

Appendix G. Shewhart Charts

06 September 2023

QA REPORT
NGET Tottenham Bus Depot
April 2023 – July 2023

Eurofins Chemtest Ltd operates a Quality Management System in accordance with ISO IEC 17025:2017 and is accredited by UKAS for the majority of tests undertaken at the Newmarket Laboratory. The laboratory also adheres to the additional requirements of the Environment Agency MCERTS Performance Standard for Laboratories undertaking Chemical Testing of Soil.

Within this system, the provision for internal and external quality assurance/control includes any or a combination of the following measures, as appropriate to the analytical method and to fulfil the requirements of the accreditation standard:

- Method validation using Certified Reference Materials (CRMs) where available
- Participation in Proficiency Testing (PT) schemes (Inter-laboratory comparison)
- Analytical Quality Control (AQC)
- Control of test data against statistically derived acceptance criteria (Shewhart Charts) to support data validity prior to reporting.

Quality control data generated for all accredited analyses are plotted on Shewhart control charts in accordance with UKAS and MCERTS requirements. These charts are reviewed regularly by the analysts and Quality Manager to monitor on-going method performance, trending and bias. It is Eurofins Chemtest policy **not** to report any analytical results associated with unsatisfactory quality control data. All MCERTS accredited analyses are monitored in terms of bias and precision to ensure compliance with MCERTS requirements.

During the testing of soil and water samples for this project the laboratory used over 500 separate control charts to monitor the quality control data generated by multiple instruments for the range of determinants requested. Please see below the control charts from selected instruments, associated with our accredited tests, produced within the time frame of this project (25/04/2023 – 18/07/2023).

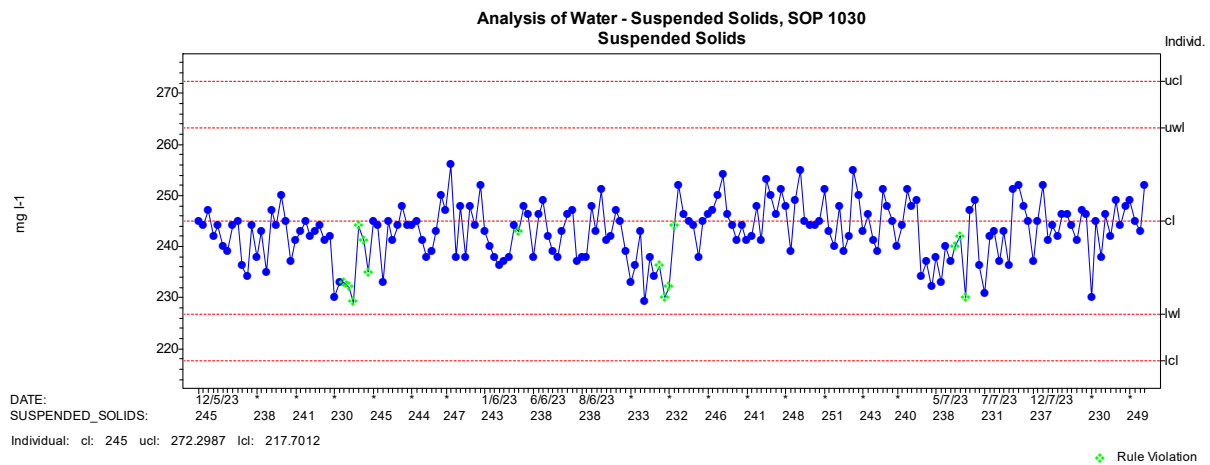
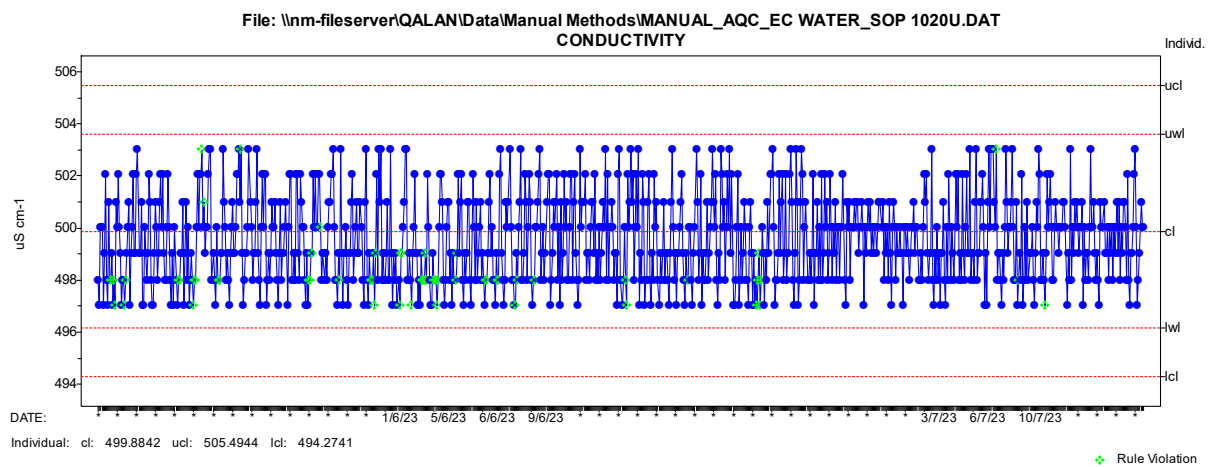
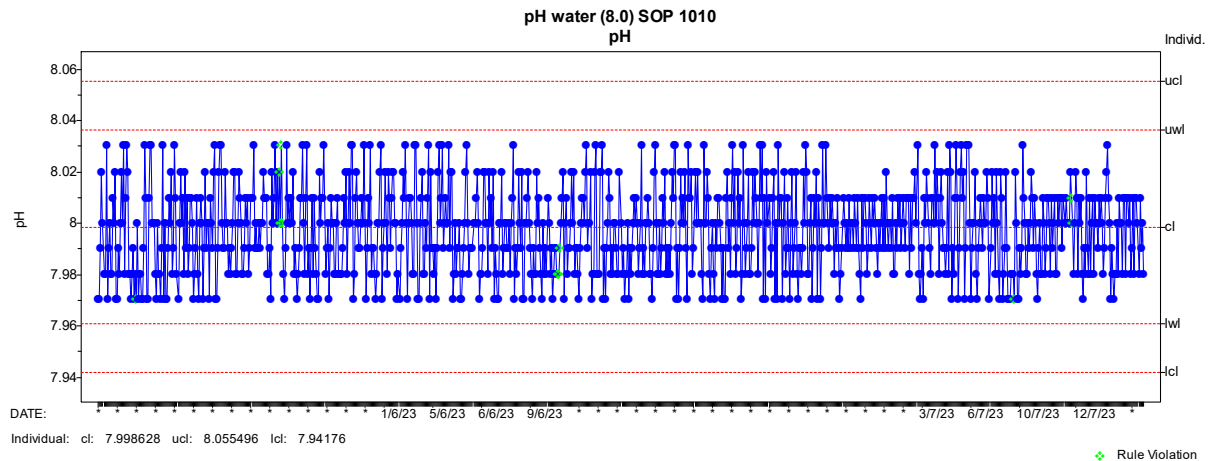
Eurofins Chemtest participate in a number of different proficiency testing schemes throughout the year for soil, ground water and leachates, this includes CONTEST, Aquacheck, RTC and LEAP. Pass rate data is 88%.

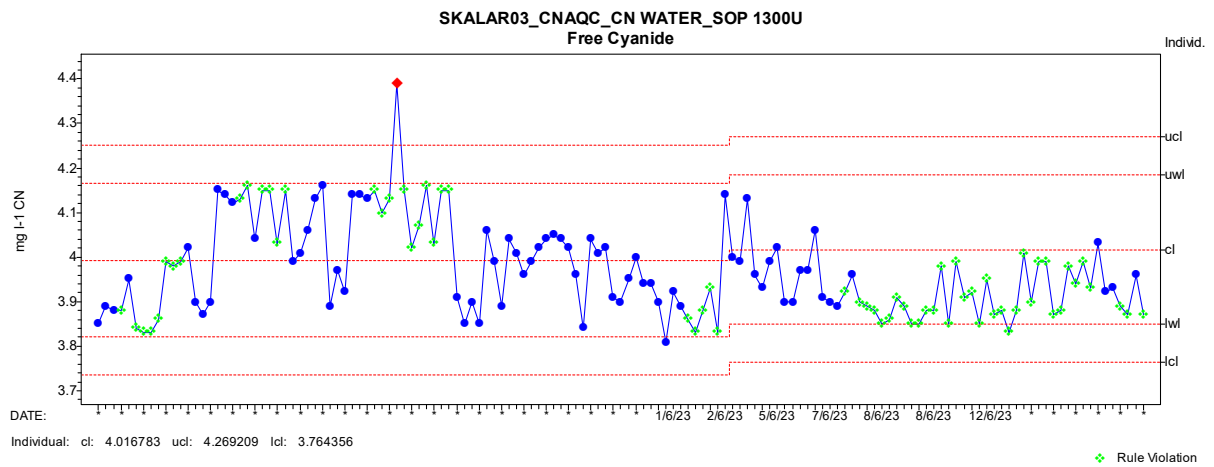
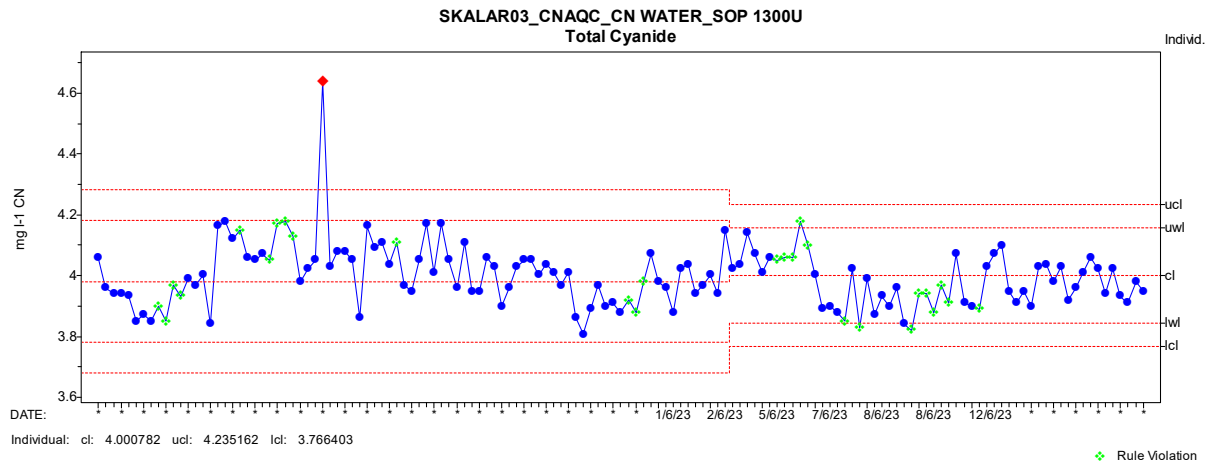
Throughout this project, and in accordance with our procedures, if quality control failures occur, they are investigated to identify the root cause and appropriate remedial and corrective actions are taken. Where quality control results fall outside the assigned control limits ($\pm 3SD$) all associated sample testing is repeated. All results released are in accordance with our UKAS accredited procedures.

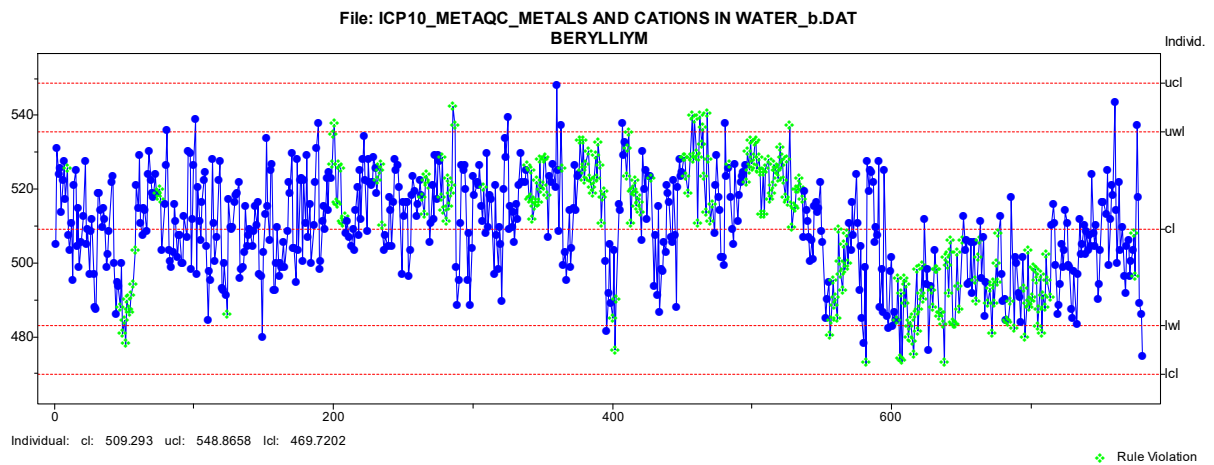
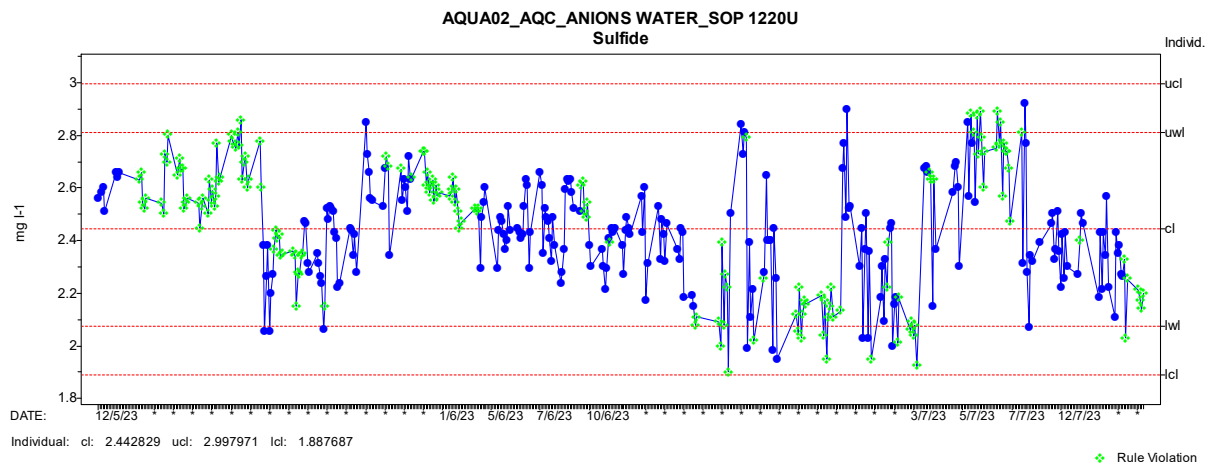
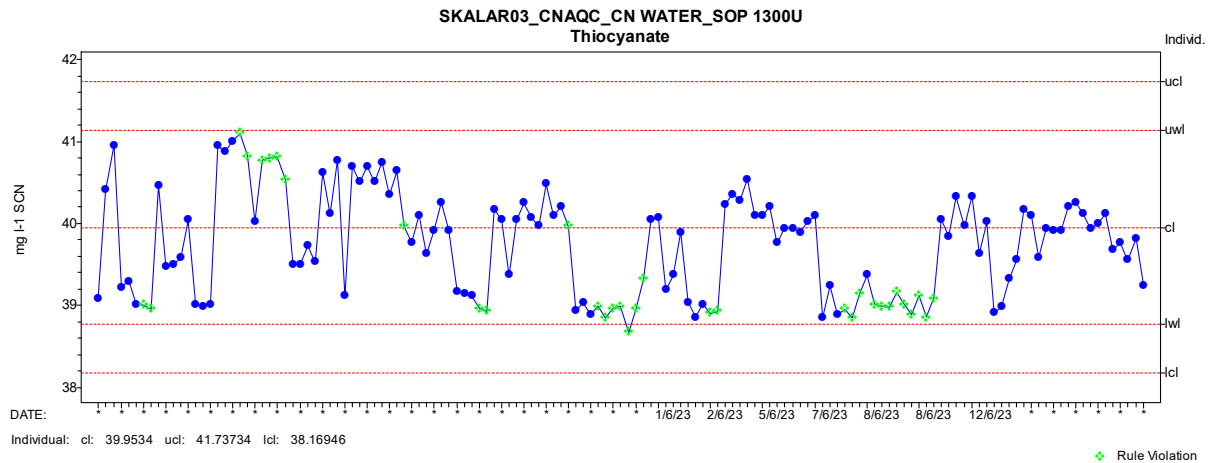
The following components for which Shewhart control charts are provided below are **not** UKAS accredited: Total Aromatic, Total Aliphatic, Total TPH in Waters and Leachates.



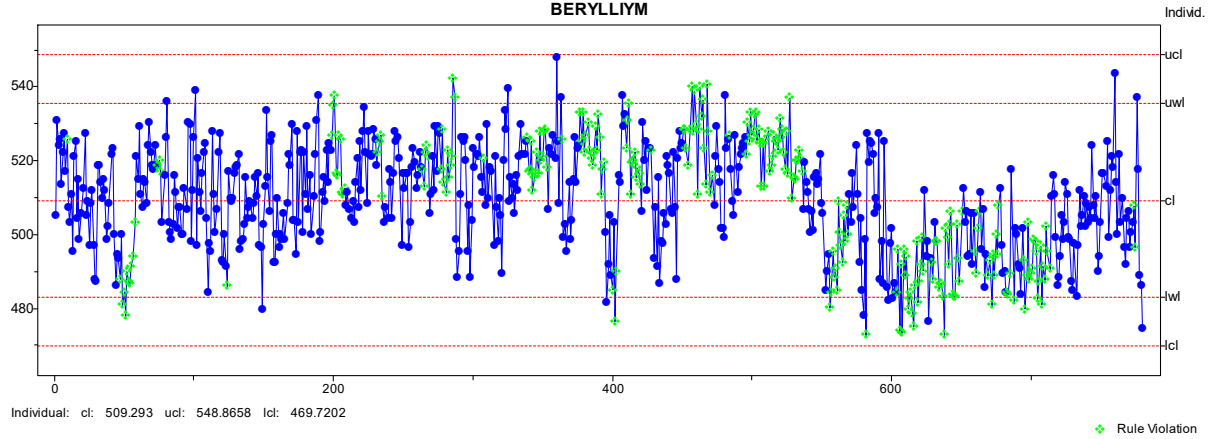
Bailey Maclaine
Quality Manager



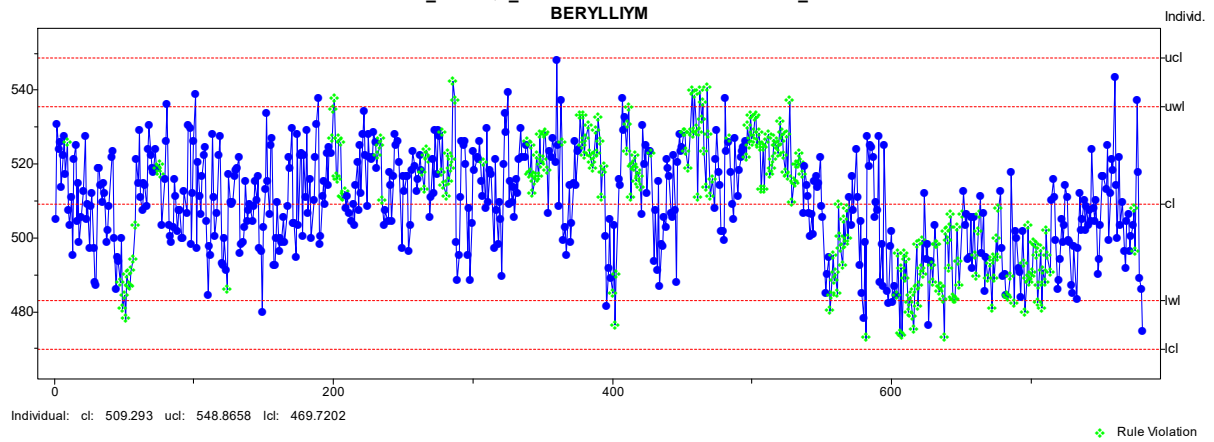




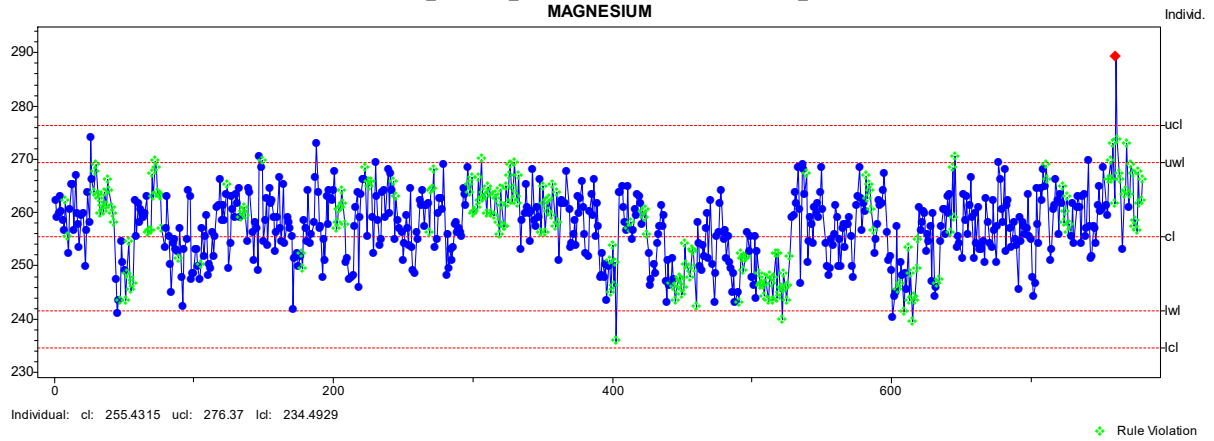
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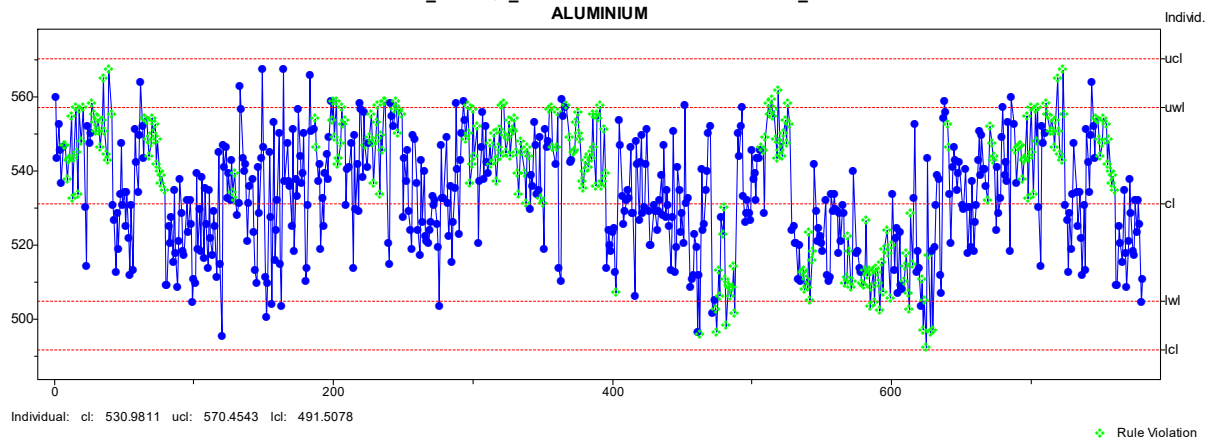
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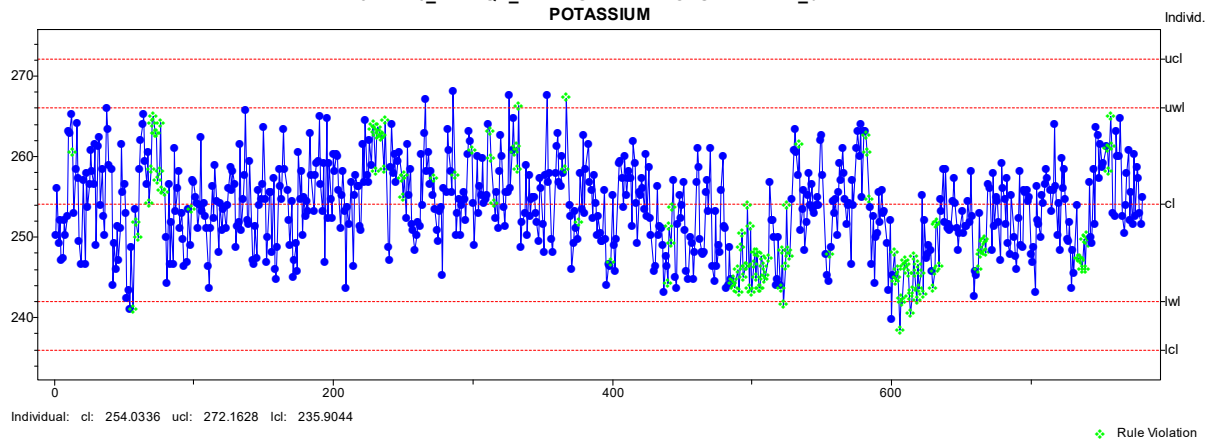
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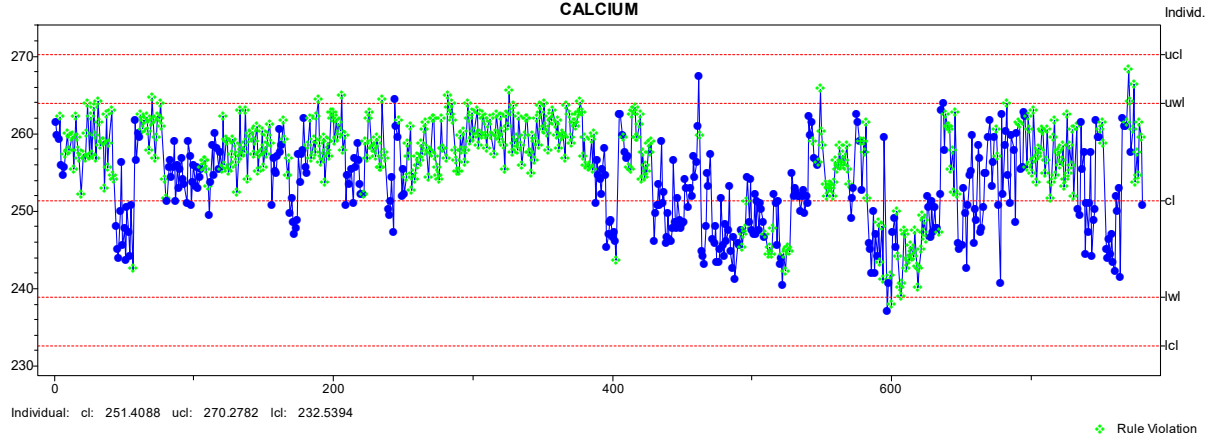
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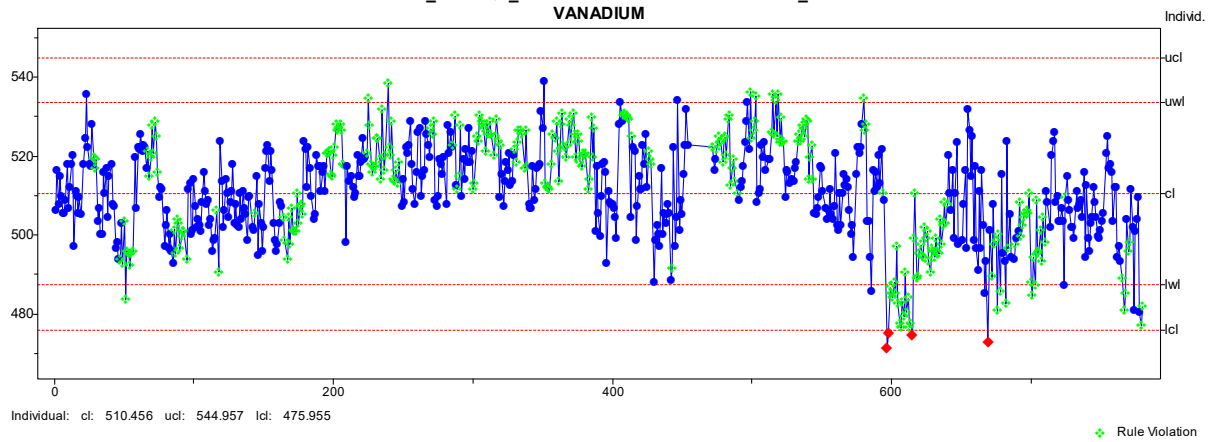
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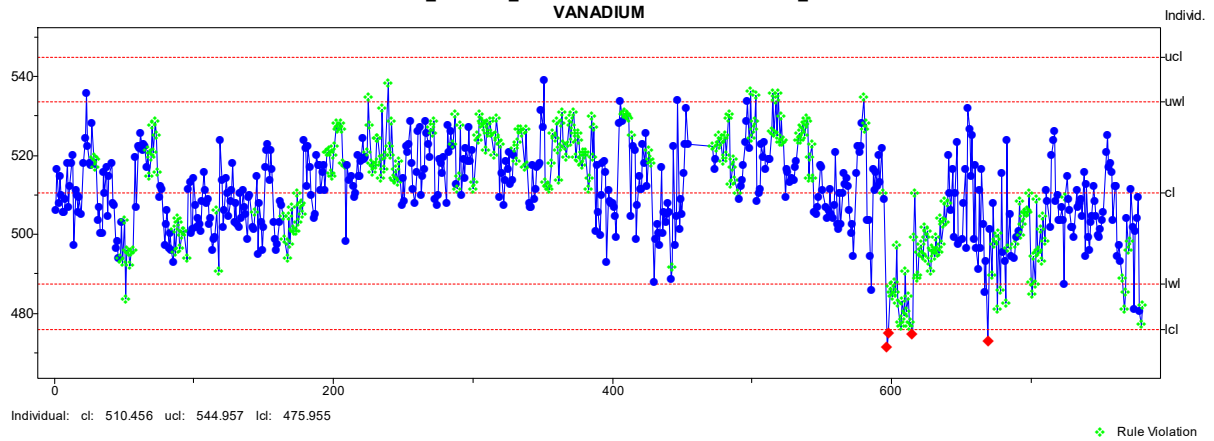
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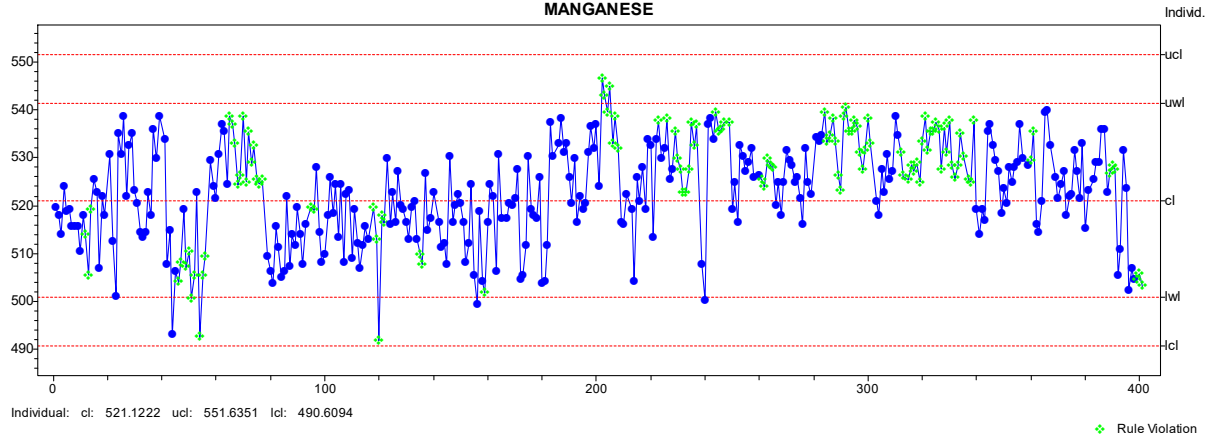
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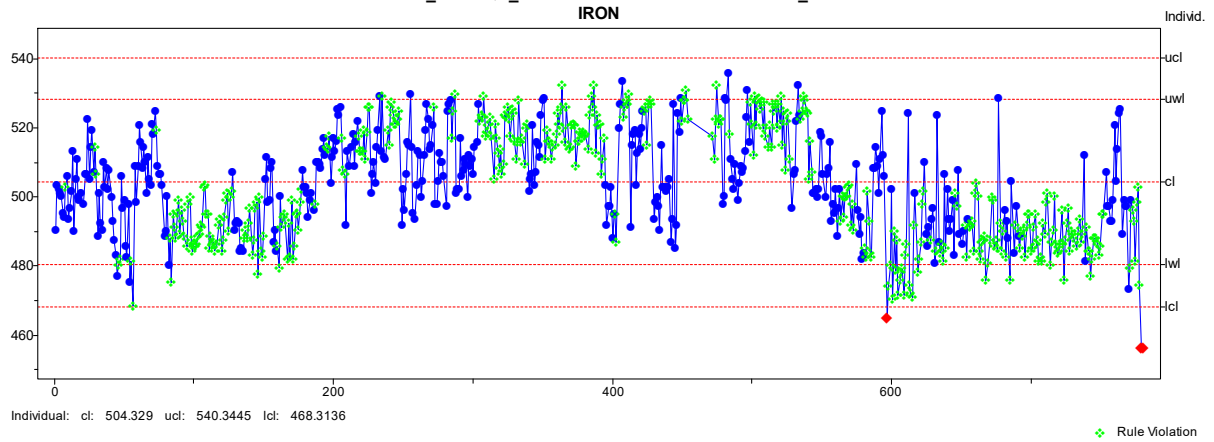
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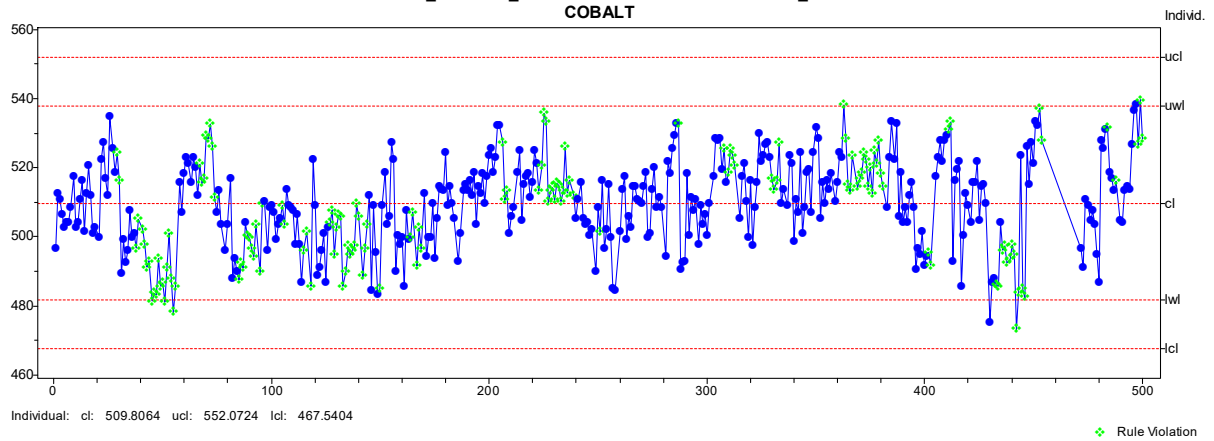
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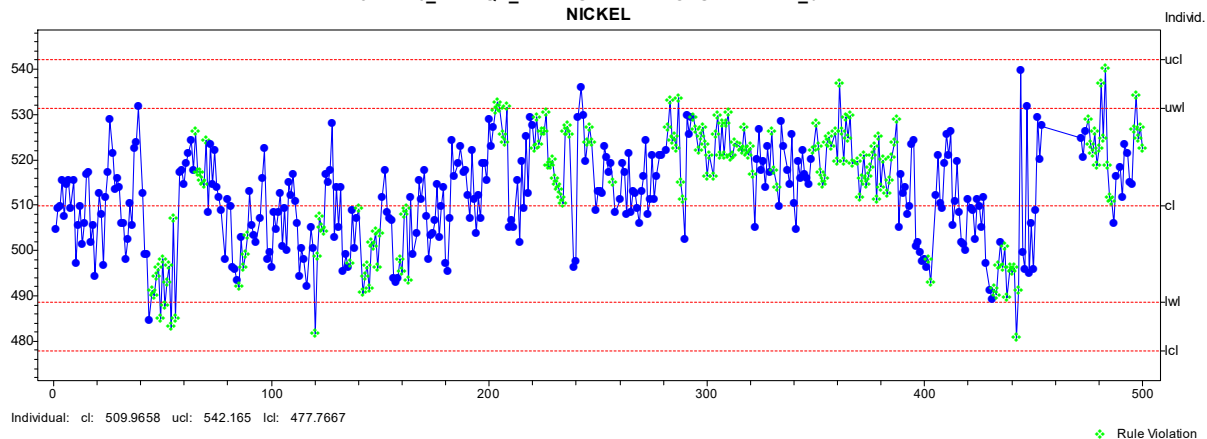
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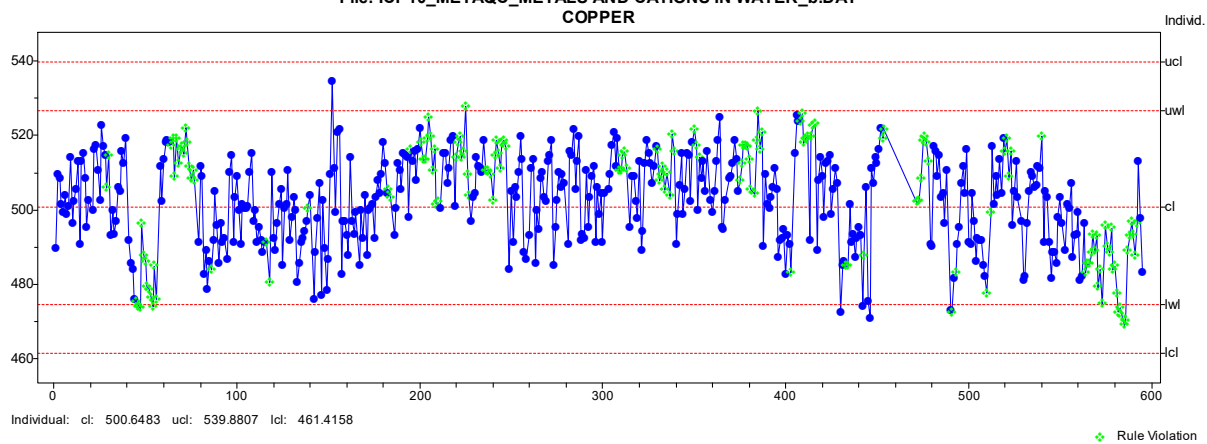
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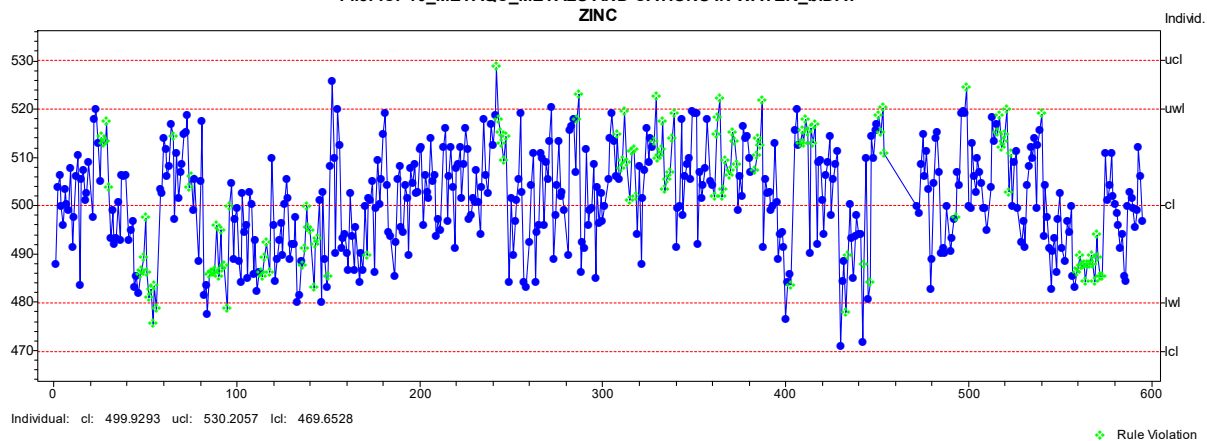
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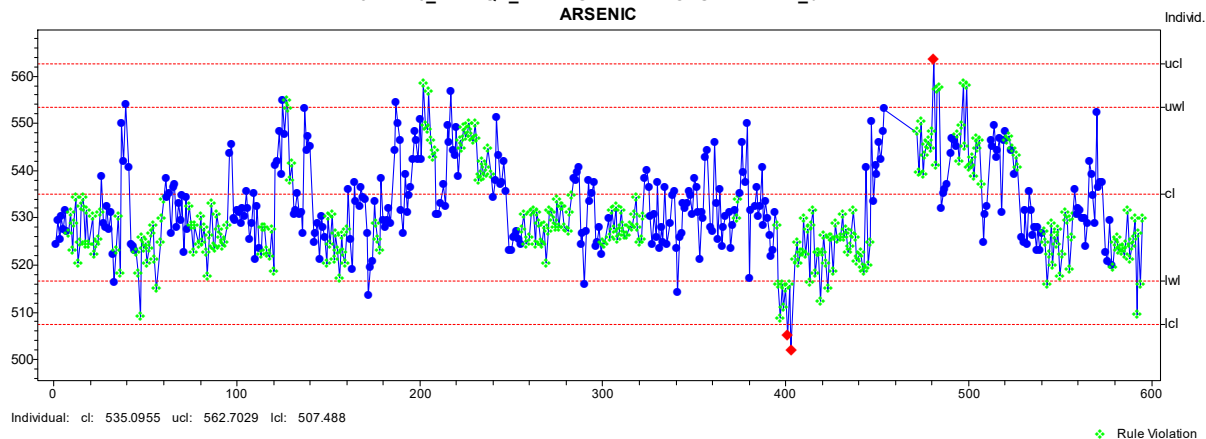
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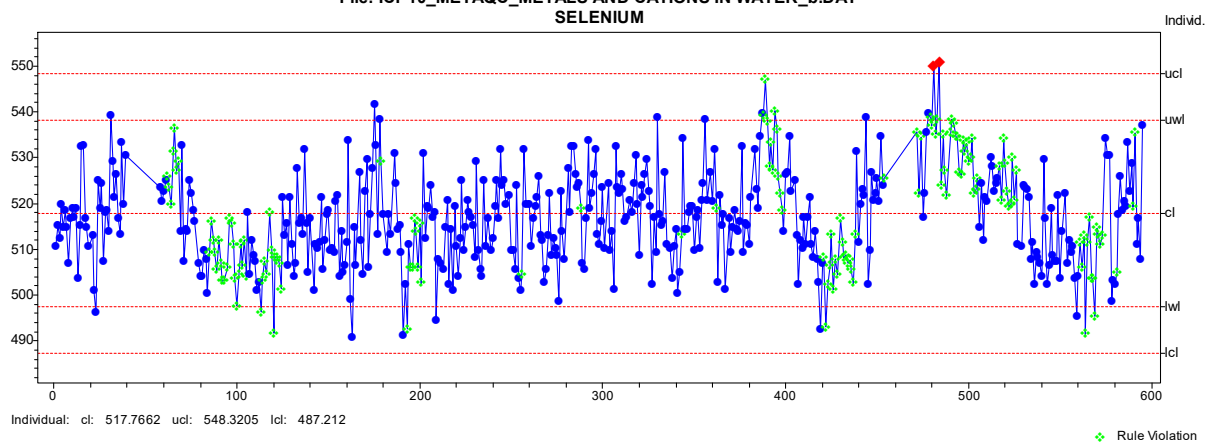
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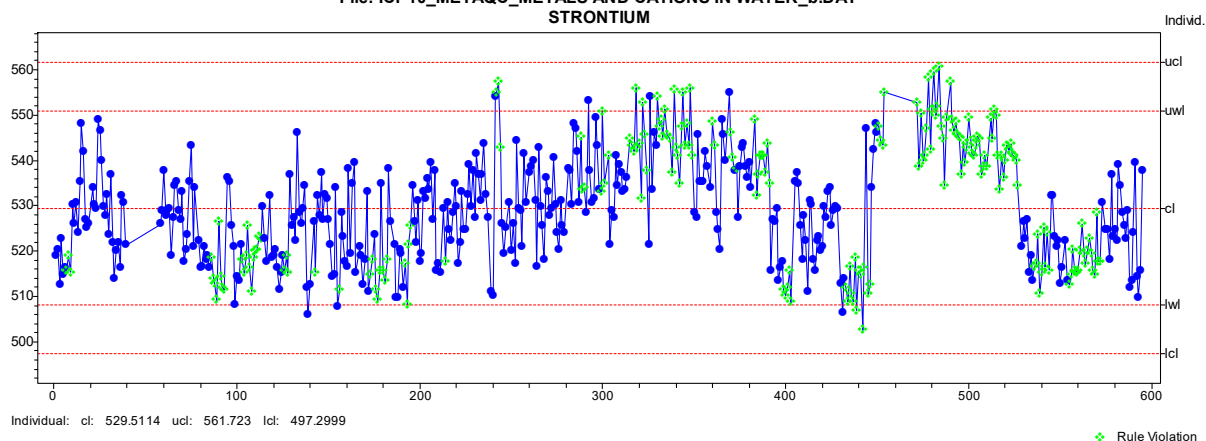
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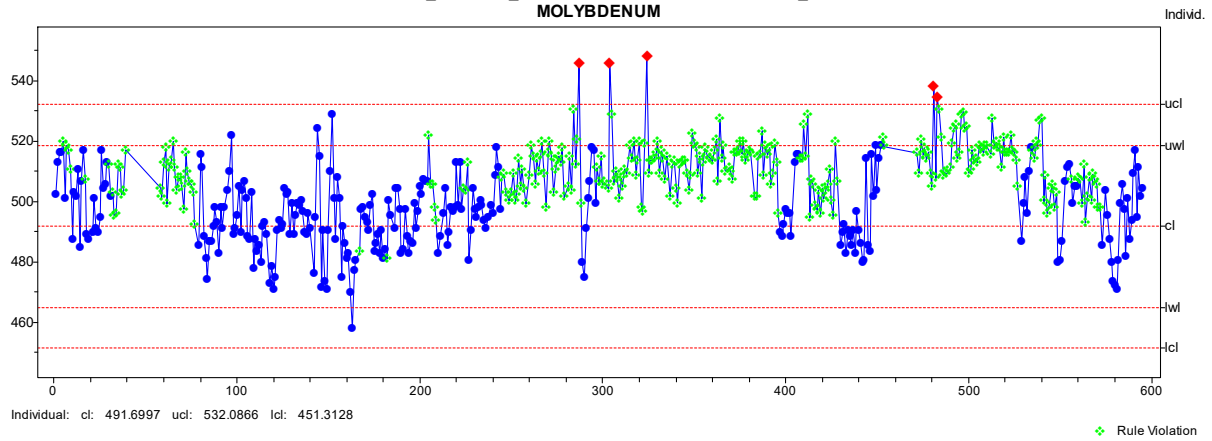
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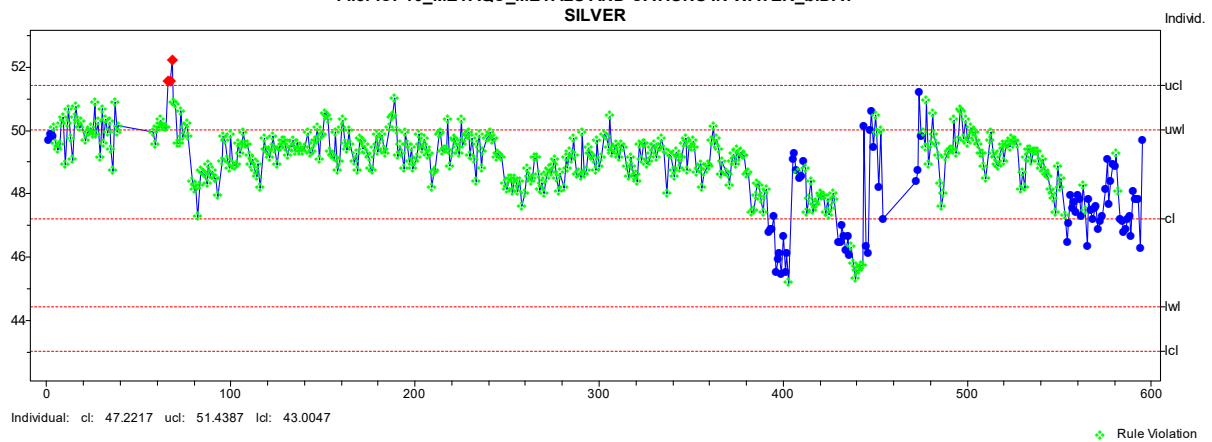
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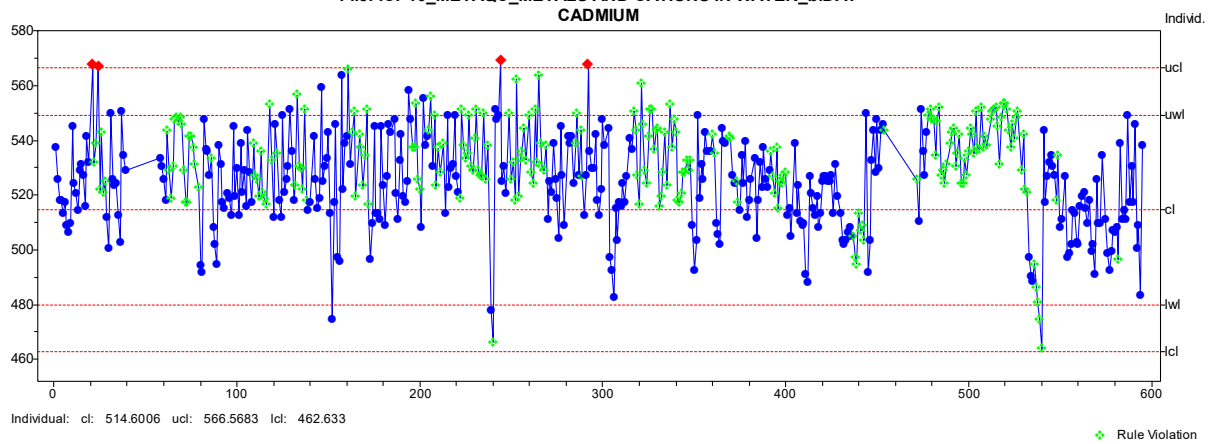
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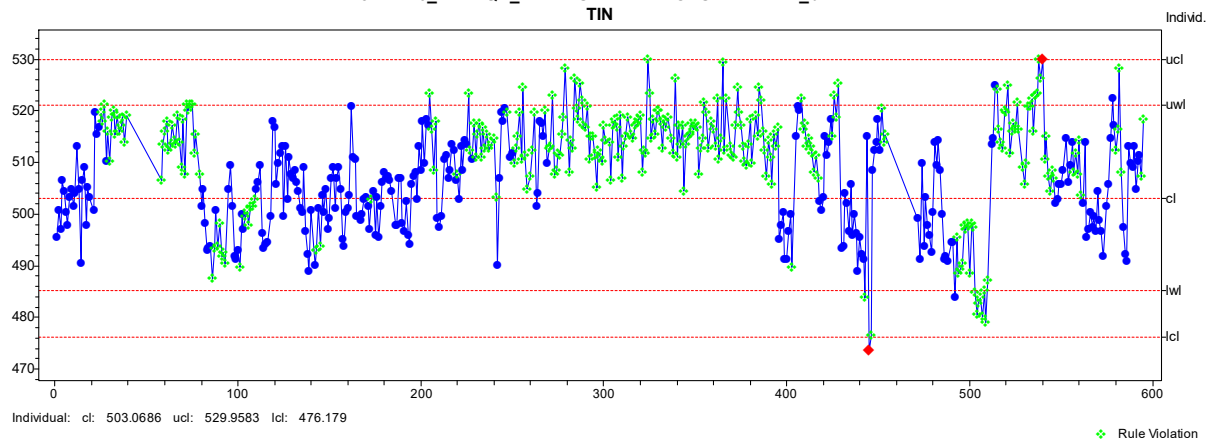
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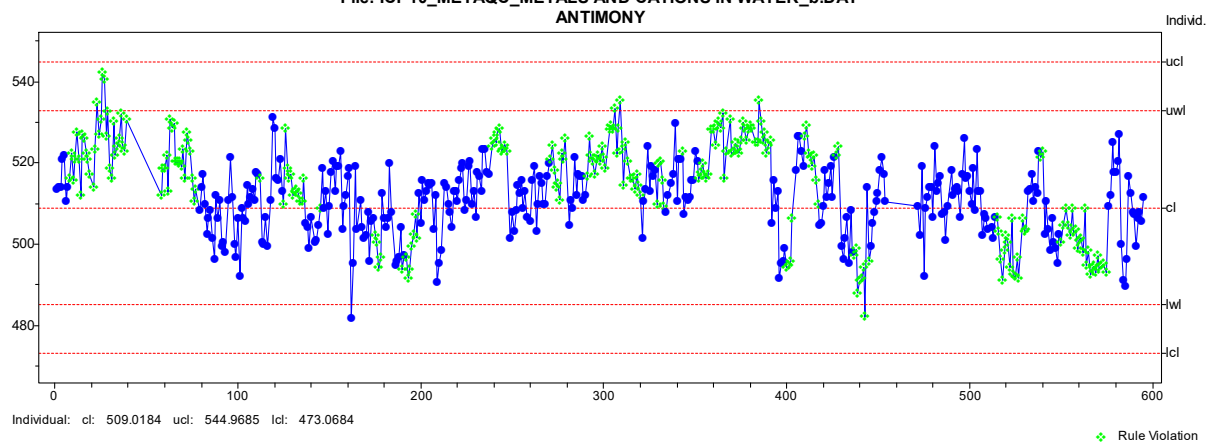
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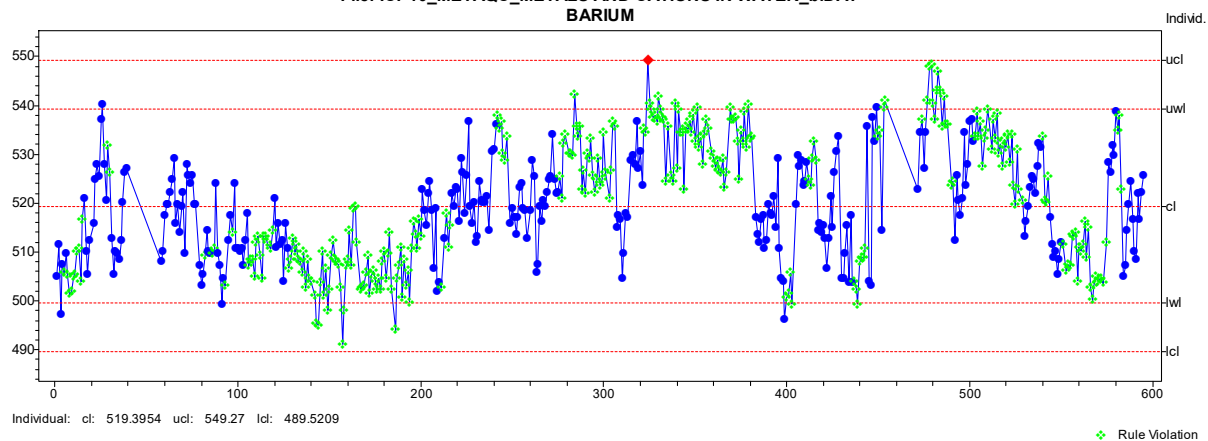
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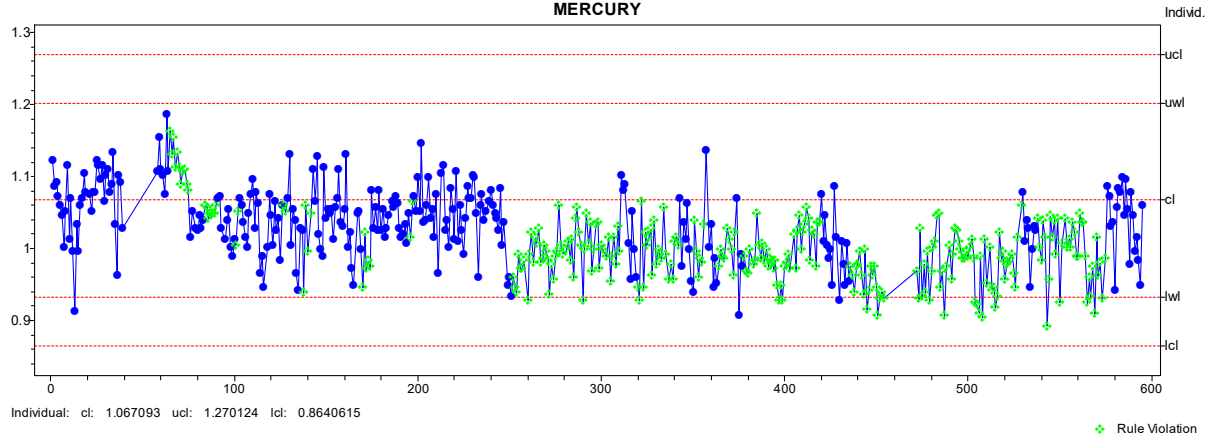
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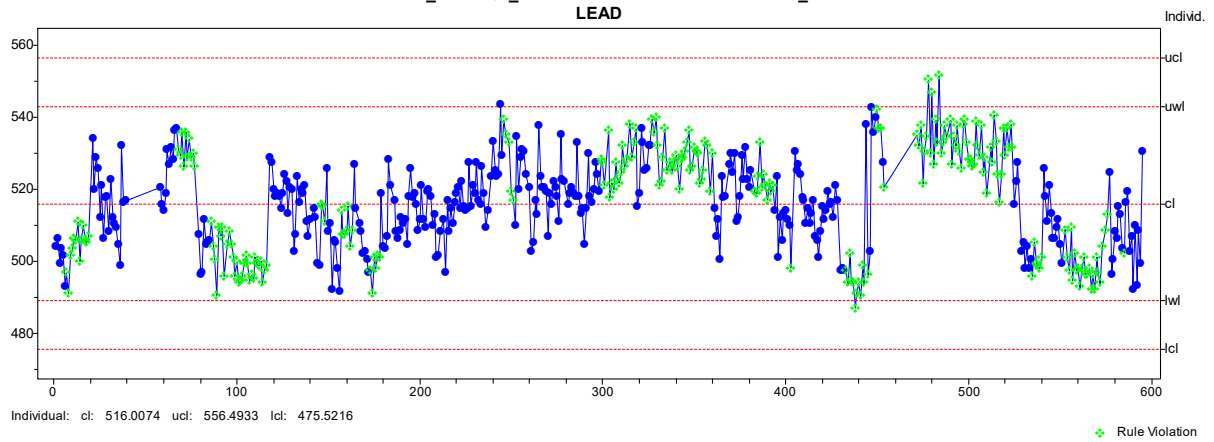
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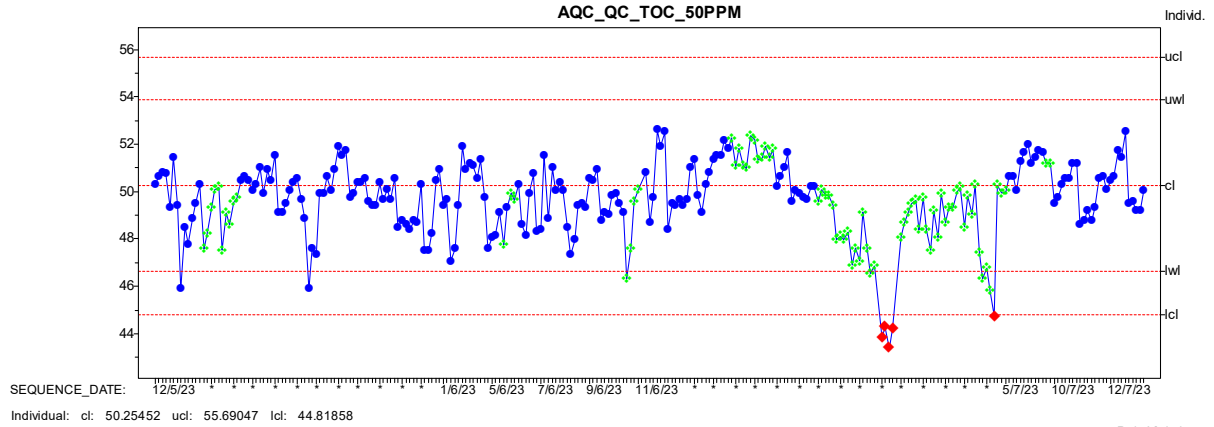
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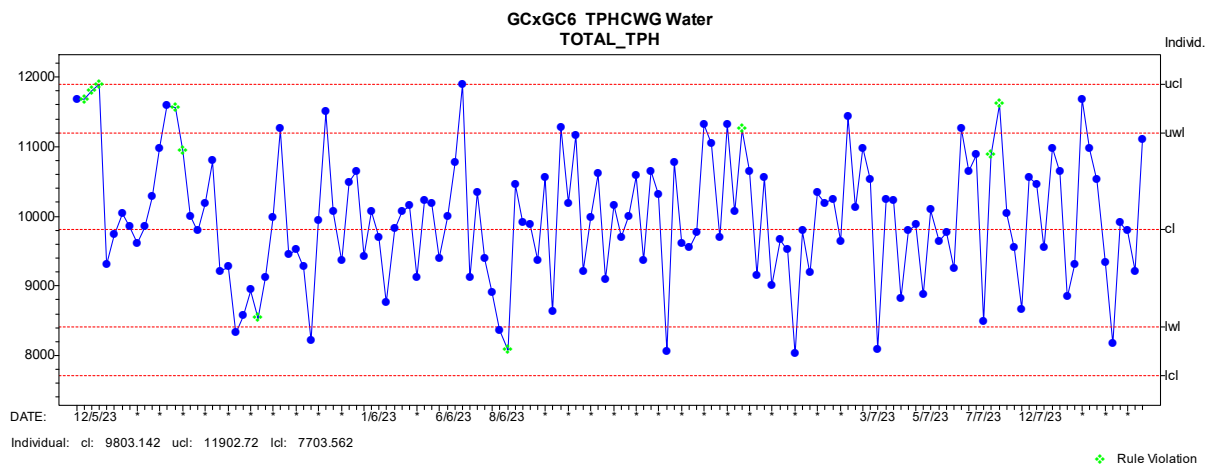
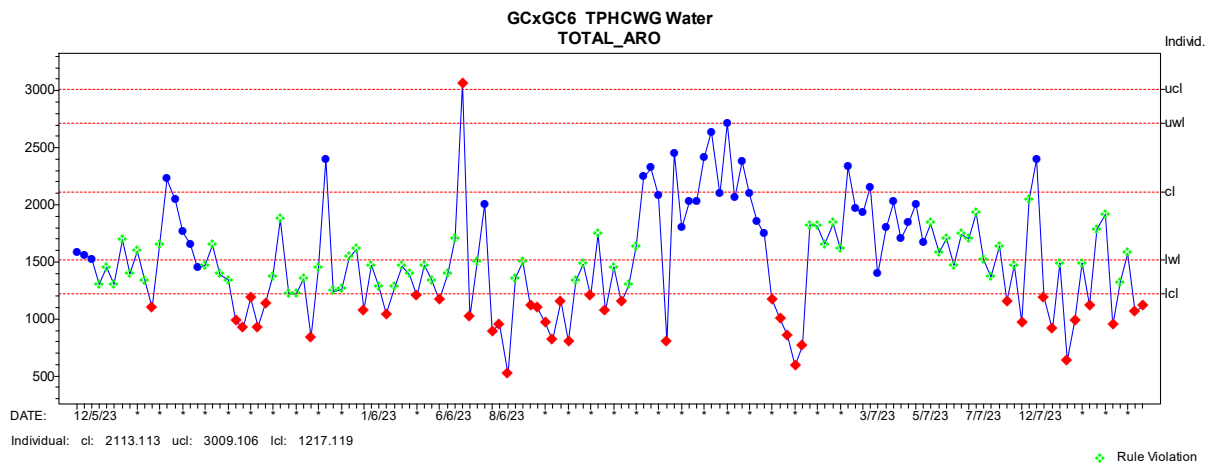
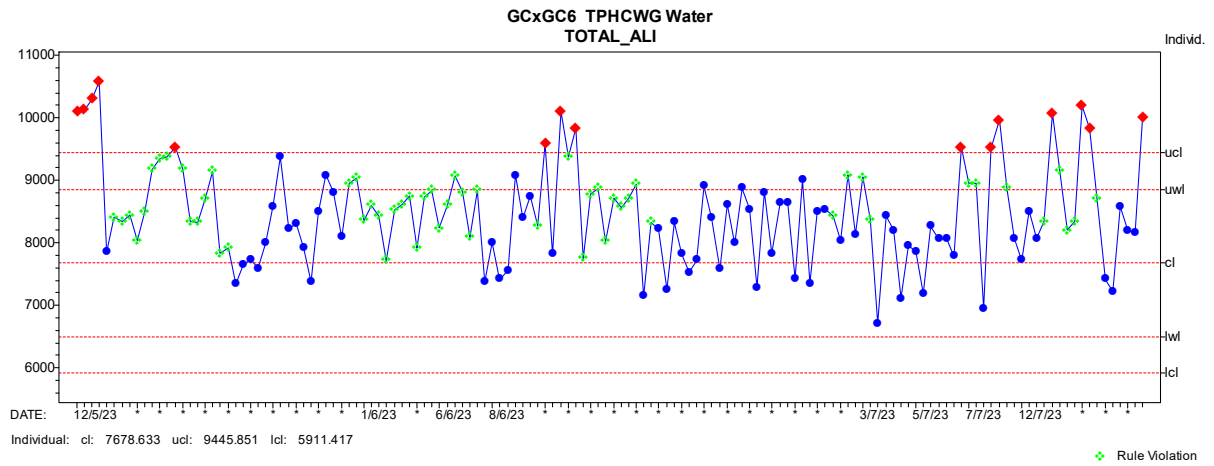


