sodium analyzer.
 - Etched sensing electrode
 - changed diffusion tubing + DIPA reagent
 Slope 47.4 E_0 -11.3

8-11-09 LPI: Reagents 82% Std 10% Resin 40%
 New reagents for LPI WQP at Sherco

8-12-09 Calibrated U-2 Sodium Analyzers
 Boiler slope = 84% CPD slope = 107%

Calibrated U-1 Sodium Analyzers
 Boiler slope = 80% CPD slope = 104%

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8-13-09 Calibrated U-3 Sodium Analyzers
Boiler slope = 89% CPD slope = 101%

8-14-09 LPI WQP: Reagents 77% Std 10%
Cat. Resin 100% (changed resin)

Cat. Column Resin changes today: LPI WQP (Sherco)
U-2 Boiler C.C.
U-2 Econ Inlet C.C.
U-3 Boiler C.C.

New reagents for U-3 CPD SiO₂ analyzer.

8-18-09 LPI WQP: Reagents 70% Std 100% (replaced)
Resin 80%

8-19-09 New cation resin: U-1 Boiler Water and Main Steam.

New reagents + std for U-2 CPD SiO₂ analyzer.

New cation resin: U-3 CPD Cat. Cond.

8-20-09 DEMIN Na Analyzer: Etched measuring electrode.
Changed diffusion tubing and new reagent.
Calibration: Slope 58.8 E₀ -33.8

8-21-09 New reagents in Demin SiO₂ analyzer.

8-26-09 New cation resin: U-2 CPD Cat. Cond.

LPI WQP: Reagents 57% Std 90% Resin 50%

8-27-09 U-1 Main Steam Na Analyzer: New sensing electrode installed.
Placed Ref electrode in hot D.I. water for 10 min. Installed new
ref. filling solution.

8-28-09 Calibration: Slope 61.3 E₀ -42.0 mv

Wold 000355

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9-1-09 New cation resin: ~~U-1~~ Econ Inlet + 11 Polisher

LPI WQP check and resin change:
Resin 100% Reagents 47% Std 80%

9-2-09 U-3 Main Steam Na analyzer:
Changed diffusion tubing + reagent
Etched sensing electrode + calibrated
Slope 60.0 E_0 -40.1

New Reagents in U-1 Boiler Silica analyzer.

9-4-09 U-2 Main Steam Na analyzer:
Etched sensing electrode + calibrated
Slope 59.1 E_0 -49.0

New Reagent in U-3 Boiler Silica analyzer.
New Standard in U-3 CPD Silica analyzer.

New Cation Resin in 22 Polisher Cat. Column.
New Cation Resin in U-2 Main Steam Cat. Column.

9-8-09 LPI WQP check:
Resin 75% Reagent 35% Std 70%

9-9-09 Changed U-1 Main Steam cation resin (Cation Cond.)

9-11-09 New cation resin: 12 Polisher Cat. Cond.
21 Polisher Cat. Cond.
Econ Inlet Cat. Cond.

LPI WQP check:
Resin 60% Reagent 25% Std 70%

9-15-09	New reagents for U-2 Boiler Silica analyzer.
9-16-09	LPI WQP: changed silica analyzer reagents. Reagents: 100% Std: 60% Resin 45%
9-18-09	Changed cation resin: U-1 CPD Cate. Cond.
9-22-09	LPI WQP: Reagents 90% Std 50% Resin 20%
9-23-09	- Demin Sodium analyzer: Etched sensing electrode Calibration: Slope 60.1 E_0 -29.3
	- Replaced cation resin at LPI WQP (Cation Cond.) 100%
9-24-09	New reagents in U-1 CPD silica analyzer. - Also a repair to Amino Acid cap was made - minor leak. Made a repair to 32 Silica analyzer, replaced leaking tygon tube to cell, for amino acid.
9-25-09	U-1+2 LPI WQP: - Replaced reagents for silica analyzer. - Changed cation resin for Cation Cond.
9-29-09	Replaced Std for Demin SiO_2 analyzer. LPI WQP check: Reagents 78% Std 40% Resin 70%
9-30-09	U-1 Main Steam Na analyzer: Etched sensing electrode and calibrated. Slope 59.1 E_0 -48.5 mv Changed/exchanged U-1 Dissolved O_2 sensor (New S/N 45771)

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10/1/09 - Changed reagents on U-3 CPD Silica analyzer.
 - Changed reagents on U-2 CPD Silica analyzer.

- Changed reagent and tubing on U-2 Main Steam sodium analyzer.

10-2-09 - Changed cation resin on U-1 Econ. Inlet Cation Cond.
 - Changed cation resin for U-2 Main Steam Cation Cond.
 - Changed cation resin for U-2 CPD Cation Cond.

- LPI WQP check:
 Reagents 74% Std 40% Resin 55%

10-6-09 New Standard for U-2 Boiler Silica Analyzer.

10-7-09 Changed cation resin on U-1 #11 Polisher Cation Cond.
 Changed cation resin on U-2 Boiler Cation Cond.
 Changed cation resin on U-2 #22 Polisher Cation Cond.

U-2 Main Steam Na Analyzer
 Etched sensing electrode and calibrated
 Slope = 58.7 $E_0 = -50.2$

LPI WQP check:
 Reagents 65% Std 30% Resin 30%

10-8-09 U-3 Main Steam Na Analyzer
 Etched sensing electrode and calibrated
 Slope = 59.4 $E_0 = -39.4$

Changed cation resin on LPI for cation conductivity.

10-12-09 Changed cation resin on U-1 Main Steam Cation Cond.

Changed reagents on Demineralizer Silica analyzer.

