



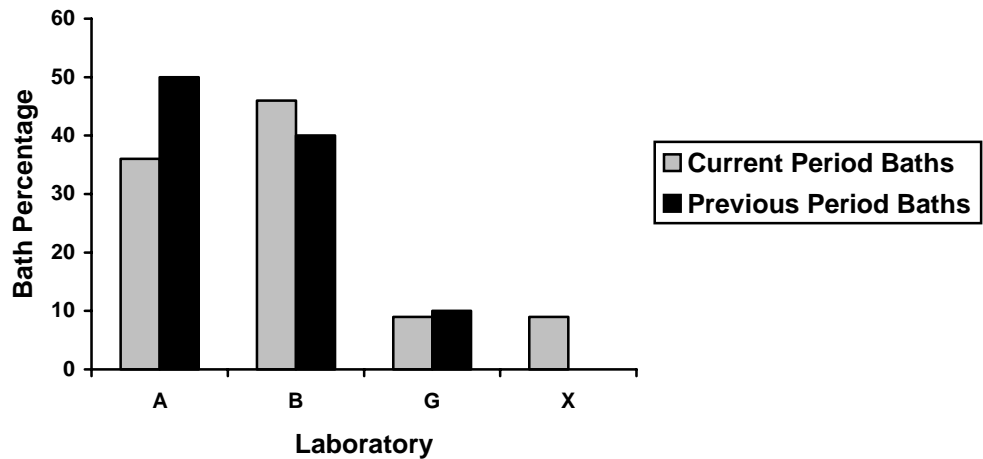
Test Monitoring Center

6555 Penn Avenue
Pittsburgh, PA 15206-4489
(412) 365-1000

MEMORANDUM: 02-094
DATE: October 16, 2002
TO: Jerry Wang, Chairman, CBT Surveillance Panel
FROM: Jeff Clark
SUBJECT: High Temperature Corrosion Bench Test Status from April 1, 2002 through September 30, 2002

A total of 129 High Temperature Corrosion Bench Test results from eleven baths in four labs were reported to the TMC during the period from April 1, 2002 through September 30, 2002. The following chart shows the distribution by laboratory.

Laboratory/Bath Distribution



The following summarizes the status of the reference oil tests reported to the TMC:

	TMC Validity Codes	No. of Tests
Operationally and Statistically Acceptable	AC	116
Failed Acceptance Criteria	OC	8
Operationally Invalid, Lab Judgement	LC	3
Aborted	XC	2
Total		129

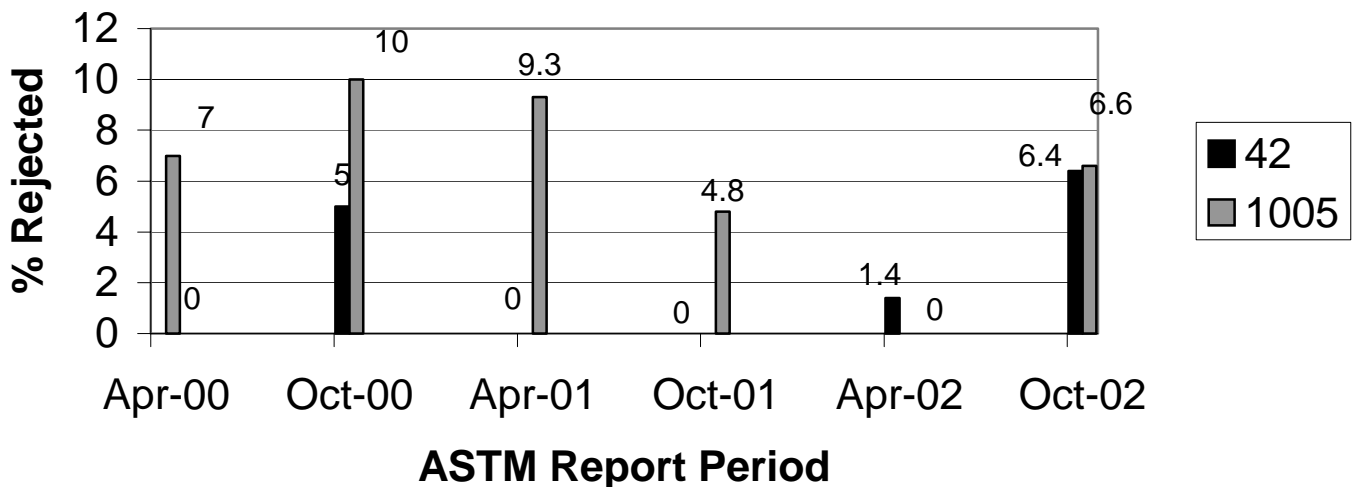
One test was operationally invalid due to air source depletion. One test was operationally invalid due to a broken air tube and one test ran beyond the standard test length. One of the aborted tests was due to malfunctioning bath control and one was due to technician error.