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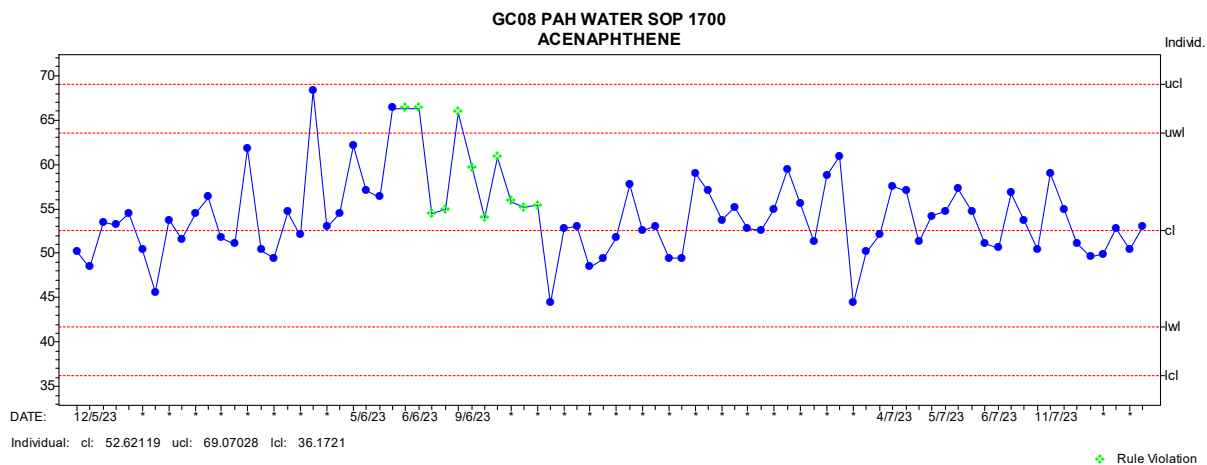
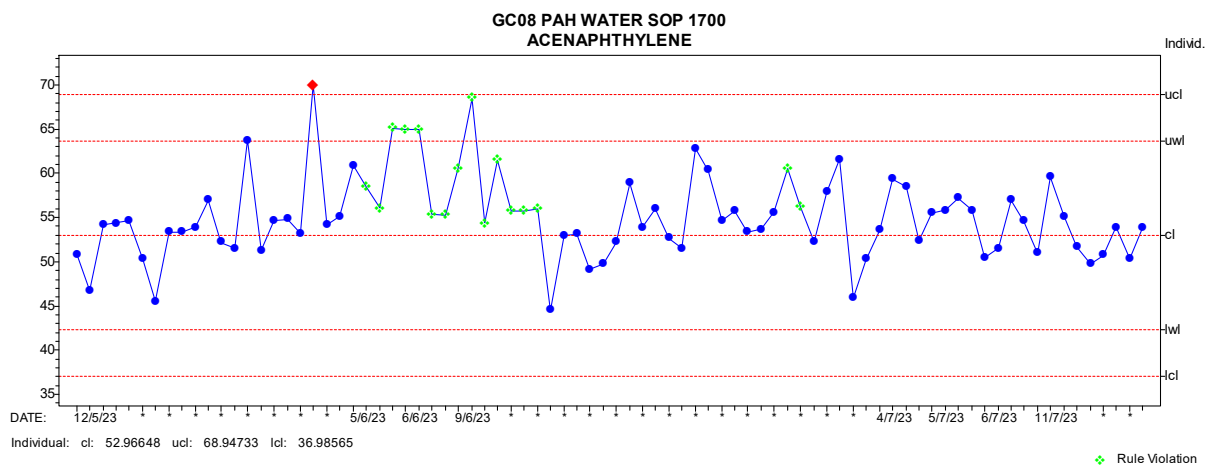
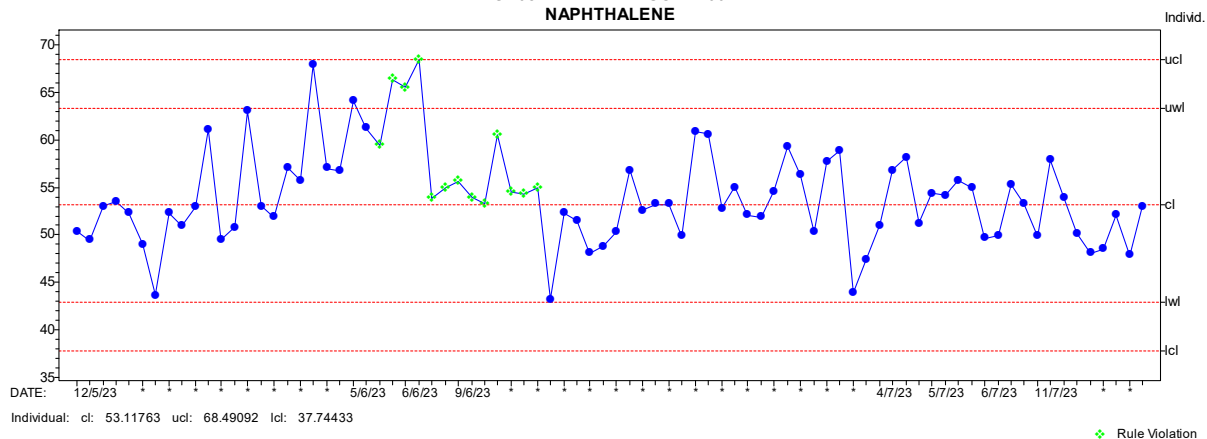


TOC09 WATER QC SOP 1610
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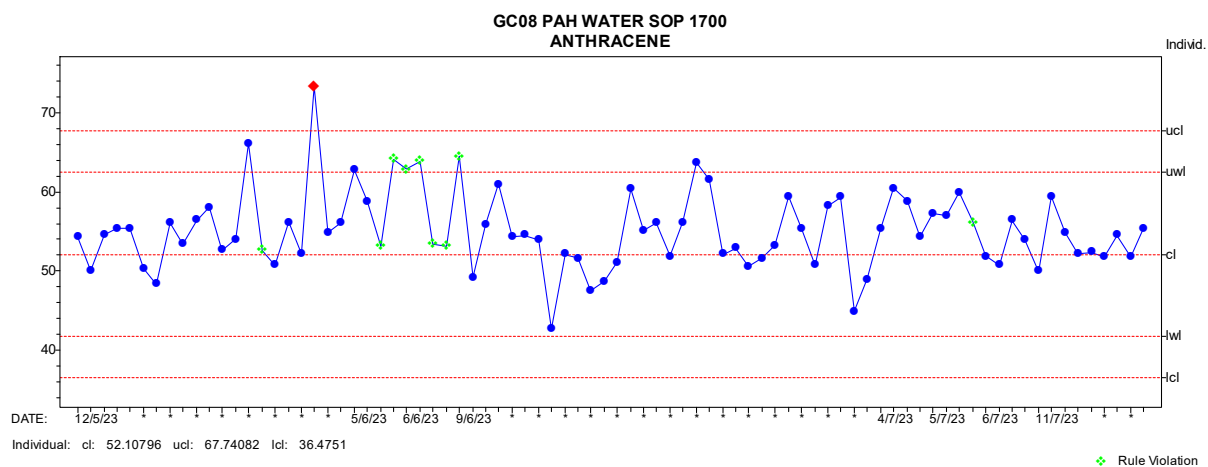
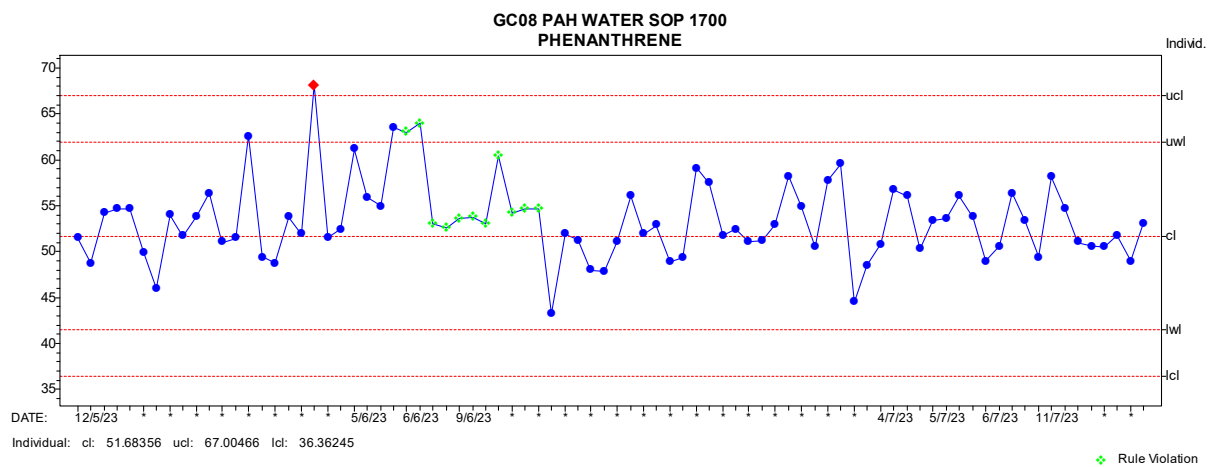
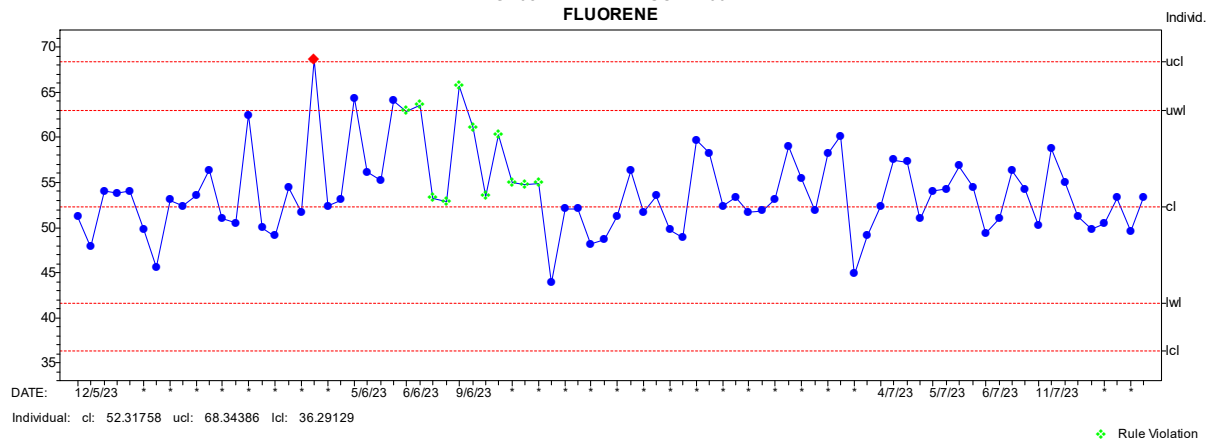


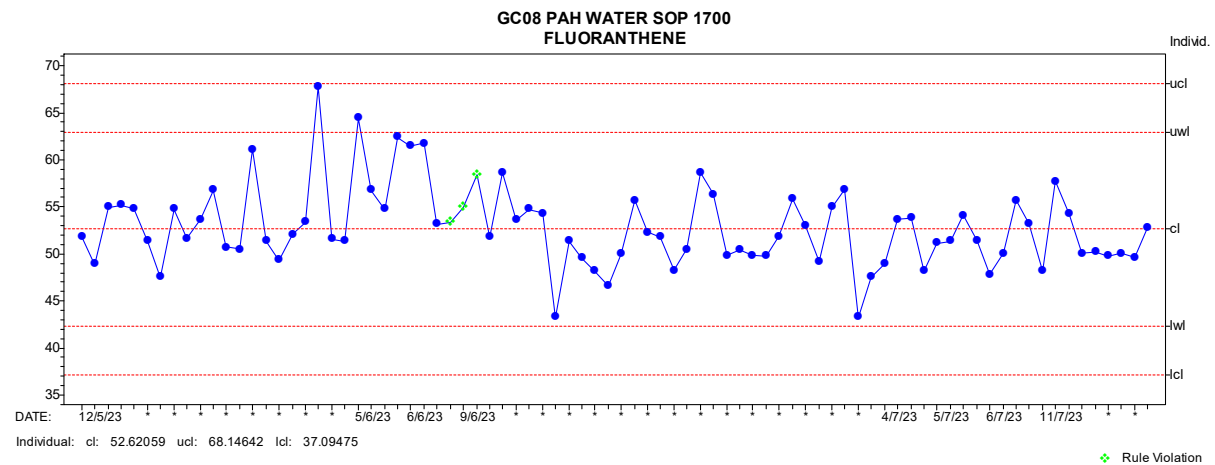


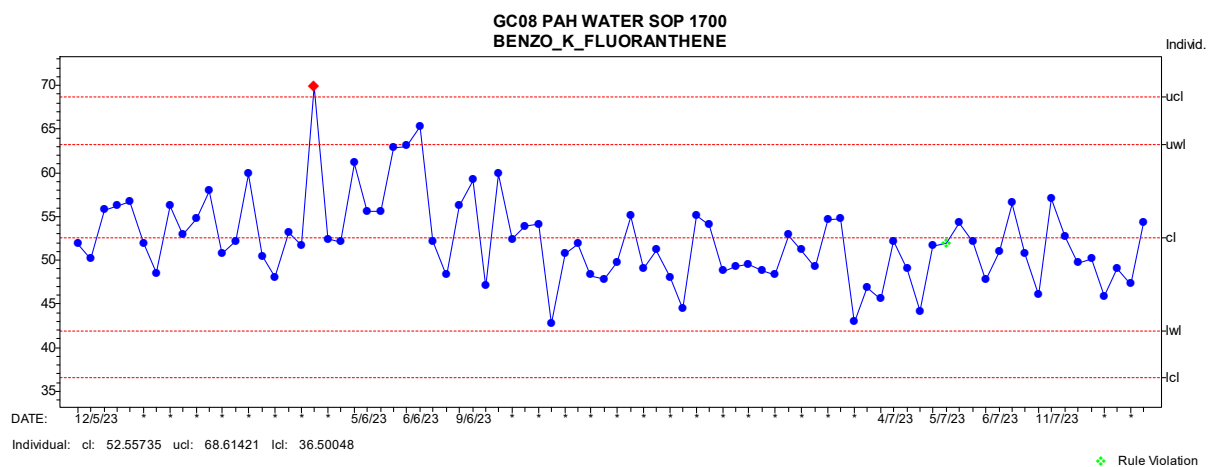
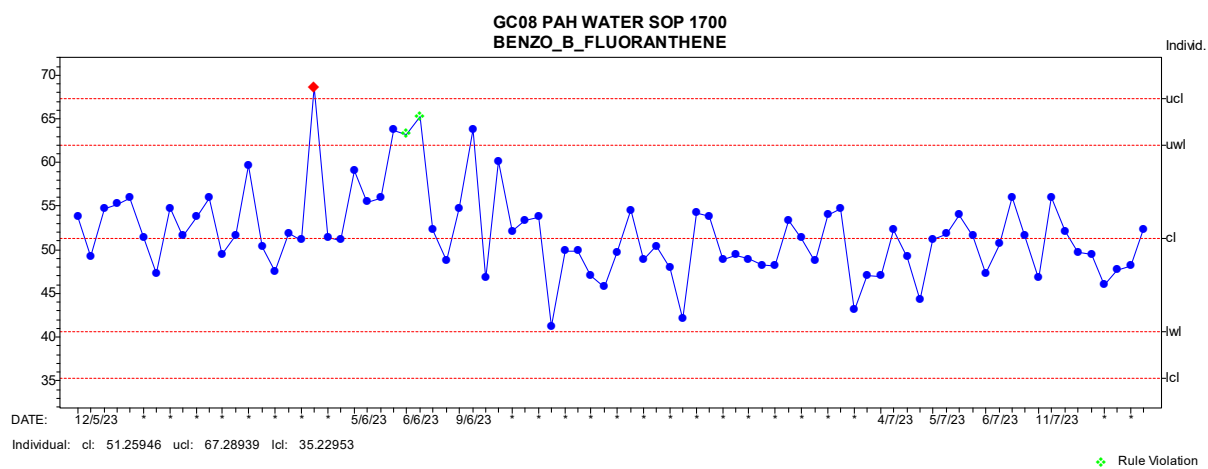
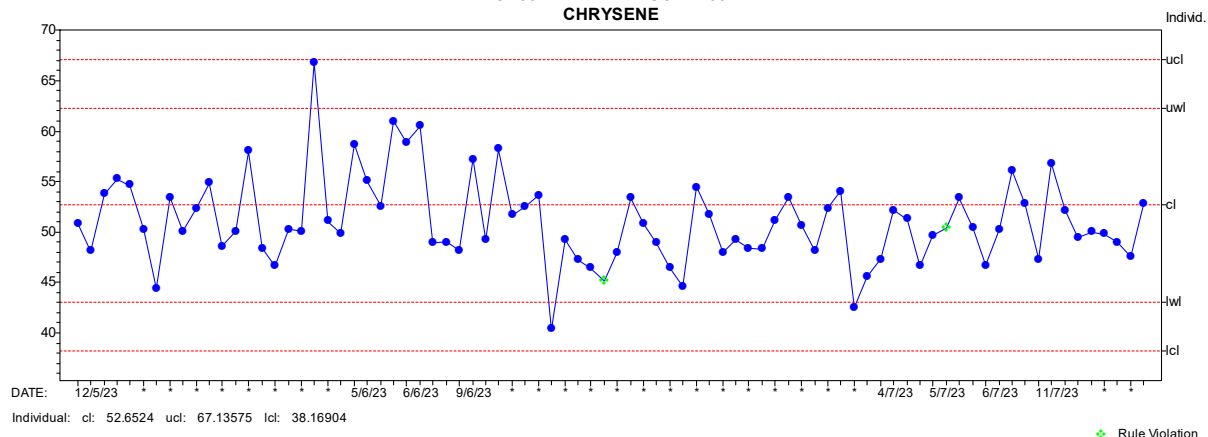
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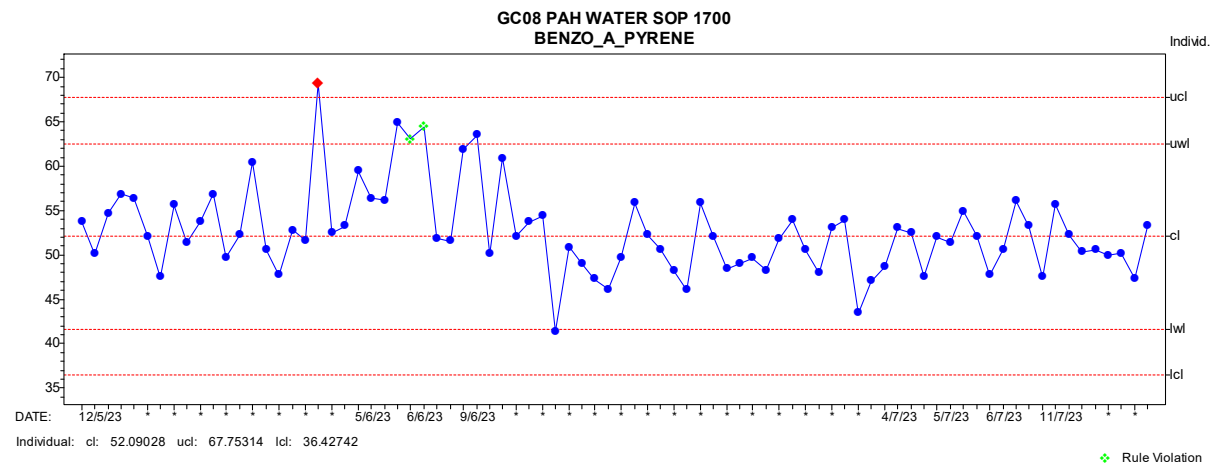


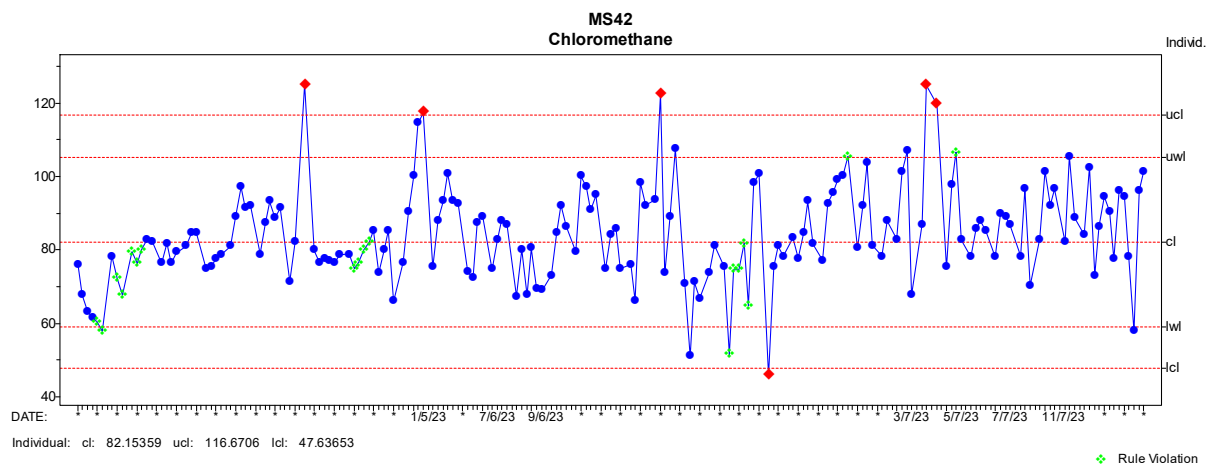
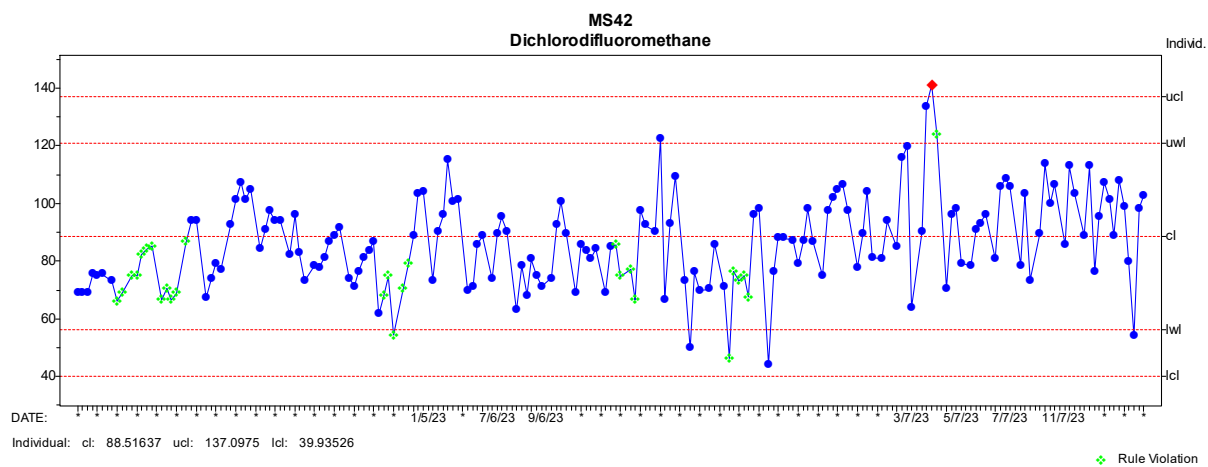
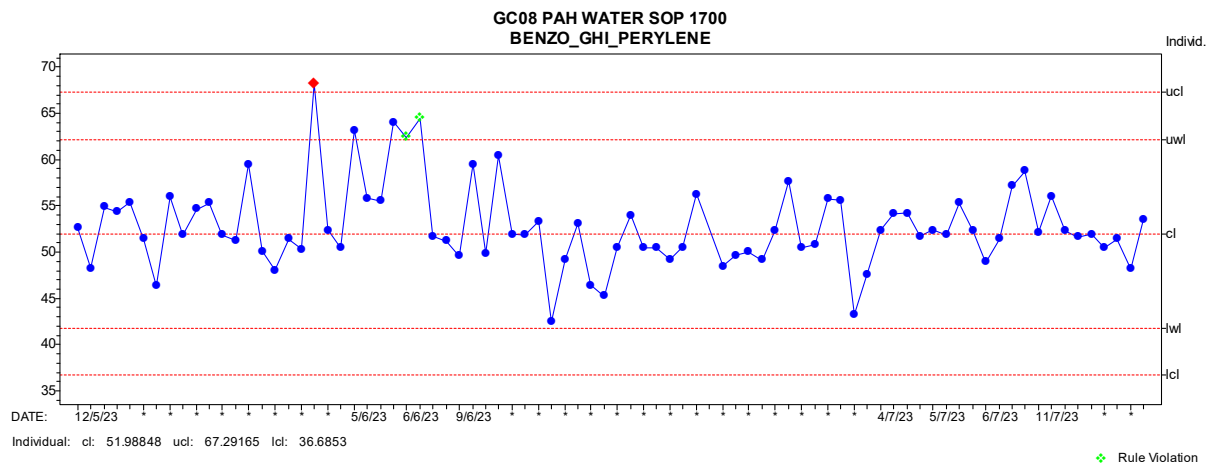
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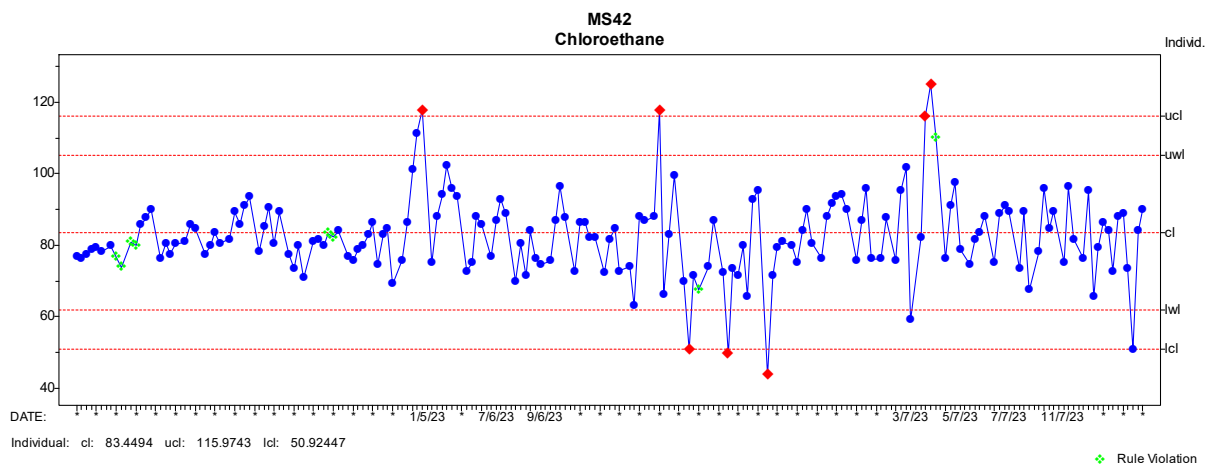
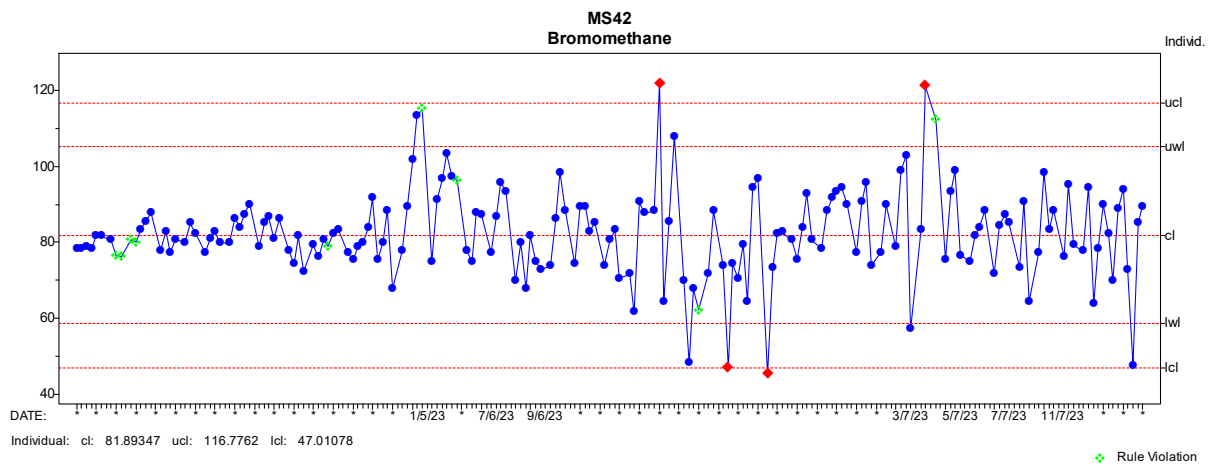
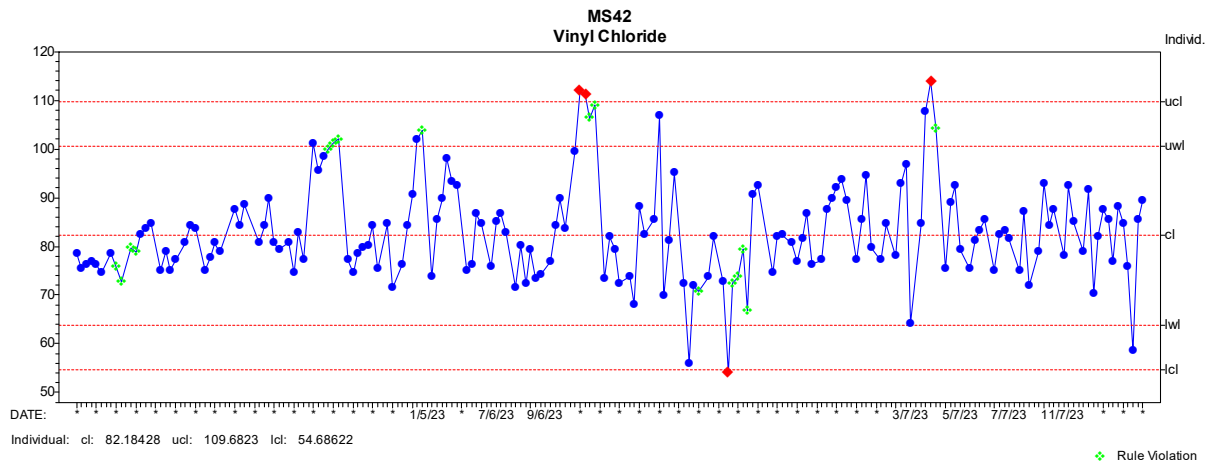