10-13-09 Changed reagents on U-1 Boiler Silica Analyzer

10-14-09 Calibrated U-1 Sodium Analyzers
Boiler Slope = 80% CPD slope = 104%

Calibrated U-2 Sodium Analyzers
Boiler Slope = 84% CPD slope = 100%

Changed cation resin on U-3 Main Steam Cation Cond.

Changed reagents on U-3 Boiler Silica Analyzer.

10-15-09 Calibrated U-3 Sodium Analyzers
Boiler Slope = 89% CPD slope = 101%

LPI WAP check
Reagents - 52% Std - 20% Resin 70%

10-19-09 U-3 CPD Silica Analyzer
- Replaced sample & reagent tubing
- Replaced straw assembly
- Cleaned ~~cell~~ cell (had dark blue color in it)
- Replaced stir bar
Stir bar and straws were discolored

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10-20-09 Changed cation resin on U-1 Boiler cation column
Changed cation resin on #12 Polisher cation column
Changed cation resin on U-2 Economizer cation column
Changed cation resin on #21 Polisher cation column

Changed Standard bottle on LPI silica analyzer
LPI WQP check:
Reagents 44% Std 100% Resin 45%

10-22-09 Changed cation resin for U-3 survey column.

10-26-09 LPI WQP check
Reagents 34% Std 90% Resin 25%

10-27-09 Denin Sodium Analyzer - Etched Electrode
Calibrated: Slope 58.5 E_0 - 32.0

10-28-09 U-3 Boiler Silica Analyzer
- replaced sample + reagent tubing
- replaced straw assembly
- cleaned cell
- cleaned stir bar

10-29-09 Changed cation resin in LPI cation column.

10-20-09 • Changed lamp on #22 Silica Analyzer
13:15

11-2-09 Changed Standard bottle on U-1 Boiler silica analyzer
Changed Standard bottle on U-1 CPD silica analyzer

Changed cation resin on U-2 Main Steam cation column
Changed cation resin on U1+2 LPI WQP cation column
Changed cation resin on #31 Polisher cation column.

Changed reagents on U2 Boiler silica analyzer

LPI WQP check

Reagents - 22% Std - 80% Resin 80%

11-3-09 Changed reagents on LPI silica analyzer

11-4-09 Changed reagents on U1+2 LPI silica analyzer

Changed cation resin in U1 Econ cation column
Changed cation resin in U1 CPD cation column
Changed cation resin in U3 #33 Polisher cation column
Changed cation resin in U3 Econ. cation column

Changed in-line filters for U-3 Na Analyzers

11-5-09 Changed reagents on U3 silica analyzer (CPD)
Changed reagents on U2 Silica analyzer (CPD)
Changed reagents on U1 CPD silica analyzer

Cleaned in-line filters for U3 silica analyzers.

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11-11-09

LPI WQP ✓

Resin → 50% Reagent → 87% Std → 70%

11-16-09

Changed cation resin in Unit 1 Main Steam cation column

Changed cation resin in #11 Polisher cation column

Changed cation resin in #22 Polisher cation column

Changed cation resin in Unit 2 CPD cation column.

11-17-09

Changed resin in #11 Polisher cation column.

Changed resin in #12 Polisher cation column.

LPI WQP check

Resin - 20% Reagent - 76% Std 60%

U-2 Main Steam Na⁺ Analyzer

Etched sensing electrode and calibrated

Slope = 58.3 E₀ = -49.9

Changed standard bottle on U-2 CPD silica analyzer

Changed sample + reagent tubing and cleaned cells
on U-1 CPD + Boiler silica analyzers.

11-18-09

U-3 Main Steam Na⁺ Analyzer

Etched sensing electrode and calibrated. NEW DIPA

Slope = 52.1 E₀ = -51.2

Changed resin in LPI cation column.

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11-19-09 U-3 Main Steam Na^+ Analyzer
Changed out sensing and reference electrodes
Etched sensing electrode and calibrated
Slope = 53.1 $E_0 = -63.2$

11-20-09 New cation resin in Unit 1 CPD Cat. Col.

11-23-09 U-1 Main Steam Na analyzer:
Etched electrode and calibrated
Slope = 52.4 $E_0 = -55.7$

LPI WQP check
Resin - 75% Reagent - 46% Std - 50%

New sample solenoid for U-1 CPD silica analyzer

11-24-09 Changed reagents and standard in demin silica analyzer

11-25-09 Changed reagents in U-1 Boiler silica analyzer

New resin in U-2 Main Steam cation column
New resin in U-2 Boiler cation column
New resin in U-2 Econ. cation column
New resin in #21 Polisher cation column

Changed reagents in U-3 CPD silica analyzer

11-30-09 Demin Sodium Analyzer - Etched electrode and
calibrated: Slope = 59.4 $E_0 = -29.3$

LPI WQP check
Resin - 50% Reagent - 55% Std - 40%

Wold 000363

48

12-1-09 Changed resin in the Unit 1 survey cation column.

12-2-09 Calibrated U-1 Sodium Analyzers
Boiler Slope = 80% CPD Slope = 104%

Calibrated U-2 Sodium Analyzers
Boiler Slope = 84% CPD Slope = 100%

12-3-09 Changed resin in U-3 CPD cation column.
Changed resin in #33 Polisher cation column.

12-8-09 Changed resin in the LPI cation column

LPI WQP check
Resin - 100% Reagent - 42% Std - 30%

12-10-09 LPI WQP at Sherco:
Replaced resin in the cation column
Replaced reagents for silica analyzer

Changed electrodes for U-3 Boiler + CPD
Na⁺ Analyzers

12-14-09 Calibrated U-3 Boiler + CPD Na⁺ Analyzers
Boiler Slope = 91% CPD Slope = 96%

LPI WQP check
Resin - 70% Reagent - 32% Std - 20%

12-16-09 Changed standard and reagents for U-2 Boiler silica analyzer.
Changed reagents for U-2 CPD silica analyzer.