The following tabulates the statistically unacceptable tests:

Reason	Number of Tests
Severe Copper, Severe Lead (Reference oil 1005)	2
Severe Copper (Reference oil 42)	4
Severe Copper (Reference oil 1005)	1
Severe Lead (Reference oil 1005)	1

A total of 63 operationally valid results were run on reference oil 42 of which 4 failed (6.4% fail rate). A total of 61 operationally valid results were run on reference oil 1005 of which 4 failed (6.6% fail rate). The following presents the fail rate for this period with the fail rates of previous periods, by reference oil:

Comparison of Rejection Rates, by Oil, for This Period Versus Previous Periods



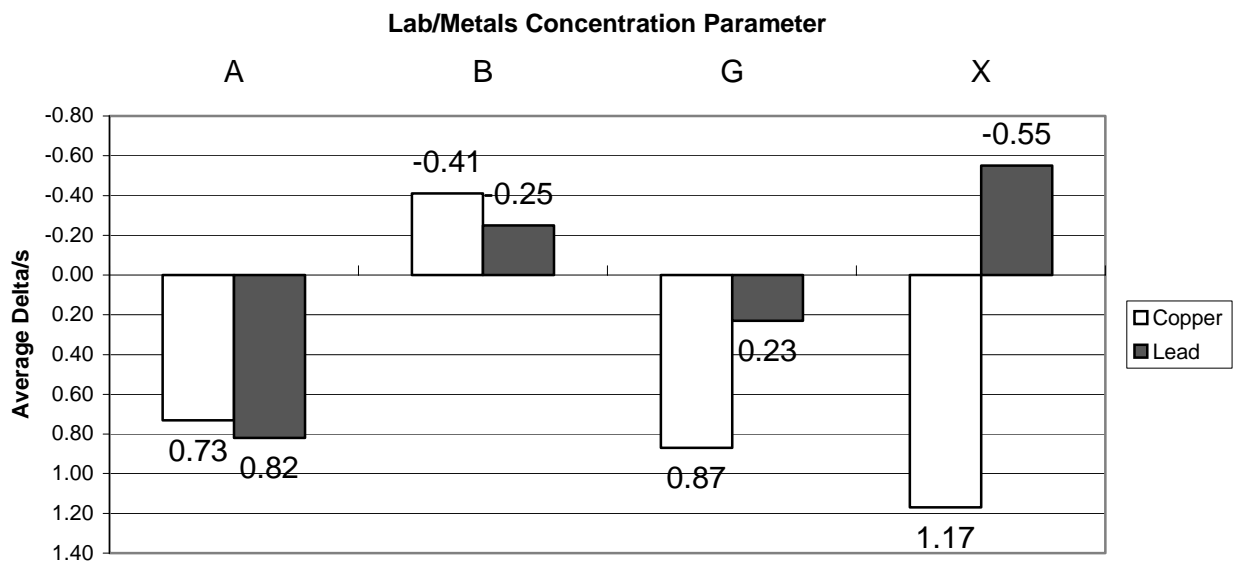
Industry Severity and Precision

The current severity for the change in metals concentration parameters on all operationally valid tests, for the current and previous periods, is tabulated below.

