

Title: Chemical Lab Sample Analysis

Rev. 6

Title	Calibration Verification & Drift Correction of ARL 3460 and 4460 Spectrometers	Location	Chem. Lab
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Safety Apparel, Tools or Equipment Needed:

Coverall and/or Greens (optional)	Glasses w/ Side Shields	Steel Toed Boots w/ Metatarsals
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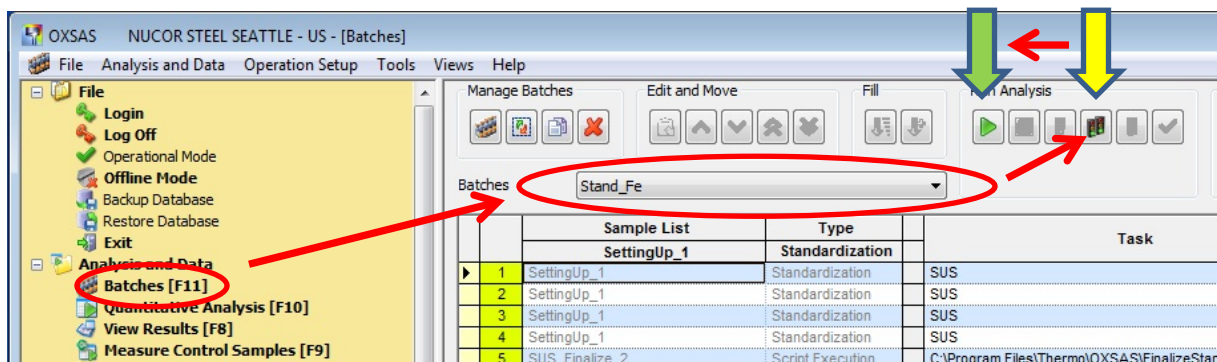
Note: The calibration of the primary spectrometer needs to be verified at the beginning of each shift and at approximately 4 and 8 hours into the shift. **The results of this verification shall be logged.** If the spectrometer is found to be out of calibration, use the following drift-correction procedure to bring it back within the acceptable range.

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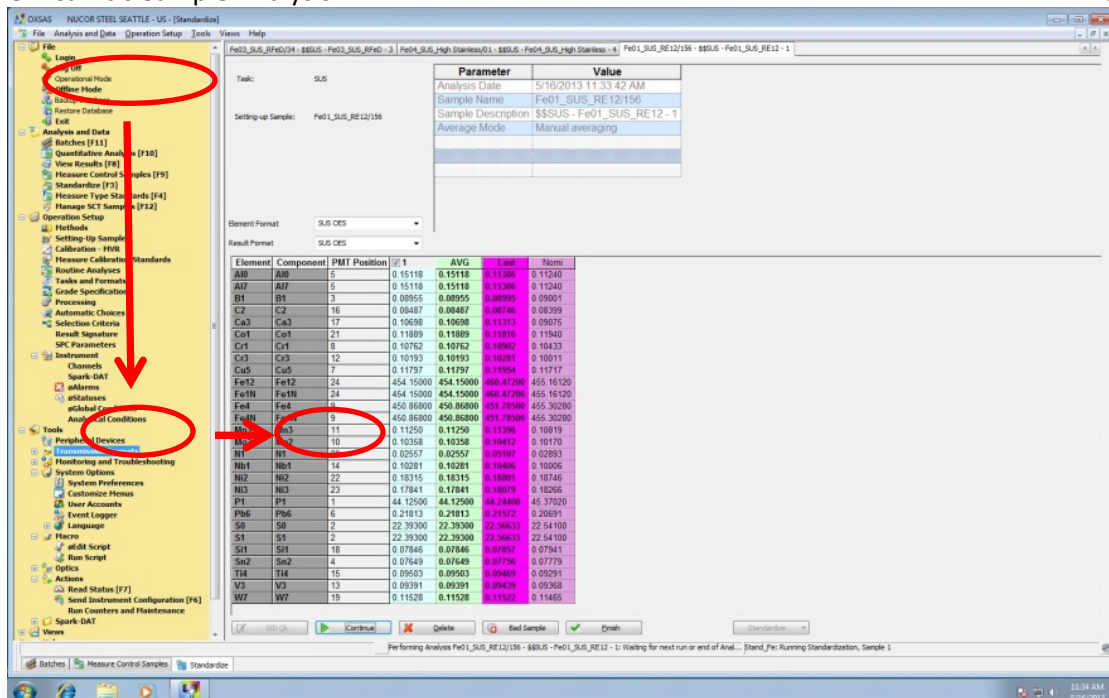
Changes from Previous Revision: removed reference to old Giger Counter that is no longer in use, and other minor edits

Standardization Procedure for OXSAS Software on all Spectrometers

- 1) From the main screen, select “batches” (red circle below) or press F11.
- 2) In the drop down box select the batch that shows the 4 required SUS samples as well as the 5th “finalize” step.
- 3) Click on the button under the yellow arrow to run all SUS samples.
- 4) Click the “Run” button under the green arrow.