12-21-09 Unit 1 - changed resin in all cation columns
Unit 2 - changed resin in all cation columns
except for boiler.

U-3 Main Steam Na^+ Analyzer
Etched sensing electrode and calibrated.
Slope = 60.2 $E_0 = -38.8$

New reagents for LPI silica analyzer (and standard)
Changed resin in LPI cation column

LPI WQP check
Resin - 100% Reagent - 100% Std - 100%

12-22-09 U-1 Main Steam Na^+ analyzer
Etched electrode and calibrated
Slope = 58.4 $E_0 = -54.0$

U-2 Main Steam Na^+ analyzer
Etched electrode and calibrated
Slope = 59.0 $E_0 = -47.9$

Demineralizer Na^+ analyzer
Etched electrode and calibrated
Slope = 59.2 $E_0 = -30.3$

12-23-09 Changed reagents for U-1 CPD silica analyzer

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1-5-10 Replaced Reagents U3 CPD SO_2 analyzer

Replaced Resin @ LPI WQP

* LPI WQP CHECK *

Resin 100 STD 80 Reagent 75

1-7-10 Replaced Reagents U3 Boiler SO_2 analyzer

* LPI WQP check

Reagent 72 STD-80 Resin 85
- cleaned sample panel and flow gauge

1-11-10 Replaced Reagents Demin SiO_2 analyzer

1-12-10 - Calibrated U1 CPD Nat Analyzer - slope 115%

- New In Line Filters U2 Nat Analyzers

1-12-10 Calibrated Unit 2 Boiler Solun Analyzer slope \rightarrow 94
Calibrated Unit 2 CPD Nat Analyzer slope \rightarrow 84

1-13-10 Calibrated U1 Boiler Nat Analyzer - Single point
- need temp compensator replaced

1-14-10 New Resin U3 Boiler CAT cond Analyzer

* LPI WQP CHECK *

Reagent 61 STD 70 Resin 60

1-19-10 - Calibrated U3 CPD Nat Analyzer 106% slope

- New Resin U2 MAIN Steam CAT Cond Analyzer

- Calibrated U3 Boiler Nat Analyzer slope \rightarrow 84

1-20-10 Calibrated Demin Nat Analyzer
 Slope 59.6
 E_0 -27.6
 - new DIPA + tubing

1-21-10 - New Reagents U2 CPD S_iO_2 analyzer
 - New Reagents LPI S_iO_2 analyzer @ SHERCO
 - New Resin U2 Boiler Cat Cond Analyzer
 - New Resin 21 Pol CAT COND Analyzer

* LPI WQP check *
 - New Resin - 100
 STD - 60
 Reagent - 35%

1-25-10 Replaced MAIN Steam CAT, COND. RESIN U1

1-26-10 Etched Electrode + calibrated U3 MAIN steam Nat
 Slope = 57 E_0 -36.1

1-26-10 Etched Electrode + calibrated U1 MAIN steam Nat
 Slope 58.0 E_0 -56.1

Etched + calibrated U2 MAIN steam Nat Analyzer
 Slope = 59.8 E_0 = -42.7

Replaced Resin U2 CPD, Econ, 22 pol CAT COND Analyzers

1-27-10 Replaced in-Line filters U3 Nat Analyzers

1-28-10 * LPI WQP check *
 Reagent - 100% STD - 50% Resin - 75%

- New Resin U1 Econ CAT COND Analyzer
 New Resin 11 Pol CAT COND Analyzer

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2-1-10 New SiO₂ STD'S - U3 Boiler Analyzer
 - U1 CPD Analyzer
 - U1 Boiler Analyzer
 - Demin Analyzer

2-3-10 Installed new D.O. probe U3
 Serial #54262

2-4-10 New Reagents U1 CPD SiO₂ analyzer
 New Reagents U2 Boiler SiO₂ analyzer

LPI WRP CHECK
 Resin 40% Reagent 67% STD 40%

2-9-10 *LPI WRP check*
 Resin 100 Reagent 60 STD 40%

- New Resin 12 gal CAT COND Analyzer
 - New Resin U1 CPD CAT COND Analyzer
 - New Resin U3 MAIN Steam CAT COND Analyzer

2-10-10 Replaced Air pressure regulator valve on the
 LPI SiO₂ analyzer @ SHERCO

2-15-10 Replaced Amino Acid Solenoid valve U1 CPD SiO₂ analyzer
 Installed New Filter (Amino Acid) U1 CPD SiO₂ analyzer

2-16-10 New Resin 31 galishar CAT COND Analyzer
 New Resin U3 Econ CAT COND Analyzer

*LPI WRP CHECK
 Resin=70 STD = 20 Reagent = 48

2-22-10 Calibrated U3 Nat Analyzers
 CPD Slope = 113 Boiler slope = 85

2-24-10 Replaced Resin U1 Boiler CAT COND Analyzer
 Replaced Resin LPI Return CAT COND Analyzer & SHERCO

* WPI WQP Check *

- New STD - 100%
- New Resin 100%
- Reagents 39%

2-25-10 Replaced Resin 32 pt CAT. COND. Analyzer

3-1-10 - Calibrated U1 MAIN steam Sodium Analyzer
 Slope = 59.7
 $E_0 = -50.3$

- New DIPA U2 MAIN steam Nat Analyzer
- New Tubing U2 MAIN steam Nat Analyzer

3-2-10 - CALIBRATED U3 MAIN steam Nat Analyzer
 - Slope 59.2 $E_0 -46.4$
 - replaced measuring & Ref. Electrode
 - New Reference Soln.
 - New DIPA