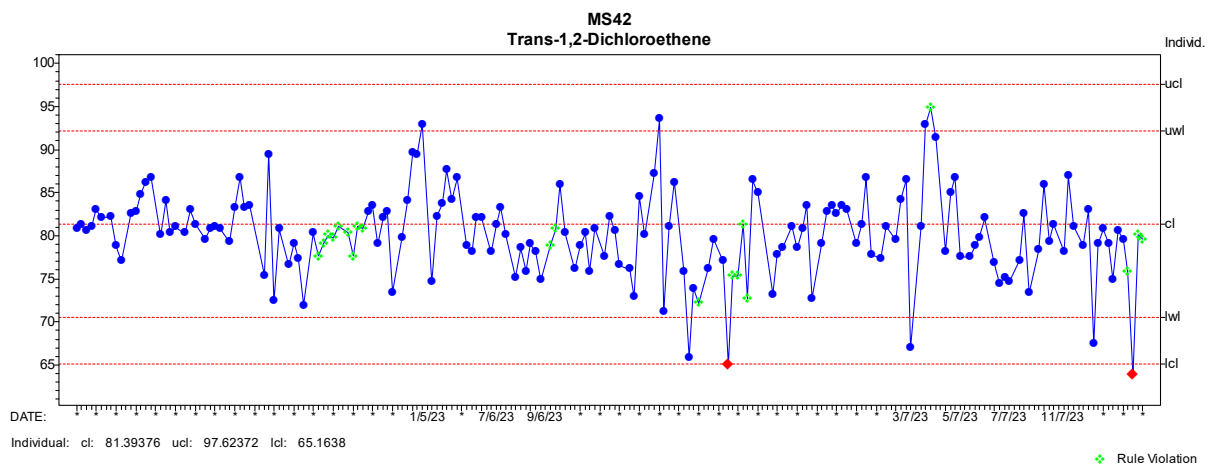
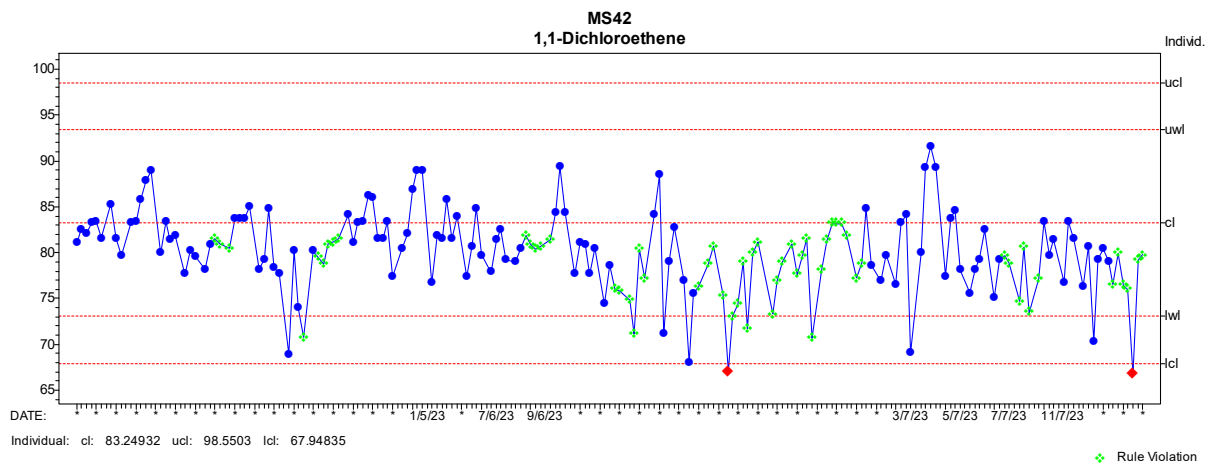
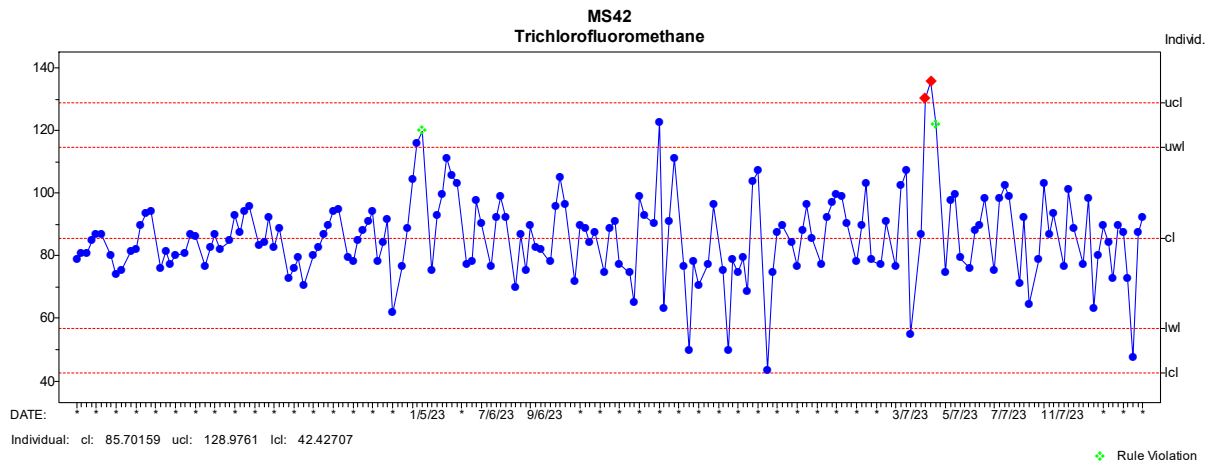


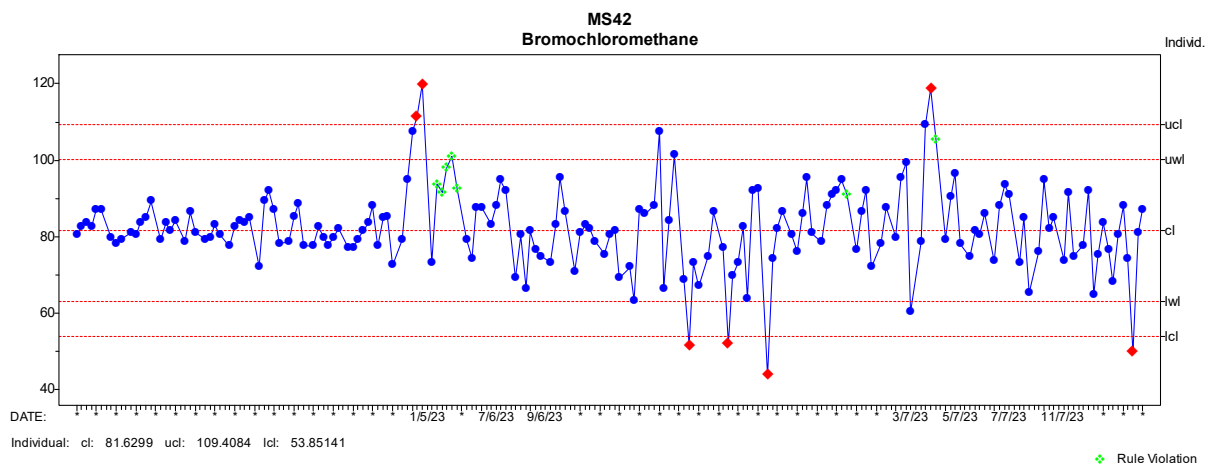
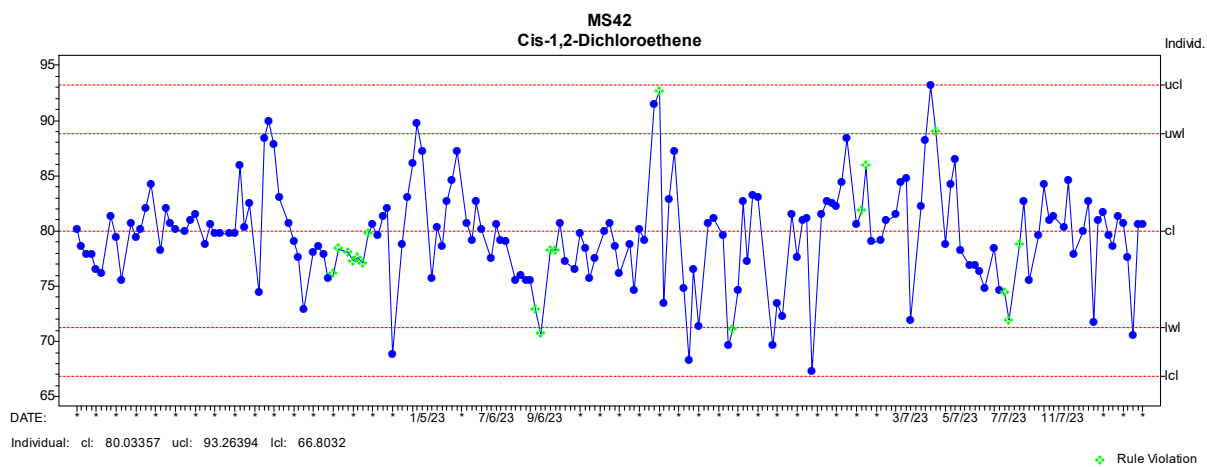
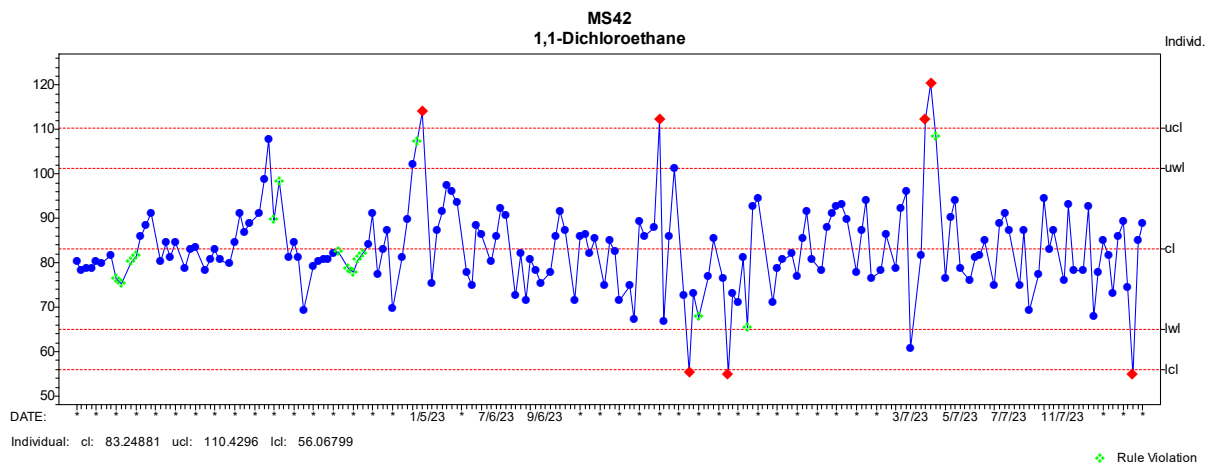
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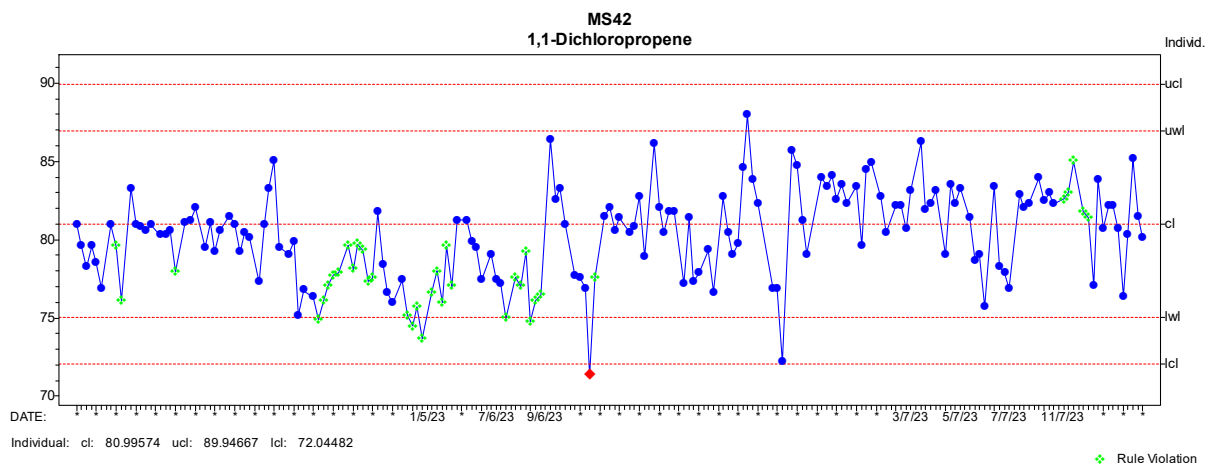
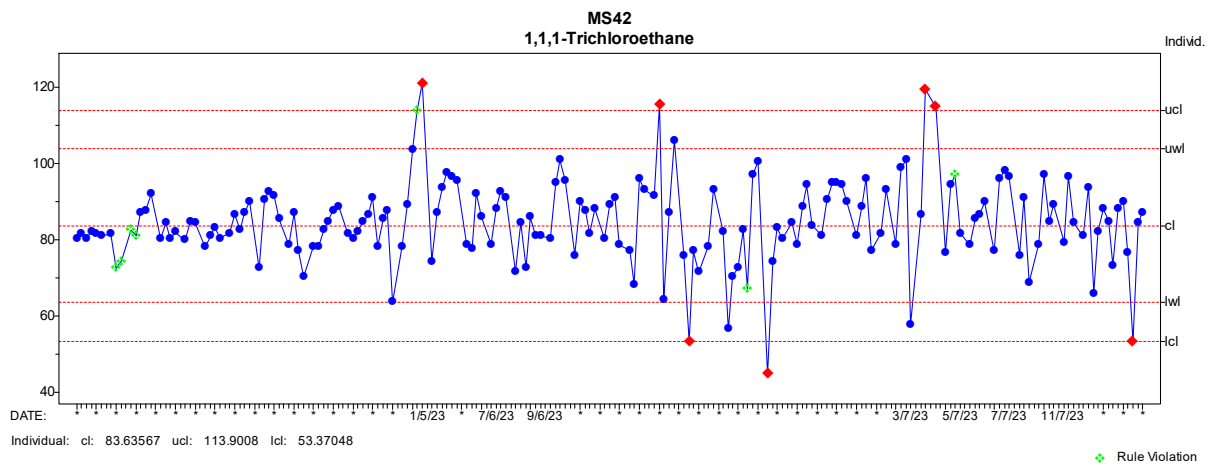
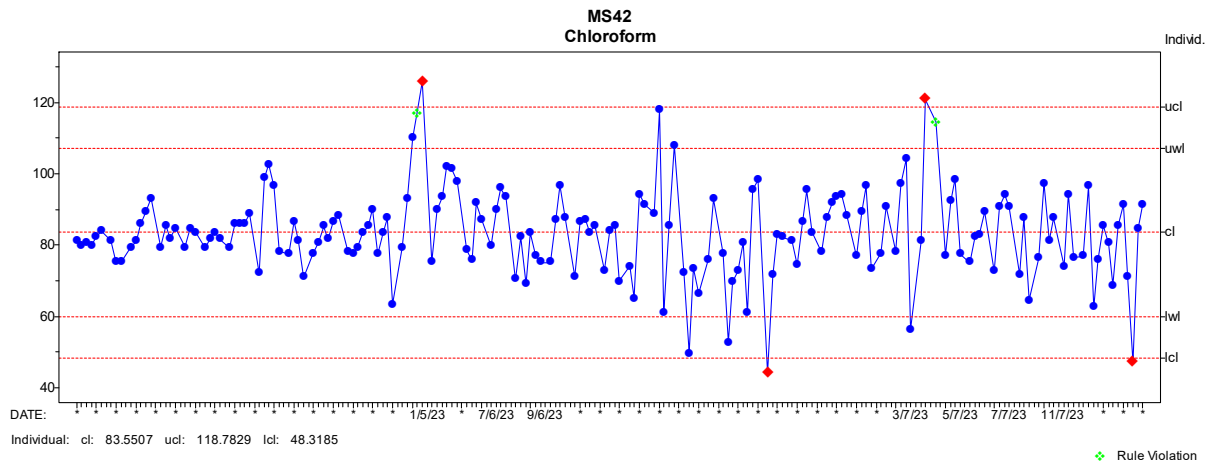


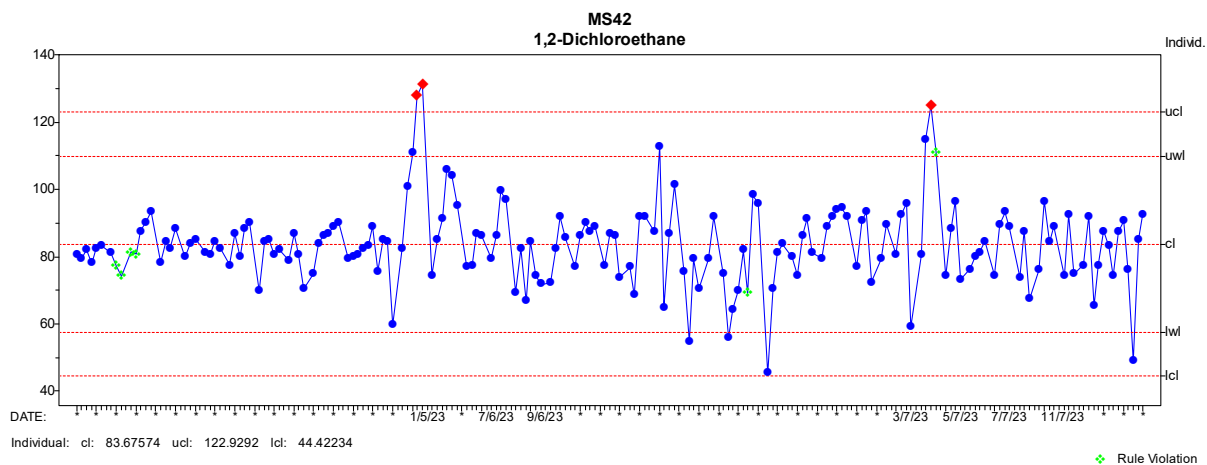
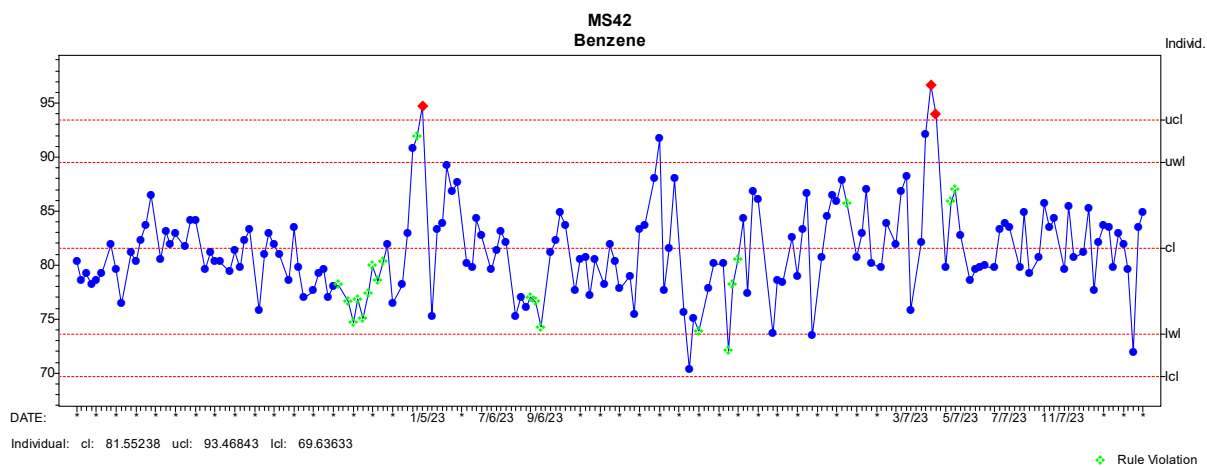
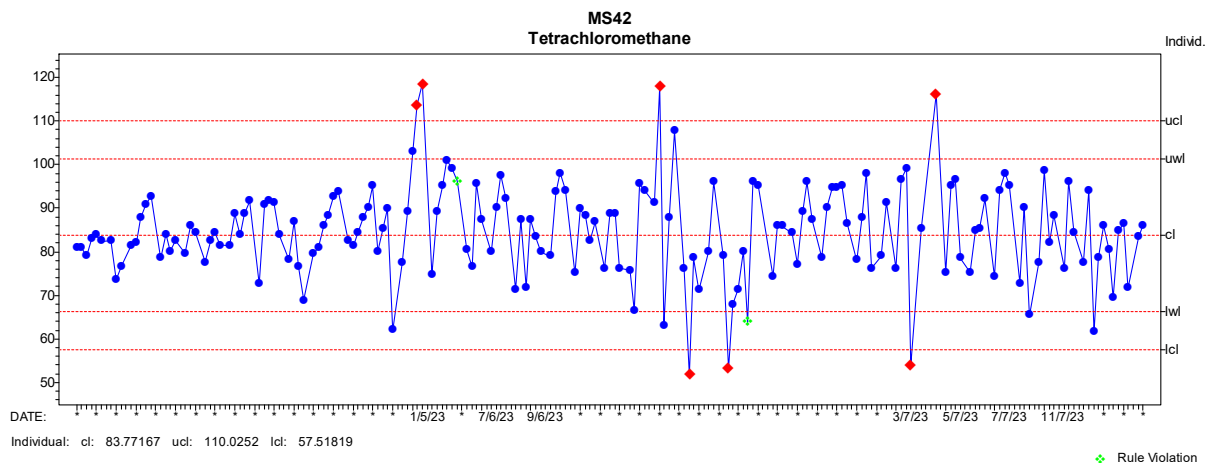


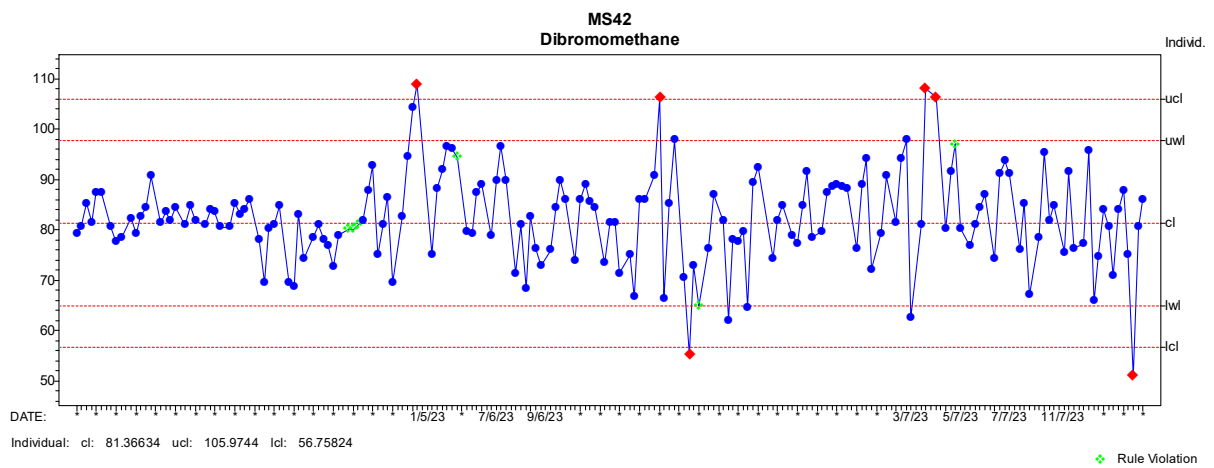
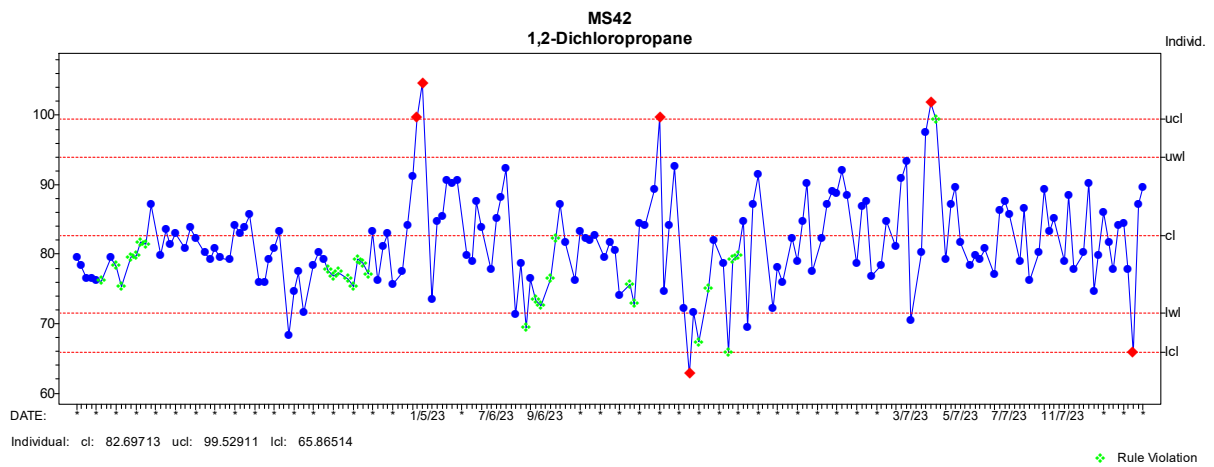
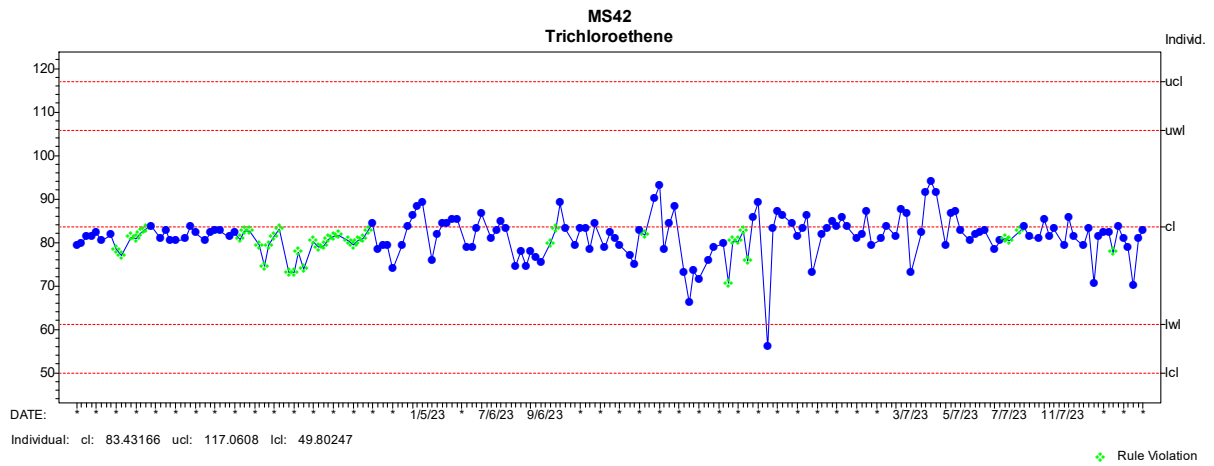


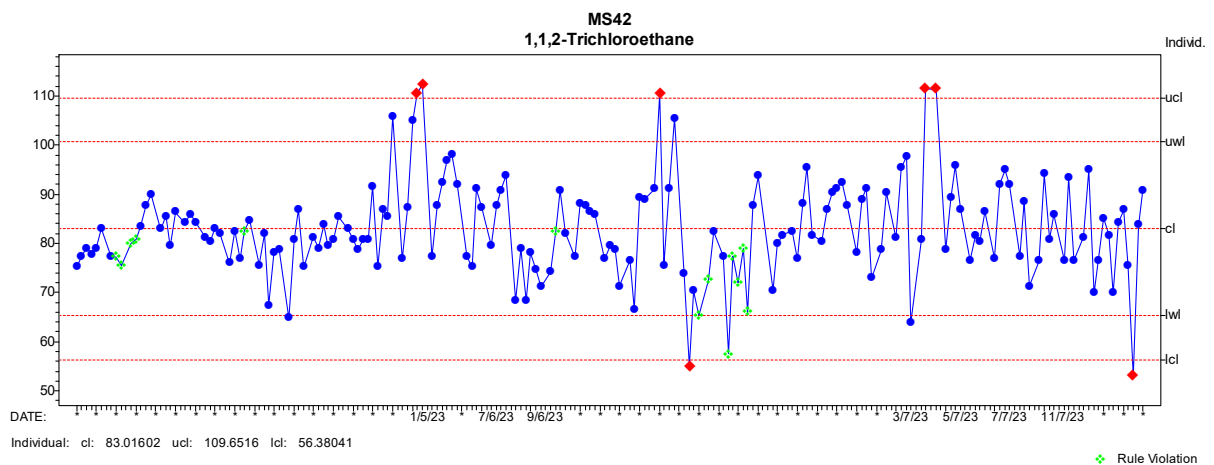
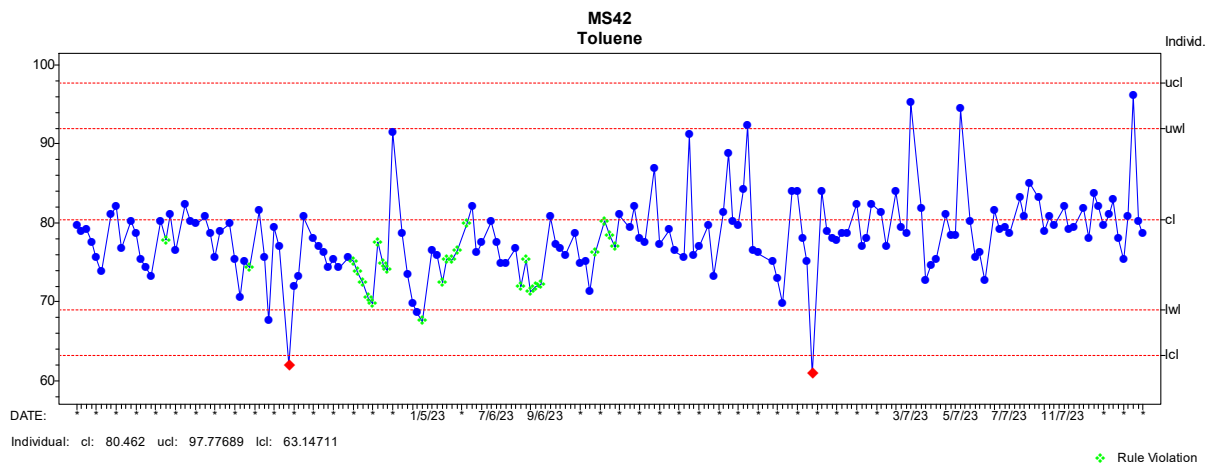
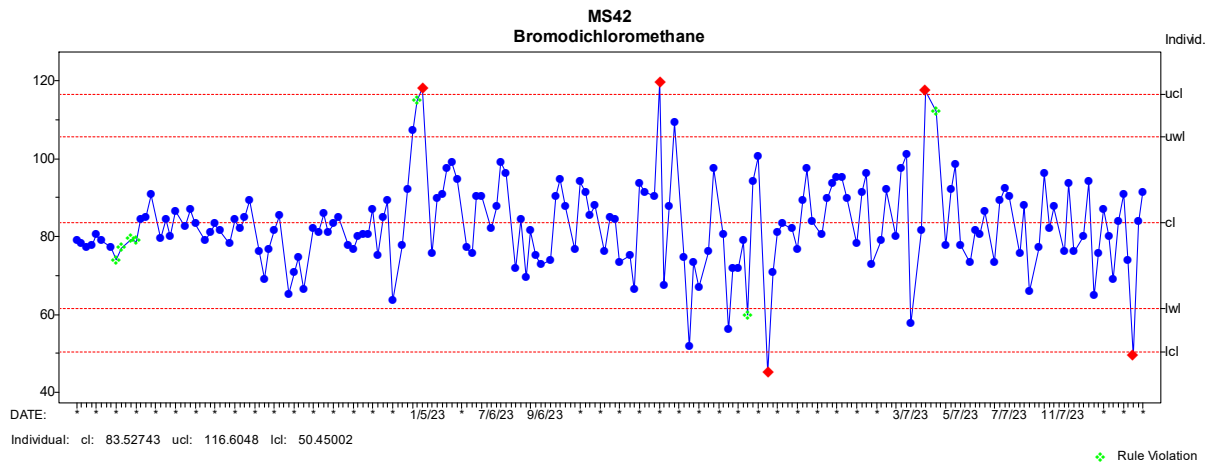


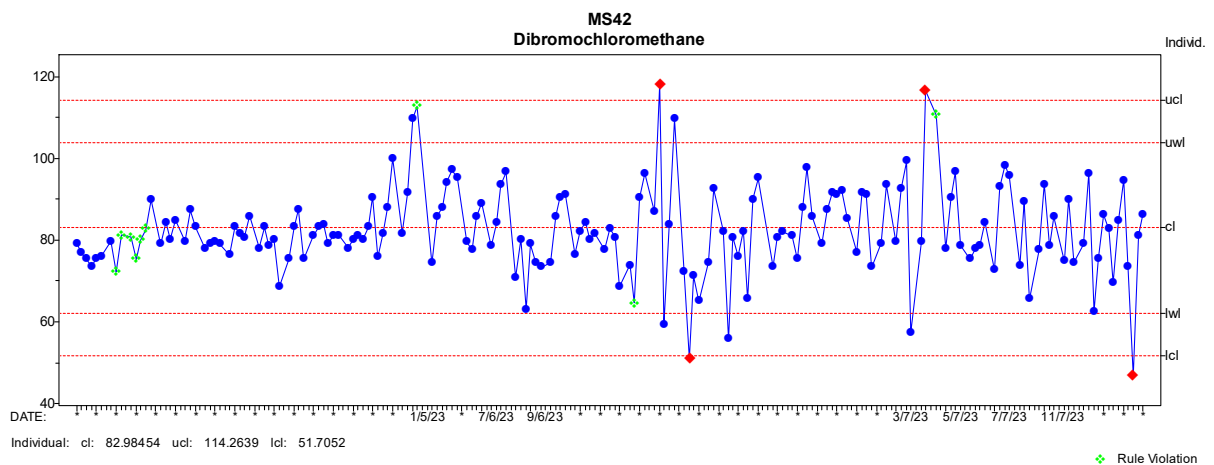
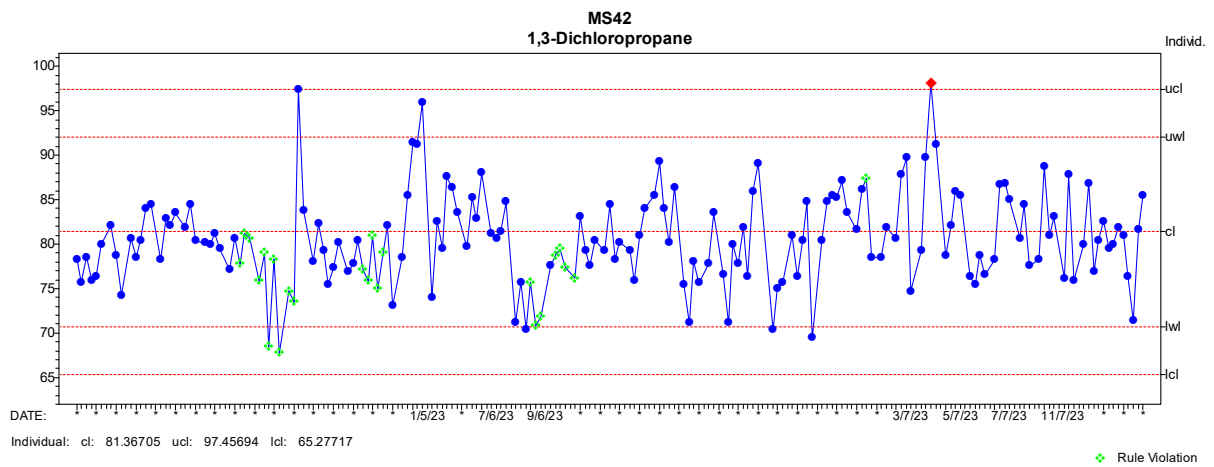
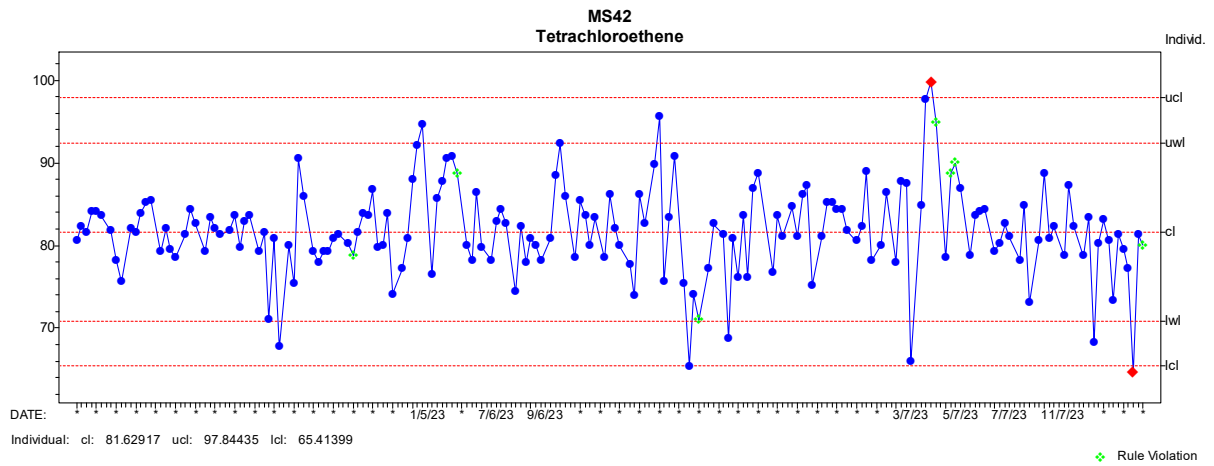


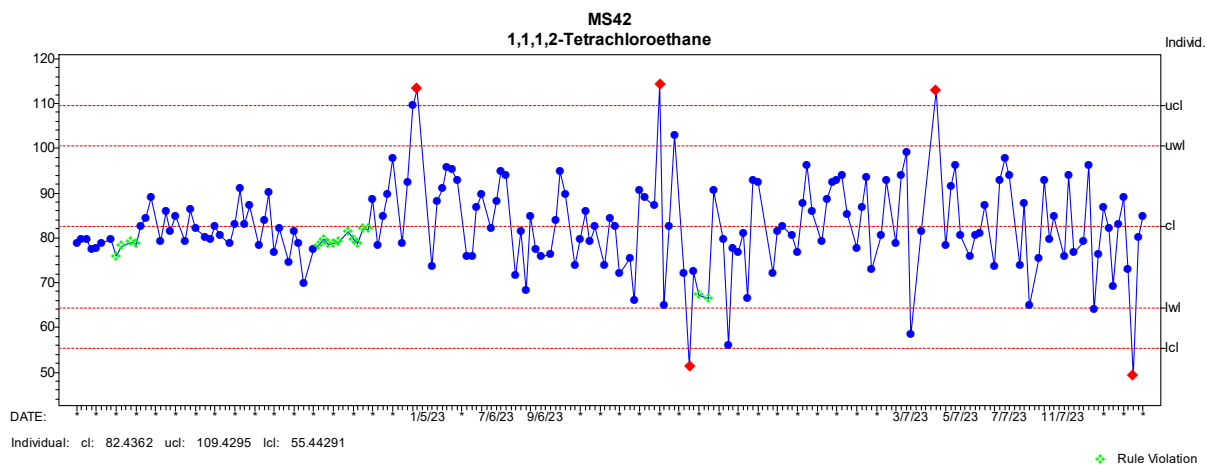
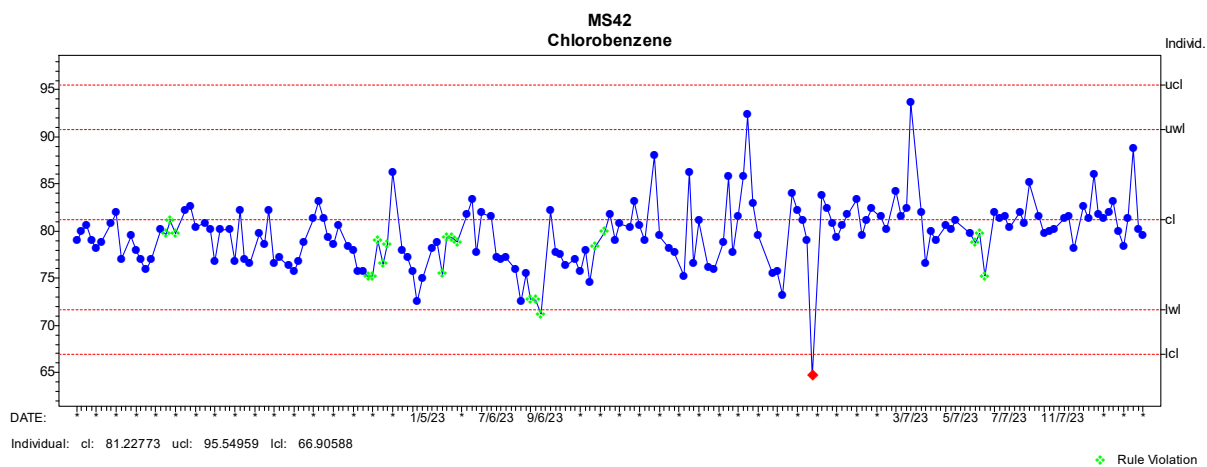
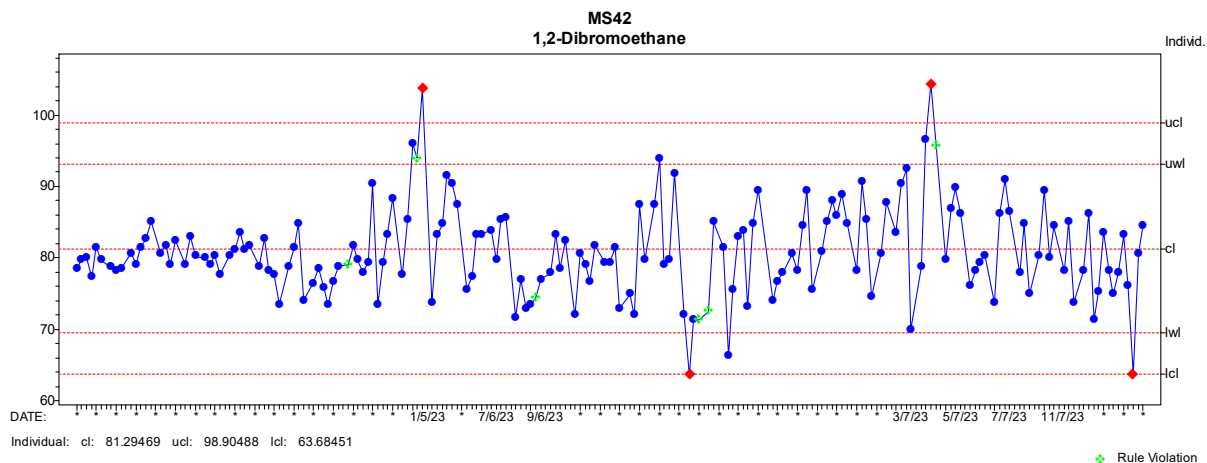