- 5) Check that the SUS sample ID matches the ID shown (circled) and place it on the spark stand.
- 6) Hit “continue” to analyze the sample (circled).
- 7) Adjust sample to test fresh area and hit “continue” to analyze the sample (circled) again.
- 8) Once you have two analyses that agree well, click “finish” (circled) to progress to the next sample and repeat steps 5 through 8. For most elements, agreeable results are under a standard deviation percentage of 3%. Some elements such as Calcium can typically be more variable so obtaining low SD% for these elements is not imperative. More attention should be paid to elements relevant to our process (C, Mn, S, P, Si, Cu, Cr, Mo, Sn, Ni, Nb, V, Pb, Al and N).



This is what the screen will look like when you have burned multiple samples. Columns that are “checked” at the top will be used in the standardization. The SD% shows the variation, and this should be under 3% for the elements we are looking for.

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XSAS NUCOR STEEL SEATTLE - US - [Standardize]

File Analysis and Data Operation Setup Tools Views Help

Fe03_SUS_RFeD/34 - \$\$SUS - Fe03_SUS_RFeD - 3 Fe04_SUS_High Stainless/01 - \$\$SUS - Fe04_SUS_High Stainless - 4 Fe01_SUS_RE12/156 - \$\$SUS - Fe01_SUS_RE12 - 1

Task: SUS

Setting-up Sample: Fe01_SUS_RE12/156

Parameter	Value
Analysis Date	5/16/2013 11:33:42 AM
Sample Name	Fe01_SUS_RE12/156
Sample Description	\$\$SUS - Fe01_SUS_RE12 - 1
Average Mode	Manual averaging

Element Format: SUS OES

Result Format: SUS OES

Element	Component	PMT Position	1	2	3	4	AVG	Last	Nomi	SD	SD%
Al0	Al0	5	0.15118	0.15951	0.13731	0.14586	0.14478	0.11386	0.11240	0.006999	4.83
Al7	Al7	5	0.15118	0.15951	0.13731	0.14586	0.14478	0.11386	0.11240	0.006999	4.83
B1	B1	3	0.08955	0.09018	0.09171	0.09260	0.09128	0.08995	0.09001	0.001569	1.72
C2	C2	16	0.08487	0.08412	0.08507	0.08673	0.08556	0.08746	0.08399	0.001022	1.19
Ca3	Ca3	17	0.10698	0.10130	0.11480	0.15076	0.12418	0.11313	0.09075	0.023351	18.80
Co1	Co1	21	0.11889	0.11914	0.11853	0.11942	0.11895	0.11816	0.11940	0.000452	0.38
Cr1	Cr1	8	0.10762	0.17382	0.10772	0.11934	0.11156	0.10902	0.10433	0.006739	6.04
Cr3	Cr3	12	0.10193	0.10712	0.10226	0.10343	0.10254	0.10281	0.10011	0.000789	0.77
Cu5	Cu5	7	0.11797	0.12018	0.11899	0.11898	0.11865	0.11954	0.11717	0.000589	0.50
Fe12	Fe12	24	454.15000	458.04100	457.95400	455.53700	455.88033	460.47200	455.16120	1.925101	0.42
Fe1N	Fe1N	24	454.15000	458.04100	457.95400	455.53700	455.88033	460.47200	455.16120	1.925101	0.42
Fe4	Fe4	9	450.86800	453.75300	452.20800	450.67000	451.24867	451.78500	455.30280	0.836685	0.19
Fe4N	Fe4N	9	450.86800	453.75300	452.20800	450.67000	451.24867	451.78500	455.30280	0.836685	0.19
Mn3	Mn3	11	0.11250	0.12561	0.11063	0.11545	0.11286	0.11396	0.10819	0.002428	2.15
Mo2	Mo2	10	0.10358	0.11443	0.10353	0.10793	0.10501	0.10412	0.10170	0.002526	2.41
N1	N1	20	0.02557	0.02575	0.02575	0.02658	0.02597	0.05107	0.02893	0.000541	2.08
Nb1	Nb1	14	0.10281	0.10327	0.10416	0.10510	0.10402	0.10406	0.10006	0.001155	1.11
Ni2	Ni2	22	0.18315	0.29273	0.18416	0.19967	0.18899	0.18801	0.18746	0.009260	4.90
Ni3	Ni3	23	0.17841	0.18427	0.18098	0.18300	0.18080	0.18079	0.18266	0.002298	1.27
P1	P1	1	44.12500	44.78100	45.63700	45.74500	45.16900	44.24400	45.37020	0.905742	2.01
Pb6	Pb6	6	0.21813	0.21828	0.21715	0.21709	0.21746	0.21572	0.20691	0.000587	0.27
S0	S0	2	22.39300	22.61100	22.93400	23.00200	22.77633	22.56633	22.54100	0.333713	1.47
S1	S1	2	22.39300	22.61100	22.93400	23.00200	22.77633	22.56633	22.54100	0.333713	1.47
Si1	Si1	18	0.07846	0.07888	0.07805	0.07921	0.07857	0.07857	0.07941	0.000588	0.75
Sn2	Sn2	4	0.07649	0.07721	0.07900	0.07959	0.07836	0.07756	0.07779	0.001642	2.10
Ti4	Ti4	15	0.09503	0.09450	0.09400	0.09432	0.09445	0.09469	0.09291	0.000527	0.56
V3	V3	13	0.09391	0.09391	0.09329	0.09351	0.09357	0.09439	0.09368	0.000313	0.33
W7	W7	19	0.11528	0.11684	0.11474	0.11666	0.11556	0.11522	0.11465	0.000992	0.86