3-4-10 - Calibrated U1 Nat Analyzers
 CPD Slope = 115
 Boiler Slope = 100
 - Replaced the temp compensator U1 Boiler Nat Analyzer

* CPS WQP CHECK *

- Resin = 50%
- STD = 90%
- Reagent = 25%

3-8-10 - Replaced CAL. STD. U3 CPD SO₂ analyzer

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3-8-10 - Replaced Reagents LPI SiO₂ analyzer @ SHERCO

* LPI WQP *

Resin 100 %

Reagent 19 %

STD 70 %

3-9-10 - Replaced Reagents at LPI WQP SiO₂ analyzer

3-11-10 - Replaced Resin UI Econ, 11 pol cat and Analyzers

- New LAMPS, Stirbars, upper tubing, cell covers
UI SiO₂ Analyzers

- Inspection of lower tubing modules - good
UI SiO₂ analyzers

3-18-10 LPI WQP

Resin - 60%

Reagent - 85%

Std - 70%

3-22-10 Calibrated Demin Nat Analyzer
Slope - 57.2 E₀ - 34.1

3-23-10 New Reagents U3 ~~Water~~ CPD SiO₂ analyzer

Calibrated U3 Nat Analyzers

CPD - Slope = 109.91

Boiler Slope = 117

3-24-10 Replaced Reagents UI CPD SiO₂ analyzer

3-25-10 LPI WQP check

Resin - 100

Reagent 73

STD - 60

Wold 000370

3-25-10	New Resin LPI CAT COND Analyzer @ SHERCO
3-30-10	New Reagent U3 Boiler SiO_2 analyzer
3-31-10	New Resin U1 CPD CAT COND Analyzer
	LPI WQP Check Resin - 75 Reagent - 64 STD 50
4-5-10 AKH	Calibrated U3 Main Steam Sodium Analyzer Slope = 58.9 $E_0 = -47.4$
4-7-10 AKH	LPI WQP: Resin: 50.1° Reagent: 52.1° STD: 40.1°
4-7-10 AKH	Calibrated U1 Na^+ Analyzer Slope = 49.9 $E_0 = -88.6$
4-13-10 AKH	LPI WQP Resin: 25.1° Reagent: 30.1° STD: 30.1°
4-15-10 AKH	Replaced Electrodes in U2 Boiler and Economizer PH Analyzers. Calibrated electrodes.
4-20-10 AKH	LPI WQP Replaced all reagents and standard. Resin: 75.1°

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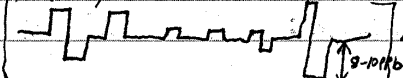
4-22-10 AKH	LPI WQP Replaced stainless steel filter.
4-23-10 AKH	Demineralizer Na ⁺ analyzer: - Etched electrode and replaced tubing and DIPA. - Calibrated
4-28-10 AKH	LPI WQP Resin: 35.1° Reagents: 85.1° Std: 85.1°
5-3-10 AKH	LPI WQP Replaced resin Reagents: 80.1° Std: 80.1°
5-3-10 AKH	LPI WQP (@sherco) Replaced resin
5-4-10 RLM	Fresh Reagents for U-3 CPD SiO ₂ analyzer. Reagents 100% Std 40%
5-5-10	Changed 12 Polisher cation resin.
5-7-10 AKH	Calibrated U-3 Mainsteam Na ⁺ Analyzer Slope = 58.7 E ₀ = -49.4
5-11-10 AKH	New reagents on U-3 boiler Silica Analyzer. Std = 60.1° Reagent pressure alarm occurred, Tried to reset alarms but it didn't help. Performed system reset. Reagent pressure = 10.1 psi

5-12-10	U-1 Main Steam Sodium analyzer: - Etched sensing electrode - Fresh bottle of Reagent + tubing (diffusion)
5-13-10	- Calibration: Slope 58.1, E_0 -58.3
5-13-10	Changed cation resin for U-1 Main Steam C.C. and U-2 #21 polisher C.C.
5-13-10	Changed reagents for U-1 CPD SiO_2 analyzer.
5-14-10	LPI check: Resin 50% Reagents 60% Std 70%
5-14-10	Replaced cracked cap on U-2 CPD SiO_2 analyzer std bottle.
5-17-10	New cation resin in U3 Survey Port
5-17-10	Replaced Filter on U2 CPD SiO_2 STD bottle. New std installed
5-18-10 AKH	LPI WQP Resin: 25% Reagents: 55% Std: 60%
5-19-10	U-2 Main Steam Sodium Analyzer: - Replaced sensing & reference electrodes (Failed cal twice). - Etched sensing electrode - Calibration: Slope=59.3, E_0 = -51.7
5-20-10 AKH	LPI WQP New Resin Reagents: 50% Std: 60%
5-20-10	New resin in U-2 #21 polisher Column

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5-21-10 Demineralizer Nat Analyzer.
AKH Etched & Calibrated

5-25-10 LPI WQP
AKH Resin: 75-lb
Reagents: 42-lb
STD: 50-lb

5-25-10 Replaced #1, 2 & 3 solenoid valves on
AKH U2 CPD Silica Analyzer. The monitor reading
was very erratic . The reading
now appears normal.

5-28-10 New STD on U3 CPD Silica analyzer.
AKH

5-28-10 Replaced resin on U3 Economizer & 31 polisher
Cation Column.

6-1-10 LPI WQP
AKH Resin = 40-lb
STD = 40-lb
Reagents = 30-lb

6-1-10 New STD on U1 Boiler Silica analyzer.

6-1-10 New resin in U2 main steam Cation Column.