Period	n	Δ Cu	Δ Pb
		Mean Δ/s	Mean Δ/s
4/1/02 through 9/30/02	124	0.30	0.22
10/1/01 through 3/31/02	137	0.02	-0.05
4/1/01 through 10/1/01	116	0.28	-0.26
10/1/00 through 3/31/01	87	0.02	-0.29
4/1/00 through 9/30/00	99	-0.05	-0.24

Figures 1 and 2 plot the Summation delta/s from target for both change in copper and change in lead, respectively. Figure 1 shows copper change to be severe for the period. Figure 2 shows lead change to be severe for the period. Laboratory severity for both reference oils 1005 and 42 is depicted below.

Average Delta/s By Lab, TMC Oils 42 & 1005



Industry Severity by Reference Oil

The industry performance (severity and precision) for reference oil 42, comparing the current period with the previous ASTM report periods, is tabulated below. Values in parentheses are in transformed (natural log) units.

Period	n	Δ Cu mean	Δ Cu S	Δ Cu Mean Δ/s	Δ Pb mean	Δ Pb s	Δ Pb Mean Δ/s
4/1/02 to 9/30/02	63	34.7 (3.546)	(0.492)	0.55	114.0	15.69	0.26
10/1/01 to 3/31/02	71	26.4 (3.274)	(0.376)	0.09	108.9	16.75	0.05
4/1/01 to 9/30/01	54	38.0 (3.638)	(0.293)	0.24	102.0	15.56	-0.25
10/1/00 to 3/31/01	44	25.4 (3.236)	(0.263)	0.02	97.75	12.51	-0.42
4/1/00 to 9/30/00	48	19.7 (2.981)	(0.424)	-0.42	104.9	25.10	-0.12

The industry performance (severity and precision) for reference oil 1005, comparing the current period with the previous ASTM report periods, is tabulated below. Values in parentheses are in transformed (natural log) units.