Performing Analysis Fe01_SUS_RE12/156 - \$\$SUS - Fe01_SUS_RE12 - 1: Waiting for next run or end of Anal... Stand_Fe: Running Stan

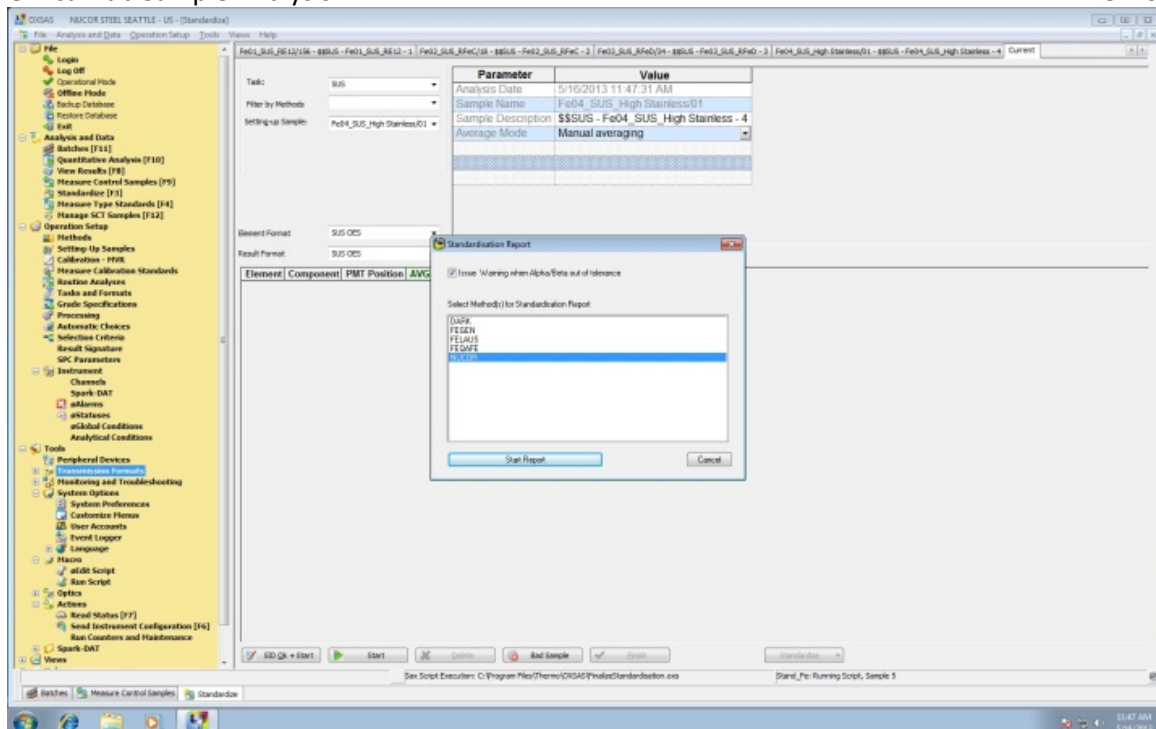
- 9) Once the 4th SUS standard had been analyzed, click “finish”, select “NUCOR” on the drop down and click “Start Report” ...and you are almost done!

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10) Analyze check standard and ensure the elements are within the specified ranges.

11) Document the verification

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