6-1-10 Replaced Sample Solenoid valve on U2 boiler
Silica analyzer due to "Unable to Cal" error.
Unit now calibrated properly.

6-4-10 LPI WQP
Replaced reagents
Resin = 35-lb
STD = 35-lb

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6-7-10	Calibrated U-3 main steam Na ⁺ Analyzer.
AKH	Slope = 58.8
	E ₀ = -44.0
6-8-10	Replaced resin in U2 main steam and 12 polisher columns.
6-8-10	New resin U3 32 polisher column
6-8-10	new resin in LPI WQP Reagents = 90.0% Std = 30.0%
6-8-10	LPI WQP (shoro) New resin replaced reagents Std = 70.0%
6-10-10	Calibrated U1 CPD & Boiler Na ⁺ analyzers.
AKH	
6-10-10	Replaced reagents on Penin Silica analyzer. Std = 300.0%
6-11-10	Calibrated U3 Boiler & CPD Na ⁺ Analyzers.
AKH	
6-11-10	Replaced reagents on U1 Boiler Silica analyzer.
6-11-10	New resin in 22 polisher cation column.
6-11-10	New resin in U1 Boiler cation column.
6-15-10	LPI WQP
AKH	Resin = 70.0%
	Reagents = 85.0%
	Std = 30.0%

Wold 000375

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6-23-10 AKH	Calibrated U-2 Main Steam Na ⁺ Analyzer.
6-23-10	Calibrated Demin Na ⁺ analyzer.
6-23-10	New Resin on U-1 Economizer Column.
6-29-10	LPI WQP! Replaced cation Resin Replaced Silica STD Reagents = Good
6-29-10	New Resin on U-2 Main Steam Column.
6-29-10	New Resin on U-2 CPD Cation Column.
7-7-10	LPI WQP ✓ Good. Except SiO ₂ flashed "clean sample cell". I cleared it & left the sample cell hood off because it's extremely HOT over there!
7-7-10	Unit 3 Main Steam Sodium Problems w/ cal.: changed ref. elec. due to Low E ₀ . Replaced reagent; O-rings; Int. ref. fill. sol'n Cleaned sample cup.
7-9-10	Calibrated Slope → 60.3 E ₀ → -49.1 NOTE: Electrodes are warranted for 12 mo. of service or 18 mo. from date of purchase.
7-9-10	Replaced cation resin in Unit 2 Econ. Inlet col. LPI WQP ✓ SEE ABOVE SiO ₂ reagent → 42% STD → 90% Cation Resin → 60% cleared alarms & left

Wold 000376

	7-13-10	Unit 1 Diss. O ₂ → replaced & calibrated probe S.N. 59141 Membrane type 295Z																					
	7-16-10	Replaced cation resin in: Unit 1 Pol. 11 Unit 2 Pol. 12 LPI Sherco Site																					
		Unit 3 Boiler and CPD Sodium Analyzer Calibrations SLOPE → 94% 100%																					
		LPI WQP ✓ "Sample cell" alarm again. or still SiO ₂ reag. → 35% std → 80% Resin → 40%																					
	7-19-10	Na analyzer calibration: etched Main Steam Na ⁺ Elec. ¹⁵																					
		<table border="1"> <thead> <tr> <th>Unit</th> <th>Sample</th> <th>Slope</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Boiler</td> <td>93%</td> </tr> <tr> <td>1</td> <td>CPD</td> <td>109%</td> </tr> <tr> <td>2</td> <td>Boiler</td> <td>98%</td> </tr> <tr> <td>2</td> <td>CPD</td> <td>102%</td> </tr> <tr> <td>1</td> <td>Main Steam</td> <td>59.4 E₀ → -49.2</td> </tr> <tr> <td>2</td> <td>Main Steam</td> <td>59.4 E₀ → -49.4</td> </tr> </tbody> </table>	Unit	Sample	Slope	1	Boiler	93%	1	CPD	109%	2	Boiler	98%	2	CPD	102%	1	Main Steam	59.4 E ₀ → -49.2	2	Main Steam	59.4 E ₀ → -49.4
Unit	Sample	Slope																					
1	Boiler	93%																					
1	CPD	109%																					
2	Boiler	98%																					
2	CPD	102%																					
1	Main Steam	59.4 E ₀ → -49.2																					
2	Main Steam	59.4 E ₀ → -49.4																					
		↳ replaced DIPA, tubing, & o-rings - unit 2 only																					
		Replaced SiO ₂ std on Unit 2 Boiler SiO ₂ analyzer																					
	7-21-10	LPI WQP ✓ u-2 M. Stm. resin chg. Replaced SiO ₂ reagents & resin. Reag → 100% Std → 70% Res 100% cleaned sample cell. Left top door open.																					
	7-22-10	Replaced cation resin for Unit 1 Econ. In. Cat. Cond. Demin Sodium Analyzer Replaced DIPA; tubing; O-rings Etched meas. Elec. L Calibrated slope → 60.1 E ₀ → -22.8																					

leared
only

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- 7-23-10 Replaced SiO_2 reagents in Unit 3 Blr SiO_2 analyzer.
LPI WQP ✓
Looks good.
Reag → 97% Std → 70% Resin → 90%
- New in-line filters installed on U1 Boiler/CPD Na^+
- Replaced reagents in Sherco-site LPI SiO_2 analyzer.
- 7-26-10 LPI WQP ✓
Looks good. Very hot!
Reag → 92% Std → 60% Res → 80%
- Replaced SiO_2 reagents in Unit 1 Boiler SiO_2 analyzer
Replaced cation resin in Unit 1 Boiler Col.
- 7-27-10 Replaced whisper pump on Demin Na^+ analyzer.
- 7-28-10 Replaced cation resin: Unit 2
CPD
Pol 21
- Total overhaul of LPI Sherco Site SiO_2 analyzer.
Replaced: All tubing, fittings, reagents
interference filter
lamp, stir bar, sample cell
- Calibrated → 49.7 ppb for 500 Std.
- 7-30-10 Replaced reagents in Demin SiO_2 analyzer
New SiO_2 reagents (only) for Unit 3 Boiler SiO_2 An
LPI WQP ✓
Reag → 85% Std → 50% Resin → 75%
Coming up from brief shutdown