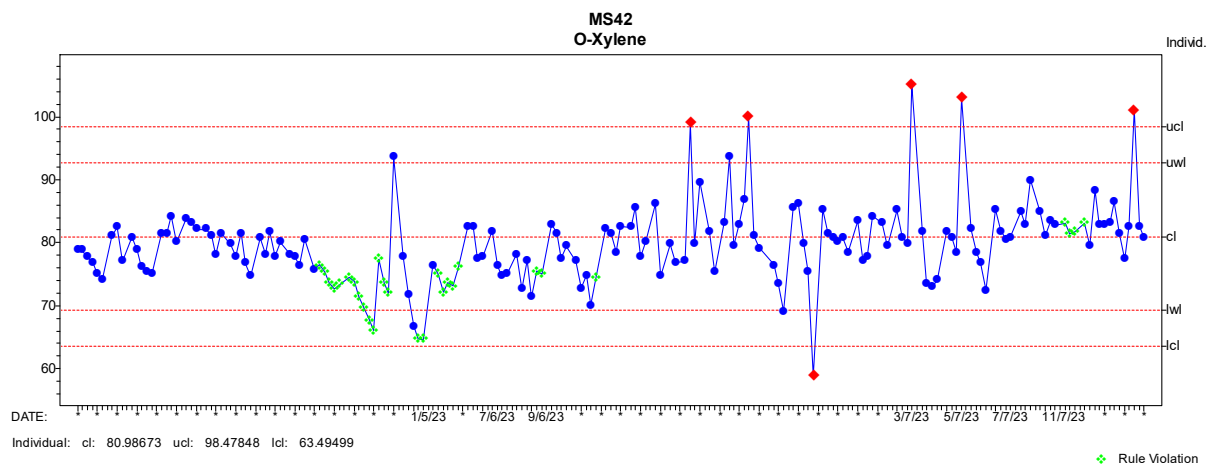
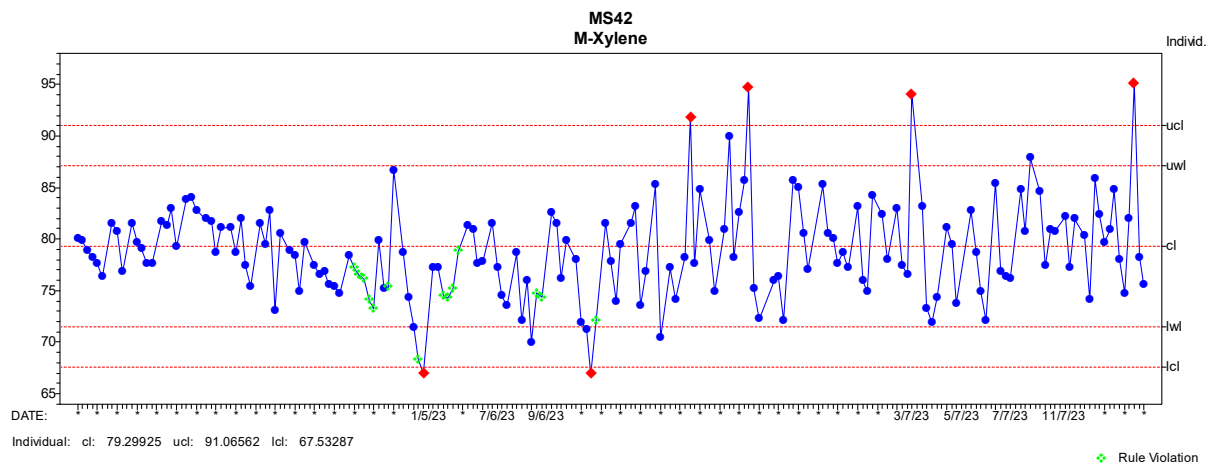
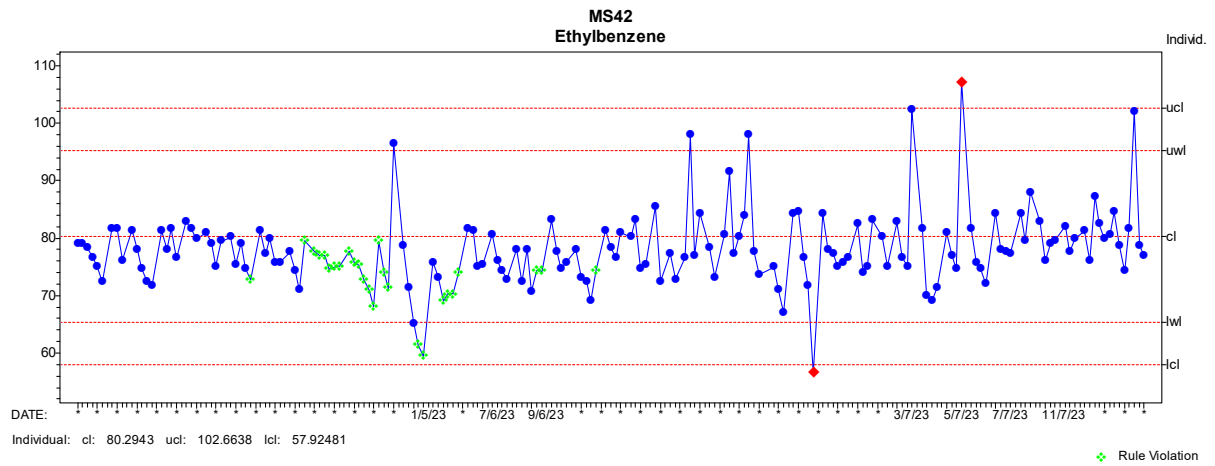


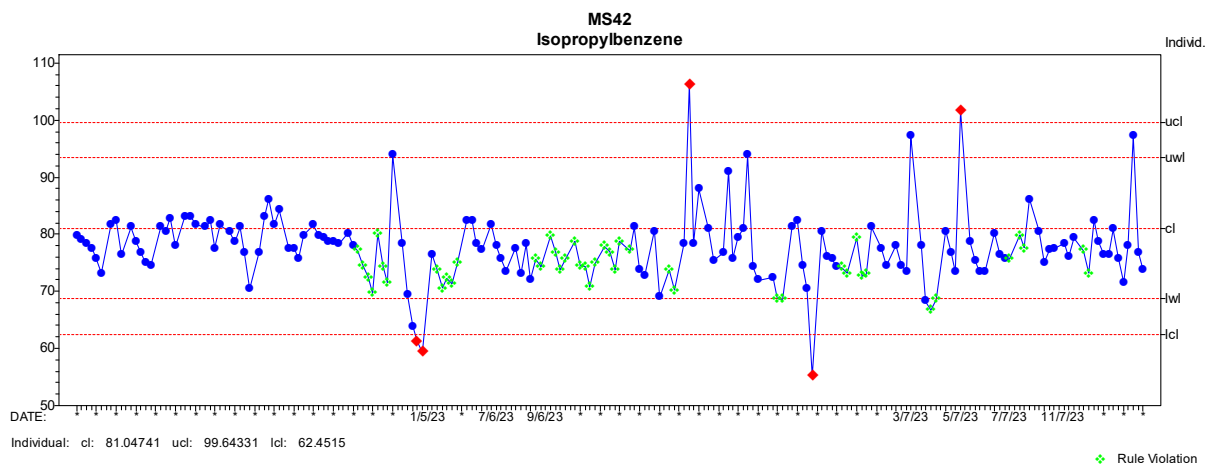
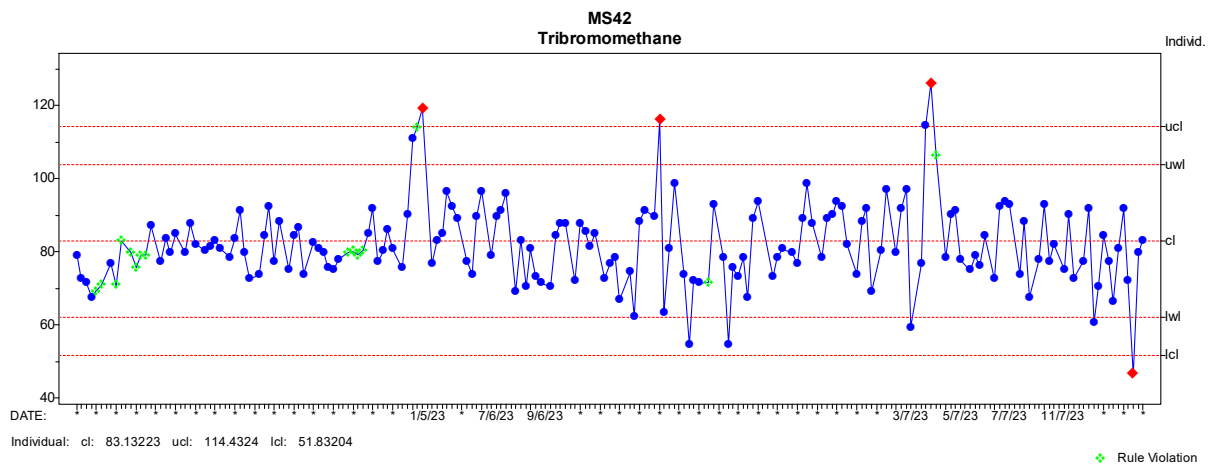
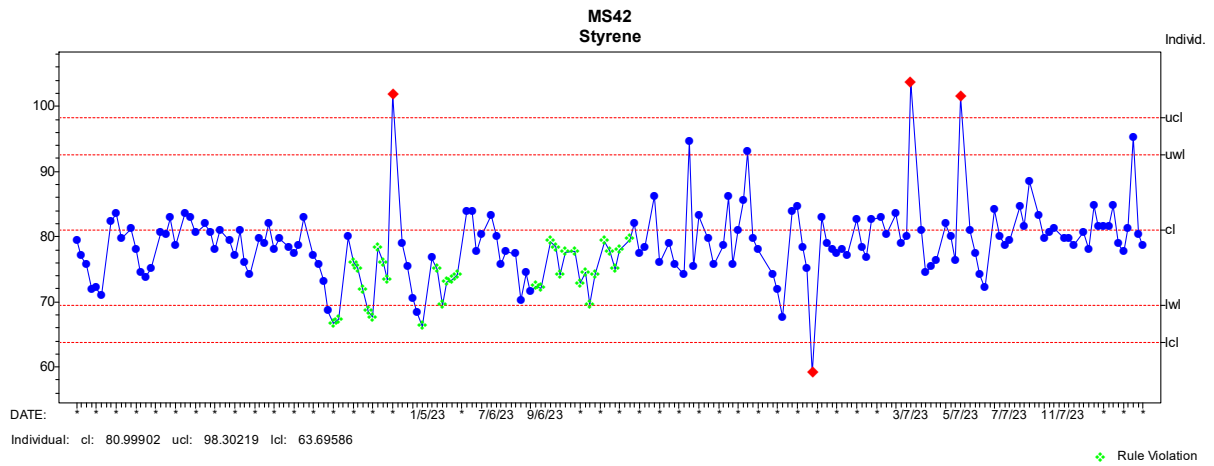


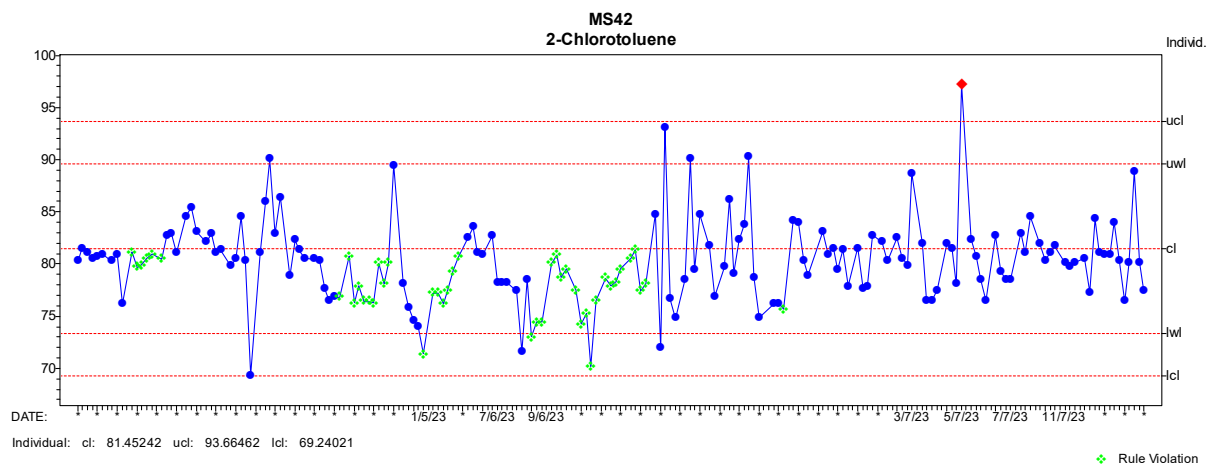
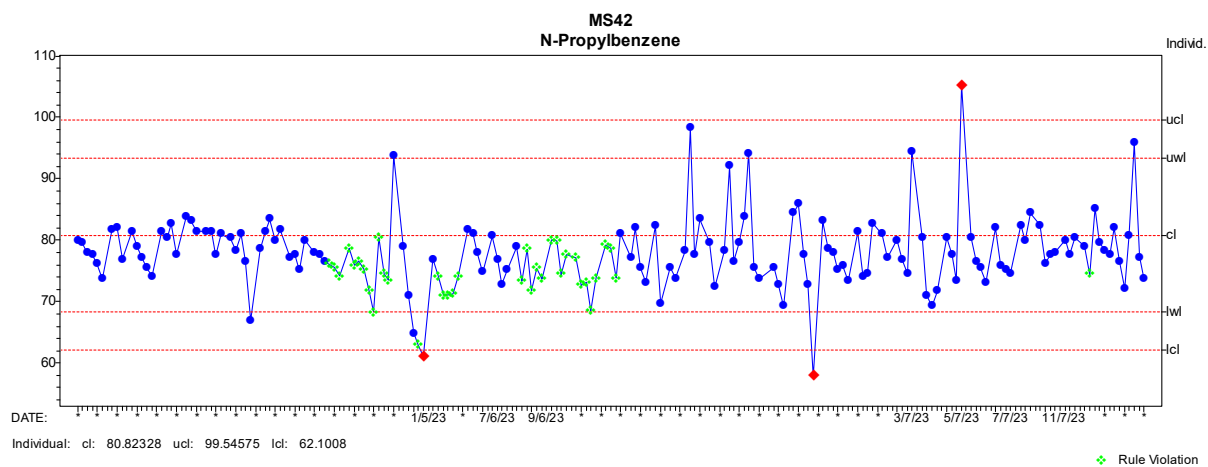
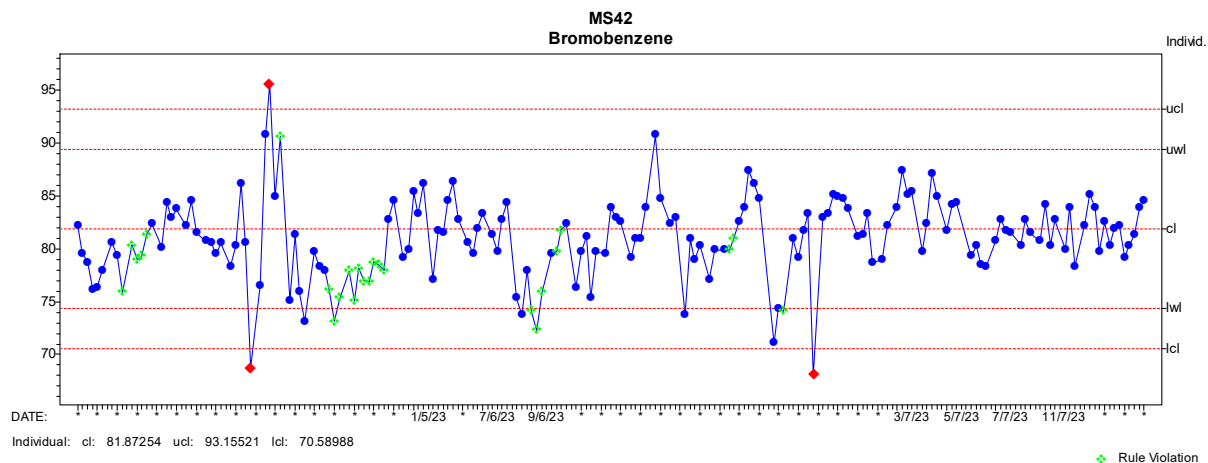


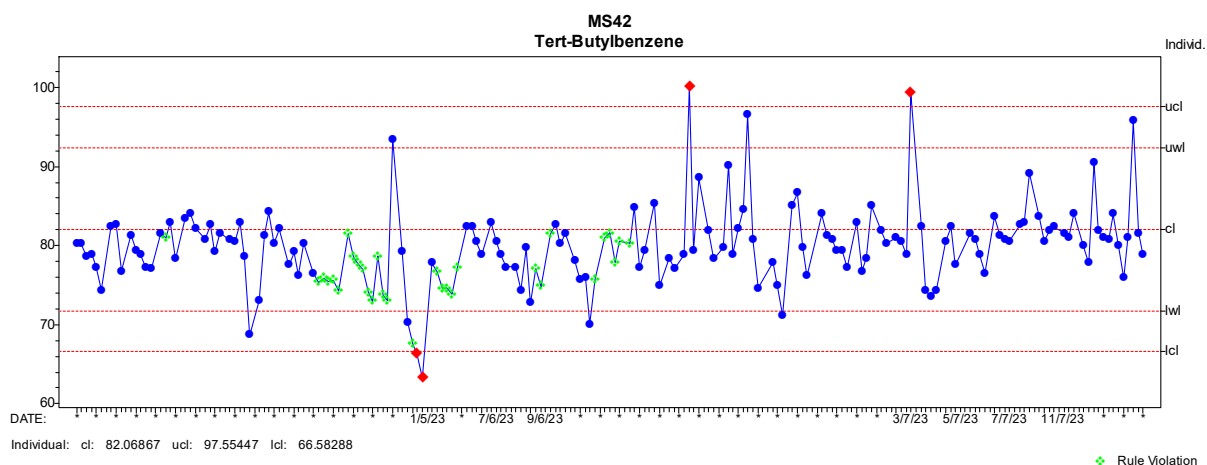
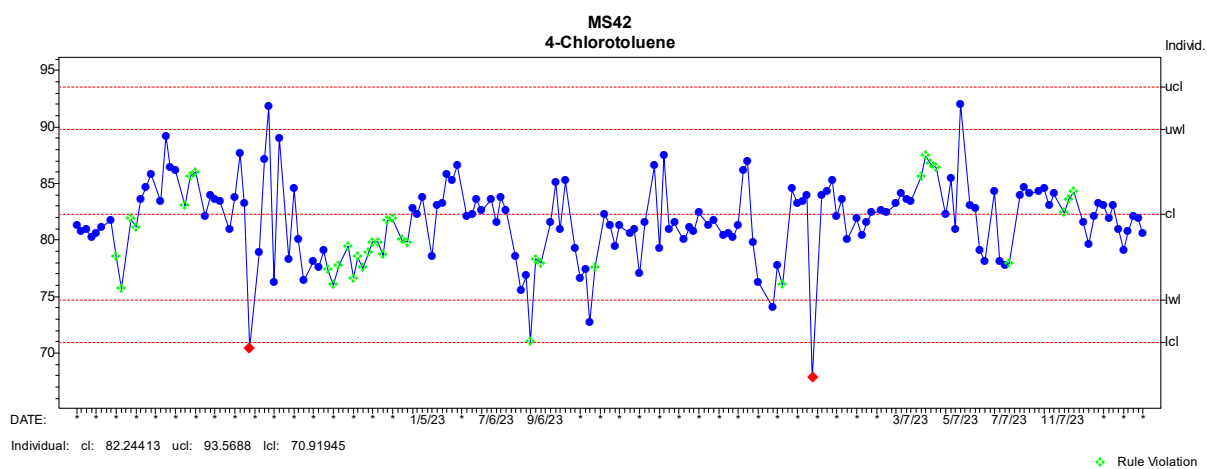
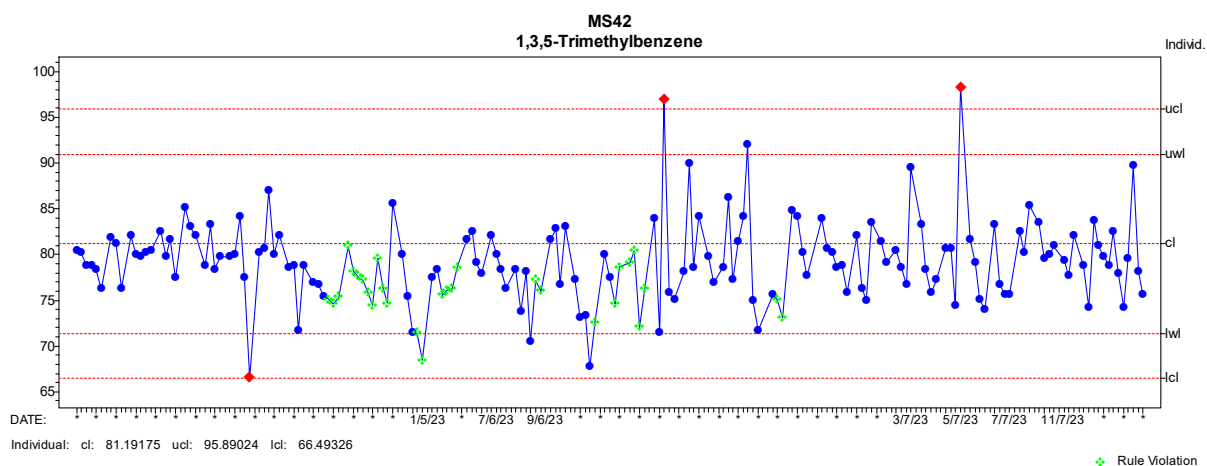


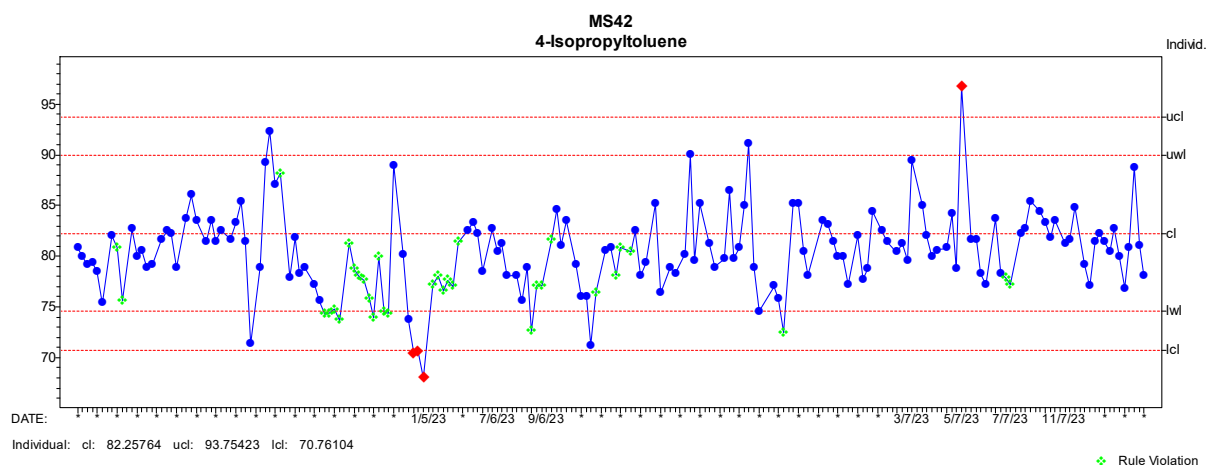
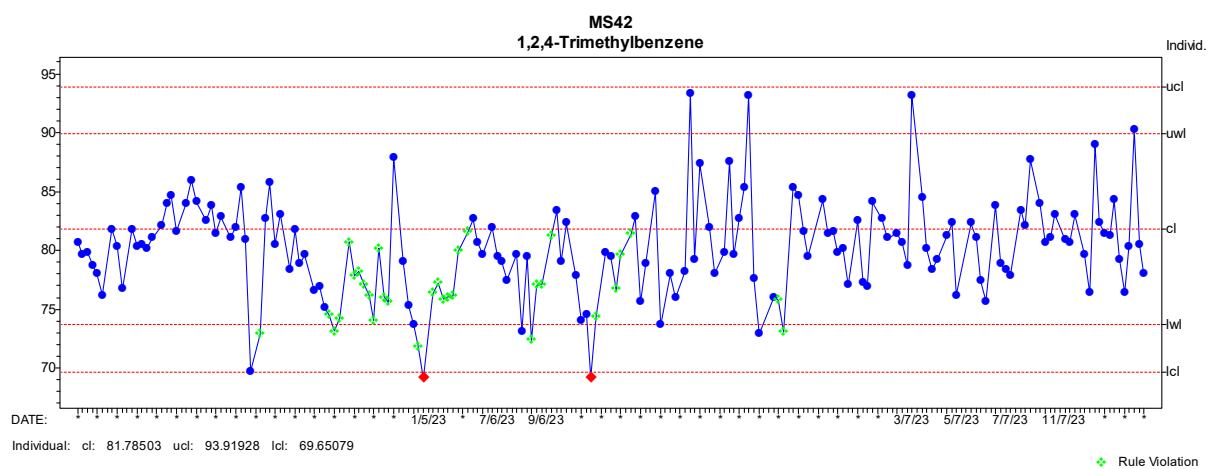
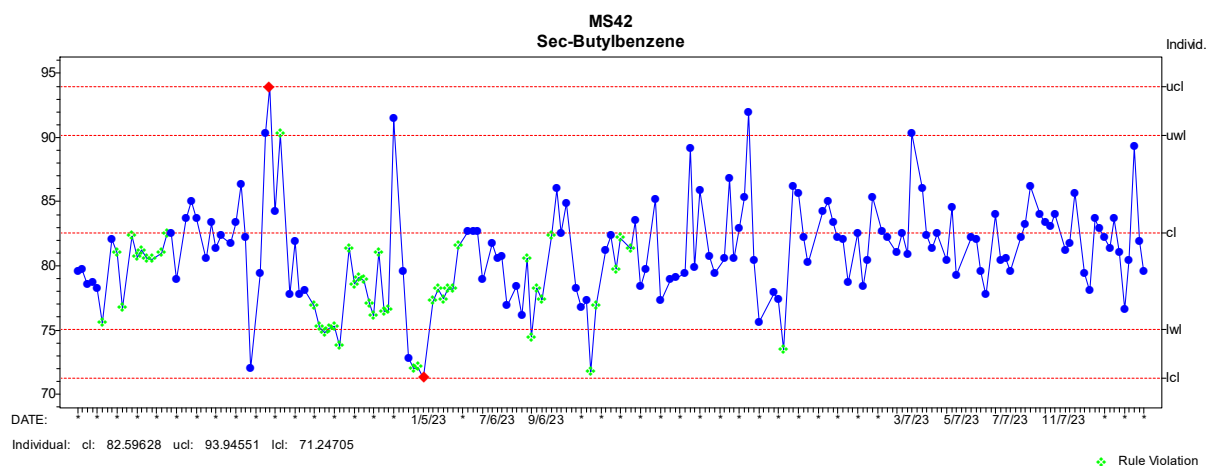


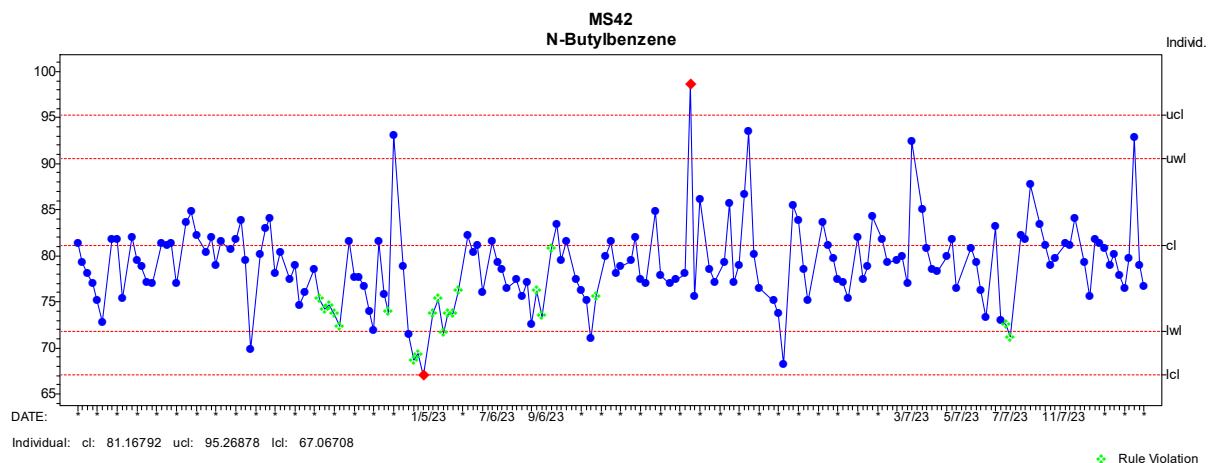
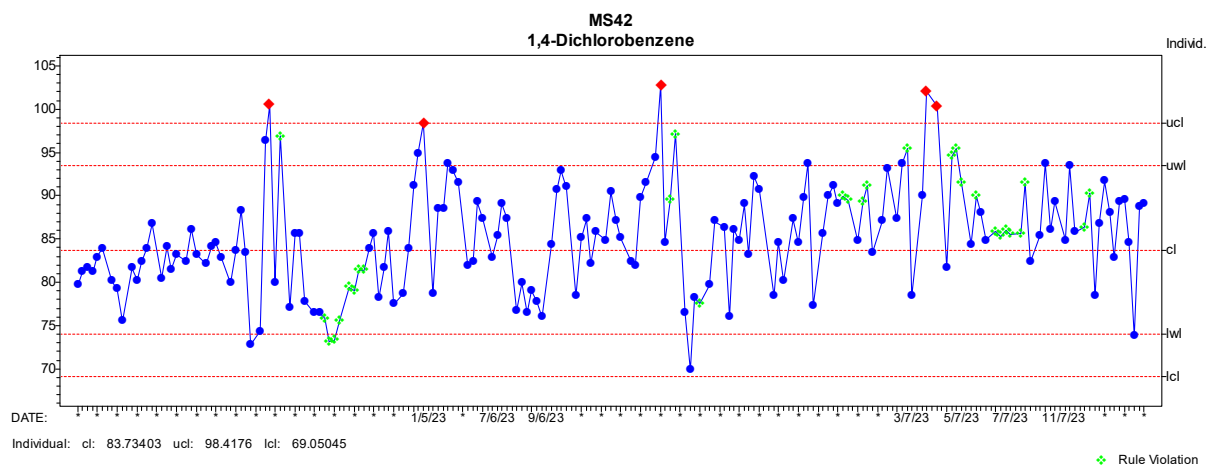
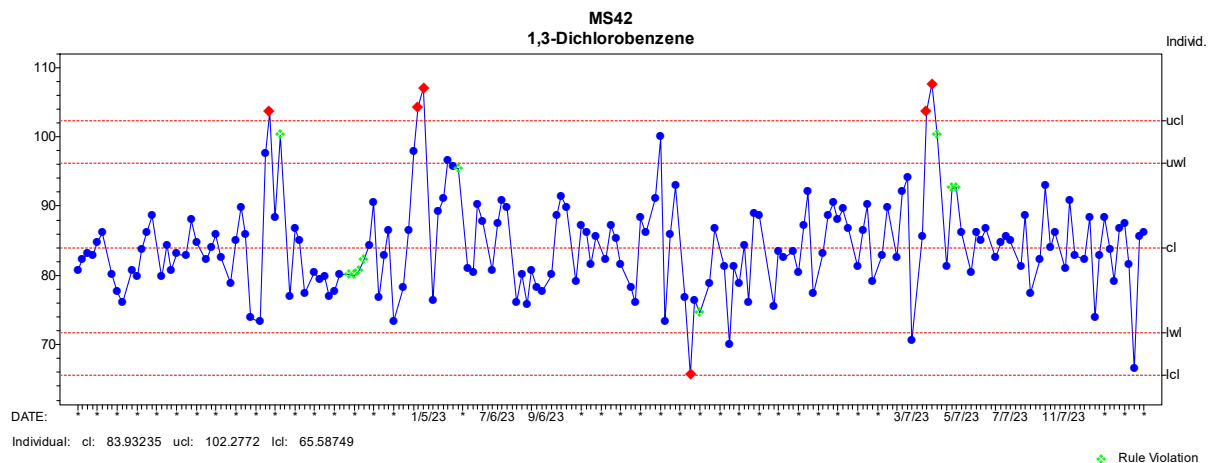


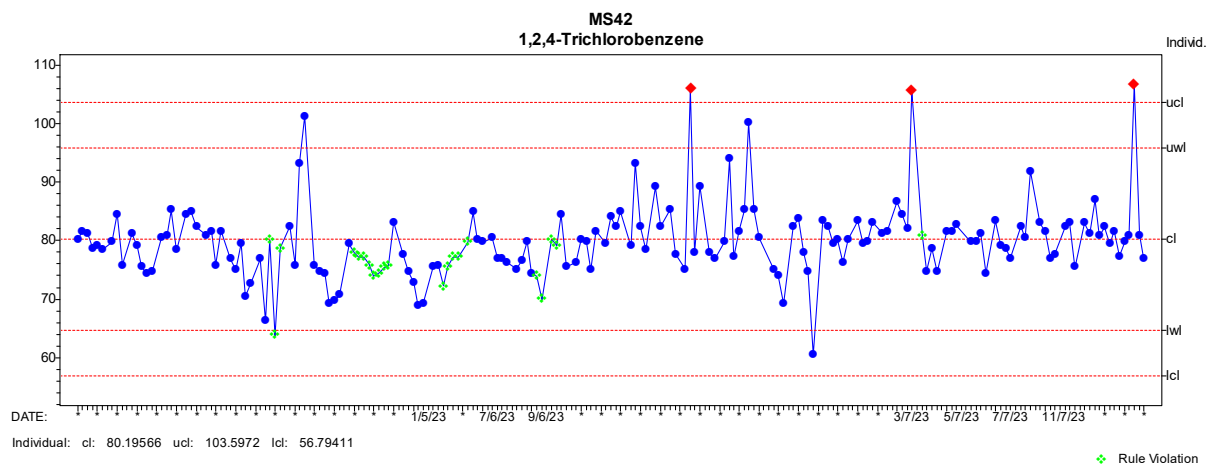
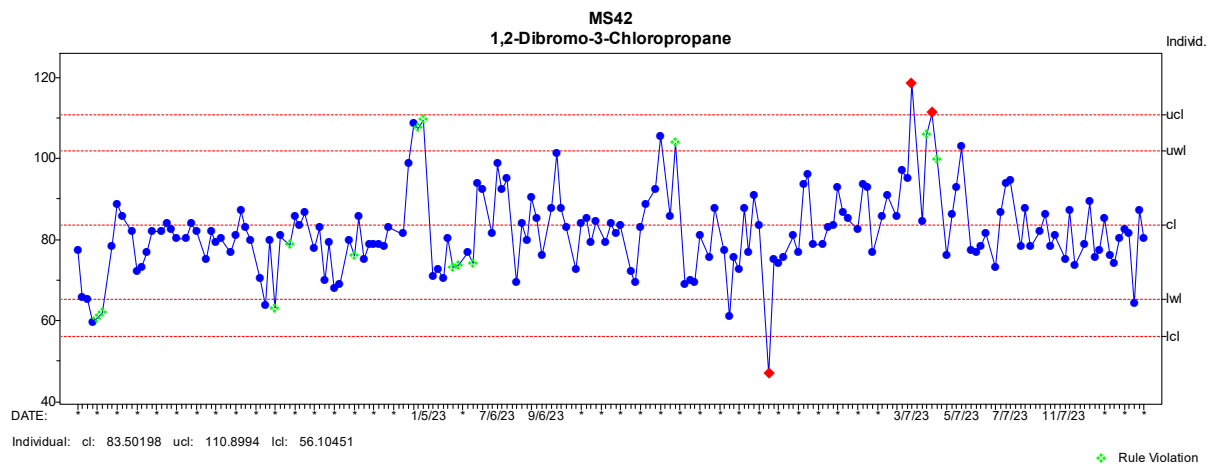
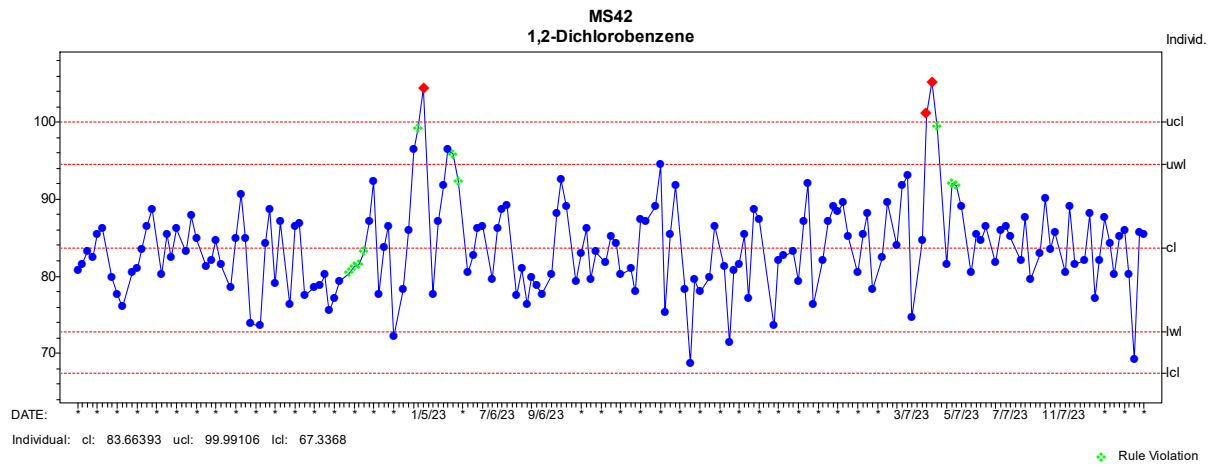


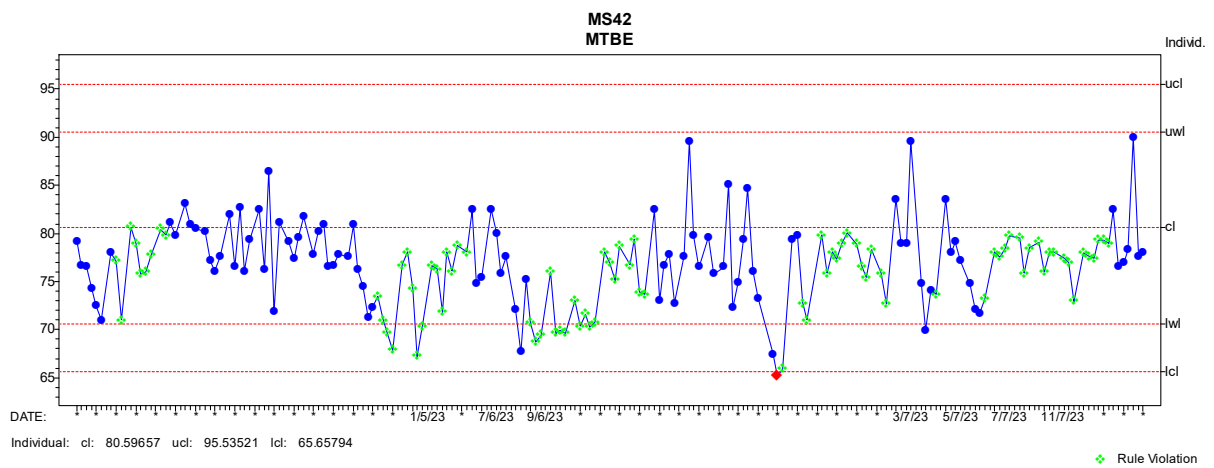
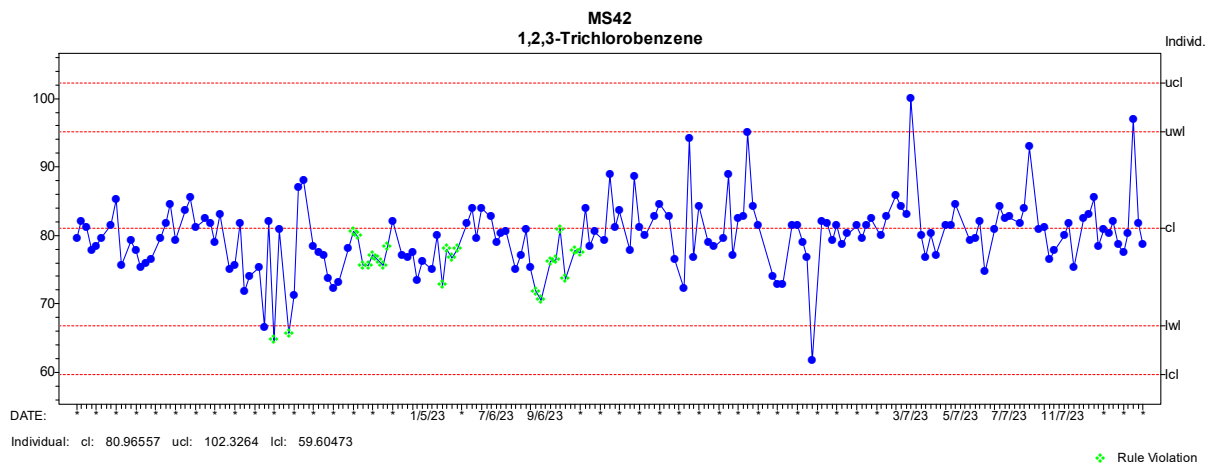
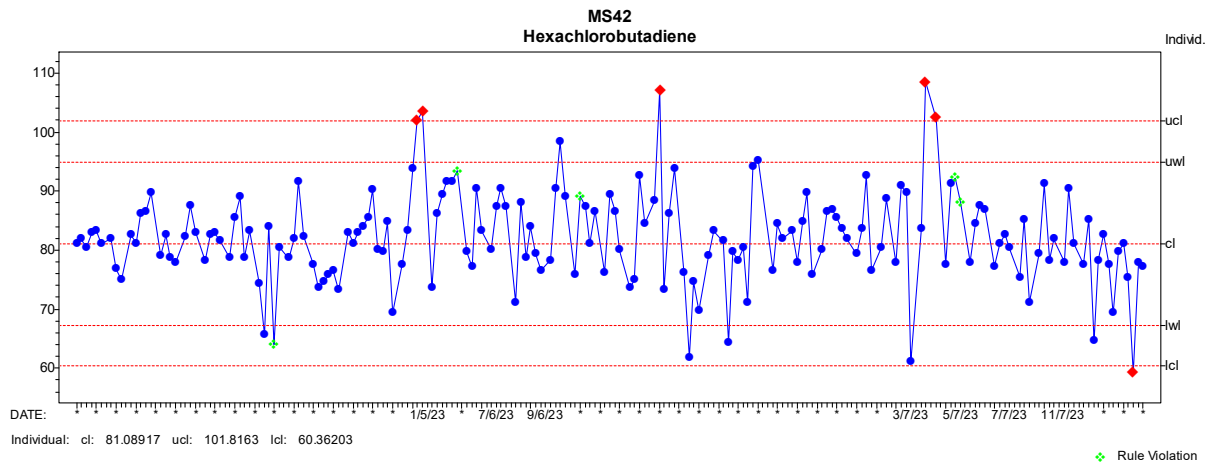


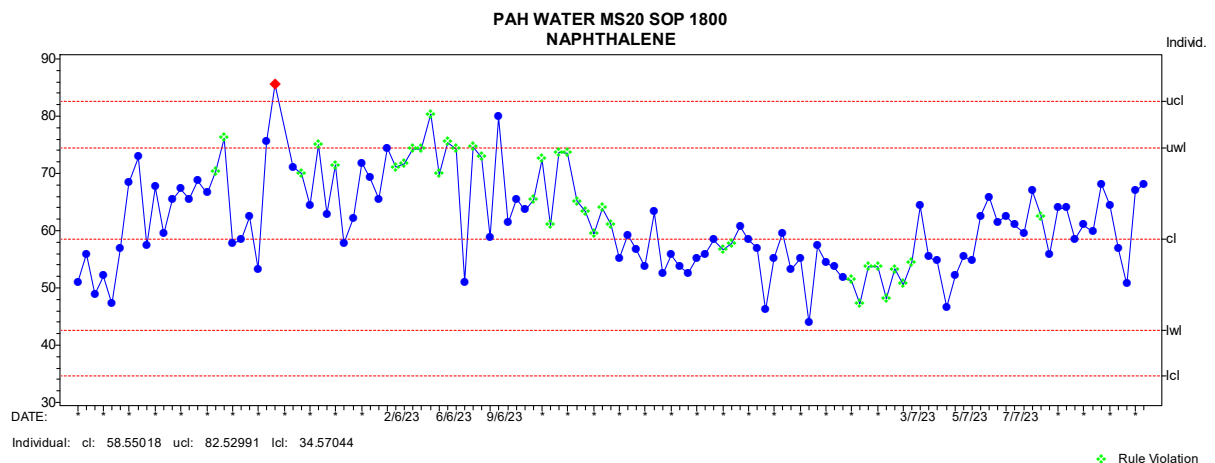
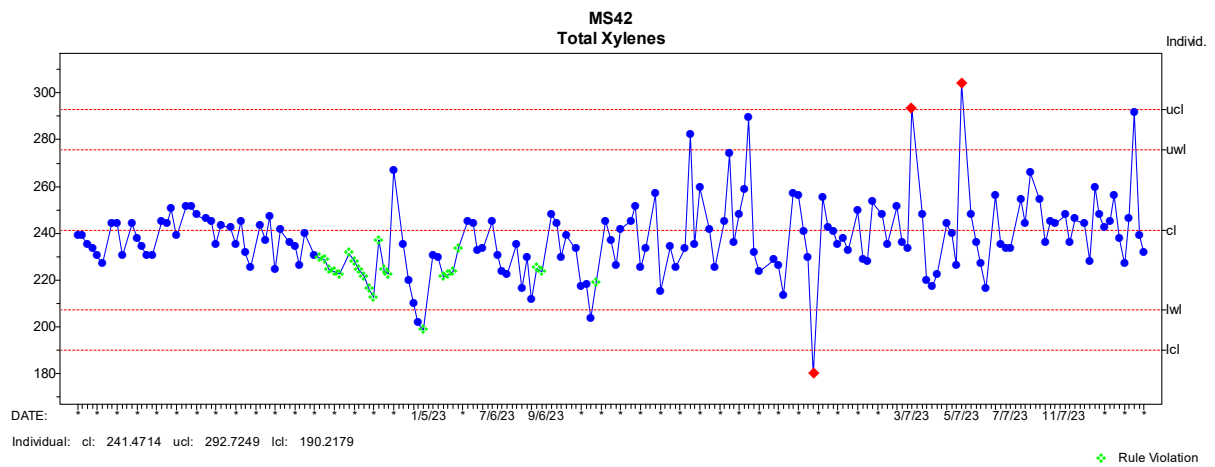
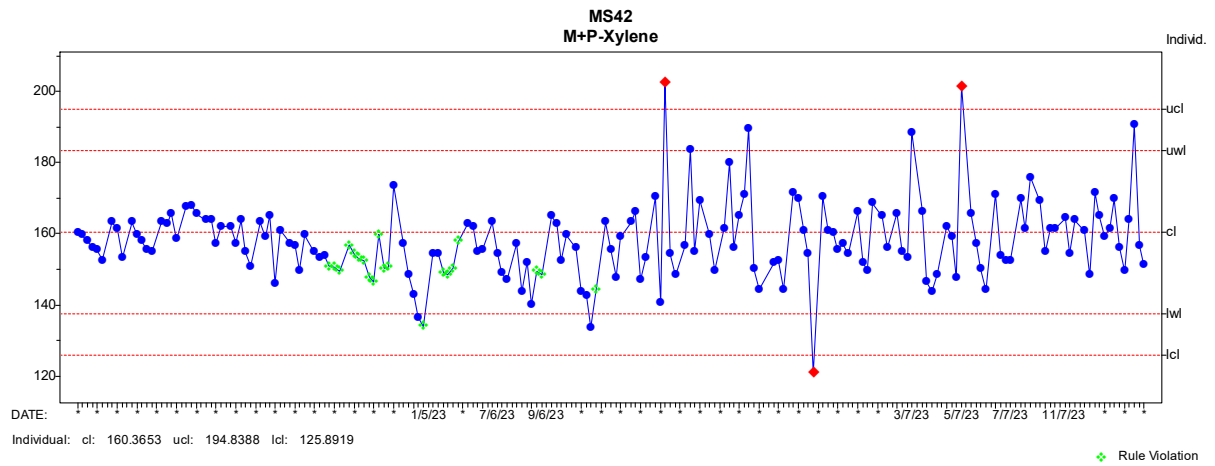


