CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site
Project #: 6107090016.12
Date: 6/1/10

Method: TOC
Laboratory and SDG: TAL 360-24417
Reviewer: [illegible]

☑ Chemist Review ☑ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)

Present and complete.

2. Holding Time and Sample Preservation/Collection

All criteria met.

3. QC Blanks

All non-detect.

4. Laboratory Control Sample Review

All criteria met.

5. Field Duplicate Precision

All criteria met.

6. Lab Duplicate Precision

n/a

7. Matrix Spike Results (if applicable)

n/a

8. Surrogate Recovery (if applicable)

n/a

9. Internal Standard Recovery (if applicable)

n/a

CHEMIST REVIEW-VALIDATION CHECKLIST

TAL 360-24417
[illegible] 6/1/10

FULL VALIDATION CHECKS

Ten Percent of data sets will have full validation checks completed during chemist review.

☑ Initial Calibration

☐ Continuing Calibration Verification
N/A

Transcription and Calculation Checks

☑ Instrument Calibration

☑ Blank Review – raw data/chromatogram check

☑ Laboratory Control Sample

~~☐ Matrix Spike~~
NA

☑ Field Sample Results

~~☐ Surrogate Recovery~~
NA

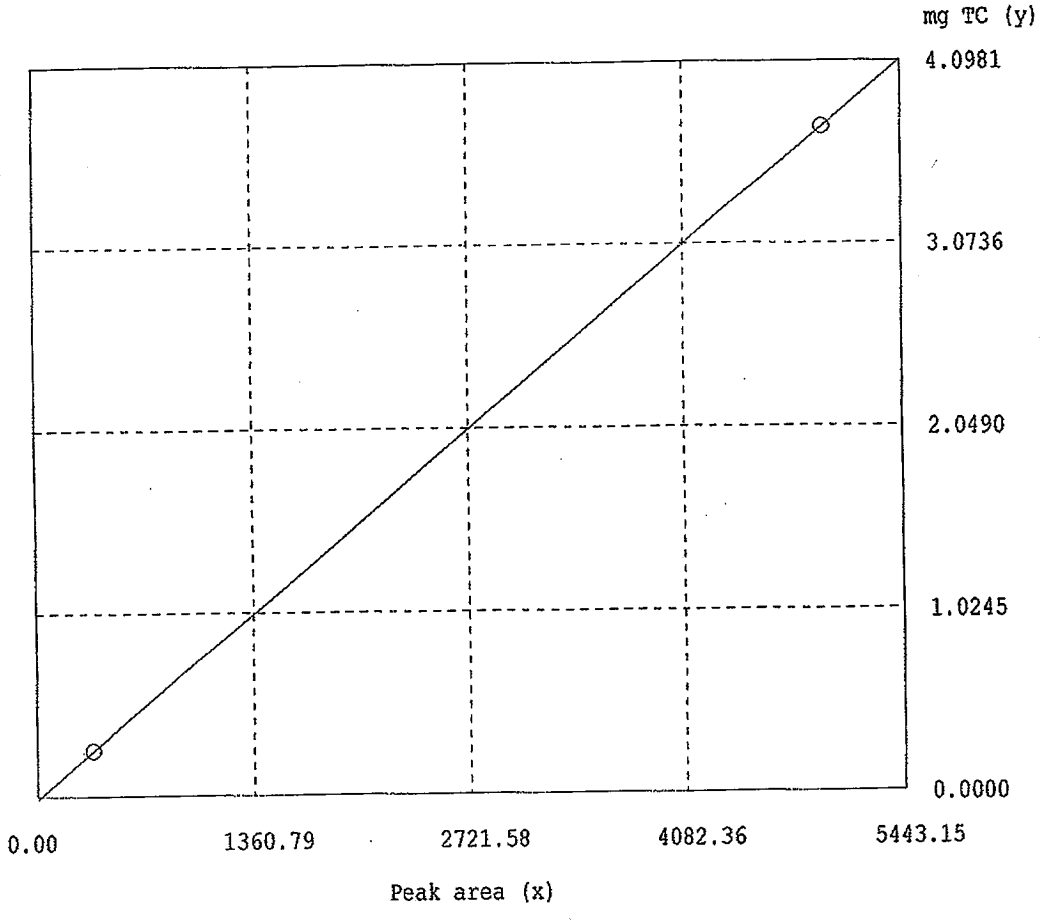
☐

☐

Date: 08.09.2009 Time: 10:25 Document: 090809
Mode: Solids, regular User: 2

08 SEP 2009 CURVE
liquiTOC serial number: 35052030
IR-Detector serial number: 1112020562

TC Calibration, 'solids'