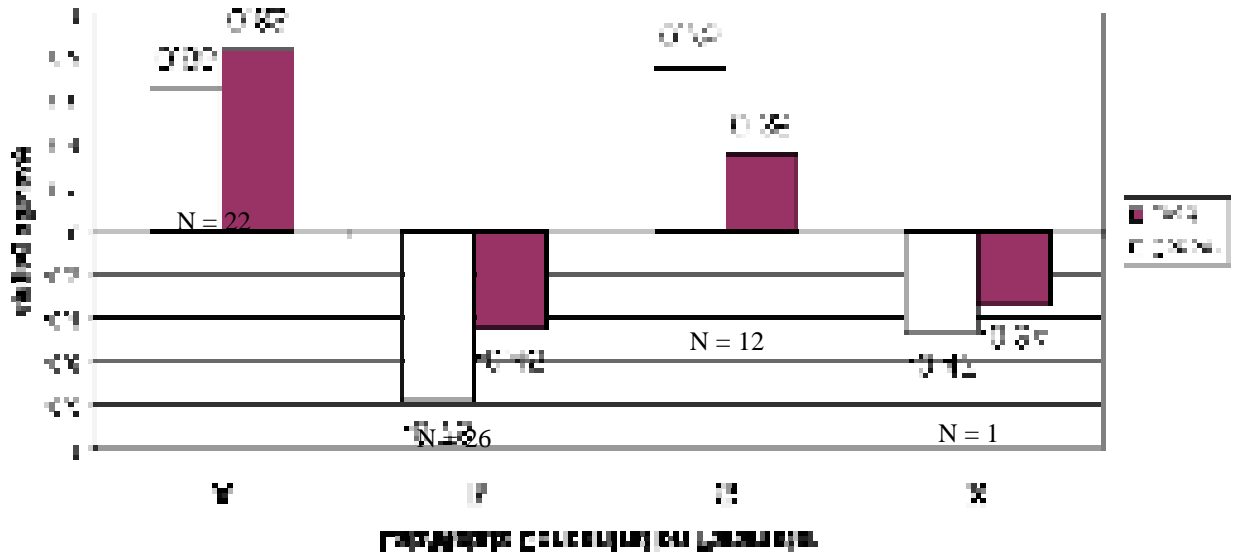
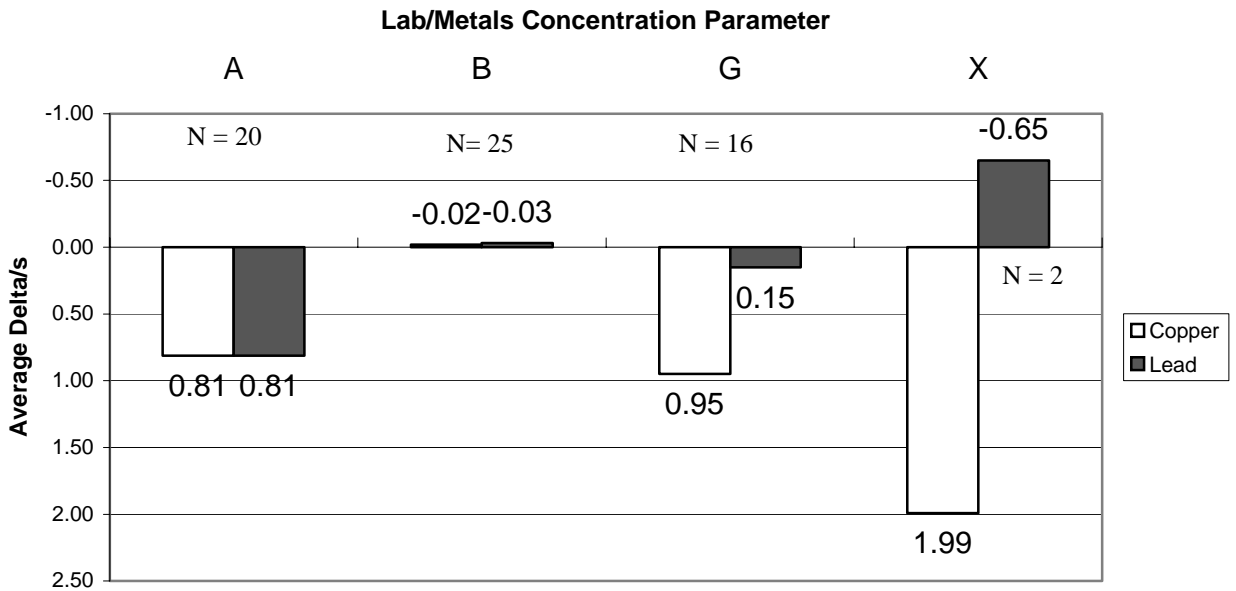
Period	n	Δ Cu mean	Δ Cu S	Δ Cu Mean Δ/s	Δ Pb mean	Δ Pb s	Δ Pb Mean Δ/s
4/1/02 to 9/30/02	61	9.6 (2.262)	(0.164)	0.04	34.4	15.0	0.17
10/1/01 to 3/31/02	66	9.5 (2.248)	(0.154)	-0.05	30.3	9.3	-0.15
4/1/01 to 9/30/01	62	10.0 (2.300)	(0.151)	0.31	28.8	10.1	-0.27
10/1/00 to 3/31/01	43	9.6 (2.258)	(0.190)	0.02	30.3	33.5	-0.15
4/1/00 to 9/30/00	51	9.9 (2.297)	(0.380)	0.29	27.7	12.27	-0.35

Precision for copper on oil 42 shows some degradation. For all other oil/parameters, precision is within historical levels. For this period, copper was severe for oil 42 and on target for oil 1005. Lead was slightly severe for both oils.