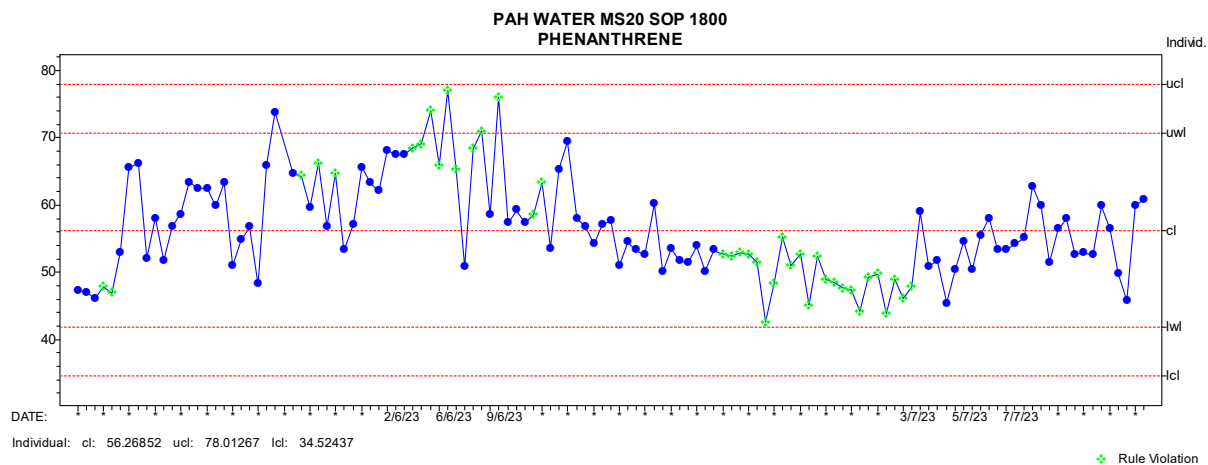
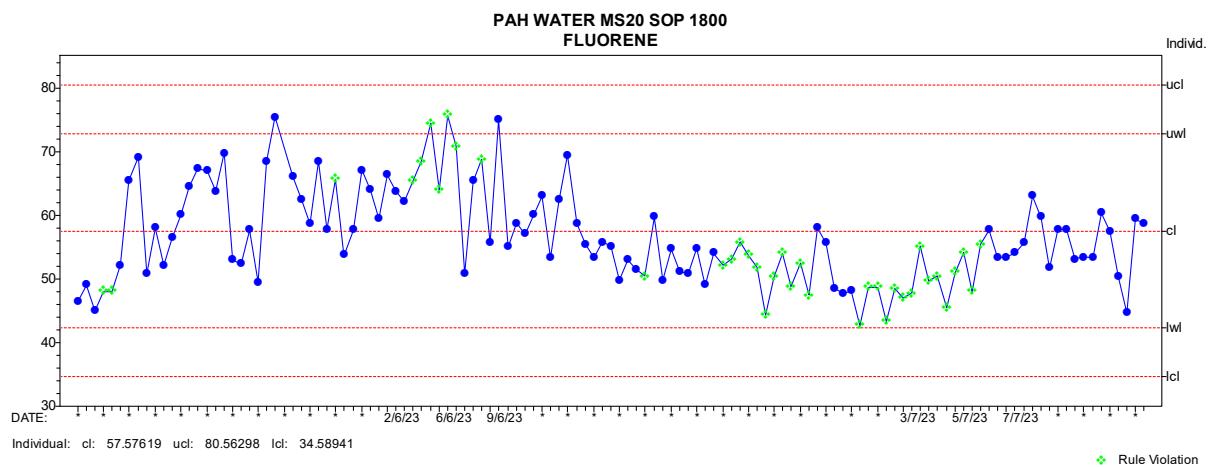
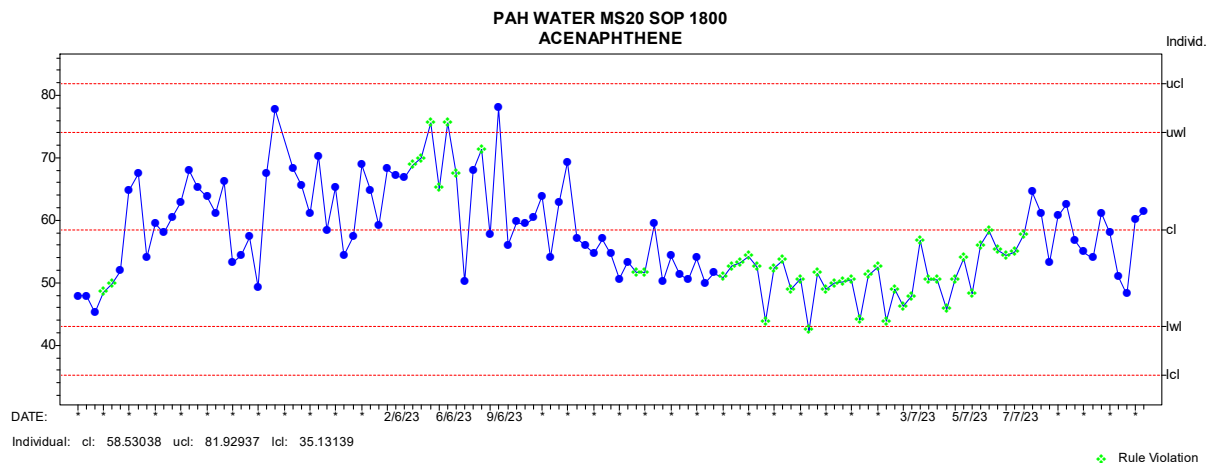


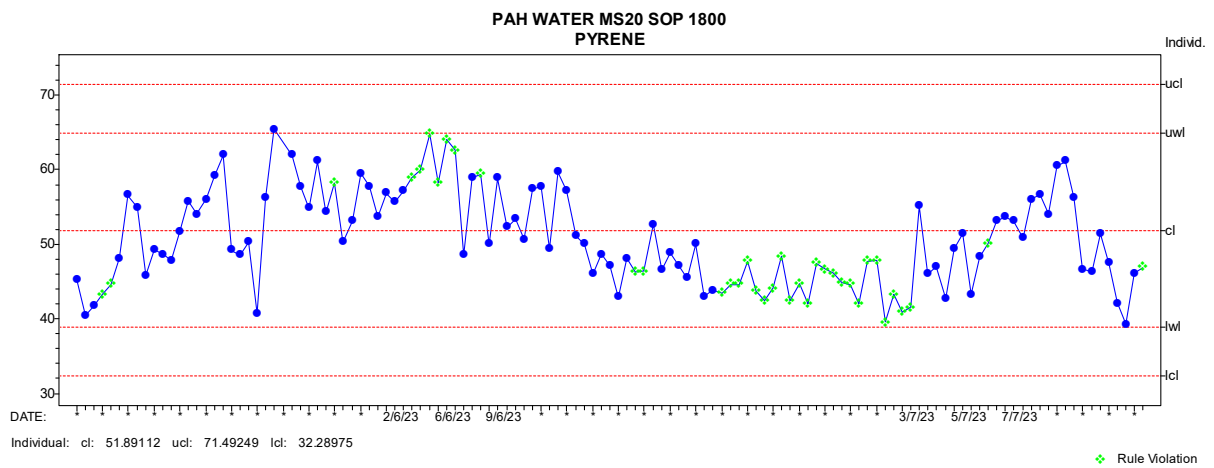
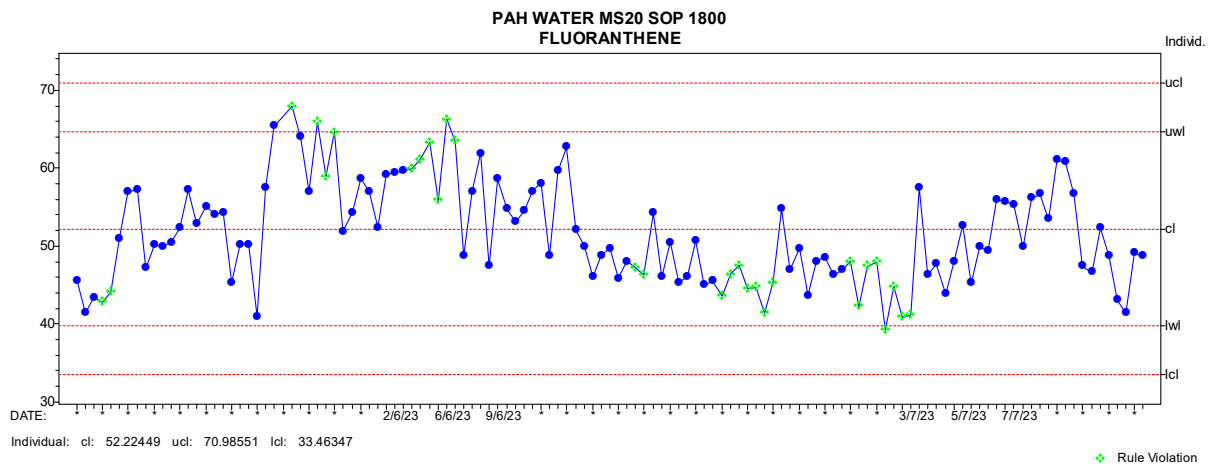
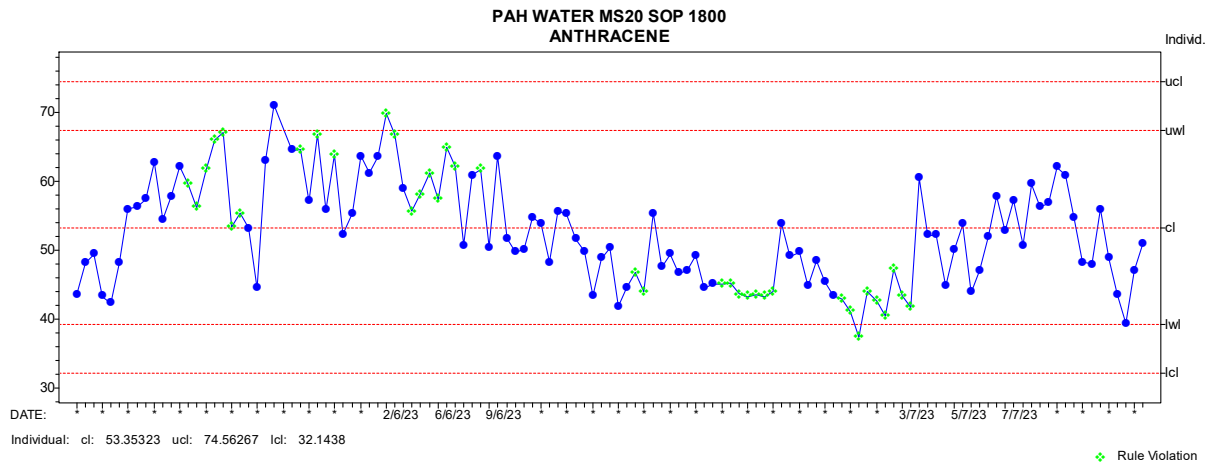


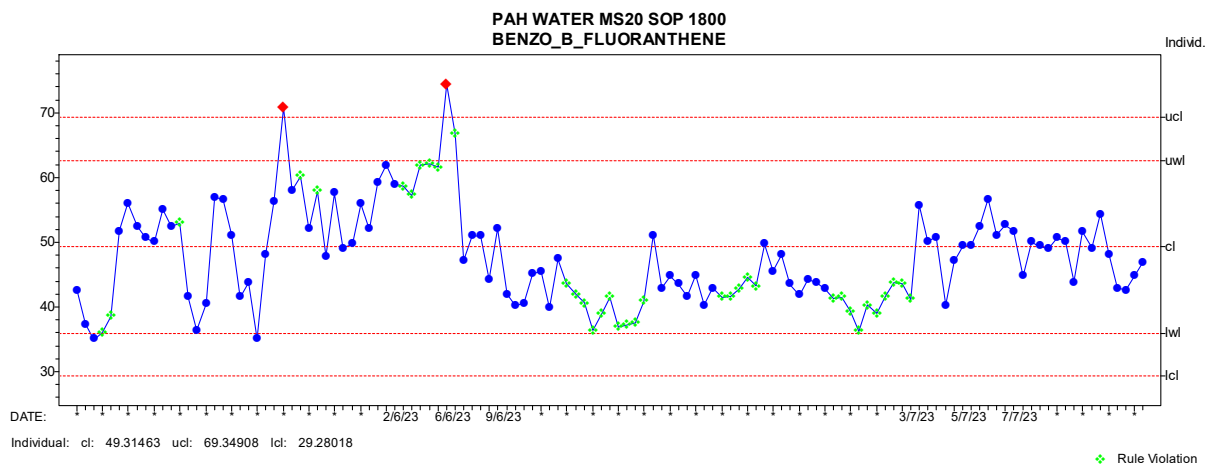
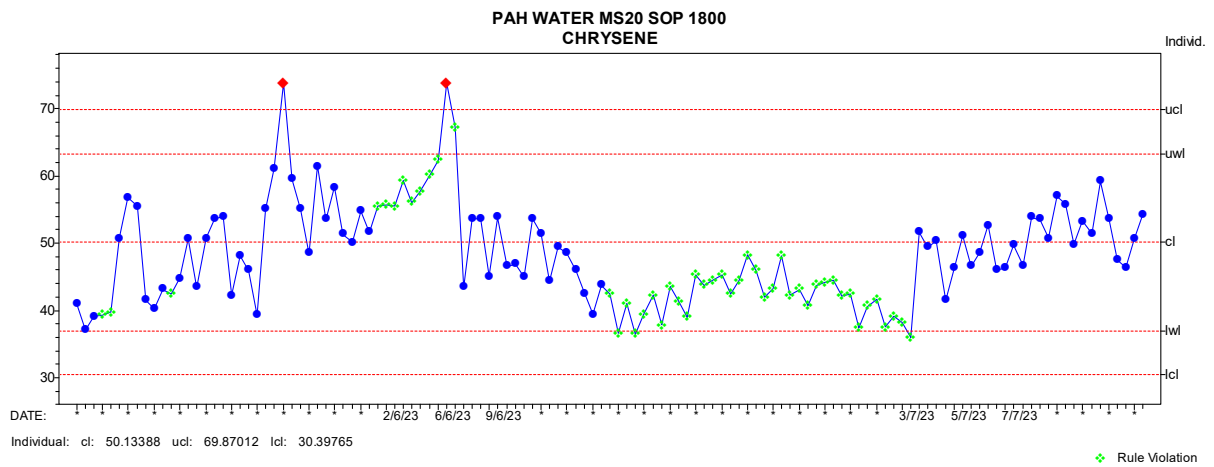
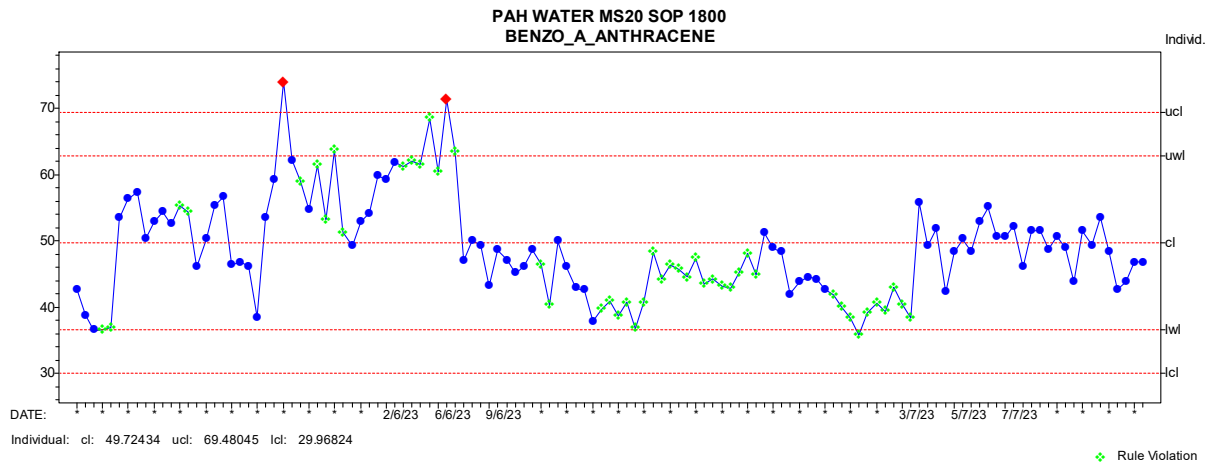


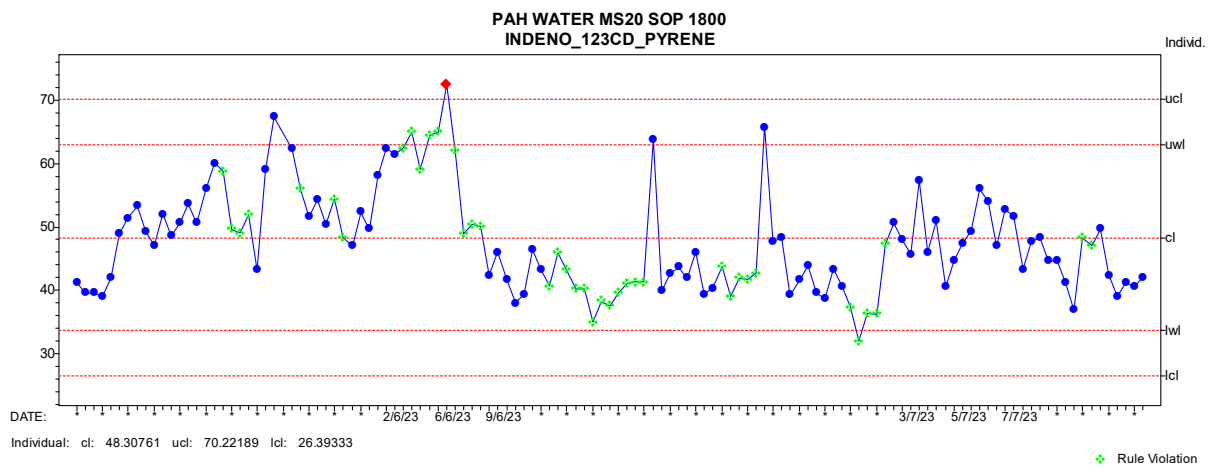
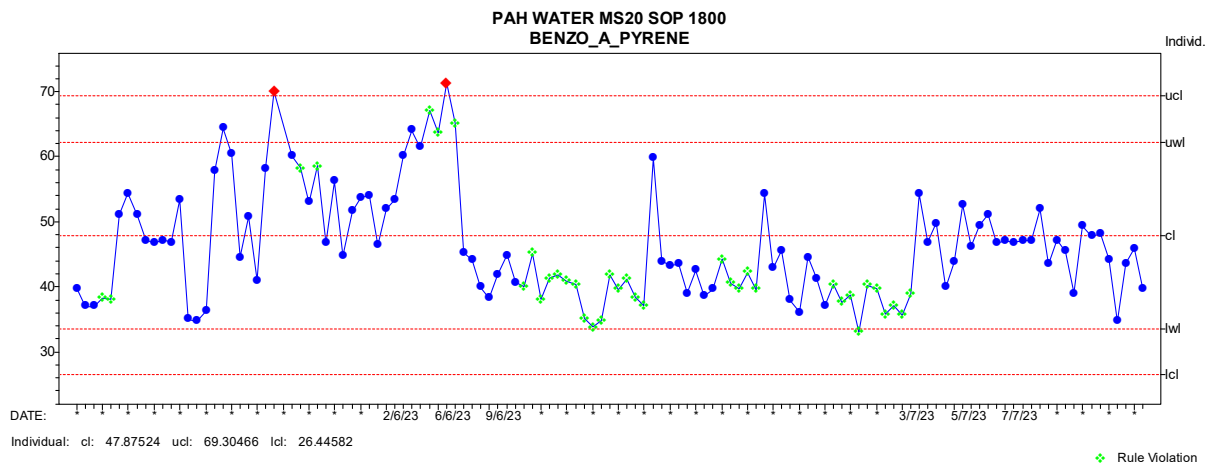
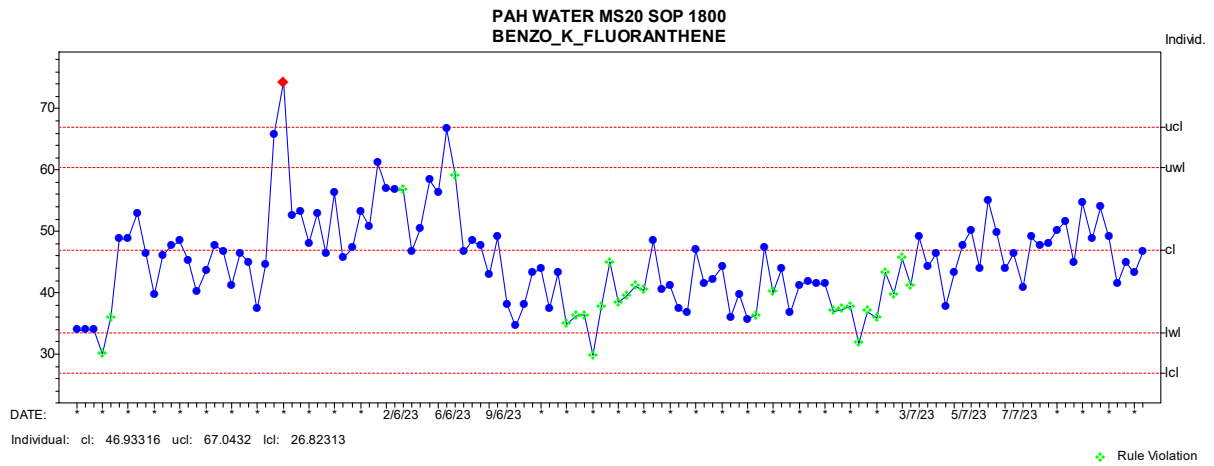


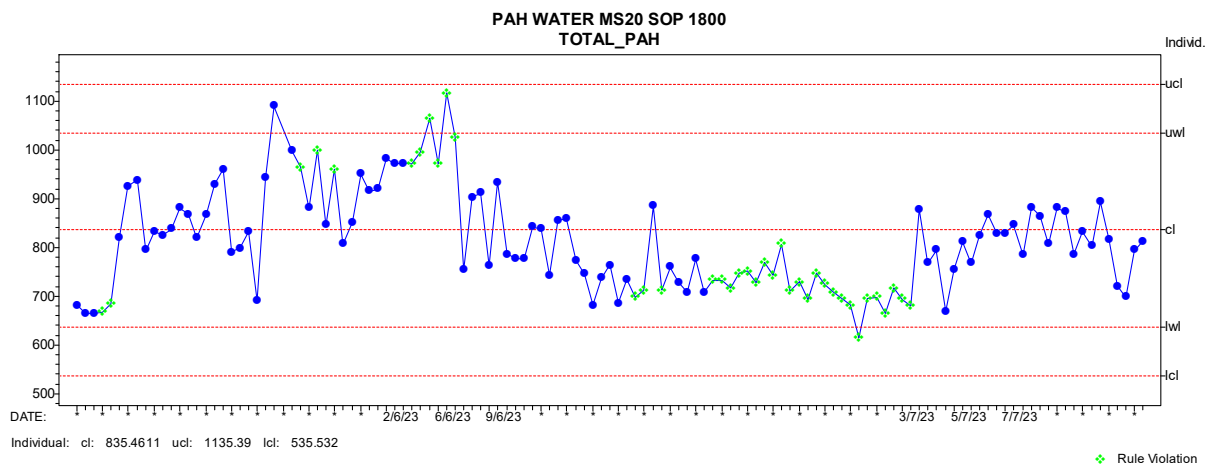
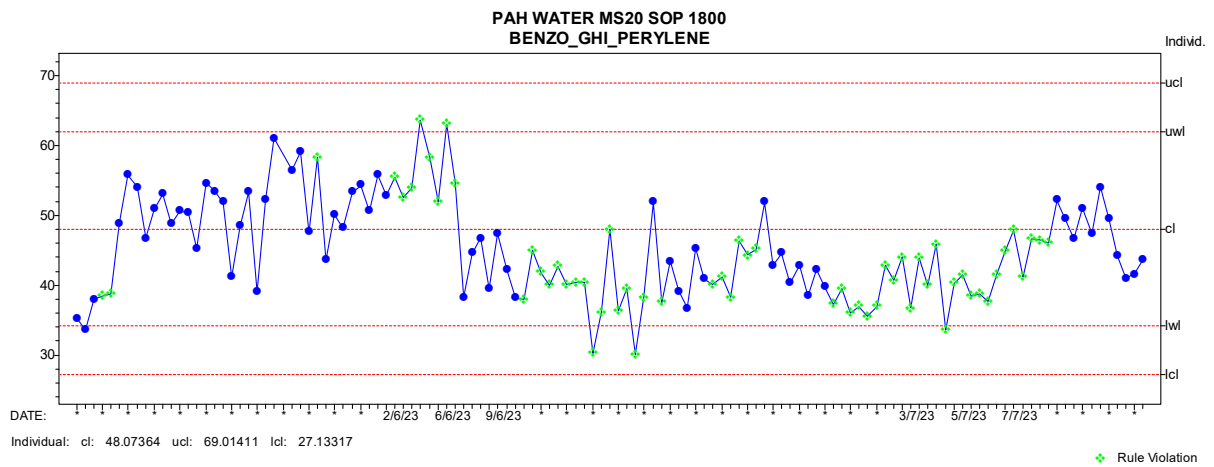
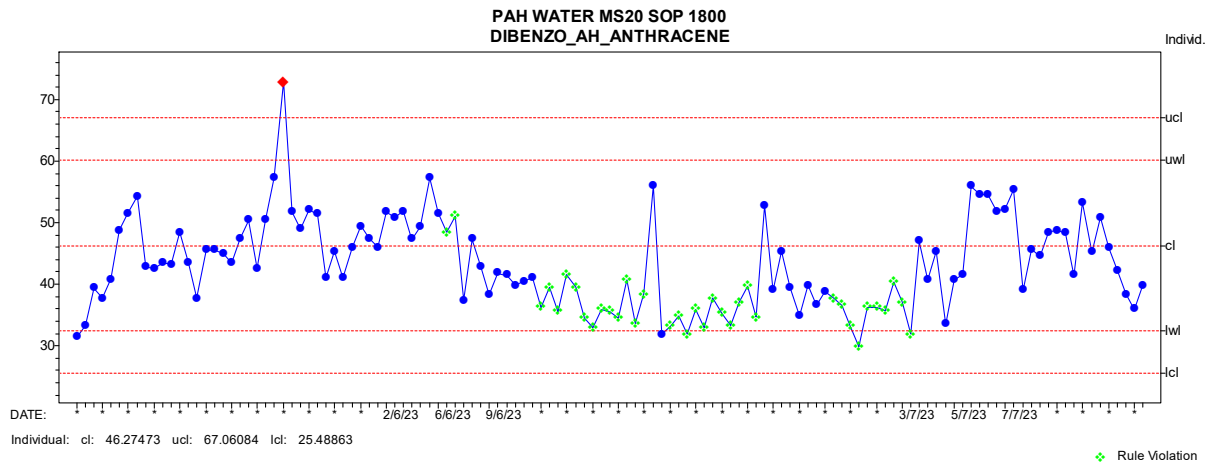


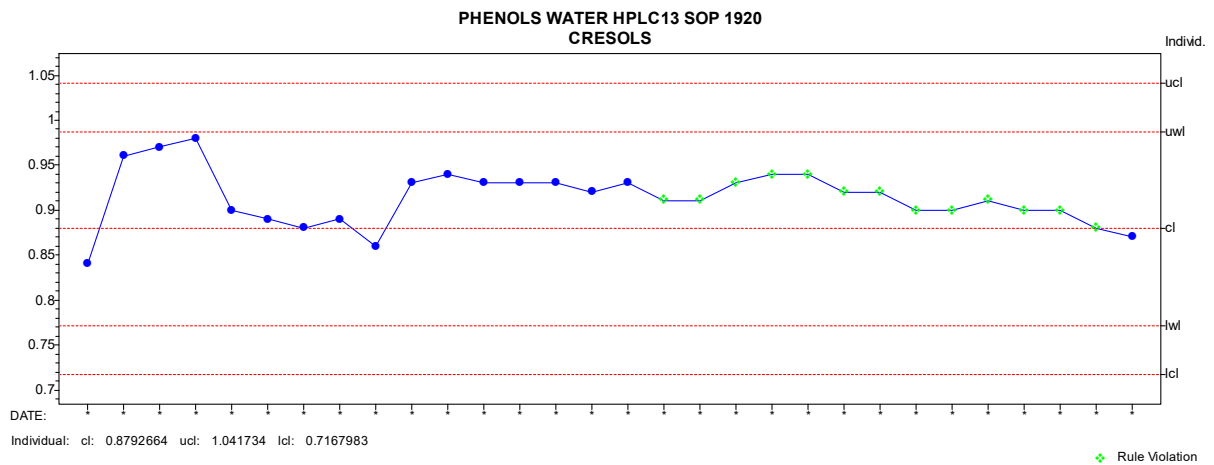
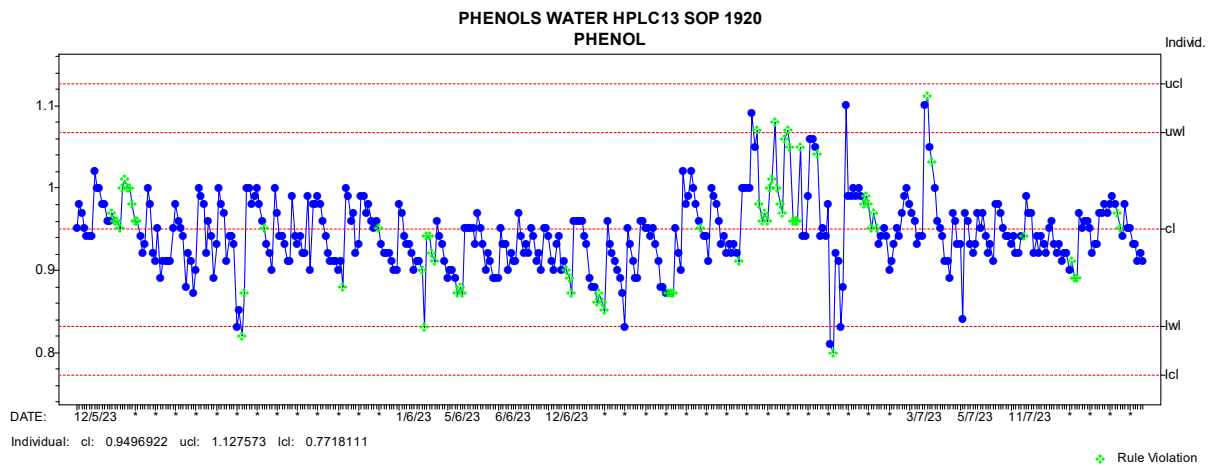
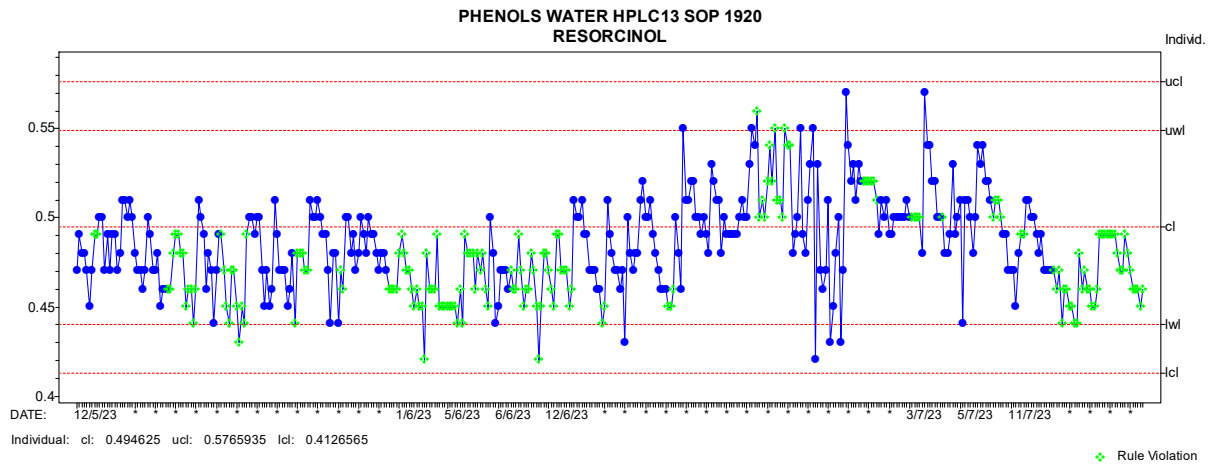


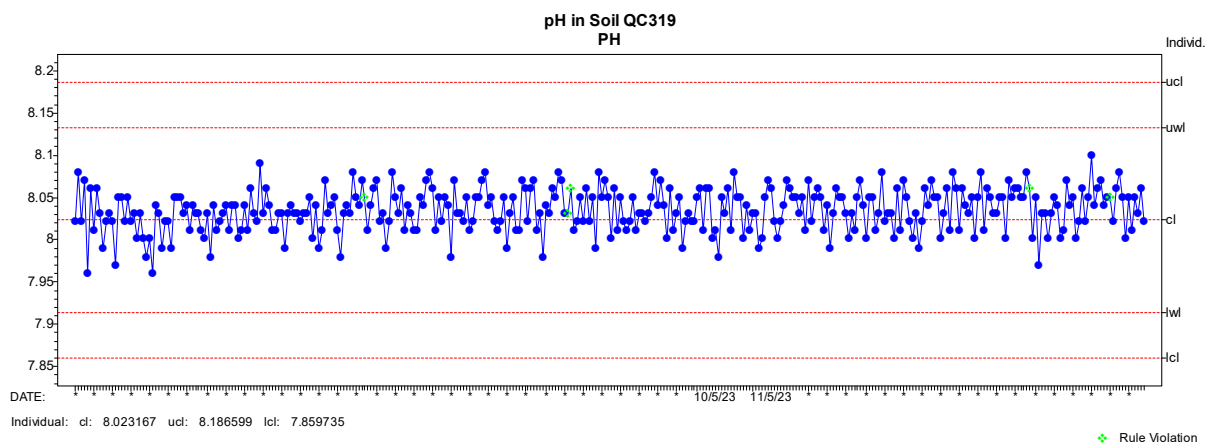
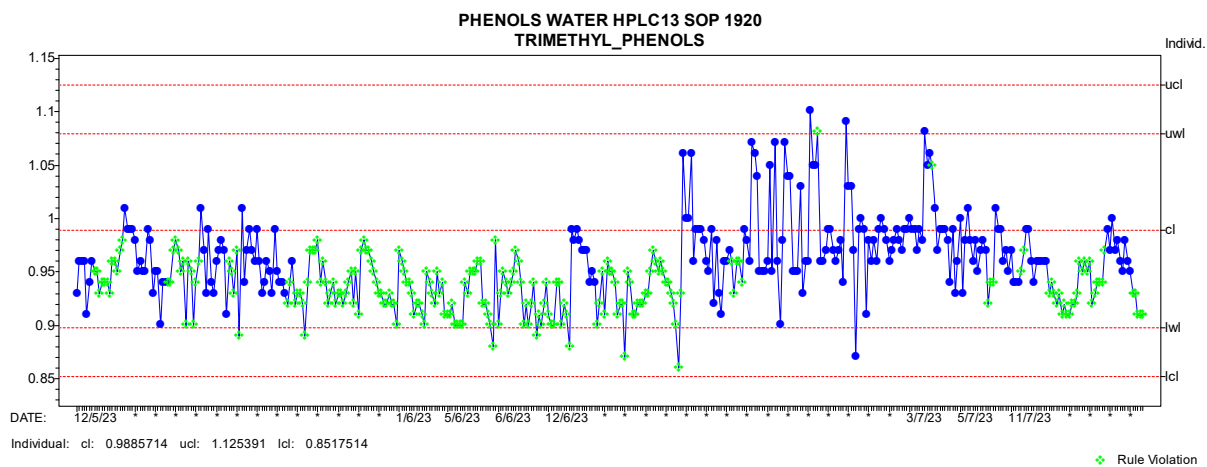
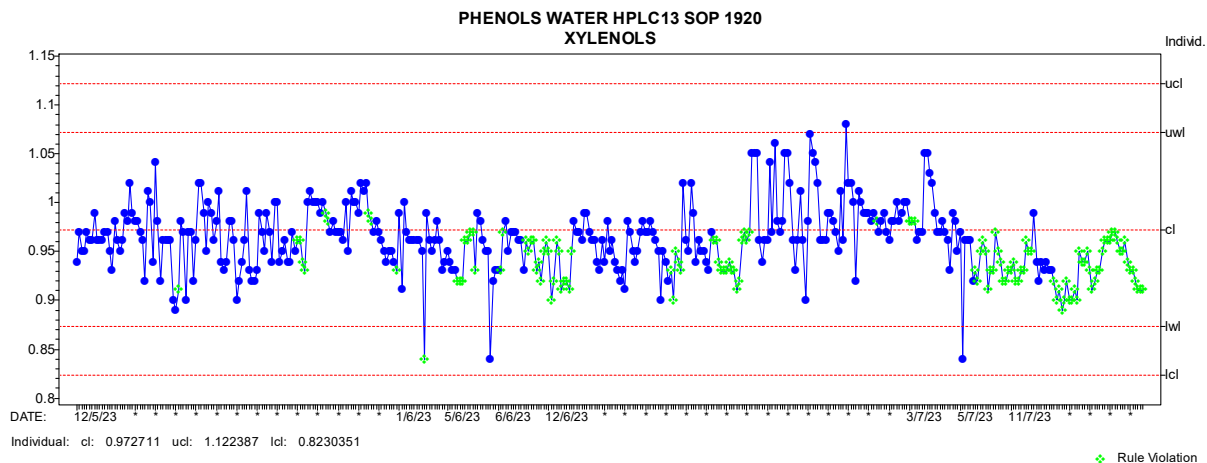




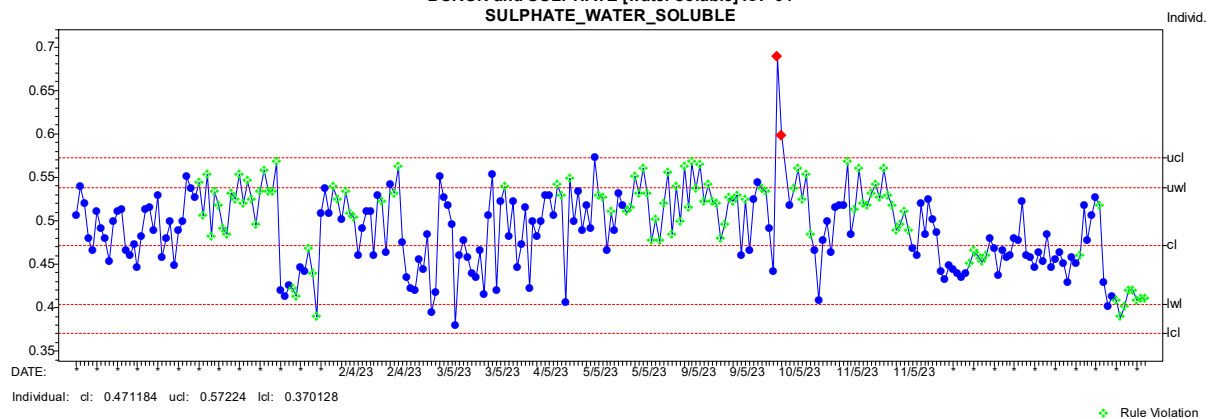




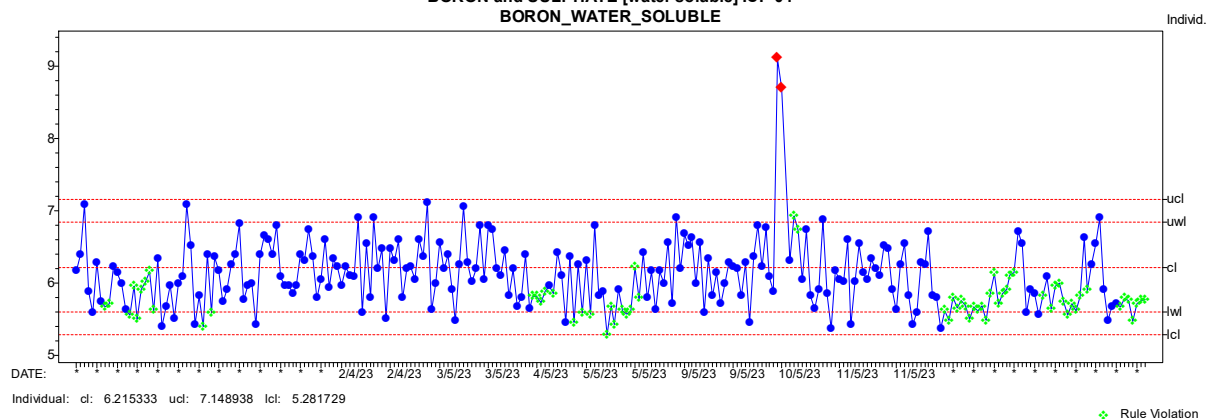




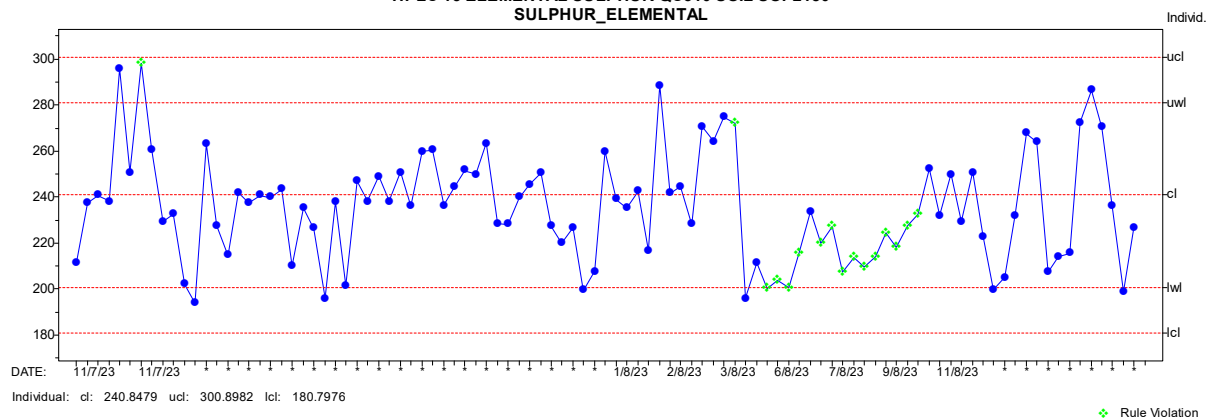
BORON and SULPHATE [water soluble] ICP 04
SULPHATE WATER SOLUBLE



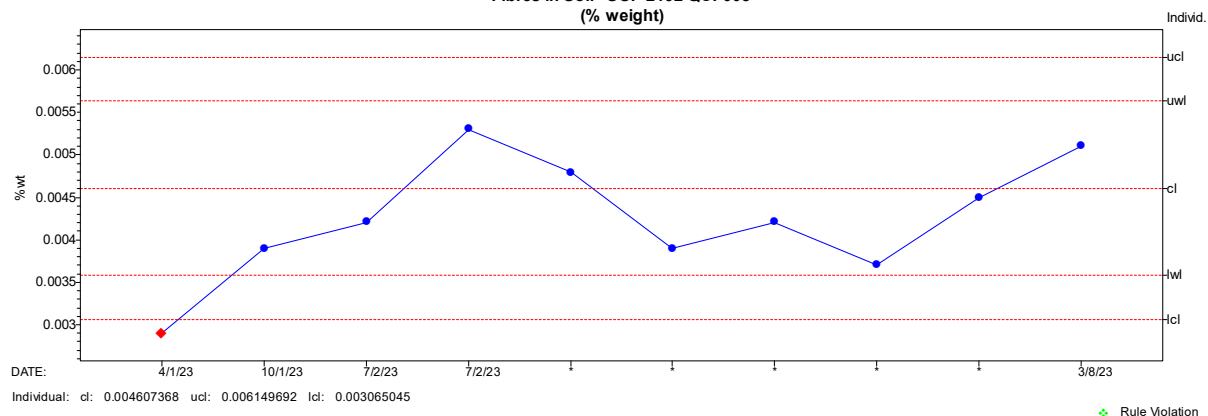
BORON and SULPHATE [water soluble] ICP 04
BORON WATER SOLUBLE