Form of calibration line: y = a + bx

Coefficient a = -1.473128e-002
Coefficient b = +7.558629e-004
Correlation r = 1.000000
Residue SD Sy = 1.#INF00
Blank rate = 7.91/ml

Legend:

○ Active sample
● Excluded sample

Date: 09.09.2009 Time: 08:44 Document: 090809
Mode: Solids, regular User: 2

08 SEP 2009 RESULTS
liquiTOC serial number: 35052030
IR-Detector serial number: 1112020562

Coefficients Printout

Conc. Range	Type	Coeff. a	Coeff. b	Coeff. c	min.	max.	modified at
20ppm	TC	+0.000000e+000	+0.000000e+000		0.00	0.00	01.01.2000 00:00
100ppm	TC	+0.000000e+000	+0.000000e+000		0.00	0.00	01.01.2000 00:00
2ppm	TC	+0.000000e+000	+0.000000e+000		0.00	0.00	01.01.2000 00:00
1000ppm	TC	+0.000000e+000	+0.000000e+000		0.00	0.00	01.01.2000 00:00
50ppm	TC	+0.000000e+000	+0.000000e+000		0.00	0.00	01.01.2000 00:00
solids	TC	-1.473128e-002	+7.558629e-004		0.00	4948.32	08.09.2009 10:25
TA 1.0	TC	-2.616592e-001	+6.002487e-004		0.00	5562.26	11.06.2009 09:04
	TC	+0.000000e+000	+0.000000e+000		0.00	0.00	01.01.2000 00:00

Date: 09.09.2009 Time: 08:44 Document: 090809
Mode: Solids, regular User: 2

08 SEP 2009 RESULTS
liquiTOC serial number: 35052030
IR-Detector serial number: 1112020562

Statistics Printout

No.	Name	TC	Conc. Range
1	RUN IN	0.0ppm	solids
2	RUN IN	0.0ppm	solids
***	Mean	0.00ppm	
***	Stddev., rel.	0.000 %	
***	Delta	0.0ppm	
3	BLANK	0.0ppm	solids
4	BLANK	0.0ppm	solids
***	Mean	0.00ppm	
***	Stddev., rel.	0.000 %	
***	Delta	0.0ppm	
5	STD	8600ppm	solids
6	STD	8600ppm	solids
***	Mean	8600ppm	
***	Stddev., rel.	0.000 %	
***	Delta	0.0ppm	
7	MB	0.0ppm	solids
8	MB	0.0ppm	solids
***	Mean	0.00ppm	
***	Stddev., rel.	0.000 %	
***	Delta	0.0ppm	
9	LCS	3.749 %	solids
10	LCS	3.695 %	solids
***	Mean	3.722 %	
***	Stddev., rel.	1.039 %	
***	Delta	547ppm	
11	LCSD	3.650 %	solids
12	LCSD	3.357 %	solids
***	Mean	3.503 %	
***	Stddev., rel.	5.918 %	
***	Delta	2932ppm	
13	24417H7	1317ppm	solids
14	24417H7	902ppm	solids
***	Mean	1109ppm	
***	Stddev., rel.	26.45 %	
***	Delta	415ppm	
15	24417H8	717ppm	solids
16	24417H8	682ppm	solids
***	Mean	699ppm	
***	Stddev., rel.	3.560 %	
***	Delta	35.2ppm	
17	24417H9	571ppm	solids
18	24417H9	597ppm	solids

CC'd 6/1/10

Date: 09.09.2009 Time: 08:44 Document: 090809
Mode: Solids, regular User: 2

08 SEP 2009 RESULTS
liquiTOC serial number: 35052030
IR-Detector serial number: 1112020562

Statistics Printout

No.	Name	TC	Conc. Range
***	Mean	584ppm	
***	Stddev., rel.	3.171 %	
***	Delta	26.2ppm	
19	24417H10	736ppm	solids
20	24417H10	598ppm	solids
***	Mean	667ppm	
***	Stddev., rel.	14.66 %	
***	Delta	138ppm	
21	24444A1	1.018 %	solids
22	24444A1	4903ppm	solids
***	Mean	7544ppm	
***	Stddev., rel.	49.50 %	
***	Delta	5281ppm	
23	24444A2	4637ppm	solids
24	24444A2	6090ppm	solids
***	Mean	5363ppm	
***	Stddev., rel.	19.16 %	
***	Delta	1453ppm	
25	24444E12	4416ppm	solids
26	24444E12	4117ppm	solids
***	Mean	4267ppm	
***	Stddev., rel.	4.960 %	
***	Delta	299ppm	
27	24444A13	172ppm	solids
28	24444A13	217ppm	solids
***	Mean	194ppm	
***	Stddev., rel.	16.47 %	
***	Delta	45.2ppm	
29	CLOSE LCS	3.535 %	solids
30	CLOSE LCS	3.447 %	solids
***	Mean	3.491 %	
***	Stddev., rel.	1.793 %	
***	Delta	885ppm	
31	CLOSE MB	55.7ppm	solids
32	CLOSE MB	0.0ppm	solids
***	Mean	27.84ppm	
***	Stddev., rel.	141 %	
***	Delta	55.7ppm	