Laboratory Severity by Oil

Severity, for both oils, is plotted by laboratory on the following page.

Average Delta/s By Lab, TMC Oil 42

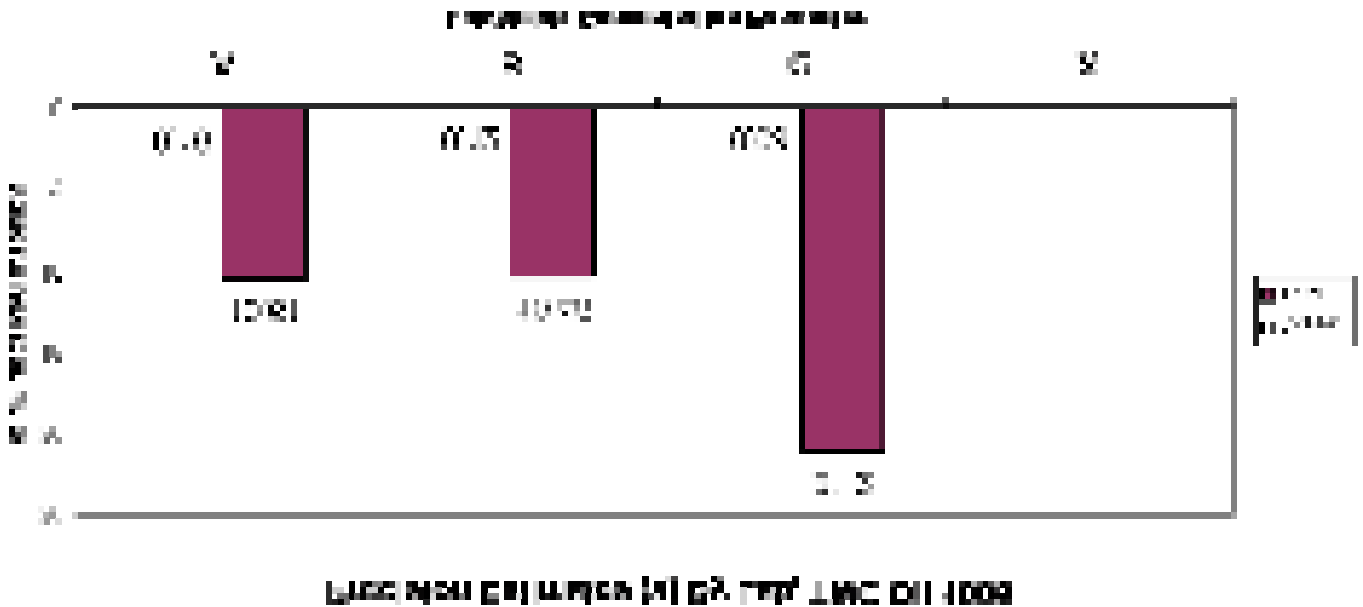
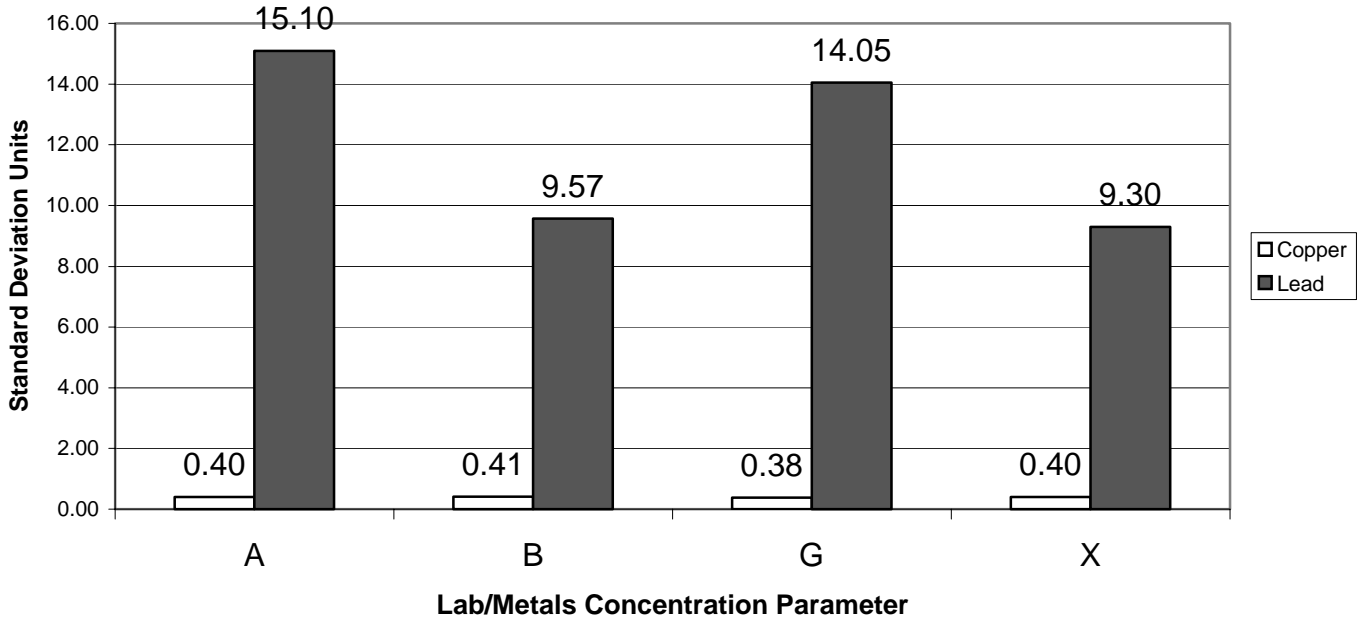