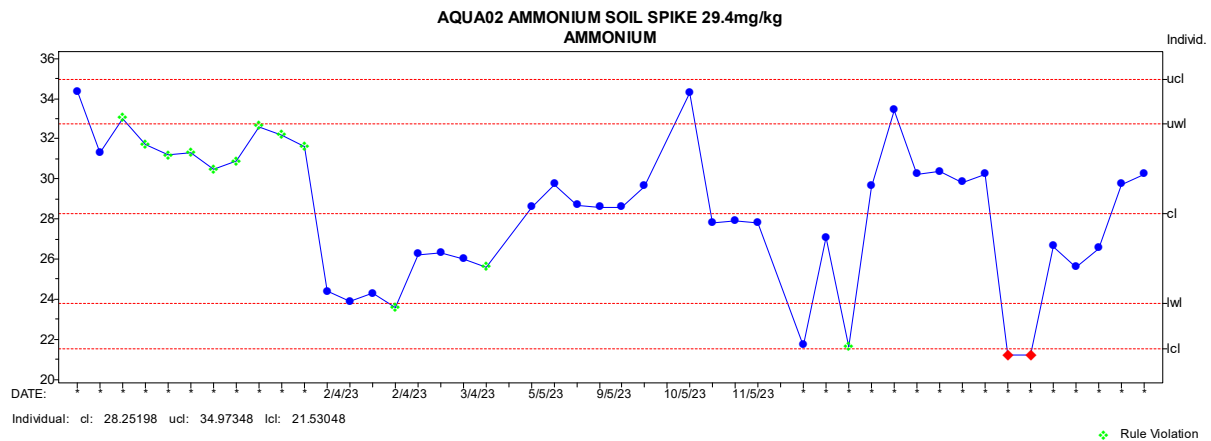
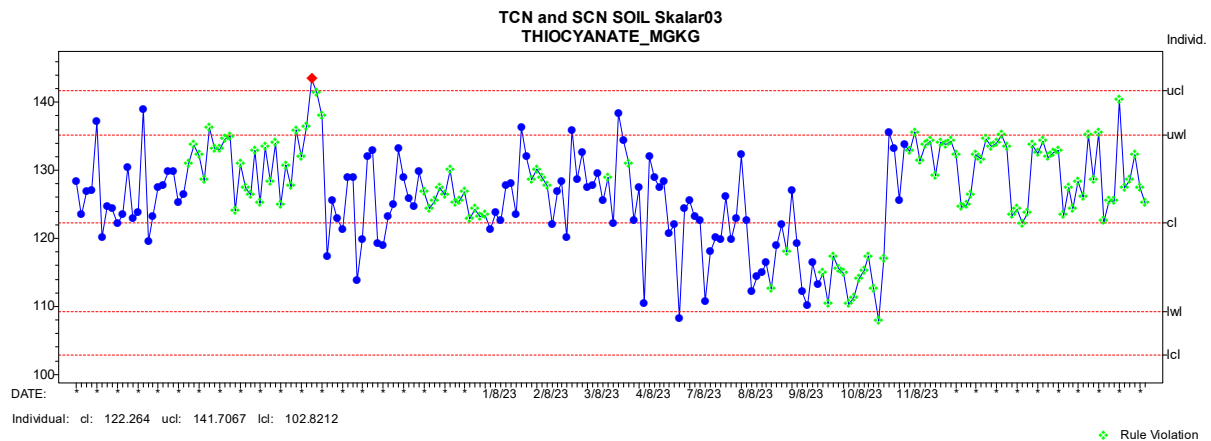
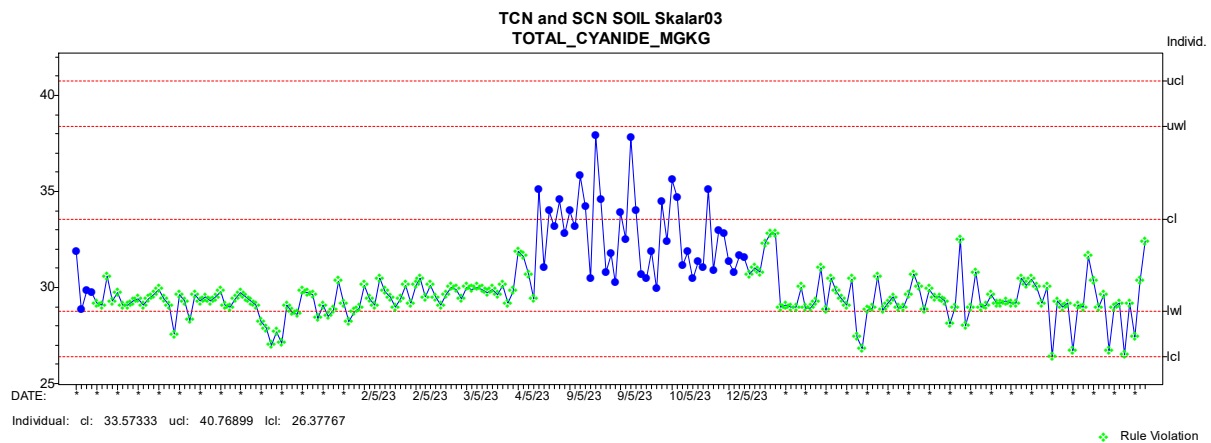
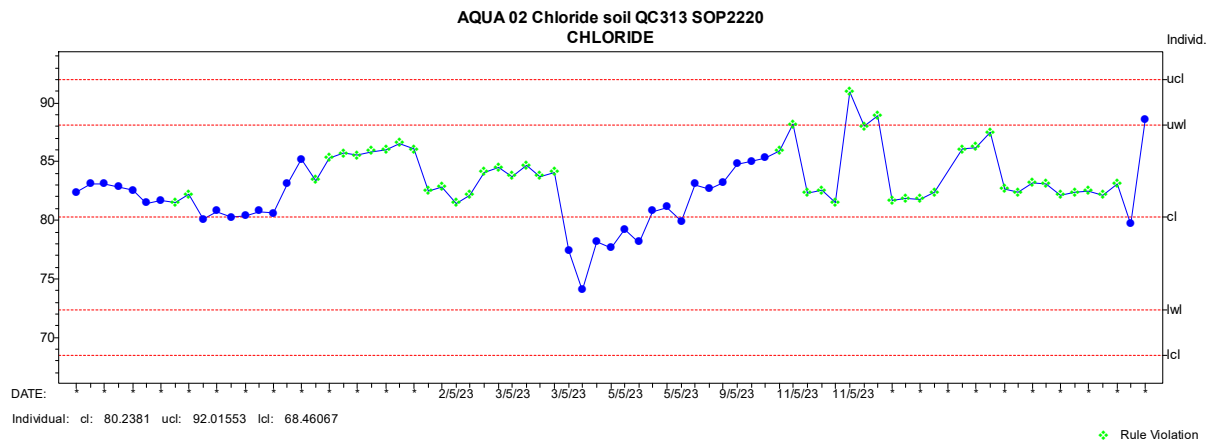


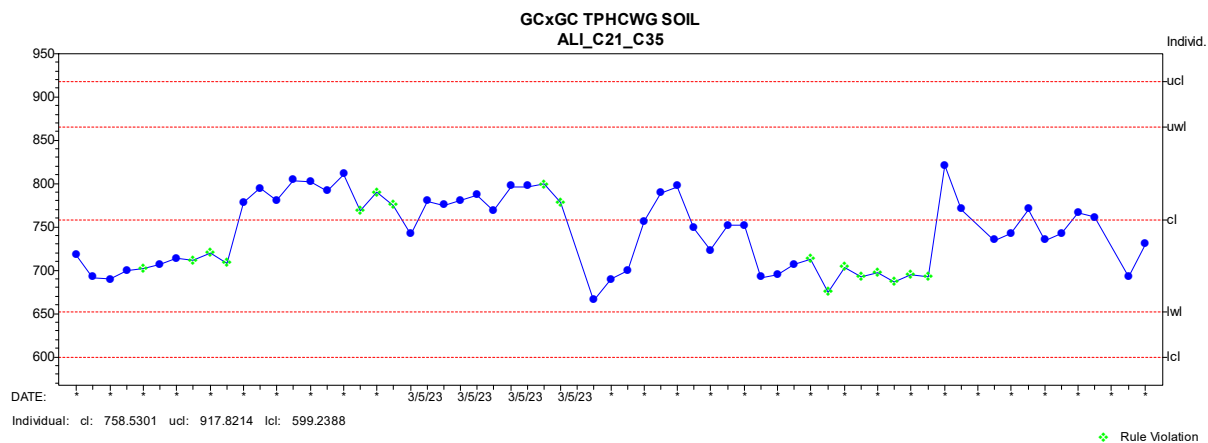
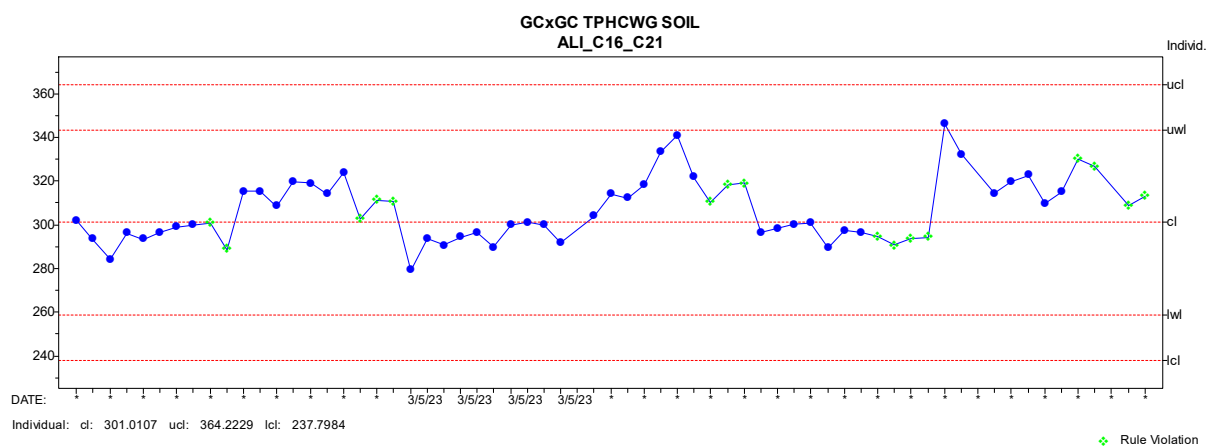
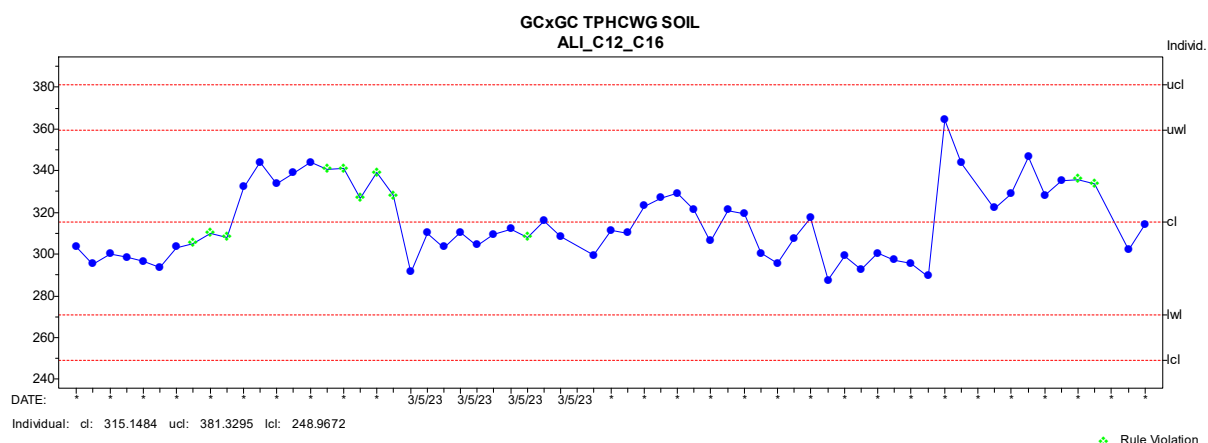
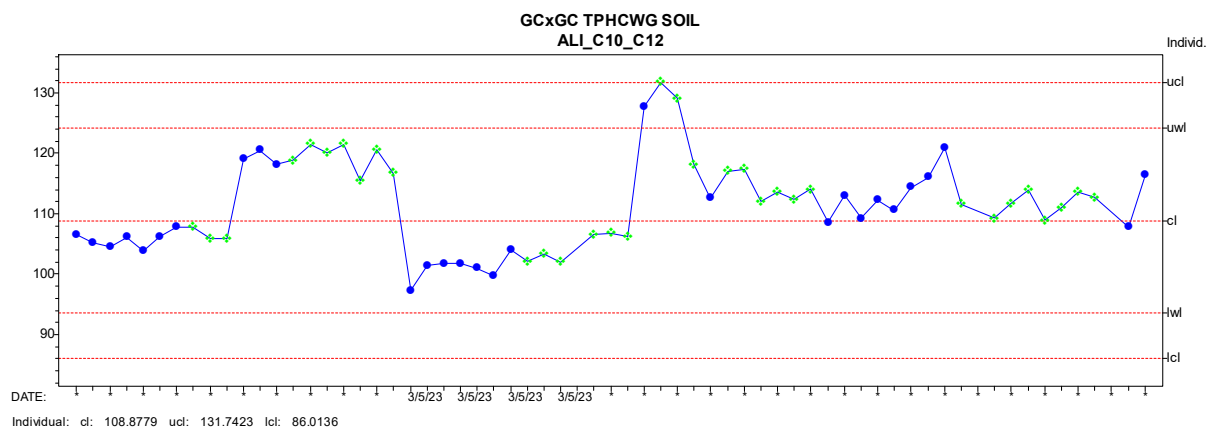
HPLC 15 ELEMENTAL SULPHUR QC310 SOIL SOP2180
SULPHUR_ELEMENTAL

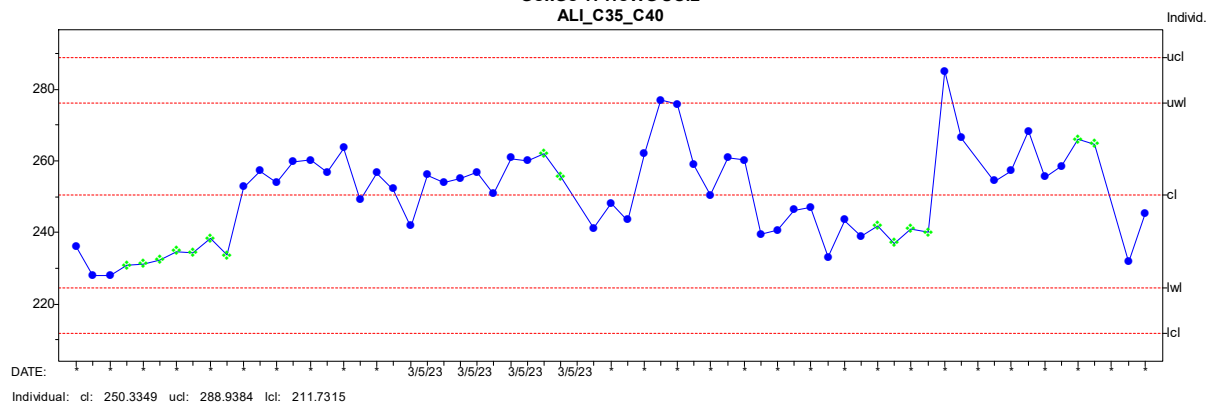


Fibres in Soil - SOP 2192 QCF008
(% weight)

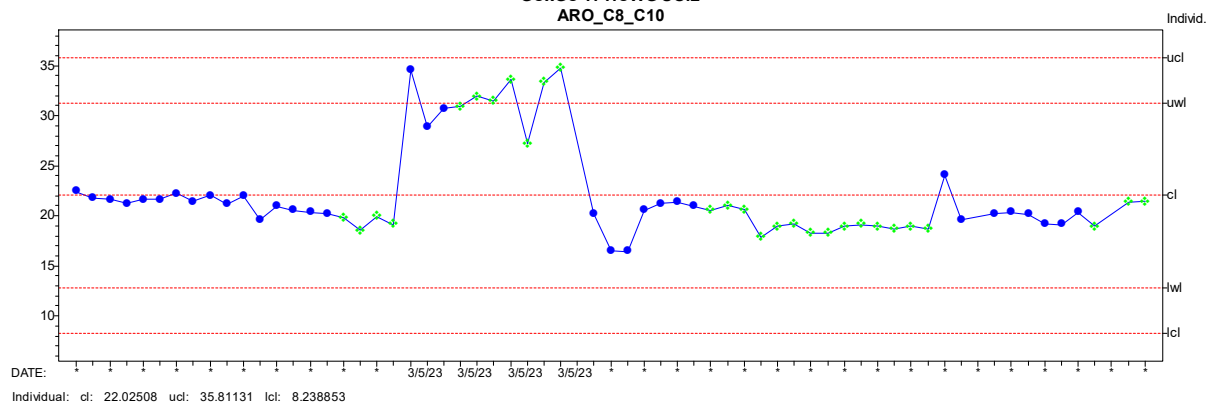




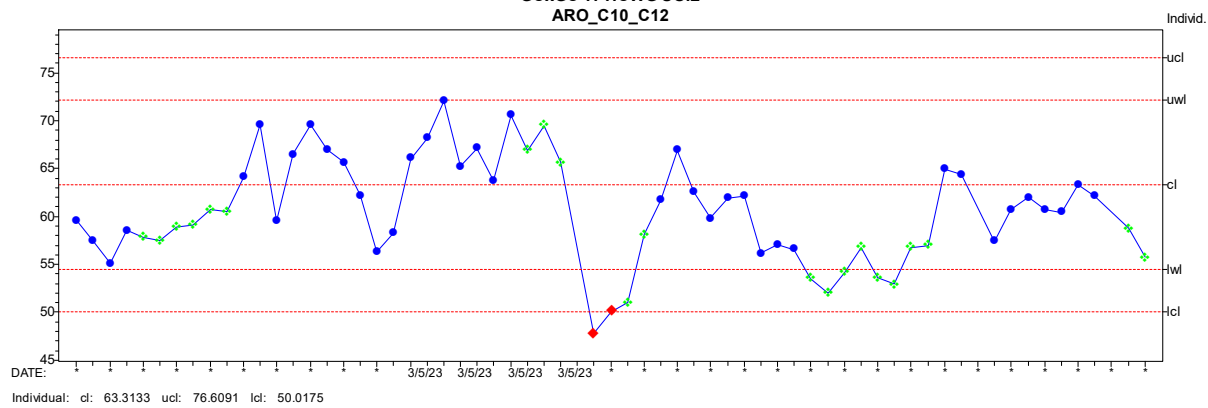
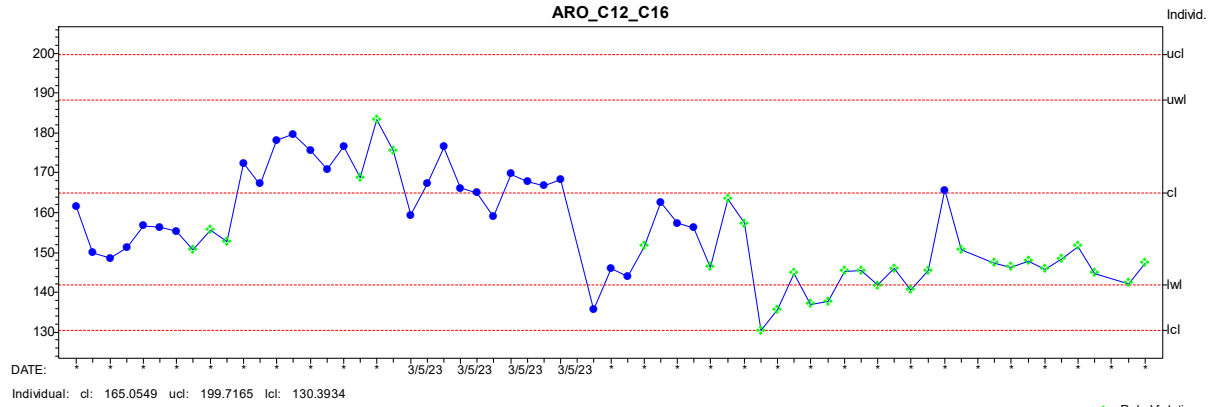


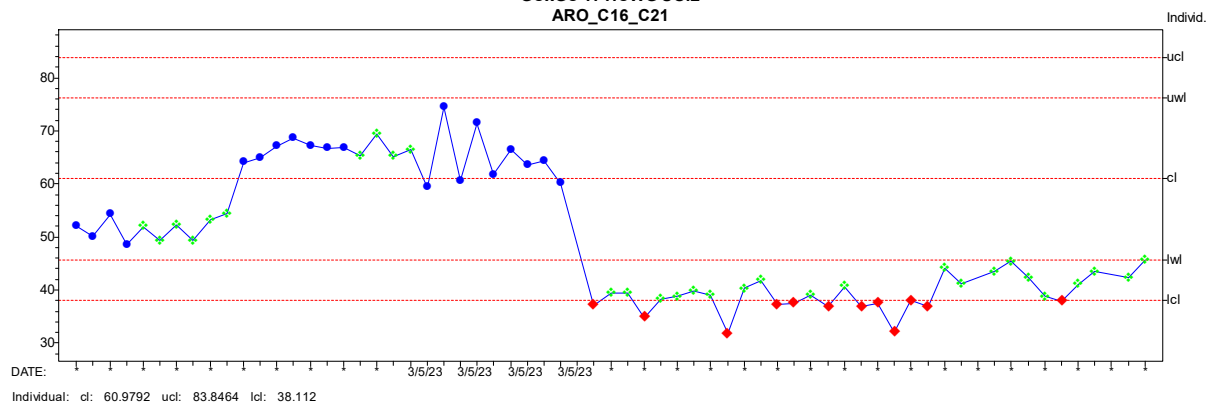
GCxGC TPHCWG SOIL
ALI C35 C40

GCxGC TPHCWG SOIL
ARO_C8_C10

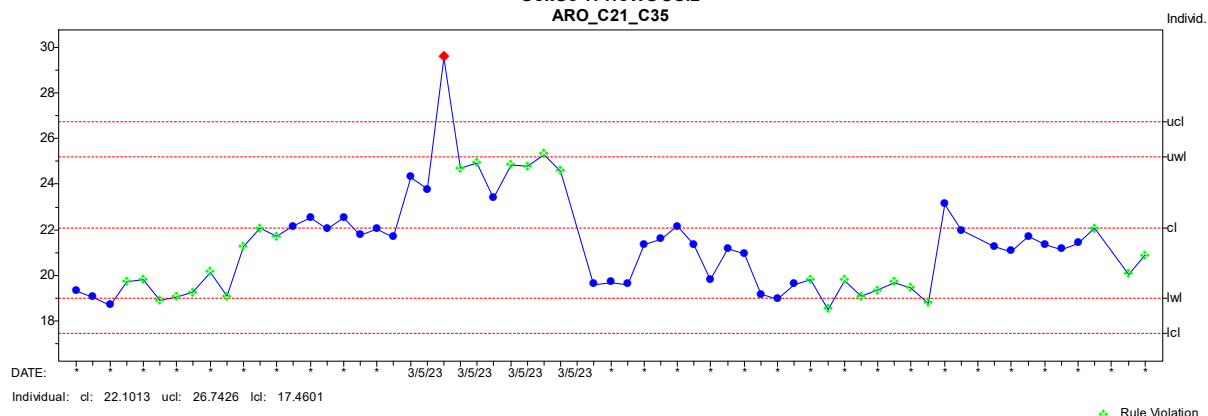
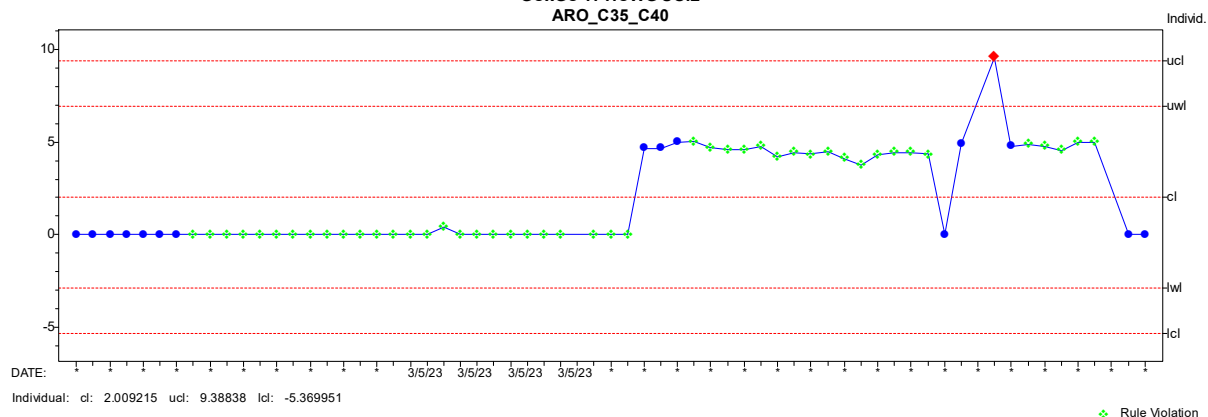
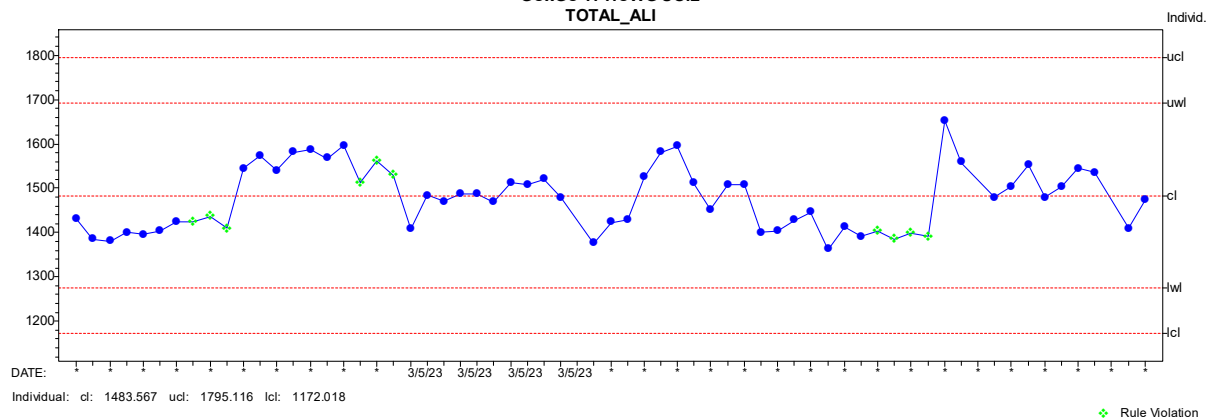


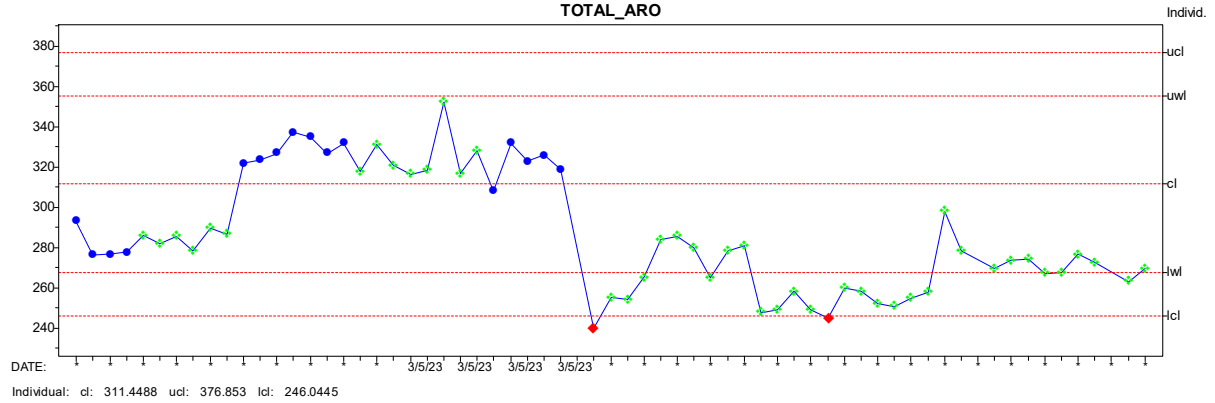
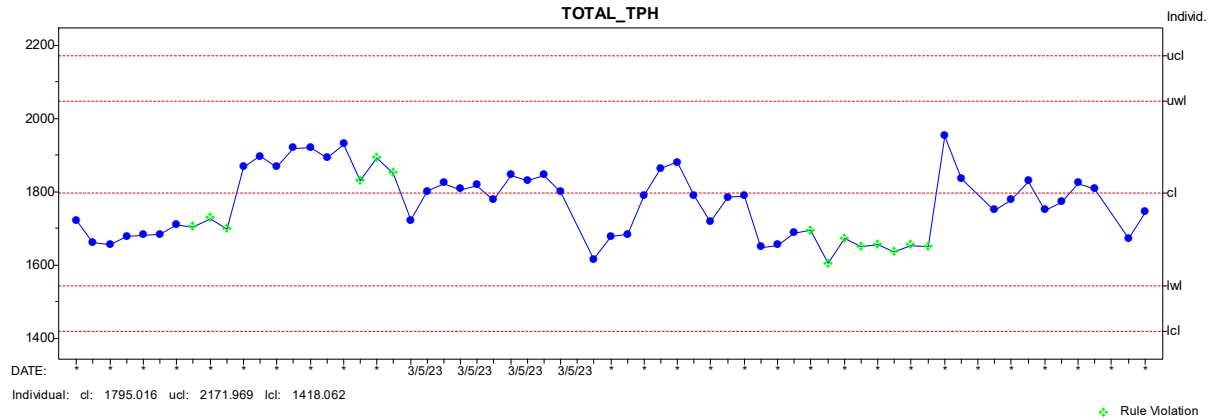
GCxGC TPHCWG SOIL
ARO_C10_C12

GCxGC TPHCWG SOIL
ARO_C12_C16

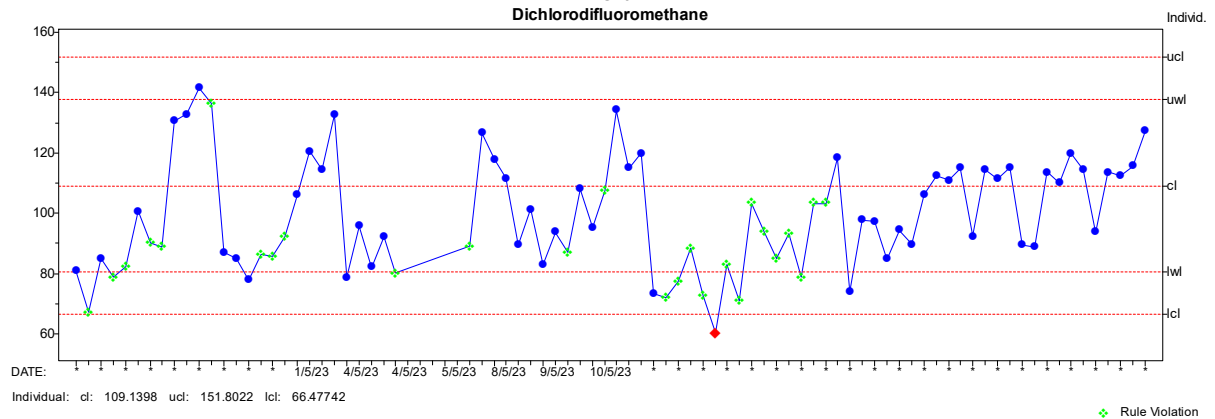
GCxGC TPHCWG SOIL
ARO_C16_C21

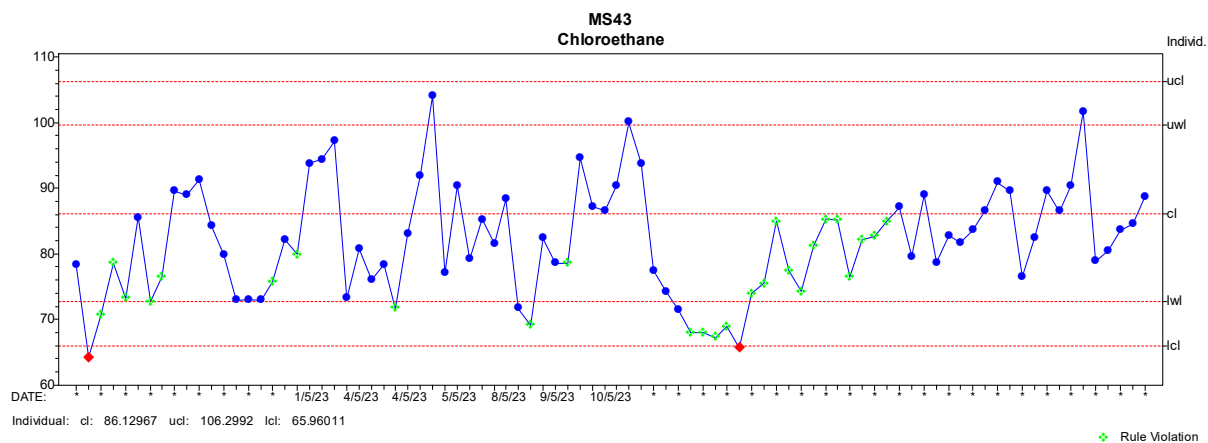
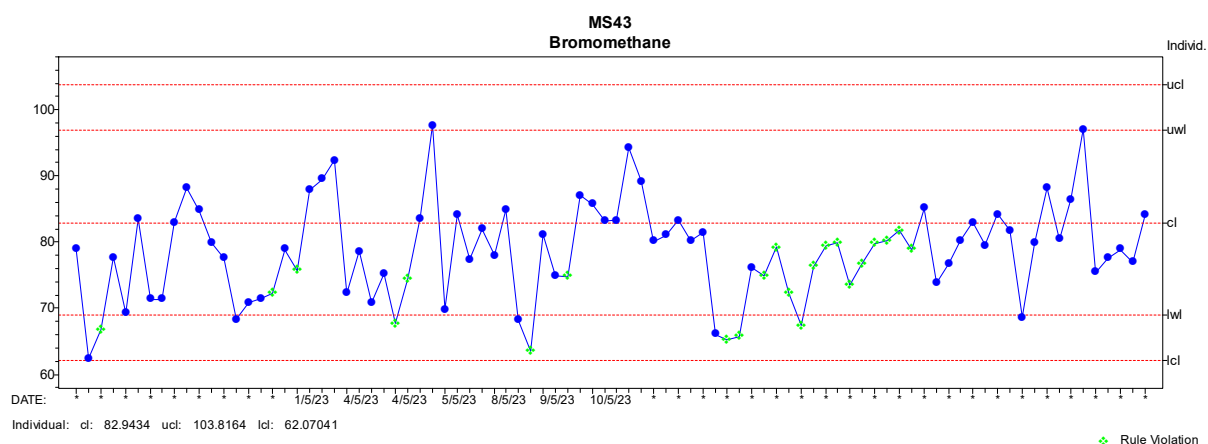
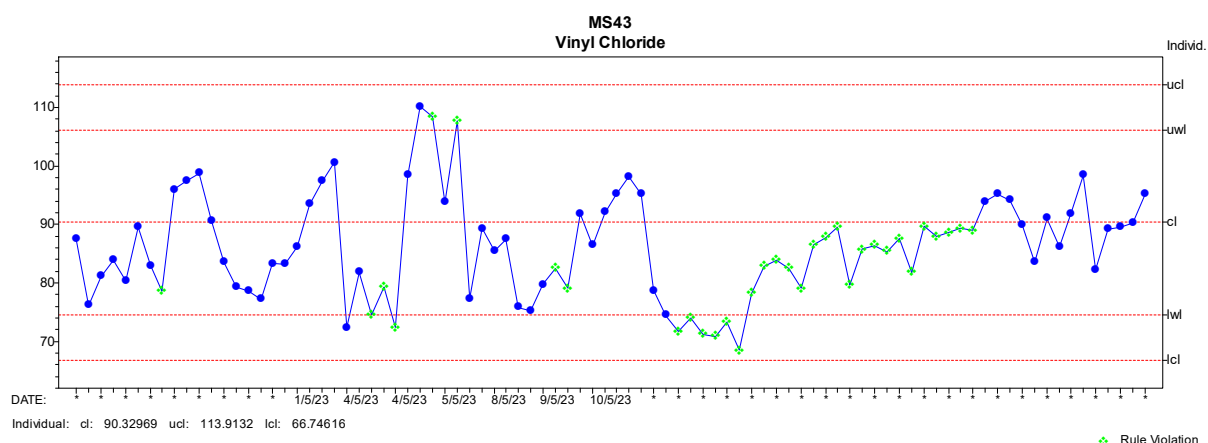
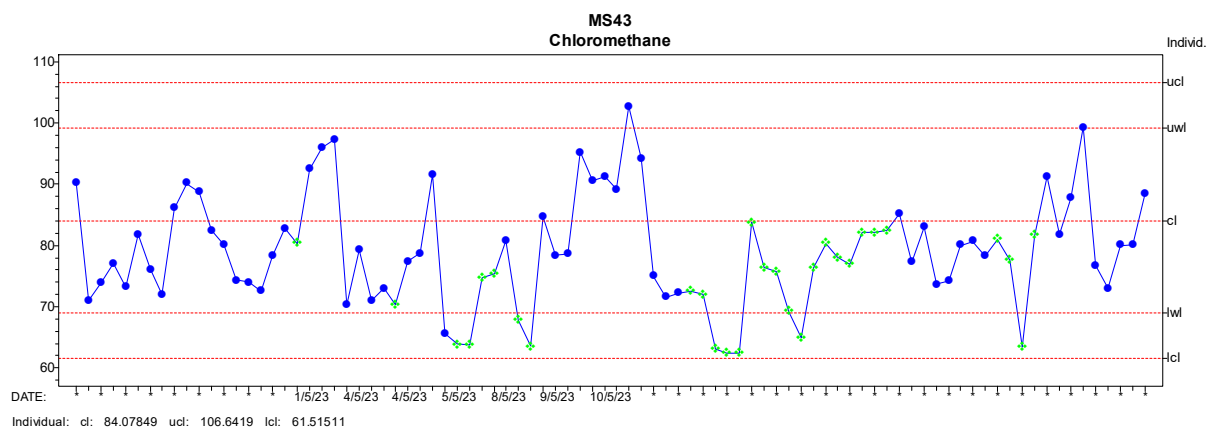
GCxGC TPHCWG SOIL
ARO_C21_C35

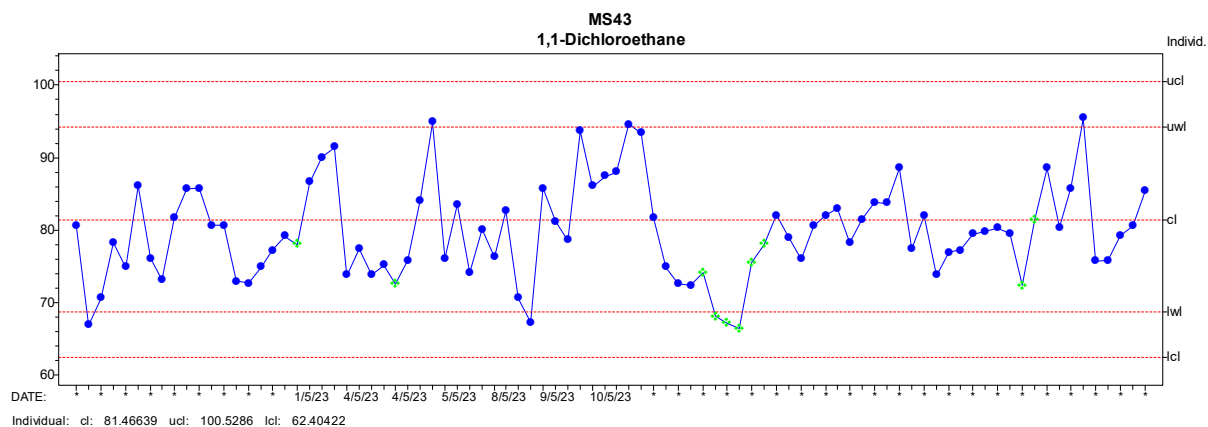
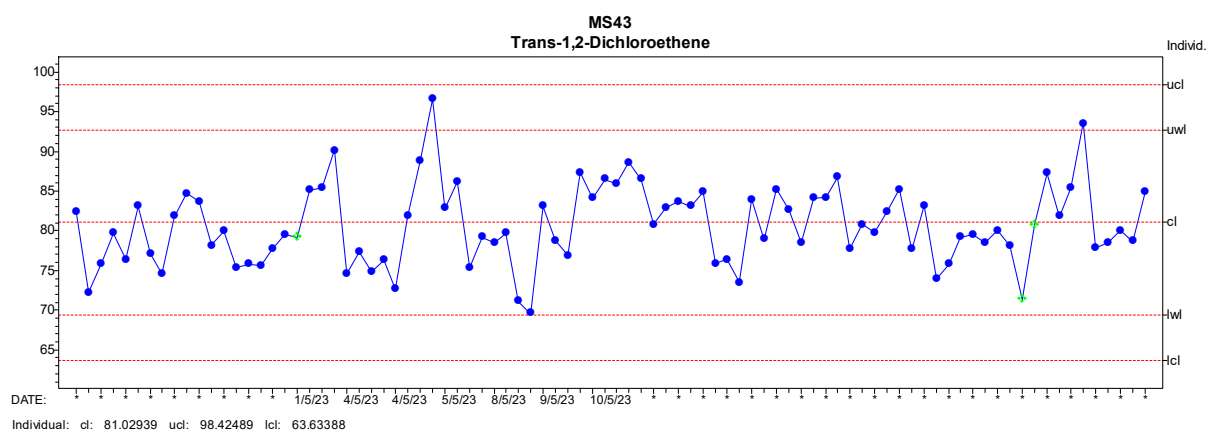
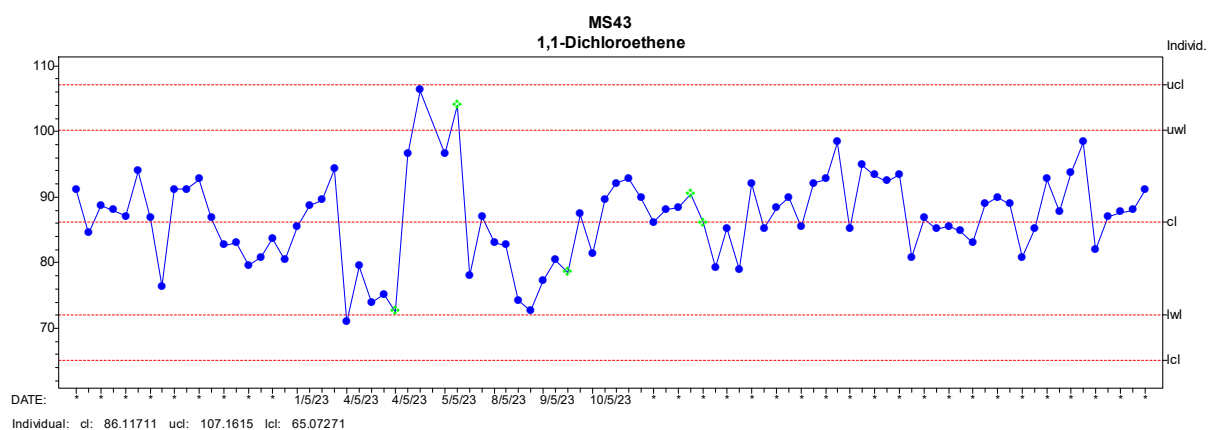
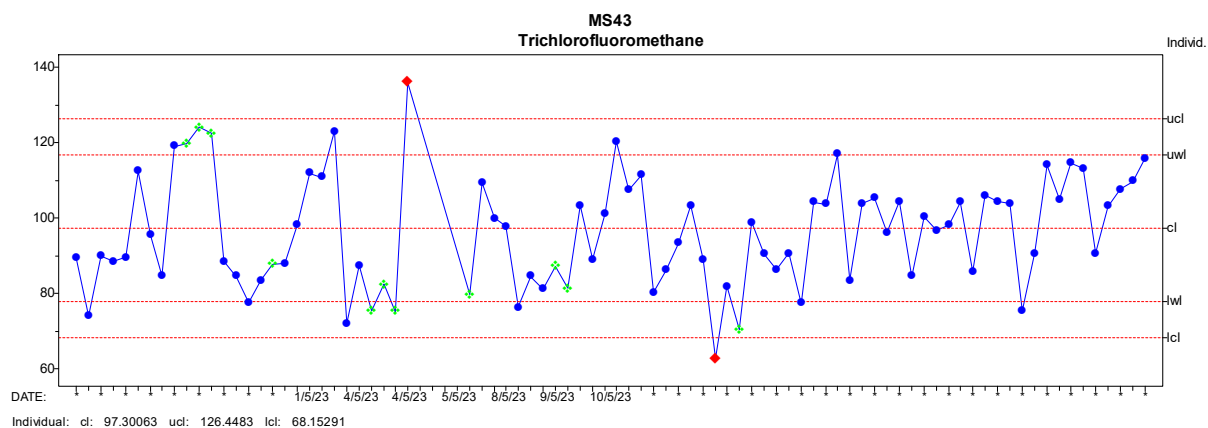
GCxGC TPHCWG SOIL
ARO_C35_C40GCxGC TPHCWG SOIL
TOTAL_ALI

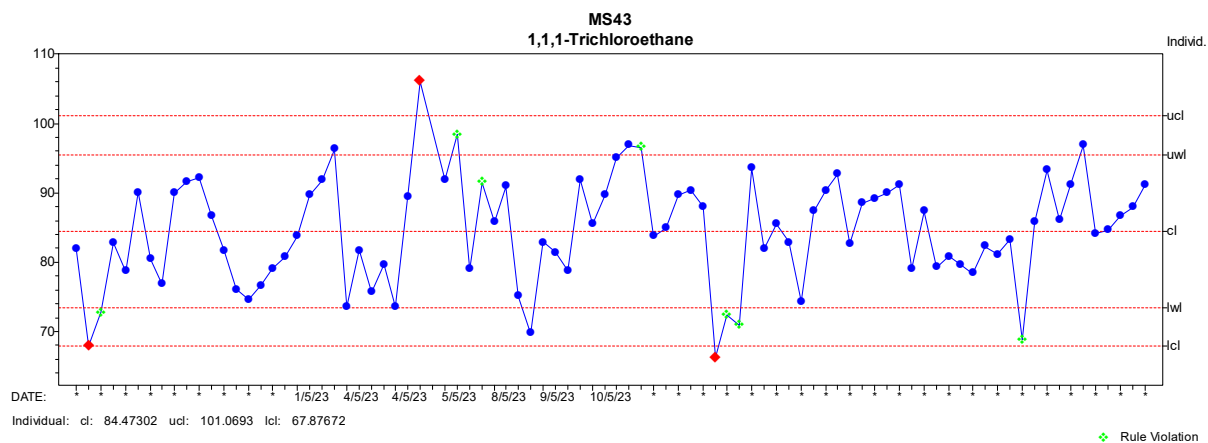
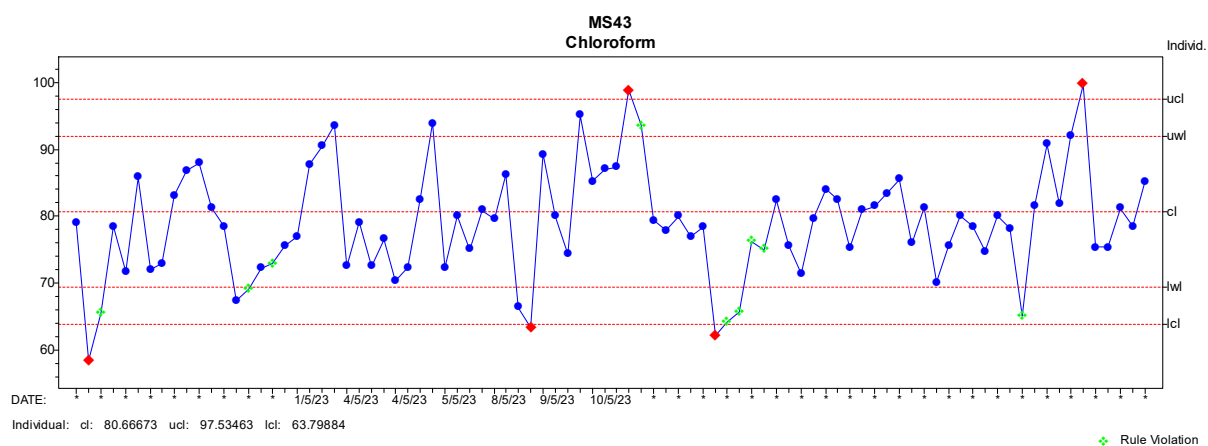
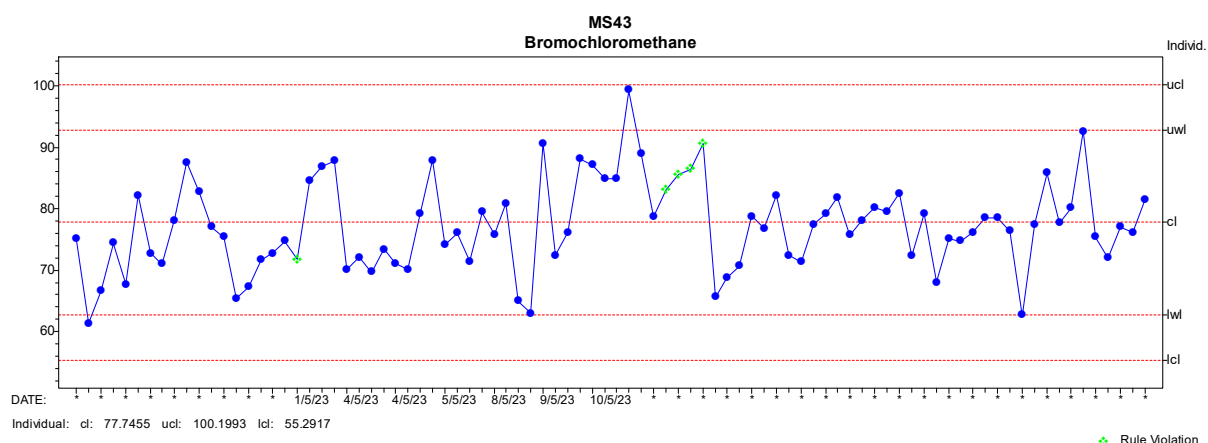
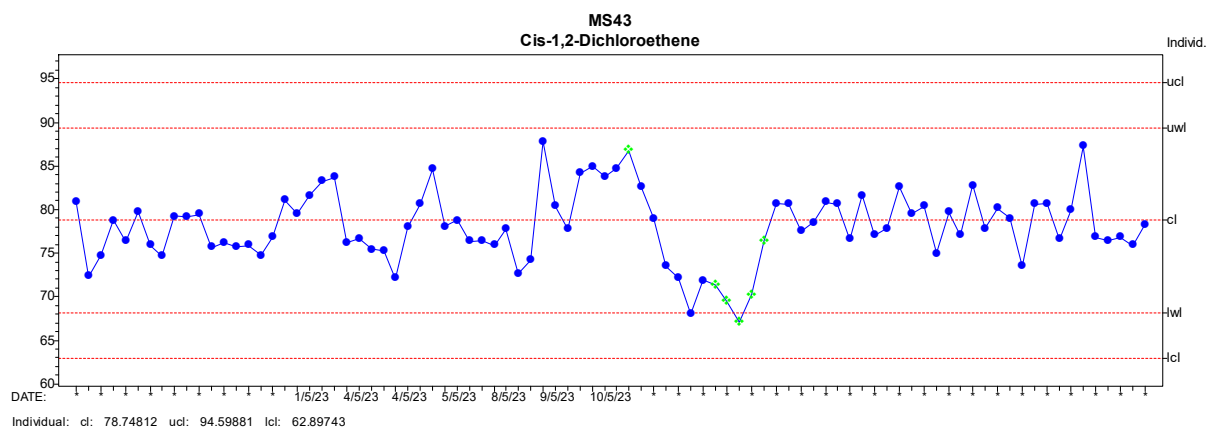
GCxGC TPHCWG SOIL
TOTAL_AROGCxGC TPHCWG SOIL
TOTAL_TPH