Wold 000378

8-2-10	Replaced cation resin for Unit 2 Boiler				
	LPI WQP ✓ VERY HOT!! $SiO_2 = 12ppb$ Reag → 80% Std → 50% Resin → 50%				
	Sherco return $SiO_2 = 45ppb$				
8-3-10	LPI Return ^{was} is outside parameter for SiO_2 so has been dumping to waste. Sat. Ops changed filters, since water has been fouled.				
	LPI WQP ✓				
0900	Sampled at LPI:				
		<u>Mon from LPI</u>	<u>Mon @ Sherco</u>	<u>Lab</u>	<u>Cal</u>
	pH	9.2	9.1	9.5	
	C.C.	0.205	0.205	—	
	Sp. Con.	7.6	7.8	7.3	<u>LPI SK</u> 502 497
	SiO_2	12.85	13.90	9.8	
	Filter was replaced w/ a new one last night which corrected the problem.				
8-4-10	Replaced SiO_2 reagents in Unit 2 Boiler SiO_2 An.				
	Replaced cation resin for unit 1 Pol. 11.				
8-5-10	Problems with high SiO_2 on LPI line I checked analyzers again (both sites)				
		<u>LPI</u>	<u>SHERCO</u>		
	500ppb Cal	500	510		
	Sample	12.0	12.7		
	Sample prefilter and post filter In = 23ppb Out = 14ppb				

64:

8-9-10 Replaced cation resin on Unit 2 Econ.
LPI WQP ✓
SiO₂ reagent → 78% Std → 40% Res → 100%
changed resin in cation col.
VERY HOT conditions!

8-10-10 LPI WQP ✓
SiO₂ cleaned sample cell
Replaced pH electrodes & calibrated

Sherco LPI WQP
Kevin increased high SiO₂ parameter to 60ppb

Unit 3 Main Steam Sodium
Etched electrode & calibrated
Slope → 59.5 E₀ → -39.9

Replaced SiO₂ reagents on Unit 1 CPD SiO₂ analyzer

8-11-10 New filter installed @ LPI WQP.

8-12-10 LPI WQP ✓ - start-up over there. cleaned sparge valve (I&C) to steady read outs.
Cation resin changed in: U-1 CPD
U-2 M. Steam

Replaced SiO₂ reagents on Unit 2 CPD.

8-17-10 New Diss. O₂ probe in Unit 3
New SiO₂ std in Unit 3 CPD SiO₂ Ana.
LPI WQP ✓ - Looks good ☺
SiO₂ Reagent → 55% Std → 40% Resin → 55%

Wold 000380

8-18-10 New cation resin for Main Steam Unit 2

Replaced SiO_2 std in Sherco LPI return Silica Ana.

LPI- Good

8-20-10 Demin Sodium Analyzer
Etched electrode & calibrated
SLOPE \rightarrow 59.3 $E_0 \rightarrow$ -22.4

Unit 1 Main Steam Sodium
Replaced DIPA; tubing; O-rings
Etched electrode & calibrated
Slope \rightarrow 59.9 $E_0 \rightarrow$ -47.1

Unit 2 Main Steam Sodium
Etched electrode & calibrated
Slope \rightarrow 58.9 $E_0 \rightarrow$ -52.7

8-20-10 Sent drag valve parts to the 'Valve Dr.' @ CCI.

8-23-10 LPI WAP \checkmark
Cat. Cond. Hi 0.34 μS
 SiO_2 reag \rightarrow 46% std \rightarrow 30% Resin \rightarrow 40%

Sodium Analyzer Calibrations

Unit	Sample	Slope
1	Boiler	94%
1	CPD	109%
2	Boiler	
2	CPD	102%

8-23-10 Installed new measuring & ref. electrode in U-2 Blr Na^+

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8-23-10	New resin in Unit 1: Econ & Pol. 12 Cation Col.
8-24-10	New cation resin for Pol. 22
	Replaced SiO_2 std on Unit 2 Boiler Silica analyzer
8-26-10	Unit 3 Sodium Analyzer Calibrations Boiler \rightarrow 94% CPD \rightarrow 105% \leftarrow SLOPE
	Replaced cation resin for Unit 3 Main Steam.
	New cation resin for Sherco-site LPI WQP
8-27-10	New cation resin for LPI-site LPI WQP \checkmark SiO_2 Reag \rightarrow 39% Std \rightarrow 30% Resin \rightarrow 100%
	Replaced SiO_2 std (only) on Unit 3 Boiler
8-31-10	LPI WQP \checkmark HOT! Sample cell alarm again! SiO_2 reag \rightarrow 32% Std \rightarrow 20% Resin \rightarrow 80%
9-1-10	U-3 Main Steam Sodium Replaced ref. elec. & recalibrated. NOTE: Sent elec. back to Thermo SLOPE \rightarrow 59.8 $E_p \rightarrow$ -50.5
9-2-10	New resin U-1 CPD Cation Col. Replaced SiO_2 reagents in U-3 col ^{boiler} analyzer
9-3-10	LPI WQP \checkmark Replaced SiO_2 reagents & std Resin \rightarrow 75%
	LPI Sherco Site \rightarrow replaced SiO_2 reagents