cl @ 6/1/10

10K.2% TU = 3.351%

RW 9-9-09

ND

Date: 09.09.2009 Time: 08:44 Document: 090809
Mode: Solids, regular User: 2

08 SEP 2009 RUN LOG
liquiTOC serial number: 35052030
IR-Detector serial number: 1112020562

Text Printout

No.	Name	Conc. Range	Date	Time	Wght. [mg]	TC	TC Area
1	RUN IN	solids	08.09.2009	09:02	1.000	1.112 %	34.20
2	RUN IN	solids	08.09.2009	09:14	1.000	6010ppm	27.44
3	BLANK	solids	08.09.2009	09:27	113.80	0.0ppm	11.10
4	BLANK	solids	08.09.2009	09:53	122.40	0.0ppm	18.15
5	STD	solids	08.09.2009	10:07	29.600	8600ppm	356.27
6	STD	solids	08.09.2009	10:24	433.20	8600ppm	4948.32
7	MB	solids	08.09.2009	10:39	108.60	0.0ppm	5.06
8	MB	solids	08.09.2009	10:53	1.000	0.0ppm	10.47
9	LCS	solids	08.09.2009	11:05	37.200	3.749 %	1864.73
10	LCS	solids	08.09.2009	11:18	57.300	3.695 %	2820.31
11	LCSD	solids	08.09.2009	11:37	55.300	3.650 %	2689.96
12	LCSD	solids	08.09.2009	12:38	60.900	3.357 %	2724.14
13	24417H7	solids	08.09.2009	12:50	687.90	1317ppm	1217.64
14	24417H7	solids	08.09.2009	13:03	586.20	902ppm	718.73
15	24417H8	solids	08.09.2009	13:17	791.40	717ppm	769.95
16	24417H8	solids	08.09.2009	13:32	692.10	682ppm	643.56
17	24417H9	solids	08.09.2009	13:48	831.90	571ppm	647.89
18	24417H9	solids	08.09.2009	14:03	770.20	597ppm	627.97
19	24417H10	solids	08.09.2009	14:17	825.50	736ppm	823.74
20	24417H10	solids	08.09.2009	14:33	804.20	598ppm	655.85
21	24444A1	solids	08.09.2009	14:45	153.10	1.018 %	2082.37
22	24444A1	solids	08.09.2009	14:58	170.30	4903ppm	1124.23
23	24444A2	solids	08.09.2009	15:10	205.10	4637ppm	1277.63
24	24444A2	solids	08.09.2009	15:23	307.20	6090ppm	2494.41
25	24444E12	solids	08.09.2009	15:35	799.80	4416ppm	4692.63
26	24444E12	solids	08.09.2009	15:49	580.90	4117ppm	3183.60
27	24444A13	solids	08.09.2009	16:01	704.30	172ppm	179.46
28	24444A13	solids	08.09.2009	16:16	765.20	217ppm	239.10
29	CLOSE LCS	solids	08.09.2009	16:30	40.200	3.535 %	1899.59
30	CLOSE LCS	solids	08.09.2009	16:41	60.800	3.447 %	2791.81
31	CLOSE MB	solids	09.09.2009	08:24	124.10	55.7ppm	28.63
32	CLOSE MB	solids	09.09.2009	08:40	109.60	0.0ppm	10.19

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Westfield Job No.: 360-24417-1

SDG No.: OCRI-10

Instrument ID: NOEQUIP Method: Lloyd Kahn

Start Date: 09/08/2009 10:39 End Date: 09/08/2009 16:01

Lab Sample ID	D/F	Type	Time	Analytes																			
				TOC																			
MB 360-48727/1	1	T	10:39	X																			
LCS 360-48727/2	1	T	11:05	X																			
LCSD 360-48727/3	1	T	11:37	X																			
360-24417-7	1	T	12:50	X																			
360-24417-8	1	T	13:17	X																			
360-24417-9	1	T	13:48	X																			
360-24417-10	1	T	14:17	X																			
ZZZZZZ			14:45																				
ZZZZZZ			15:10																				
ZZZZZZ			15:35																				
ZZZZZZ			16:01																				

Prep Types
T = Total/NA

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Coversheet—Inorganics Dept

Method: TOC L.K.