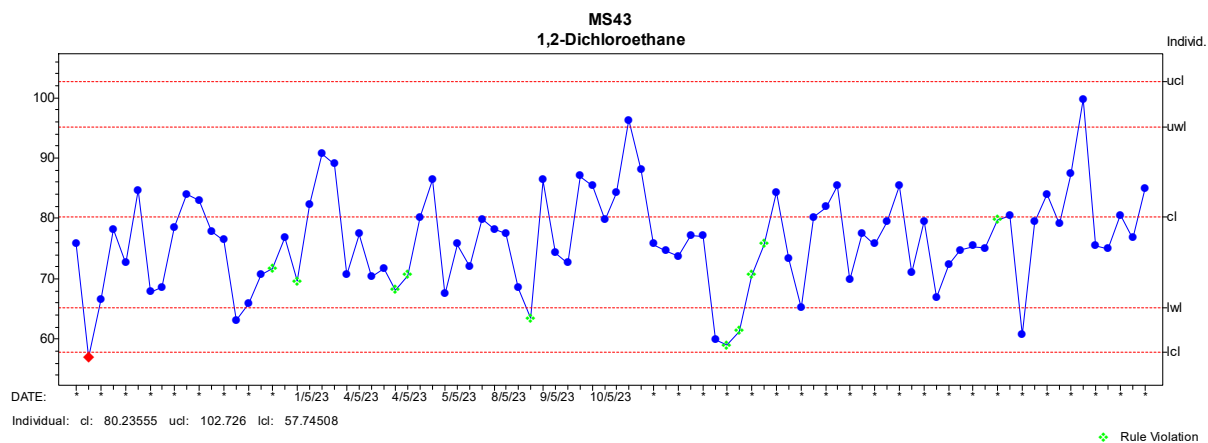
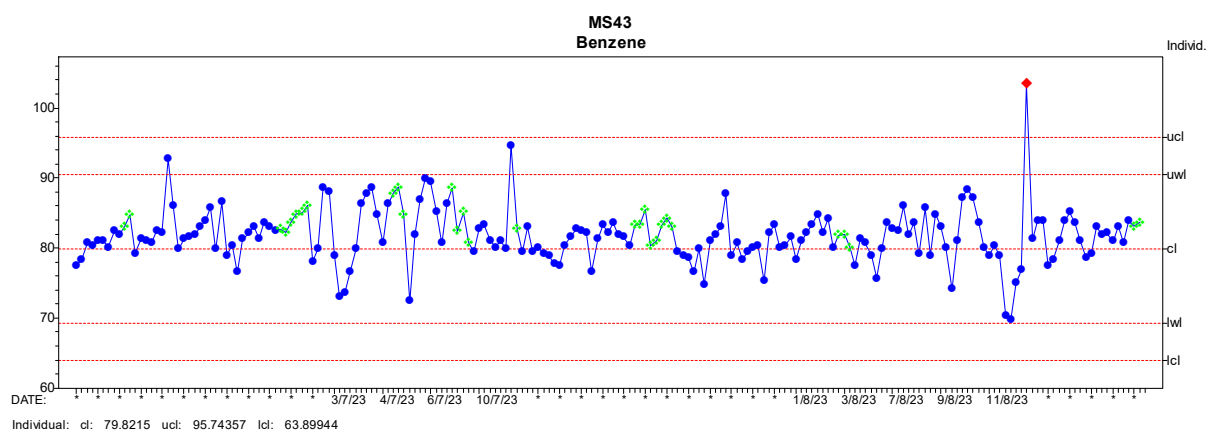
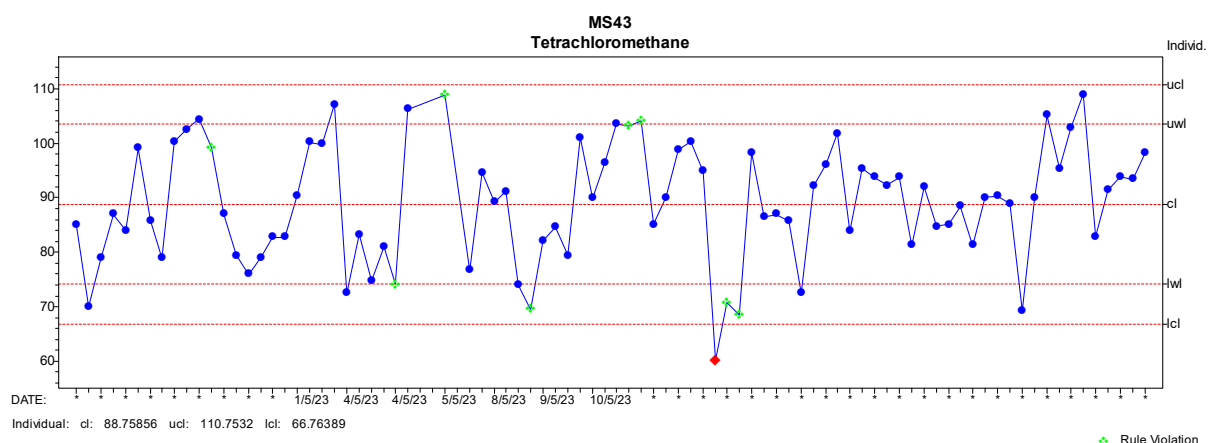
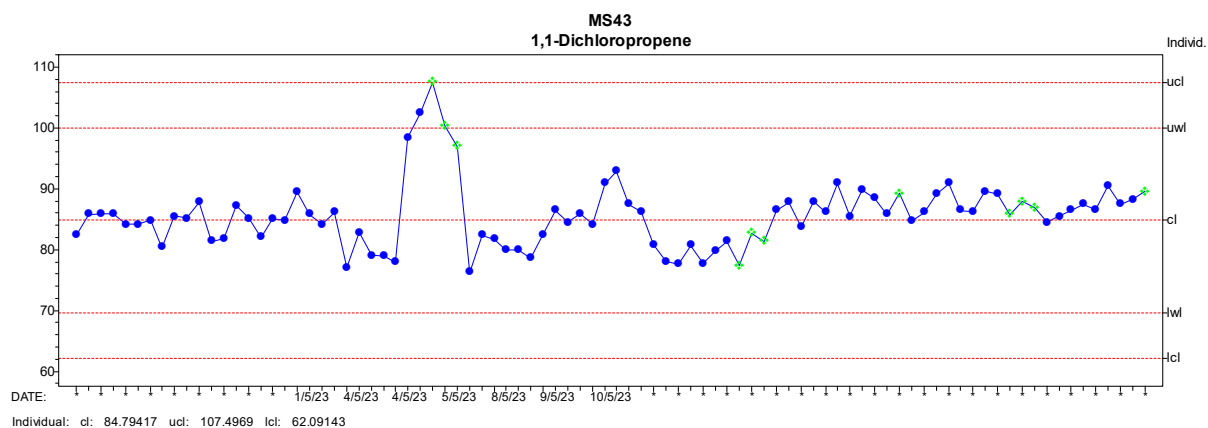
MS43
Dichlorodifluoromethane

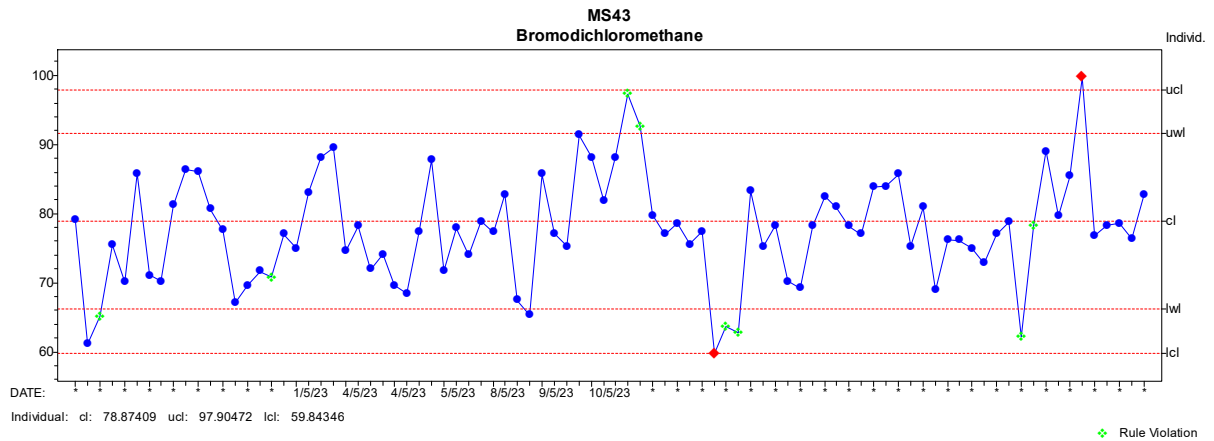
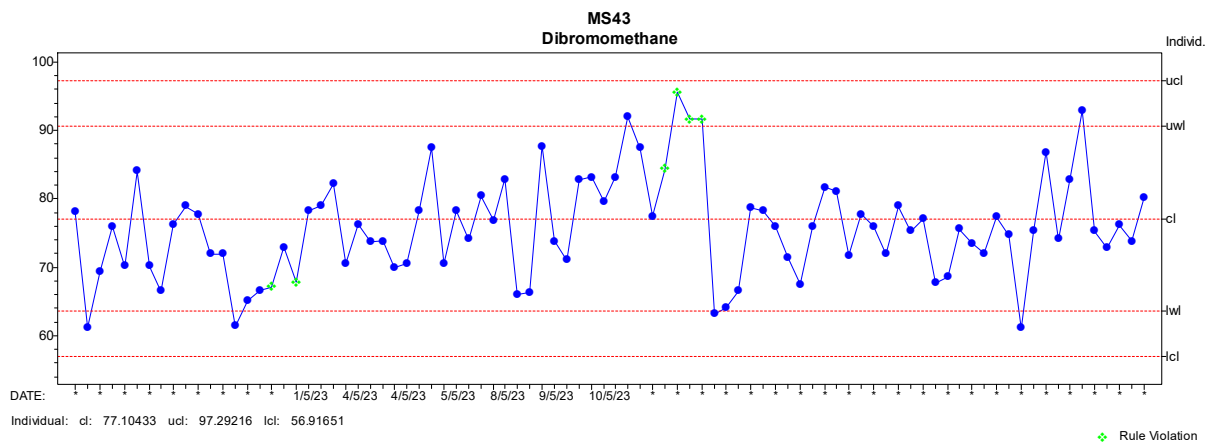
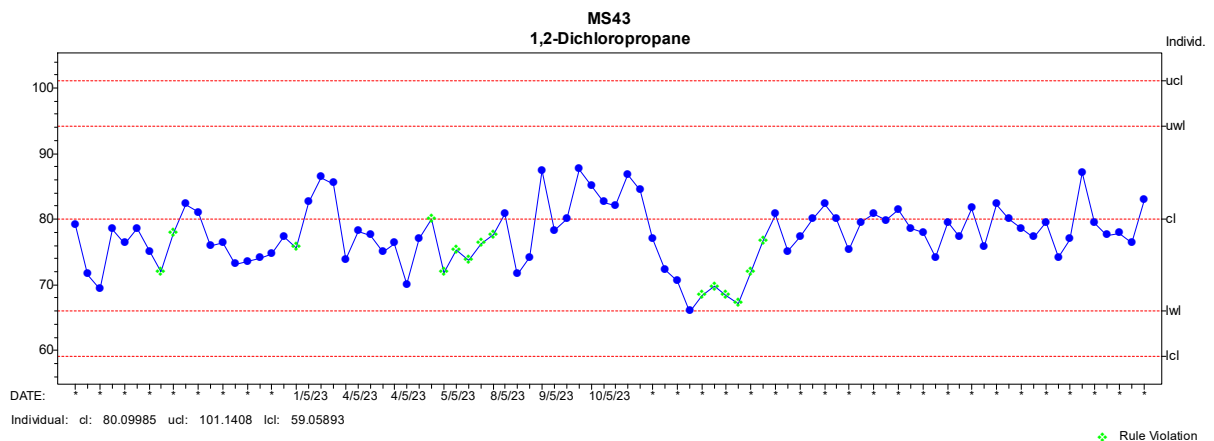
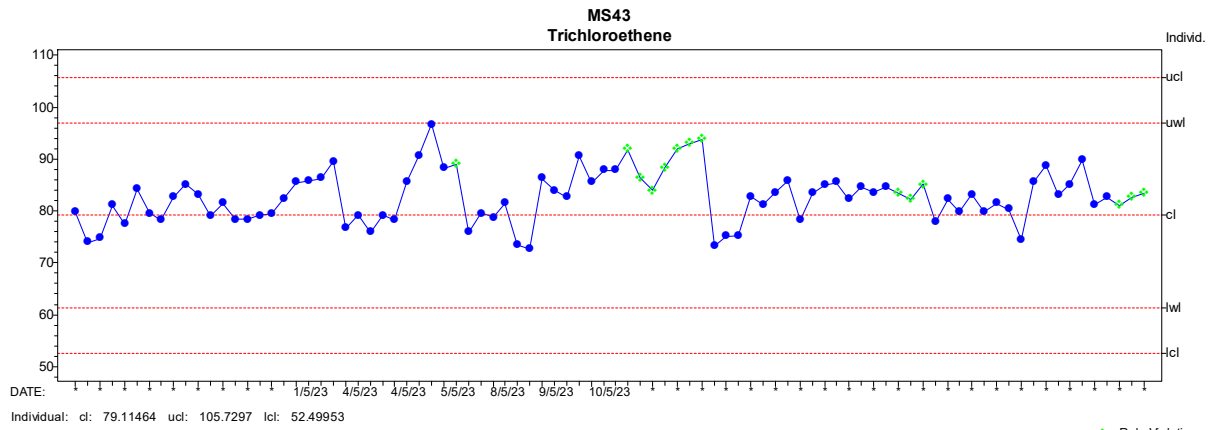


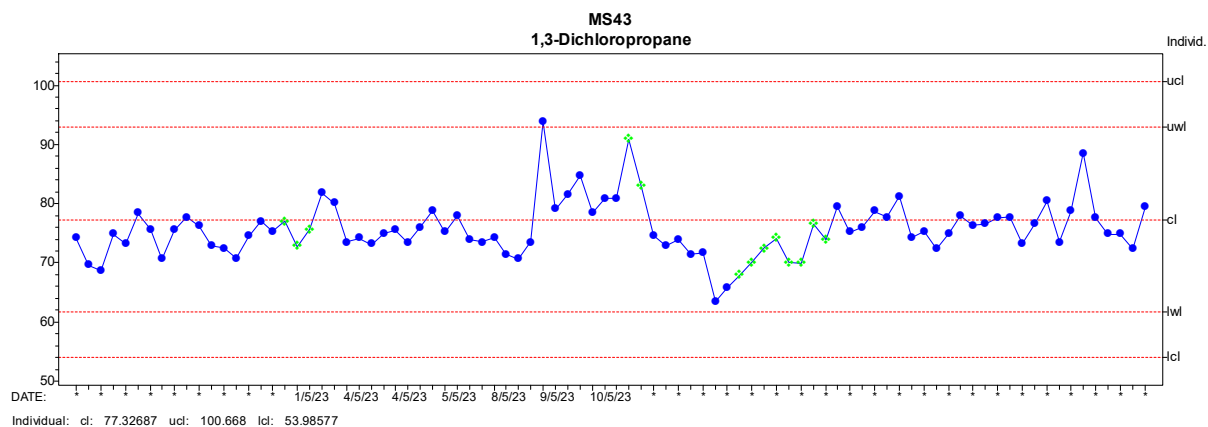
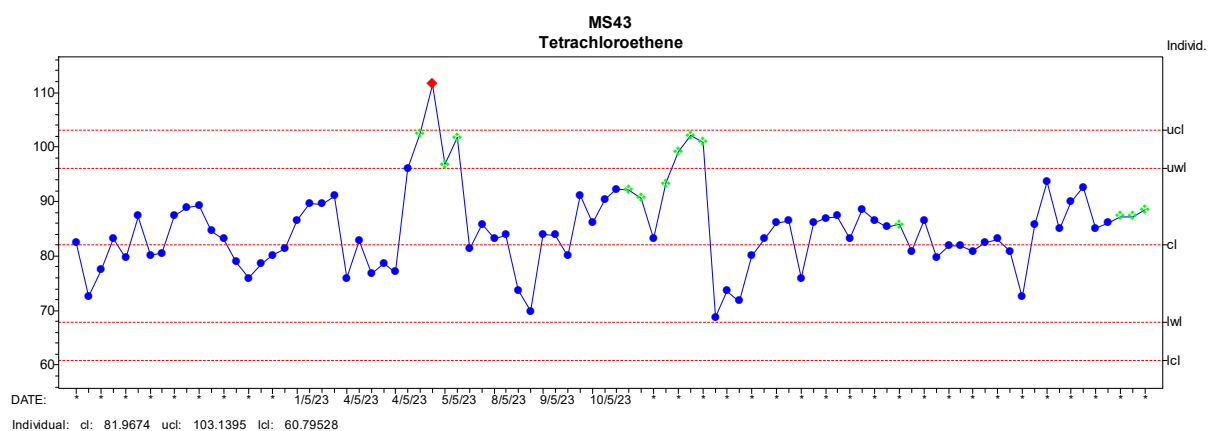
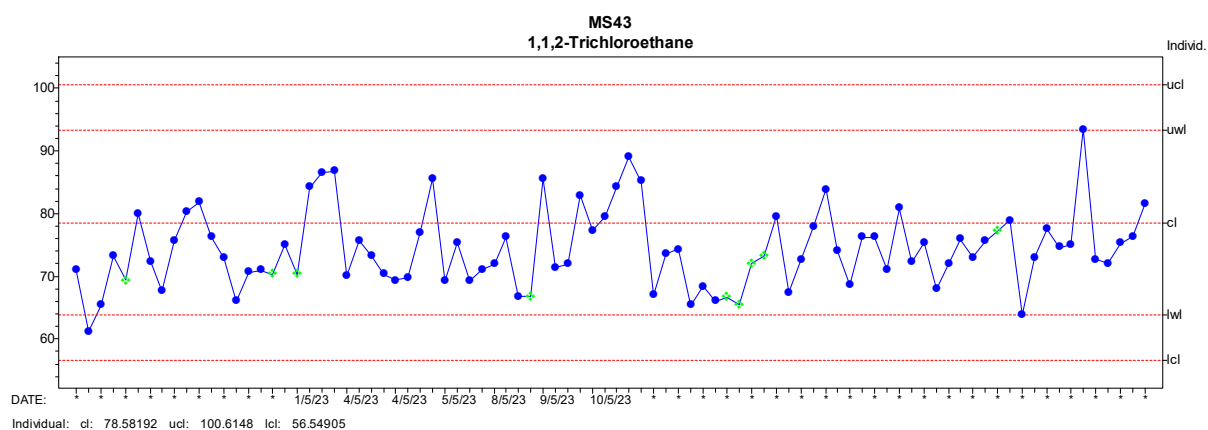
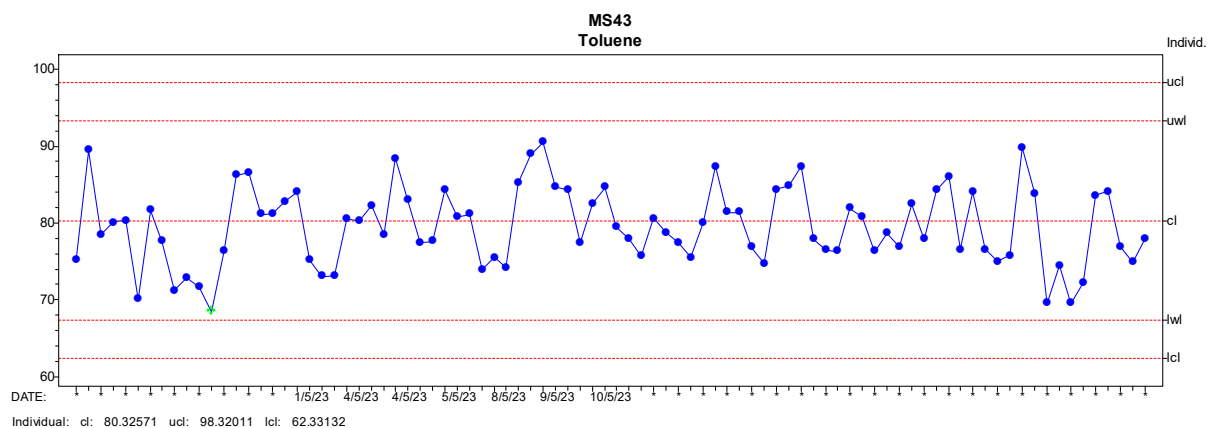


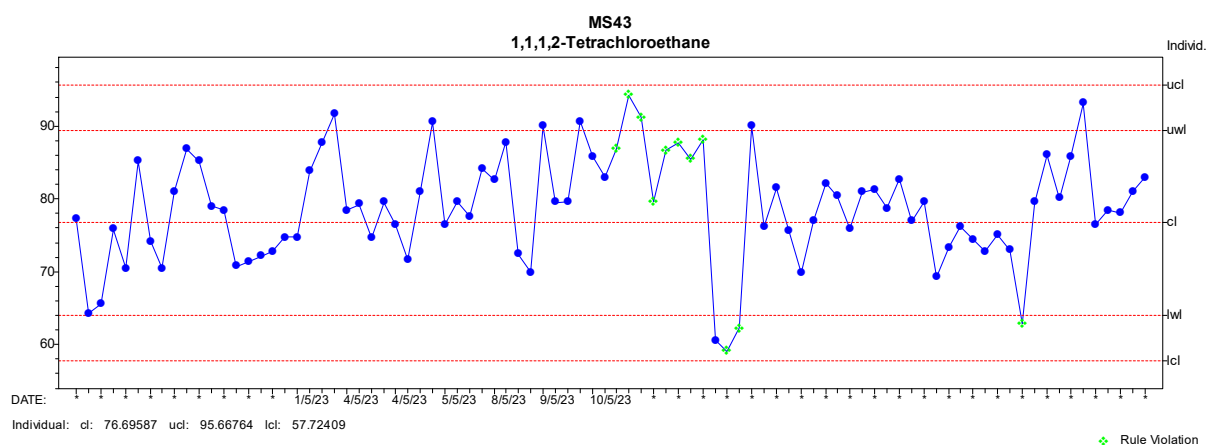
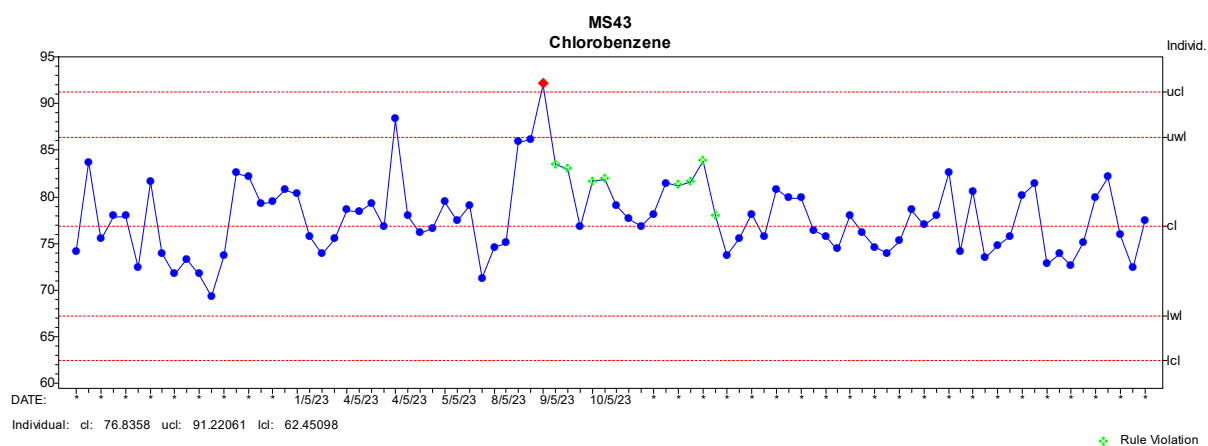
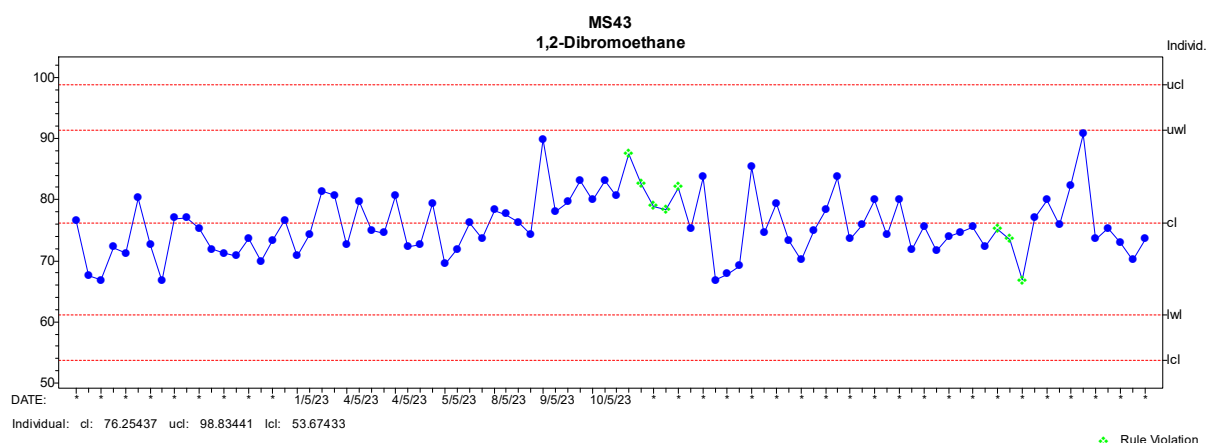
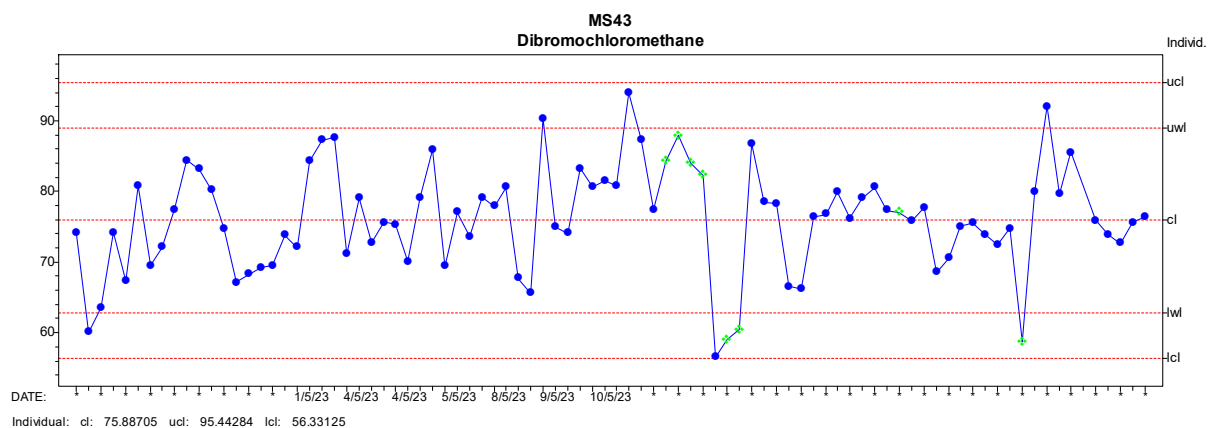


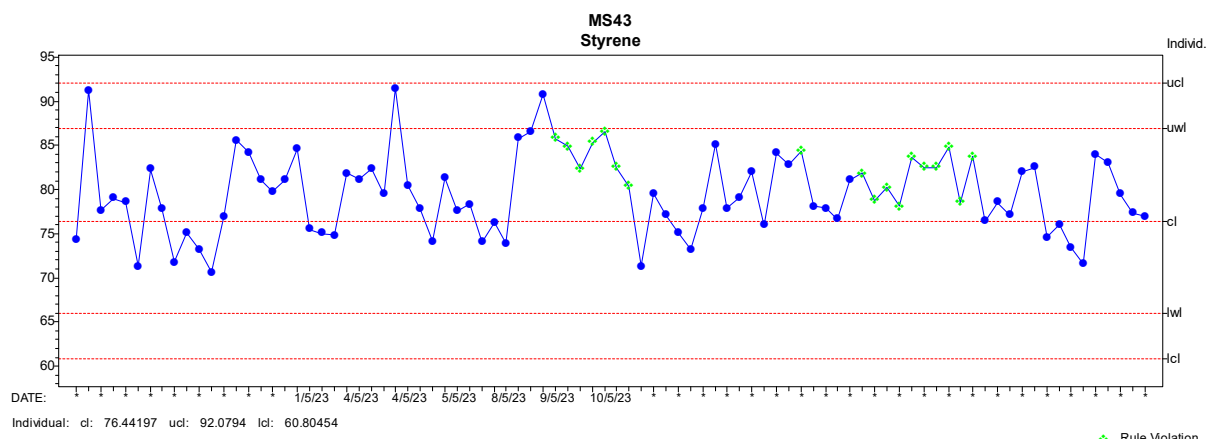
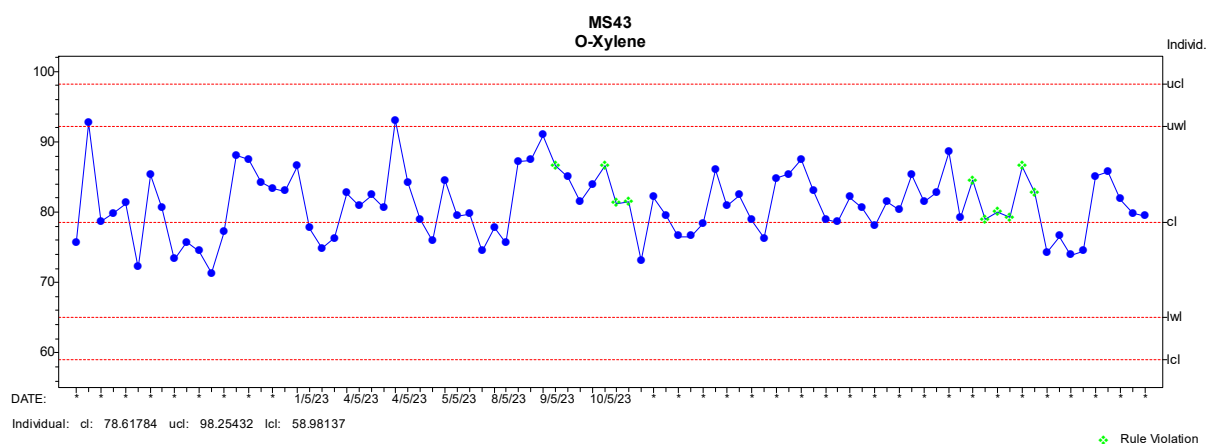
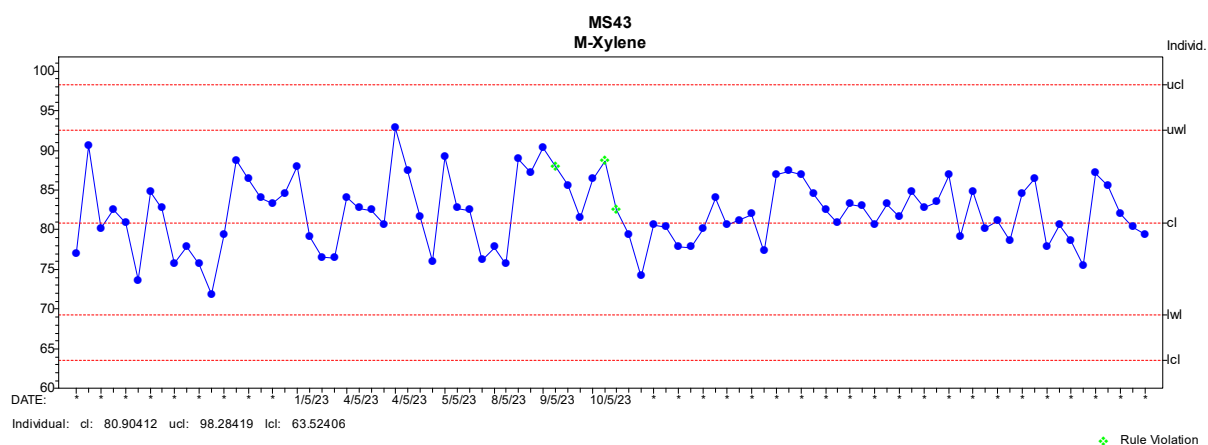
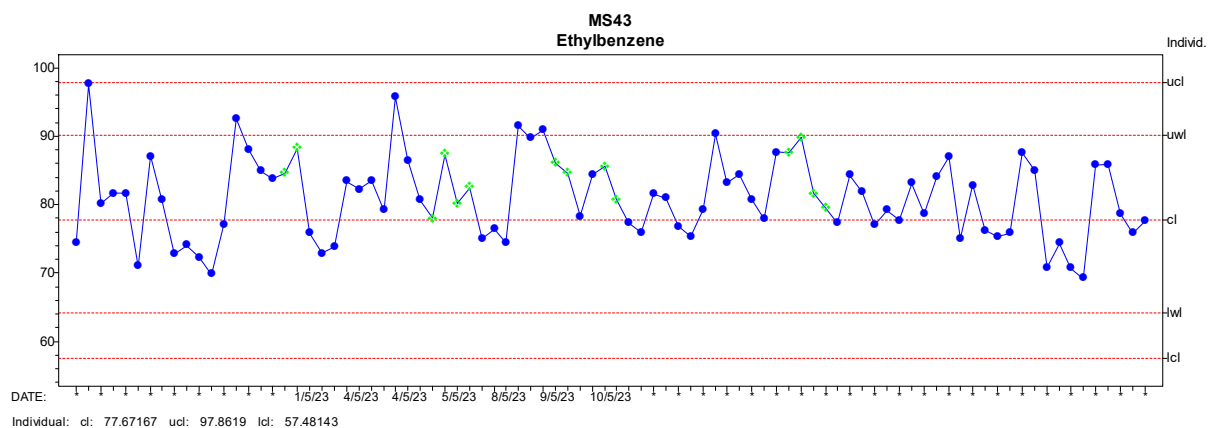


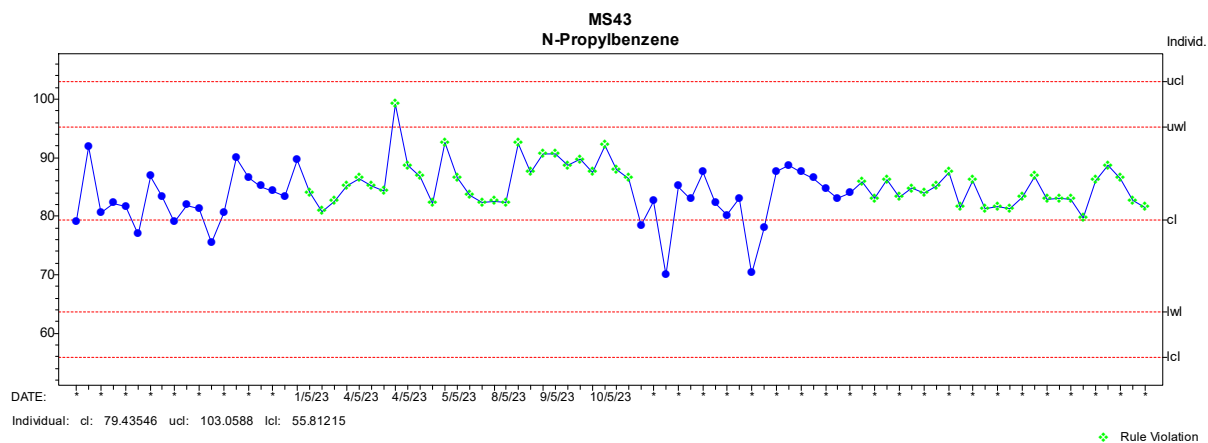
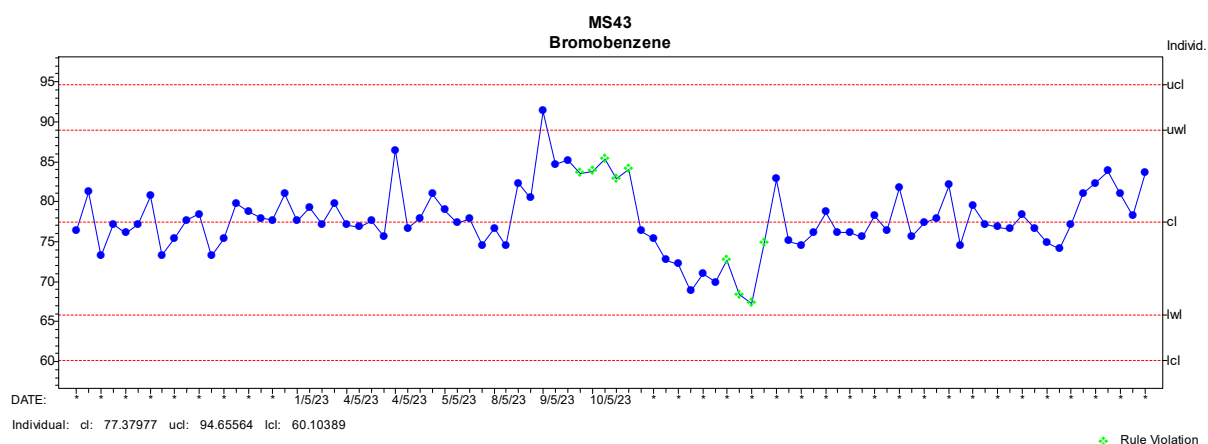
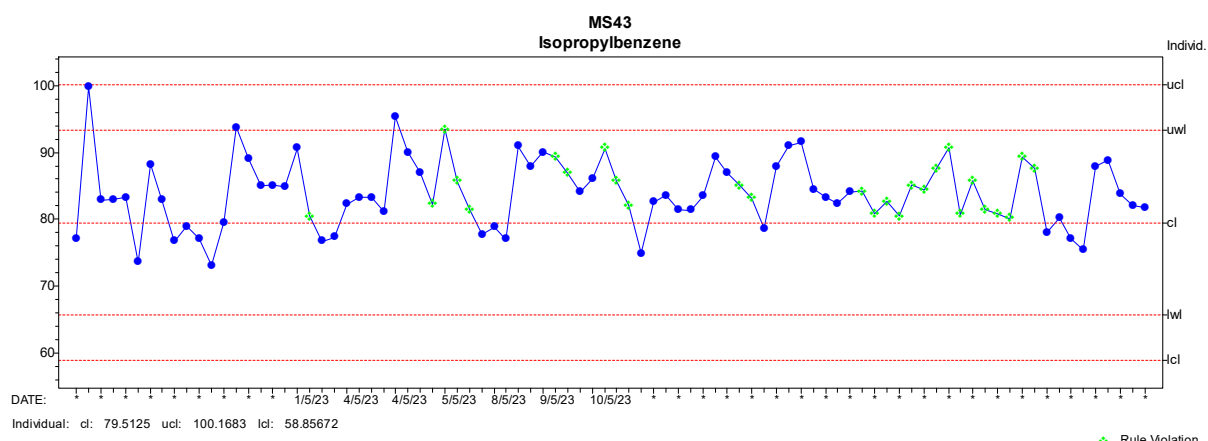
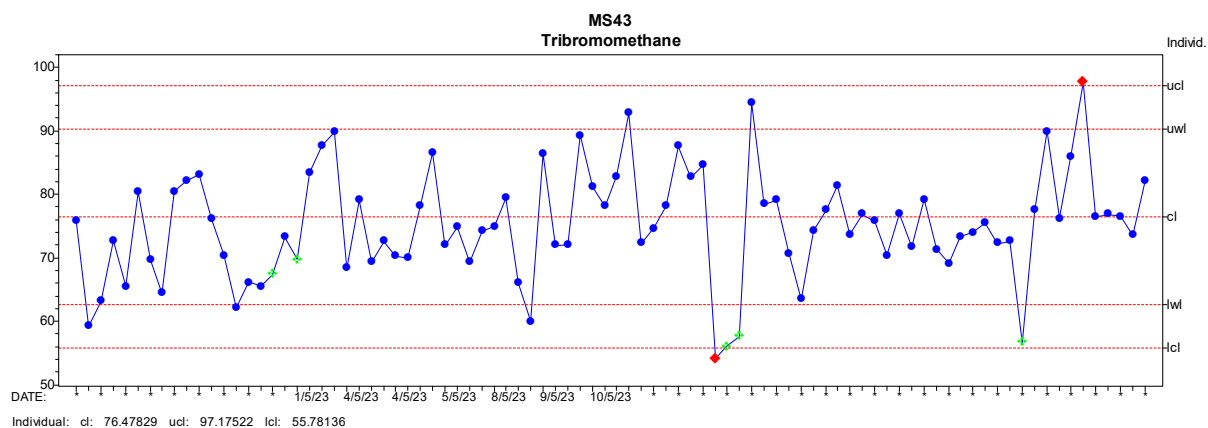


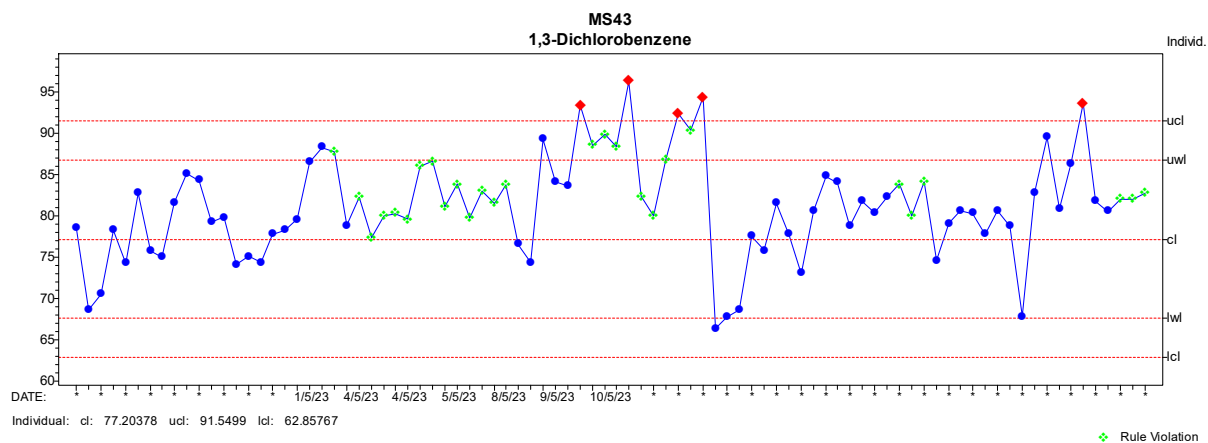
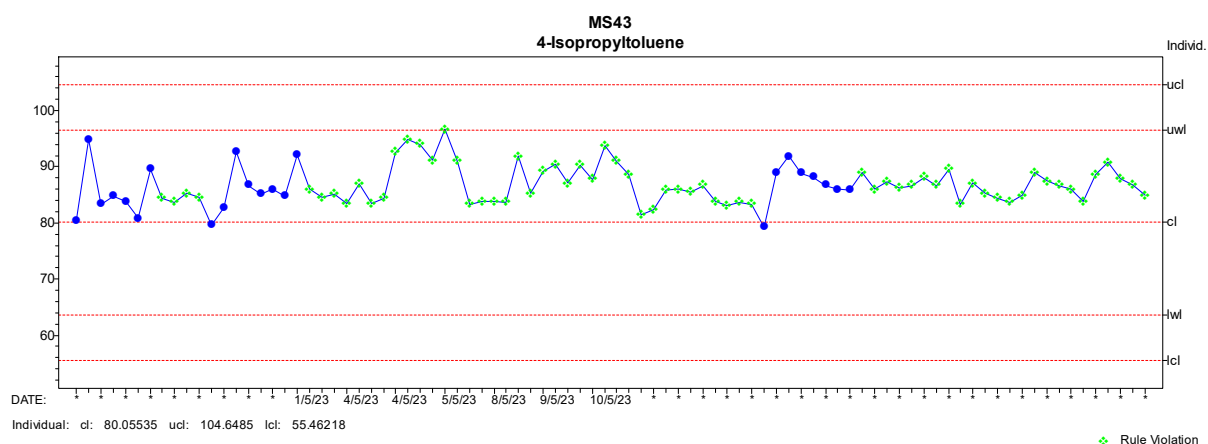
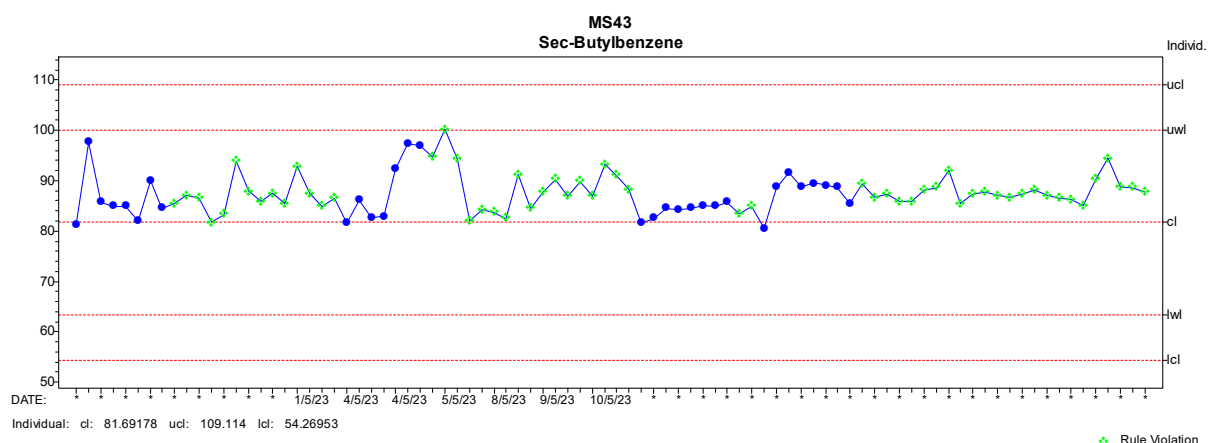
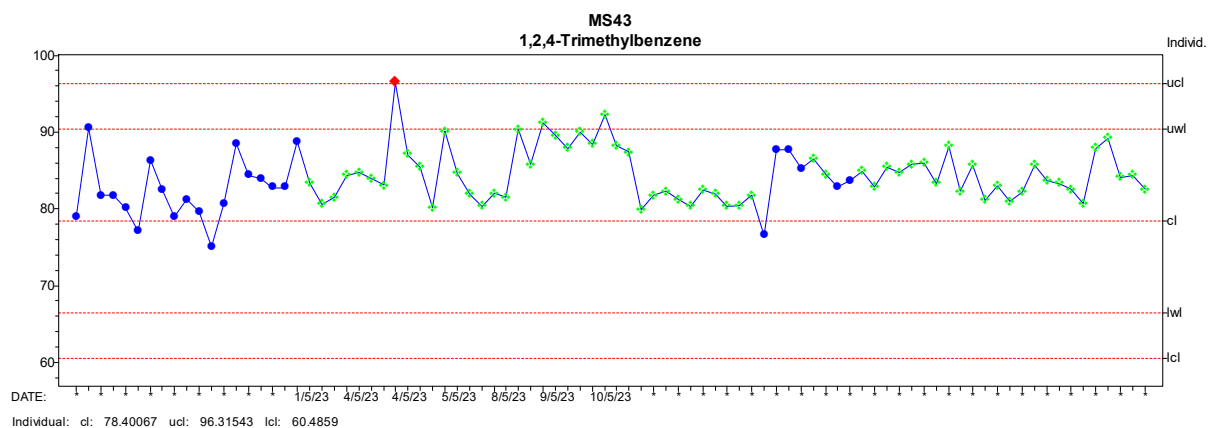