Wold 000382

9-7-10	Replaced cation resin in Unit 2 Econ & Pol. 21 col. LPI WQP \checkmark - Good, not as hot. Resin \rightarrow \sim 50%
9-8-10	Replaced reagents in U-1 Boiler SiO_2 analyzer. " " " std in U-1 CPD SiO_2 "
9-9-10	New cation resin in Unit 3 Econ & Pol 31 col. Replaced SiO_2 reagents in U-3 Boiler SiO_2 analyzer. LPI SiO_2 analyzer needed a new lamp New cation resin in U-1 Pol. 11 col.
9-10-10	LPI WQP \checkmark New resin in cation col. \rightarrow 100% SiO_2 reagent \rightarrow 90% Std \rightarrow 90%
	Replaced SiO_2 reagents in U-3 Boiler SiO_2 analyzer
9-14-10	Replaced SiO_2 std on Demin analyzer New cation resin for Unit 1 Boiler
9-16-10	New cation resin for Unit 1 Main Steam Unit 2 CPD LPI WQP \checkmark - Good Resin \rightarrow 80% Reagent \rightarrow 80% Std \rightarrow 80%
	Cleaned sample cells on Unit 3 Blr & CPD SiO_2 analyzers.
9-20-10	New cation resin for Unit 3 Pol. 32

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9-20-10 Replaced reagents in Demin & U-2 Blr SiO_2 analyzers

9-21-10 Demin Na^+ - etched & cal'ed slope \rightarrow 58.6 $E_0 \rightarrow$ -26.0

9-23-10 Unit 1 Main Steam Na calibration
etched only SLOPE \rightarrow 59.5 E_0 - 50.8

Replaced SiO_2 reagents on Unit 2 CPB analyzer

~~9-24-10~~ * New reference electrode installed on Unit 2
Main Steam Sodium analyzer.

9-24-10 Sodium Analyzer Calibrations

Site	Slope	E_0
Unit 1 Boiler	94%	
" CPB	109%	
" Main Stm	59.5%	-50.8

Unit 2 Boiler -55 MV unable to calibrate
CPB 102%
Main Stm 61.3 -45.1
 \rightarrow new DIPAs & tubing installed

Replaced cation resin in: Unit 2 Main steam
Unit 1 Econ. In.

9-26-10 Unit 3 Sodium Analyzers
Boiler \rightarrow 94% CPB \rightarrow 102%

9-27-10 LPI WAP \checkmark
Replaced cation resin
They were down & on the way \uparrow up.
 $\text{SiO}_2 \rightarrow$ Reag. 60% Std \rightarrow 40%

9-27-10	New cation resin in Unit 1 CPD col.
10-1-10	LPI WQP ✓ Good! Reagents → 50%? Std → 60% Resin → 90%
	New cation resin for Unit 1 Pol. 12.
10-5-10	Replaced silica standard in Unit 2 Boiler & CPD analyzer
	Cleaned sample cell for Unit 1 CPD analyzer
	Replaced lamp for LPI silica analyzer (Sherco side)
	LPI WQP check Reagent - 48% Std - 50% Resin - 60%
10-7-10	Changed resin in U-2 Boiler cation column. Changed resin in U-2 Economizer cation column. Changed resin in U-2 #22 Polisher cation column
	Changed reagents for LPI silica analyzer Sherco side.
	Changed resin in LPI cation column.
10-11-10	Silica analyzer was in alarm since ~ 1030 on Saturday morning (10-9-10). Found instrument with no reagent pressure. Whoever had looked at the reagents did not close door properly so pressure switch did not engage.
	Reagents - 42% Standard - 50% Resin - 80%

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10-13-10 Cleaned sample cells on U-3 CPD & boiler silica analyzers

10-14-10 Changed out reagents for LPI silica analyzer

Resin - 65% Reagents - 100% Standard - 50%

10-18-10 Changed out reagents for U-3 CPD silica analyzer.

10-19-10 Changed resin in U-2 Main Steam cation column.
 Changed resin in 21 Polisher cation column.
 Changed resin in U-2 CPD cation column.

LPI WQP

Reagents - 92% Standard - 40% Resin - 40%

10-21-10 Changed resin in LPI cation column

Resin - 100% Reagents - 88% Standard 40%

10-26-10 Changed resin in U-2 CPD cation column

Demin Sodium analyzer - Etched electrode and calibrated
 Slope = 59.8 E_0 = -24.2

10-27-10 LPI WQP

Reagents - 80% Standard - 30% Resin - 70%

Etched and Calibrated U2 Main Steam Na^+ Analyzer
 Slope = 59.3 E_0 = -47.3

Etched and Calibrated U1 Main Steam Na^+ Analyzer
 Slope = 57.5 E_0 = -56.9

10-28-10	Calibrated U-2 CPD Sodium analyzer - slope - 103%
11-1-10	Changed resin in #11 Polisher cation column LPI WQP Reagents - 72% Standard - 20% Resin - 60%
11-2-10	Changed resin in #12 Polisher cation column Changed resin in U-1 CPD cation column Changed resin in U-2 survey cation column Changed reagents for U-2 CPD silica analyzer Changed reagents for U-2 Boiler silica analyzer Changed reagents for Demin silica analyzer
11-4-10	Changed reagents for LPI silica analyzer Sherco side - Changed resin in #33 Polisher cation column. Changed standard for U-3 CPD silica analyzer. Changed resin for U-2 Economizer cation column LPI WQP Reagents - 67% Standard - 20% Resin - 50%
11-10-10	LPI WQP Resin = 23.0% STD = 10.0% Reagents = 57.0%
11-12-10	Changed resin for U-1 Main Steam Cat. column Changed resin for U-2 22 Polisher Cat. column Changed resin for Sherco LPI Cat. Column on WQP. Changed reagents for U-1 Boiler silica analyzer. Changed resin for LPI WQP at LPI (100%) Reagents = 50.0% STD = 10.0%

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11-15-10 Changed out reagents for U-1 CPD silica analyzer

Changed out silica standard for LPI analyzer
Reagents - 30% Standard - 100% Resin - 80%

Changed out reagents for U-3 CPD silica analyzer

11-16-10 Changed resin in #11 Polisher cation column.
Changed resin in U-2 Main Steam cation column.