SEVERITY OF RESULTS BY LAB FOR TMC OIL 1005

The charts show some laboratory differences in severity. Labs A and G show severe results on both oils, while lab B shows mild results on oil 1005 and on target results for oil 42. Lab X is mild on oil 1005 and mild on lead for oil 42; it is severe for copper on oil 42.

The following plots show the precision for this period, by lab and oil.

Precision (s) By Lab, TMC Oil 42



Copper standard deviations were calculated in transformed (natural log, ln) units. For oil 42, lead variability was higher at labs A and G. For oil 1005, lead variability was higher at lab G. No precision estimate was available for lab X for oil 1005 due to an n size of 1.

Reference Oil Supply

Reference oil quantities available at the laboratories and TMC, as well as estimated life of these oils, is tabulated below.

Oil	TMC Inventory, in gallons	TMC Inventory, in tests	Laboratory Inventory, in tests	Estimated life
42	7.21	230	31	2.2 years
1005	73.9	2365	28	19+ years

Information Letters

No information letters were issued this report period.

Additional Information

The HTCBT database is available from the TMC's website. If you are uncertain how to access this data, contact the TMC.

JAC/jac/mem02-094.jac.doc

c: HTCBT Surveillance Panel

<ftp://ftp.astmtmc.cmu.edu/docs/bench/htcibt/semiannualreports/htcibt-10-2002.pdf>

J. L. Zalar

F. M. Farber

Distribution: Email

Figure 1

HTCBT INDUSTRY OPERATIONALLY VALID DATA

COPPER CHANGE (ppm)