Primary Reviewer's Initials: RWS

Secondary Reviewer's Initials: AM

Date of Analytical Run: 9-8-09

Date of Primary Review: 9-9-09

Date of Secondary Review: 9-9-09

Batch Numbers	48727				

QC Criteria—**Non-MCP**: ICV/CCV ±10%: LCS/LCSD ±15% : MS/MSD ±25%: ICB/MB/CCB <RL: MD/MSD/LCSD RPD ≤20%

QC Criteria—**MCP/RCP**: (9012 and 7196 only) 9012: ICV/CCV ±15%: LCS/LCSD ±20%: MS/MSD ±25%: ICB/MB/CCB <RL: MD/MSD/LCSD RPD ≤20%
7196: ICV/CCV ±20%: LCS/LCSD ±20%: MS/MSD ±25%: ICB/MB/CCB <RL: MD/MSD/LCSD RPD ≤20%

FAILURES OF QC FOR ANYTHING OTHER THAN MS, MSD or DU ARE GROUNDS FOR INVALIDATING THE BATCH.

Criteria for QC	Yes	No	n/a	Notes/Comments
Were the ICV and CCVs within acceptable limits for QC recovery?			X	
Were the ICB and CCBs all <RL?			X	
Were all MB and CCB results <RL for the analytes of interest?	X			
Was there a CCV/CCB combination run after every 10 samples or less?			X	
Was there an LCS run with every batch of 20 samples or less?	X			
Was there a DU, LCSD or MSD run with every batch of 20 samples or less?	X			
Were all LCS/LCSD results within acceptable limits for QC recovery?	X			
Were all MS/MSD results within acceptable limits for QC recovery?			X	
Were all DU or MSD RPDs within acceptable limits for QC recovery?			X	
Were the raw data points for investigative samples within the working curve range, or if not were the samples diluted to bring them within this range?	X			
IF there were any MCP/RCP samples in this batch, did they meet all MCP/RCP requirements?		X		
Were there any holding time violations in this batch?		X		NOTE! The PM and QA Manager must be notified by email *immediately* of any holding time violations!!
Were any NCMs generated for any samples in the batch? (If so, list NCM numbers, and first-reviewer must check off any "No" answers above as applicable.)		X		
Were any jobs in this batch Level 4?	✓			24417, 24444
For Level 4 jobs, was all paperwork associated with this batch scanned and attached to the batch in TALS?	✓			

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site
Project #: 6107030016 / 12
Date: 6/18/10

Method: TOC
Laboratory and SDG: TAL 360-24251
Reviewer: [illegible]

☑ Chemist Review ☐ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)

Present and complete.

2. Holding Time and Sample Preservation/Collection

All criteria met.

3. QC Blanks

All non-detect.

4. Laboratory Control Sample Review

All criteria met.

5. Field Duplicate Precision

n/a

6. Lab Duplicate Precision

n/a

7. Matrix Spike Results (if applicable)

n/a

8. Surrogate Recovery (if applicable)

n/a

9. Internal Standard Recovery (if applicable)

n/a

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site **Method:** TOC
Project #: 61070900 16.12 **Laboratory and SDG:** TAL 360-24194
Date: 6/1/10 **Reviewer:** [signature]

☑ **Chemist Review** ☐ **Full Validation (add page 2)**

1. **Case Narrative and Data Package Completeness (COC Review)**

   Present and complete.

2. **Holding Time and Sample Preservation/Collection**

   All criteria met.

3. **QC Blanks**

   All non-detect.

4. **Laboratory Control Sample Review**

   All criteria met.

5. **Field Duplicate Precision**

   n/a

6. **Lab Duplicate Precision**

   n/a

7. **Matrix Spike Results (if applicable)**

   n/a

8. **Surrogate Recovery (if applicable)**

   n/a

9. **Internal Standard Recovery (if applicable)**

   n/a

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site
Project #: 61070900016.12
Date: 6/1/10

Method: TOC
Laboratory and SDG: TAL 360-24223
Reviewer: [illegible]

☒ Chemist Review ☐ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)

Present and complete.

2. Holding Time and Sample Preservation/Collection

All criteria met.

3. QC Blanks

All non-detect.

4. Laboratory Control Sample Review

All criteria met.

5. Field Duplicate Precision

All criteria met

6. Lab Duplicate Precision

n/a

7. Matrix Spike Results (if applicable)

Analysis requested on COC, but not performed by lab.