11-17-10 Changed pH electrode, reference electrode, & temp. sensor
for U-1 Boiler
Changed pH electrode and reference electrode for U-1
Economizer.

11-18-10 Changed out lamp & standard for Demin silica analyzer
Changed resin for U-2 Boiler cation column

LPI WAP

Reagents - 25% Standard - 100% Resin - 70%

11-22-10 Changed ^{reagents} ~~standards~~ for LPI silica analyzer
Reagents - 100% Standard - 90% Resin - 50%

Replaced Sensing Tube Assembly for U-2 Main Steam
Sodium analyzer
Replaced resin in U-1 Survey cation column

11-23-10 Changed resin in #21 Polisher cation column.

Flushed out magnetite from U-3 boiler lines. Changed
out filter for Na analyzer, converted brass filter to
disposable filter for silica analyzer.

Calibrated U-3 sodium analyzer

Wold 000388

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11-24-10	<p>Changed resin in #12 Polisher cation column</p> <p>Changed resin in U-1 Economizer cation column</p> <p>Changed reagents for U-2 CPD silica analyzer</p> <p>Calibrated U-3 CPD sodium analyzer</p>
11-29-10	<p>Changed resin in U-2 CPD cation column</p> <p>Changed resin in U-2 Economizer cation column.</p> <p>Changed resin in U-3 Survey cation column.</p> <p>Calibrated U-3 Main Steam Na^+ analyzer Slope = 59.7 $E_0 = -46.0$</p> <p>Changed air pump on U-3 Main Steam Na^+ analyzer</p> <p>Calibrated U-1 Main Steam Na^+ analyzer Slope = 59.1 $E_0 = -50.6$</p> <p>Calibrated U-2 Main Steam Na^+ analyzer Slope = 58.5 $E_0 = -48.6$</p>
11-30-10	<p>Calibrated Demin Na^+ analyzer Slope = 58.8 $E_0 = -238$</p> <p>New electrodes in U-3 CPD & Boiler Na^+ analyzers</p> <p>Calibrated CPD Na^+ analyzer Slope = 97%</p> <p>Calibrated Boiler Na^+ analyzer Slope = 82%</p> <p>Changed resin in LPI cation column</p> <p>LPI WQP check</p> <p>Reagents - 87% Standard - 80% Resin - 100%</p>
12-1-10	<p>Changed out silica standard for U-1 CPD & Boiler and U-2 CPD & Boiler</p> <p>Changed out reagents and silica standard for LPI silica analyzer (Sherco side)</p> <p>Calibrated U-1 Boiler Na^+ analyzer Slope = 97%</p> <p>Calibrated U-1 CPD Na^+ analyzer Slope = 115%</p>

Wold 000389

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12-2-10 Calibrated U-2 CPD Na⁺ analyzer Slope = 90%

12-7-10 LPI WQP

Resin - 70% Reagents - 75% Std - 70%

12-8-10 Changed reagents for U-3 CPD Silica analyzer

12-9-10 Changed reagents for U-2 Boiler Silica analyzer
changed resin for U-1 CPD cation column

12-13-10 Changed resin for LPI cation column (Sherco side)
Changed resin for U-1 Main Steam cation column

12-17-10 Changed standard for U-3 Boiler silica analyzer

Got called about LPI silica analyzer result not changing. Found system in alarm from sample pressure dropping too low. Did system reset.

LPI WQP

Resin - 25% Reagents - 62% Standard 60%

Changed reagents for U-2 CPD silica analyzer

12-20-10 Changed resin for LPI cation column

LPI WQP

Resin - 100% Reagents - 57% Standard - 50%

Changed resin for U-1 Boiler cation column
changed resin for #22 Polisher cation column

Changed reagents for Demin silica analyzer

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12-21-10	Calibrated U3 Main Steam Na ⁺ analyzer Slope = 59.9 E ₀ = -30.2
12-22-10	Calibrated Demin Na ⁺ analyzer Slope = 57.9 E ₀ = -28.5
	Calibrated U-1 Main Steam Na ⁺ analyzer Slope = 56.8 E ₀ = -55.8
	Calibrated U-2 Main Steam Na ⁺ analyzer Slope = 58.9 E ₀ = -44.8
	Changed resin in U-2 Main Steam cation column Changed resin in U-2 Boiler cation column Changed resin in #21 Polisher cation column Changed resin in U-2 Economizer cation column Changed resin in U-2 CPD cation column.
12-29-10	Replaced reagents (only) U-3 CPD SiO ₂ analyzer New cation resin for U-1: Econ & Pol II
1-3-11	- Replaced electrodes Unit 2 Boiler Na ⁺ Analyzer Calibrated Slope = 86 %
	- Calibrated U2 CPD Na ⁺ Analyzer Slope = 103 %
1-4-11	LPI WQP check - Resin 40 STD 30 Reagent = 32
1-4-11	Installed & Calibrated New O ₂ Probe U3 Serial # 64183
1-5-11	Calibrated U1 Na ⁺ Analyzers Boiler Slope = 101 % offset = -295 CPD Slope = 117 % offset = -197

Wold 000391