CUSUM Severity Analysis

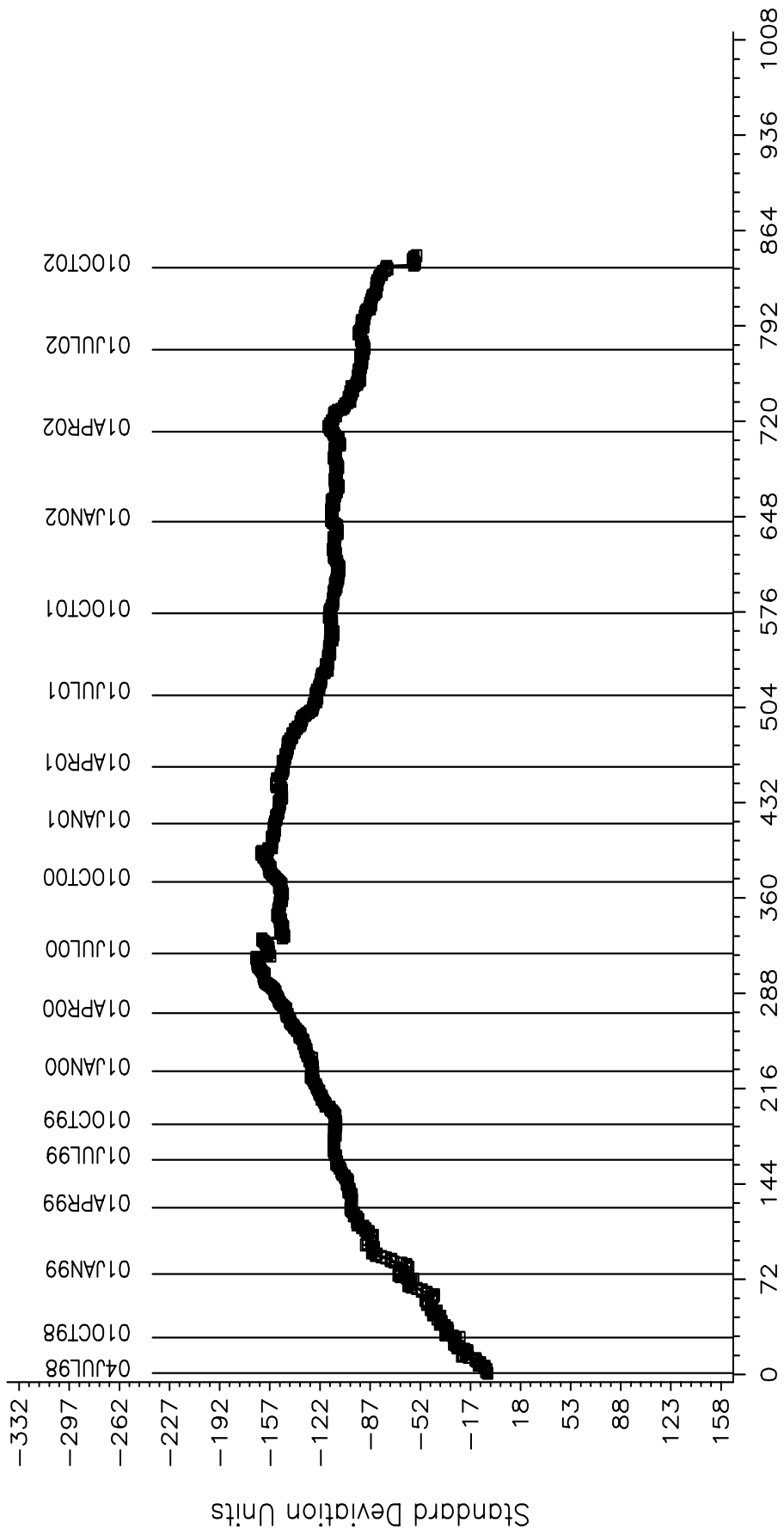
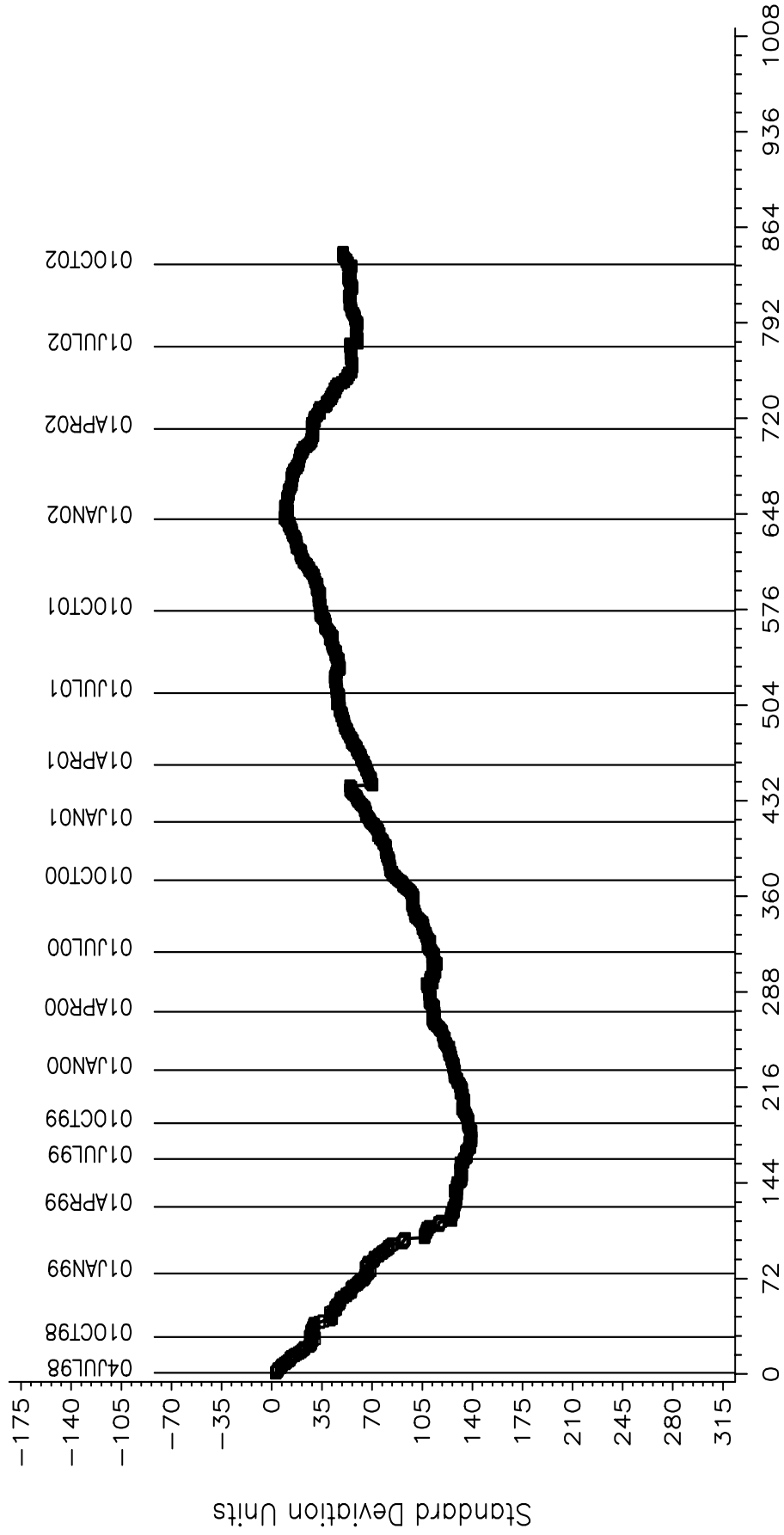


Figure 2

HTCBT INDUSTRY OPERATIONALLY VALID DATA

LEAD CHANGE (ppm)

CUSUM Severity Analysis



COUNT IN COMPLETION DATE ORDER

TMC 16OCT02:10:36