8. Surrogate Recovery (if applicable)

n/a

9. Internal Standard Recovery (if applicable)

n/a

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site
Project #: 61070900016.12
Date: 6/1/10

Method: TOC
Laboratory and SDG: TAL 360-24309
Reviewer: [illegible]

☑ Chemist Review ☐ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)

Present and complete.

2. Holding Time and Sample Preservation/Collection

All criteria met.

3. QC Blanks

All nondetect.

4. Laboratory Control Sample Review

All criteria met.

5. Field Duplicate Precision

n/a

6. Lab Duplicate Precision

n/a

7. Matrix Spike Results (if applicable)

n/a

8. Surrogate Recovery (if applicable)

n/a

9. Internal Standard Recovery (if applicable)

n/a

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site
Project #: 610709 0016.12
Date: 6/1/10

Method: TOC
Laboratory and SDG: 360-24365 THL
Reviewer: [signature]

☑ Chemist Review ☐ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)

Present and complete.

2. Holding Time and Sample Preservation/Collection

All criteria met.

3. QC Blanks

All non-detect.

4. Laboratory Control Sample Review

All criteria met.

5. Field Duplicate Precision

n/a

6. Lab Duplicate Precision

n/a

7. Matrix Spike Results (if applicable)

n/a

8. Surrogate Recovery (if applicable)

n/a

9. Internal Standard Recovery (if applicable)

n/a

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site
Project #: 61070900016.12
Date: 6/1/10

Method: TOC
Laboratory and SDG: THC 360-24444
Reviewer: [illegible]

☑ Chemist Review ☐ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)

Present and complete.

2. Holding Time and Sample Preservation/Collection

All criteria met.

3. QC Blanks

All non-detect.

4. Laboratory Control Sample Review

All criteria met

5. Field Duplicate Precision

All criteria met.

6. Lab Duplicate Precision

n/a

7. Matrix Spike Results (if applicable)

n/a

8. Surrogate Recovery (if applicable)

n/a

9. Internal Standard Recovery (if applicable)

n/a

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site
Project #: 6107090016.12
Date: 6/1/10

Method: TOC
Laboratory and SDG: TAL 360-24499
Reviewer: [illegible]

☑ Chemist Review ☐ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)

Present and complete.

2. Holding Time and Sample Preservation/Collection

All criteria met.

3. QC Blanks

All non-detect.

4. Laboratory Control Sample Review

All criteria met.

5. Field Duplicate Precision

n/a

6. Lab Duplicate Precision

n/a

7. Matrix Spike Results (if applicable)

n/a

8. Surrogate Recovery (if applicable)

n/a

9. Internal Standard Recovery (if applicable)

n/a

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site
Project #: 6107090016.12
Date: 1/1/10

Method: TOC
Laboratory and SDG: TAL 360-24634
Reviewer: [illegible]

☑ Chemist Review ☐ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)

Present and complete.

2. Holding Time and Sample Preservation/Collection

All criteria met.

3. QC Blanks

All ND.

4. Laboratory Control Sample Review

All criteria met.

5. Field Duplicate Precision

n/a

6. Lab Duplicate Precision

n/a

7. Matrix Spike Results (if applicable)

n/a

8. Surrogate Recovery (if applicable)

n/a

9. Internal Standard Recovery (if applicable)

n/a

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site
Project #: 6107090016.12
Date: 6/1/10

Method: TOC
Laboratory and SDG: TAL 360-24465
Reviewer: [illegible]

☑ Chemist Review ☐ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)

Present and complete.

2. Holding Time and Sample Preservation/Collection

All criteria met.

3. QC Blanks

All non-detect.

4. Laboratory Control Sample Review

All criteria met.

5. Field Duplicate Precision

n/a

6. Lab Duplicate Precision

n/a

7. Matrix Spike Results (if applicable)

n/a

8. Surrogate Recovery (if applicable)

n/a

9. Internal Standard Recovery (if applicable)

n/a

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site
Project #: 61070900016.12
Date: 6/1/10

Method: TOC
Laboratory and SDG: TAL 360-24686
Reviewer: [illegible]

☒ Chemist Review ☐ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)

Present and complete.

2. Holding Time and Sample Preservation/Collection

All criteria met.

3. QC Blanks

All non-detect.

4. Laboratory Control Sample Review

All criteria met.

5. Field Duplicate Precision

n/a

6. Lab Duplicate Precision

n/a

7. Matrix Spike Results (if applicable)

n/a

8. Surrogate Recovery (if applicable)

n/a

9. Internal Standard Recovery (if applicable)

n/a