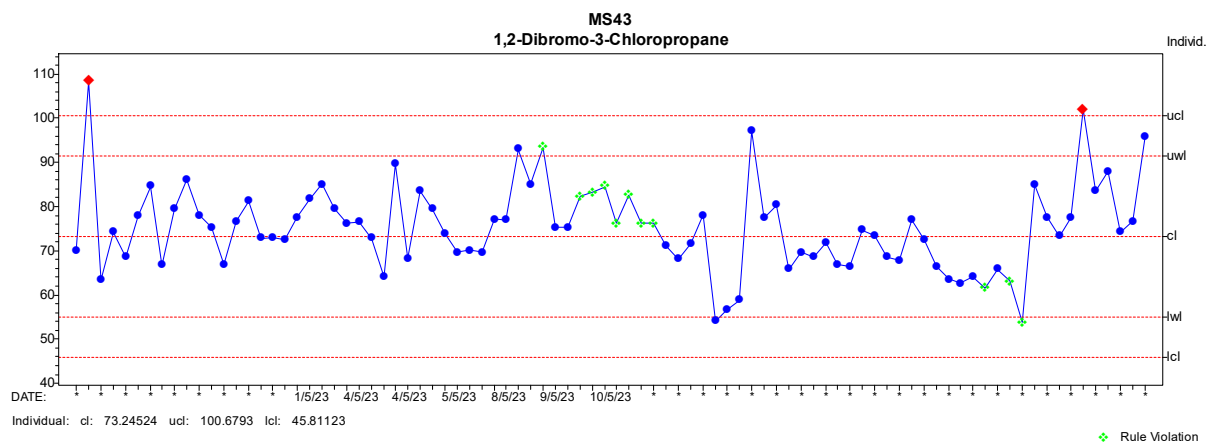
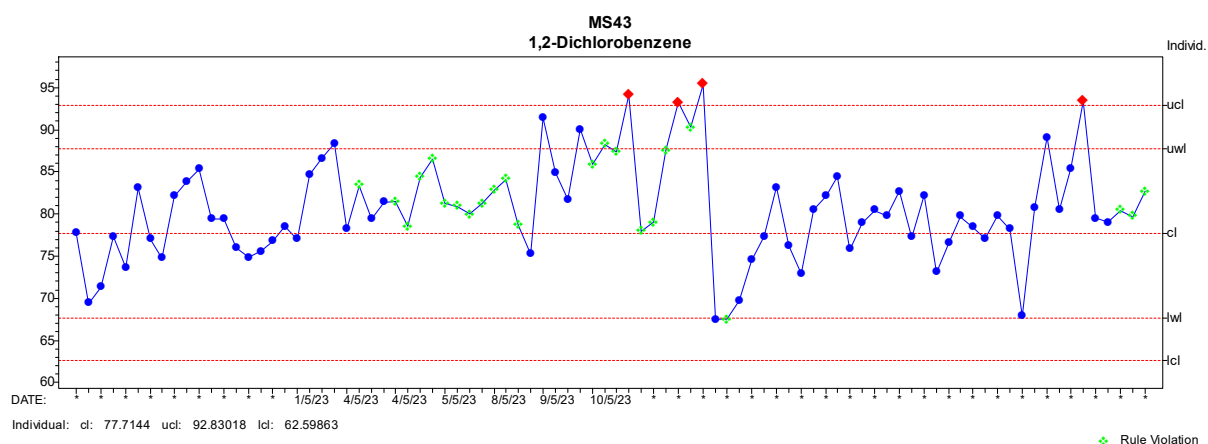
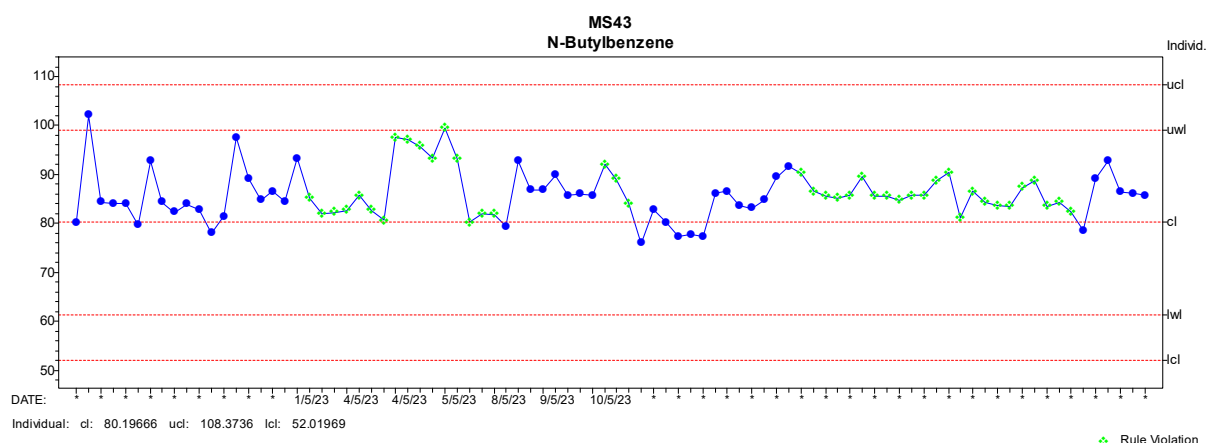
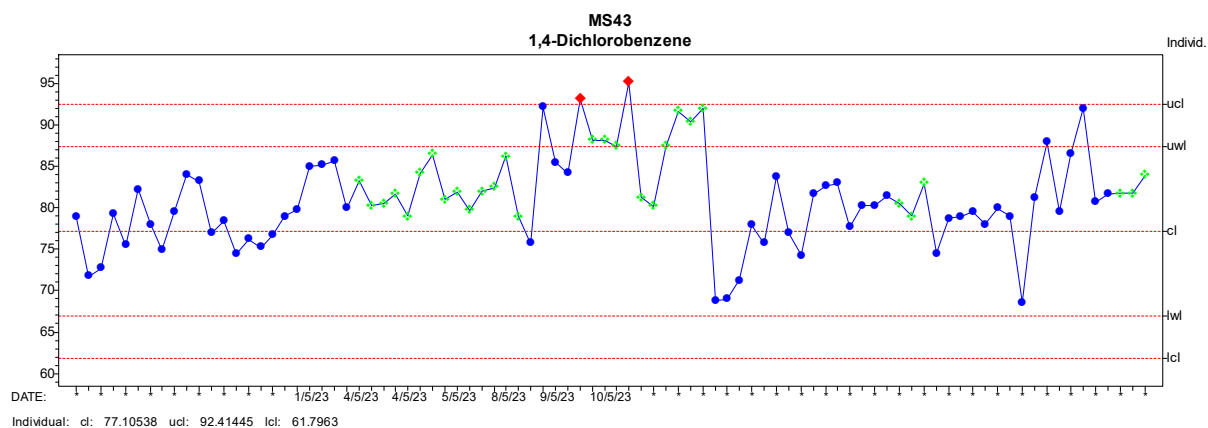


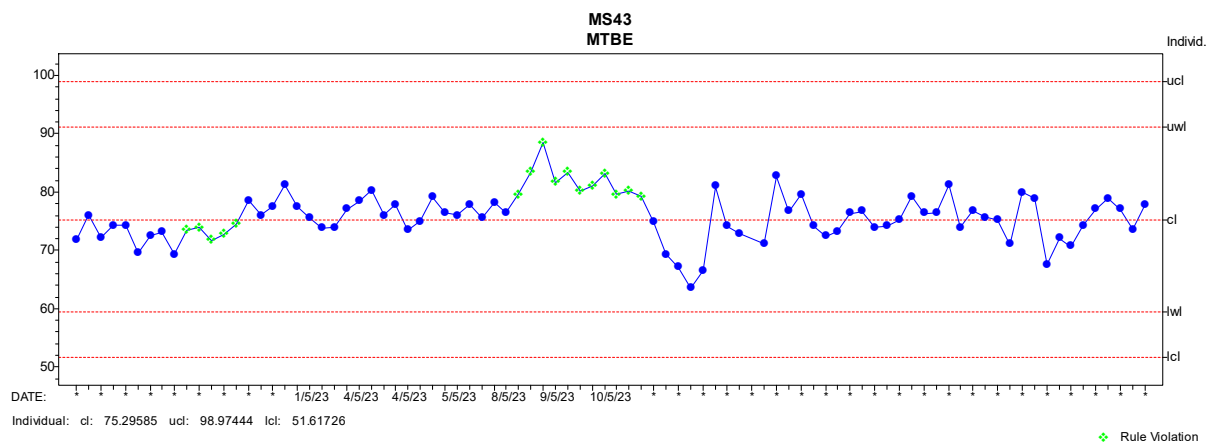
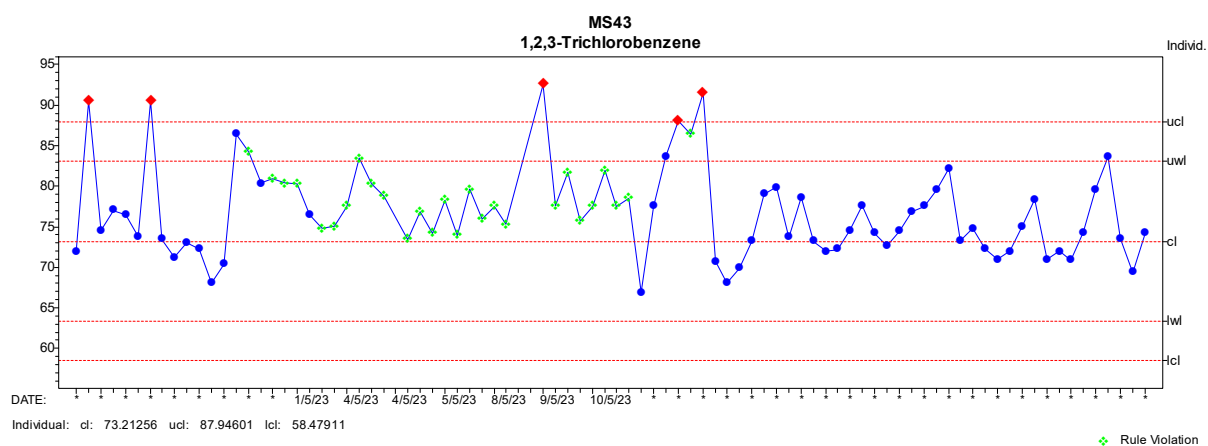
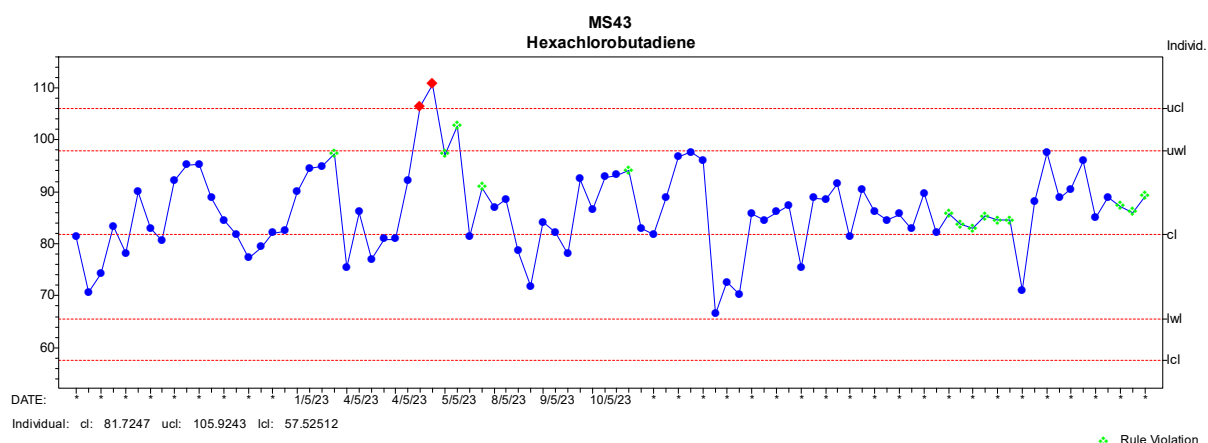
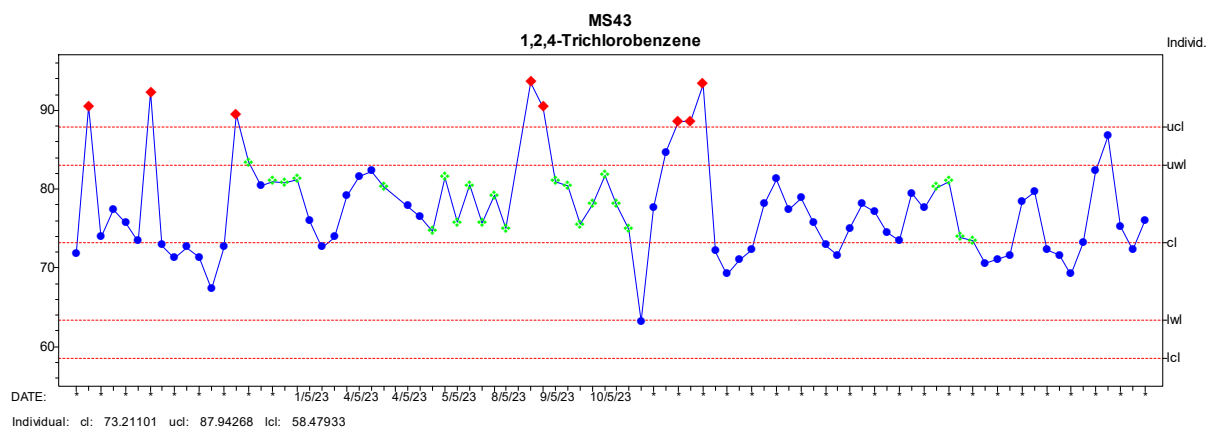


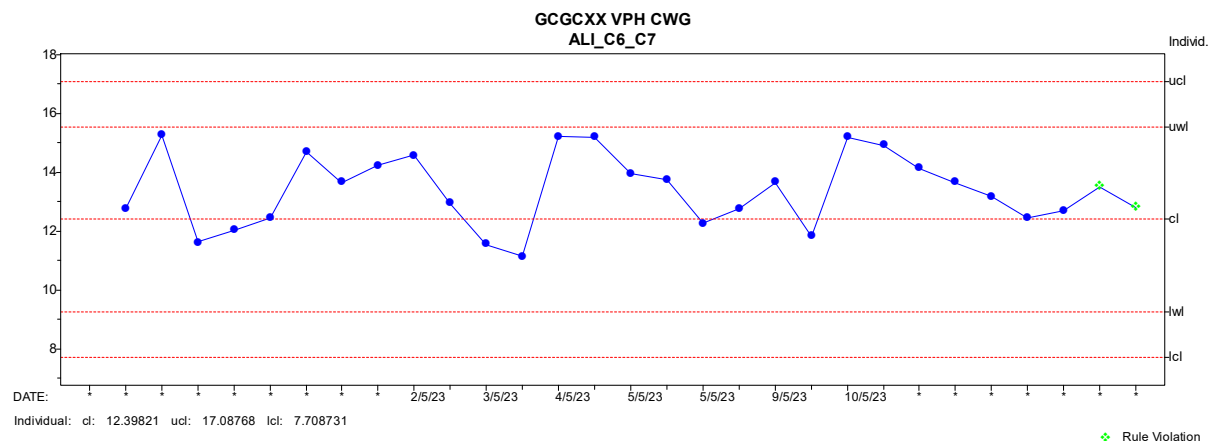
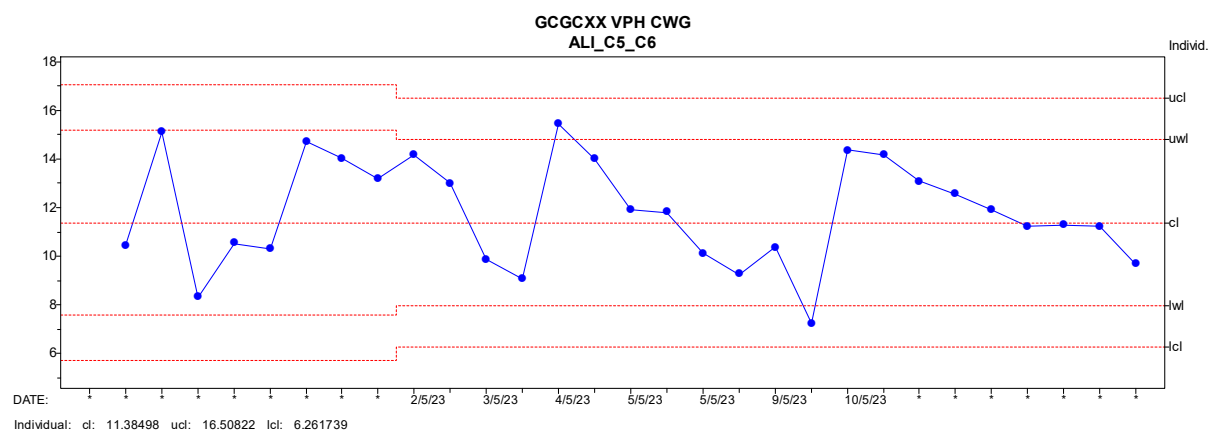
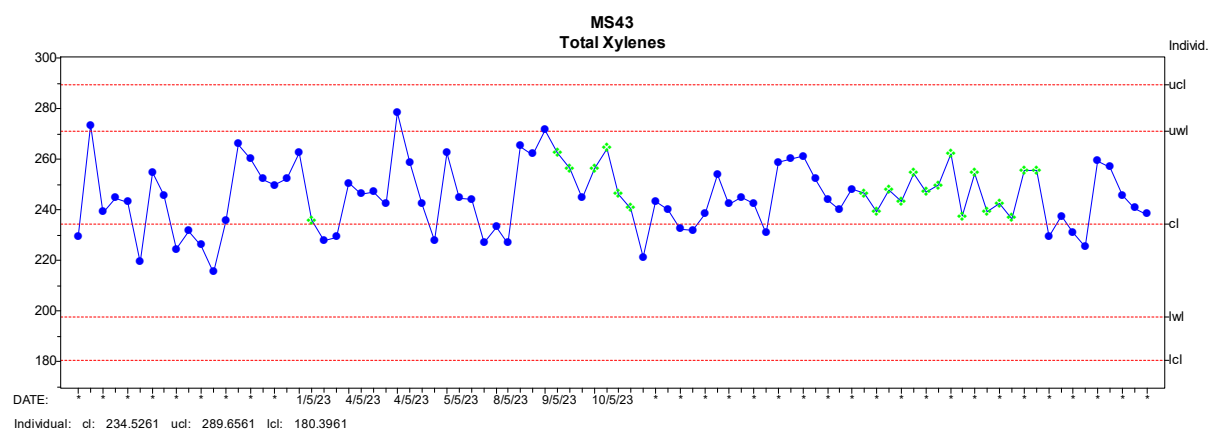
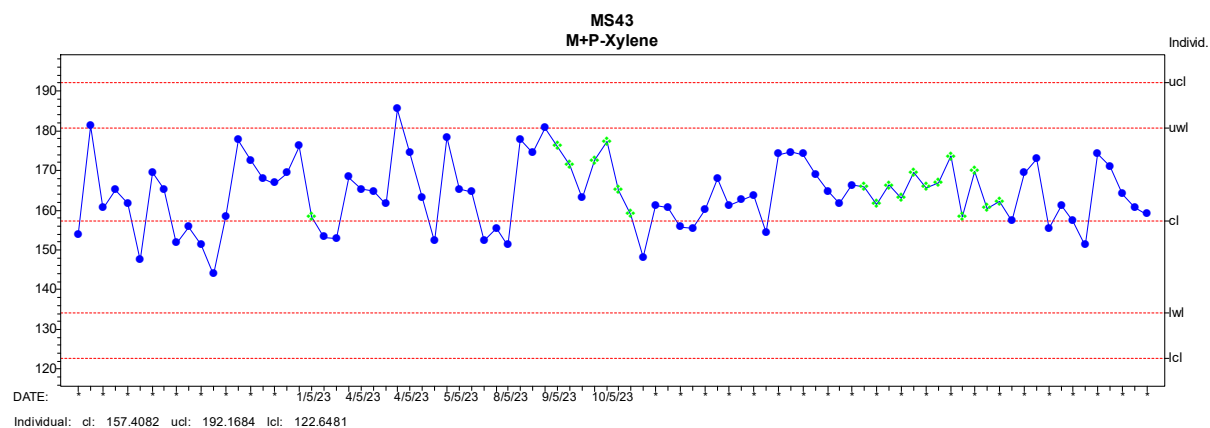


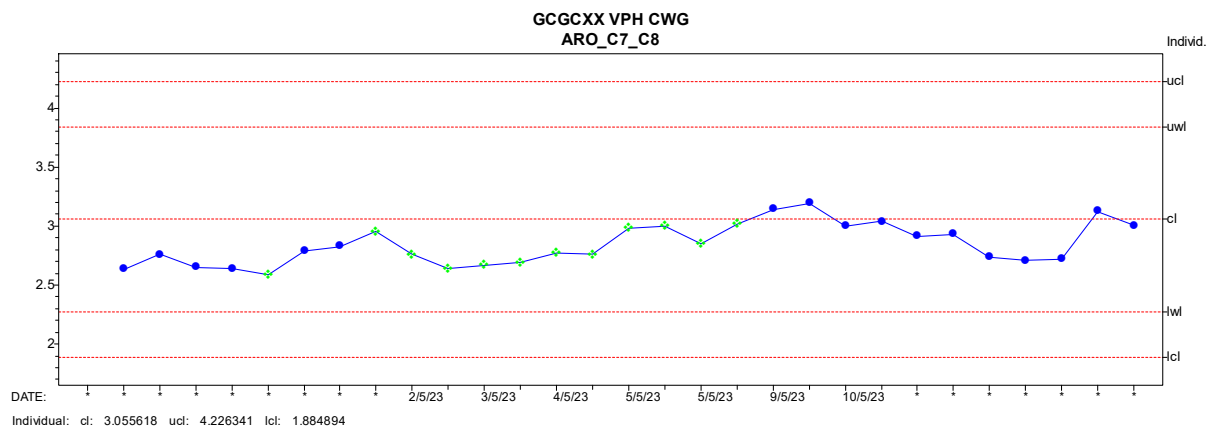
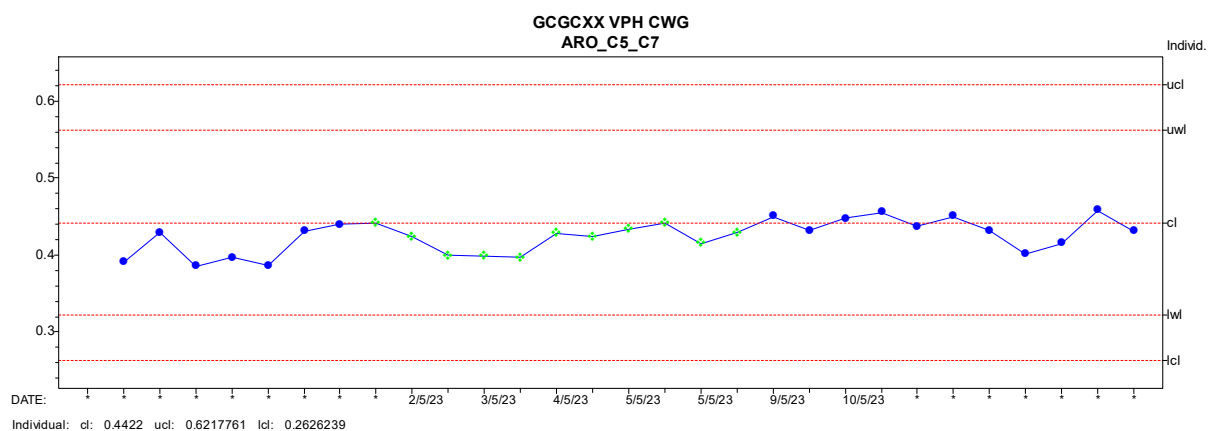
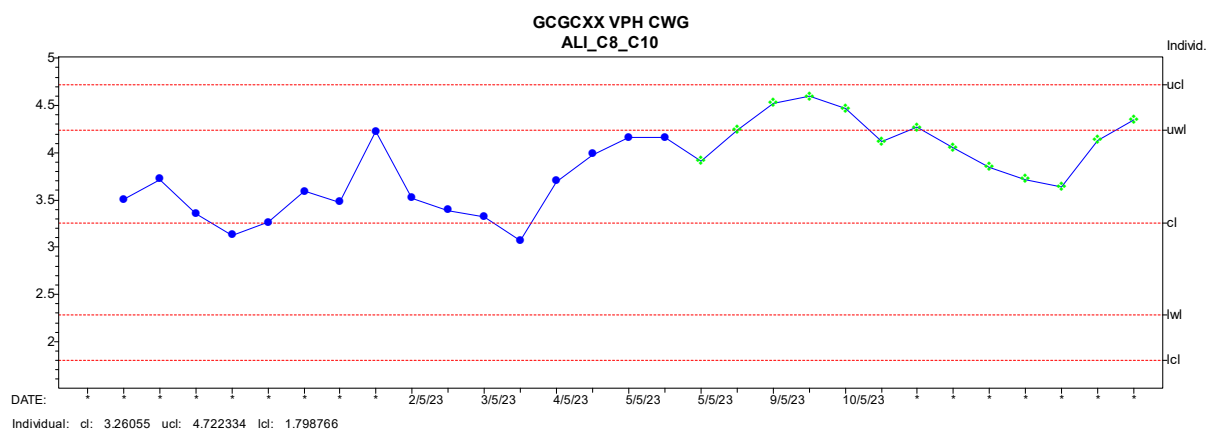
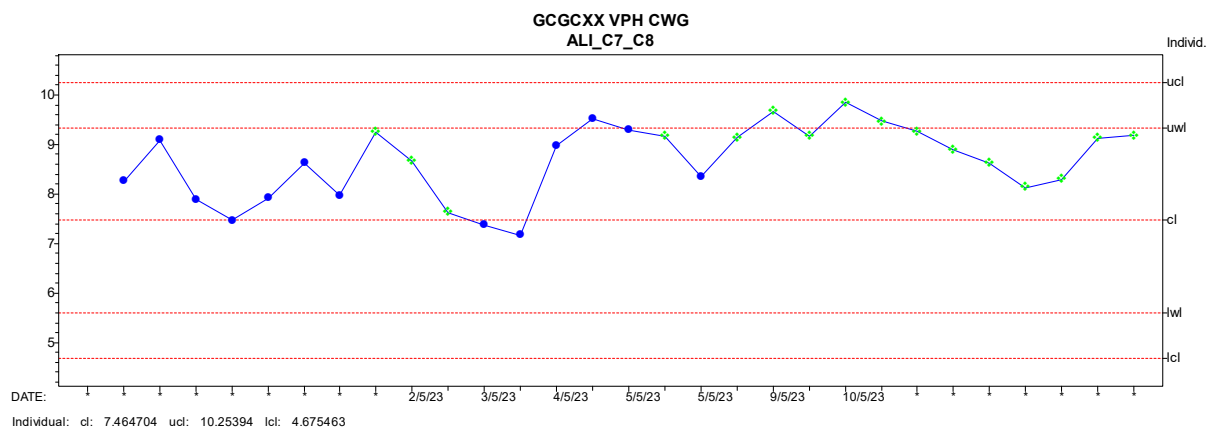




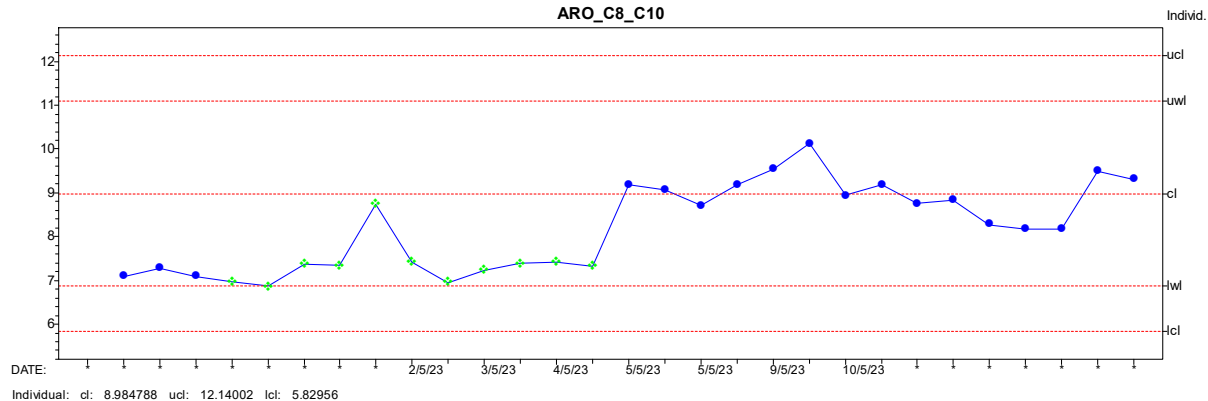




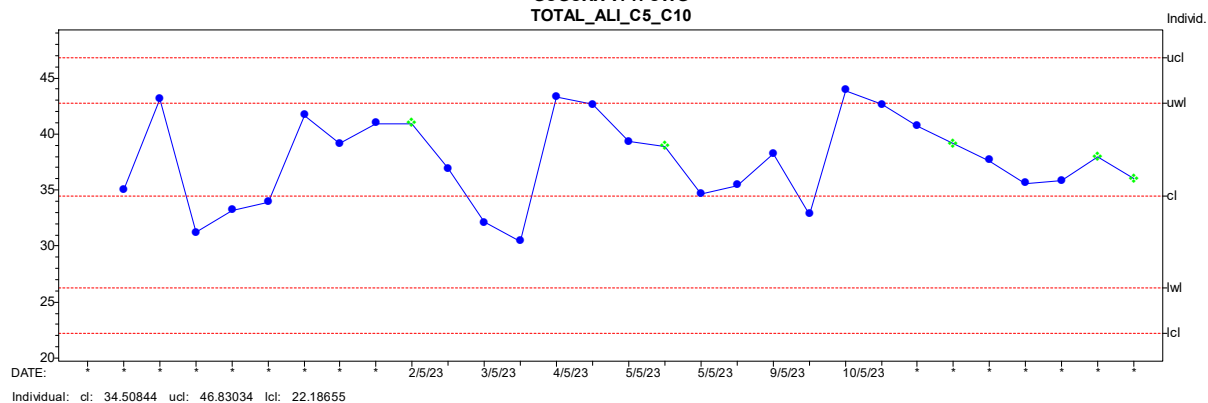




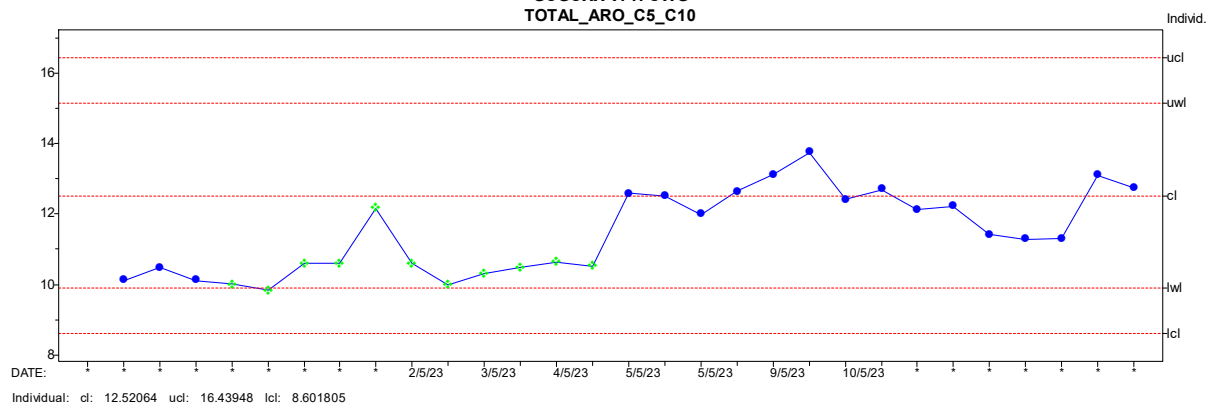
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ARO_C8_C10



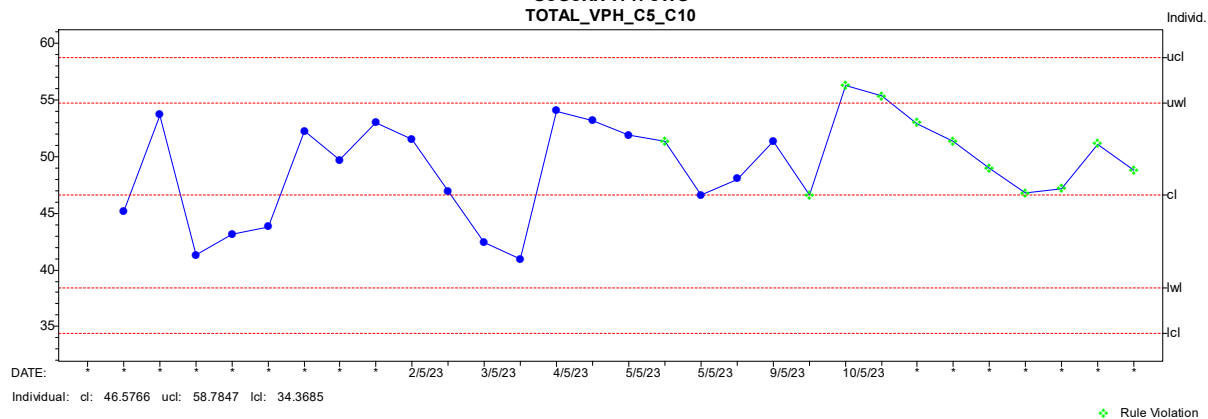
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TOTAL ALI C5 C10



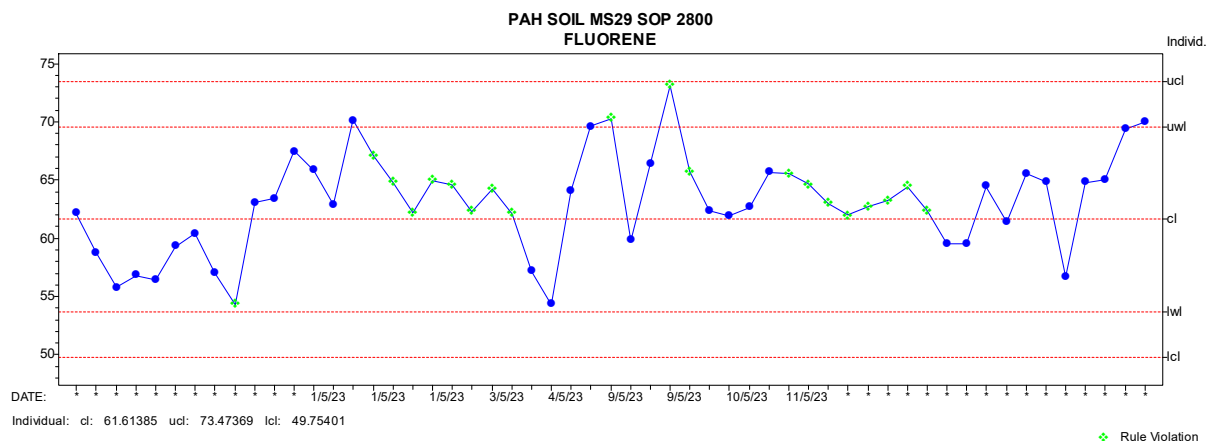
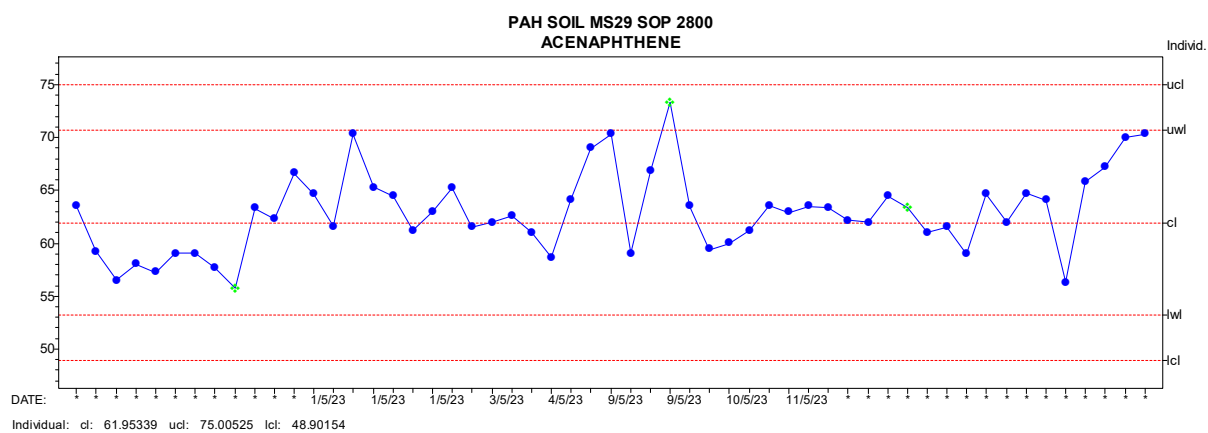
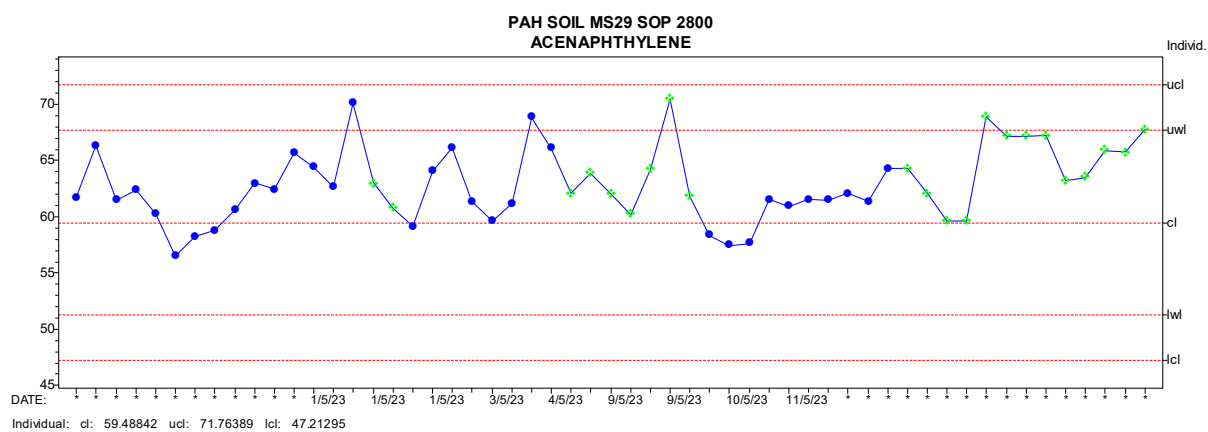
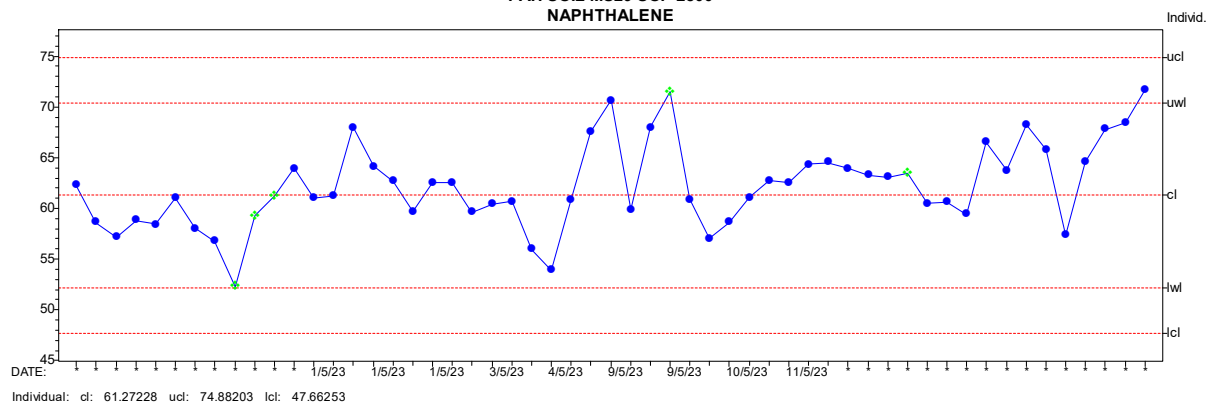
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TOTAL ARO C5 C10

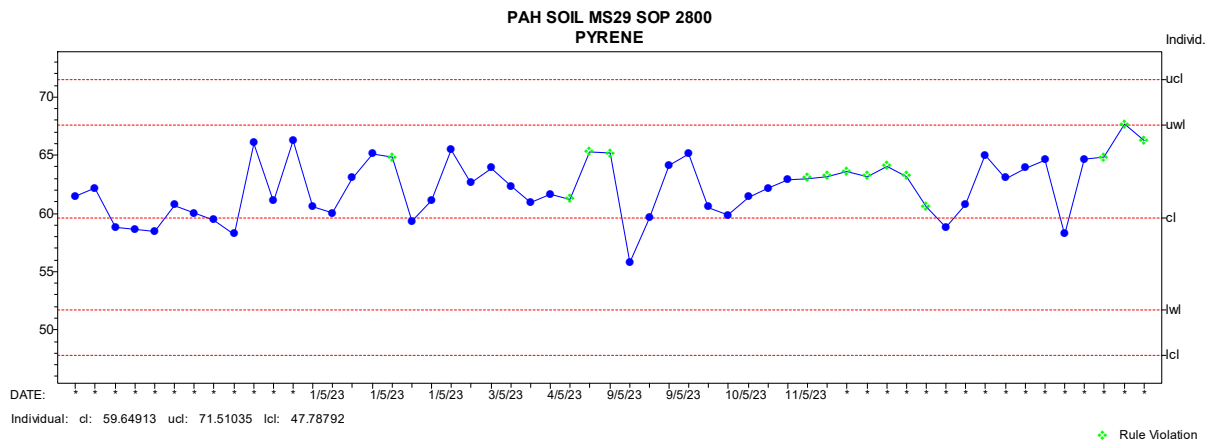
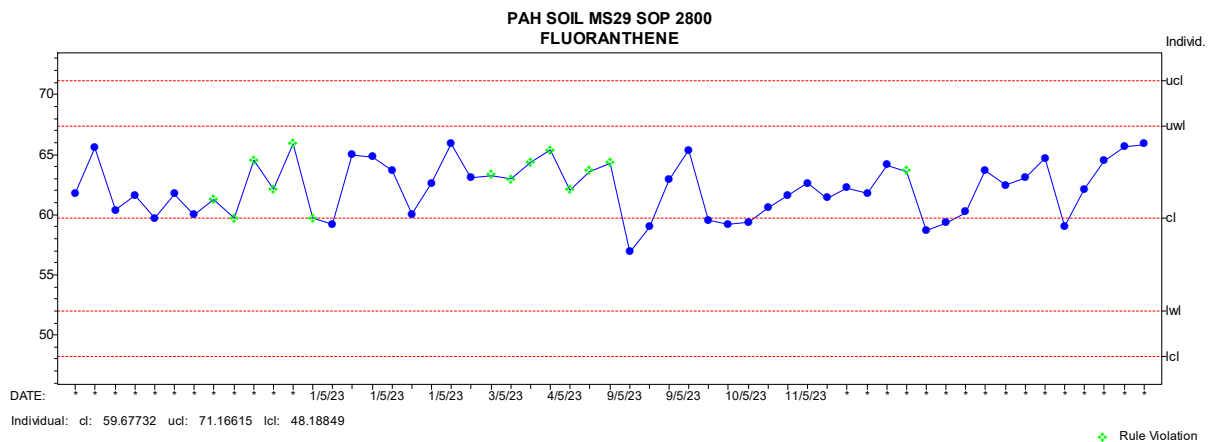
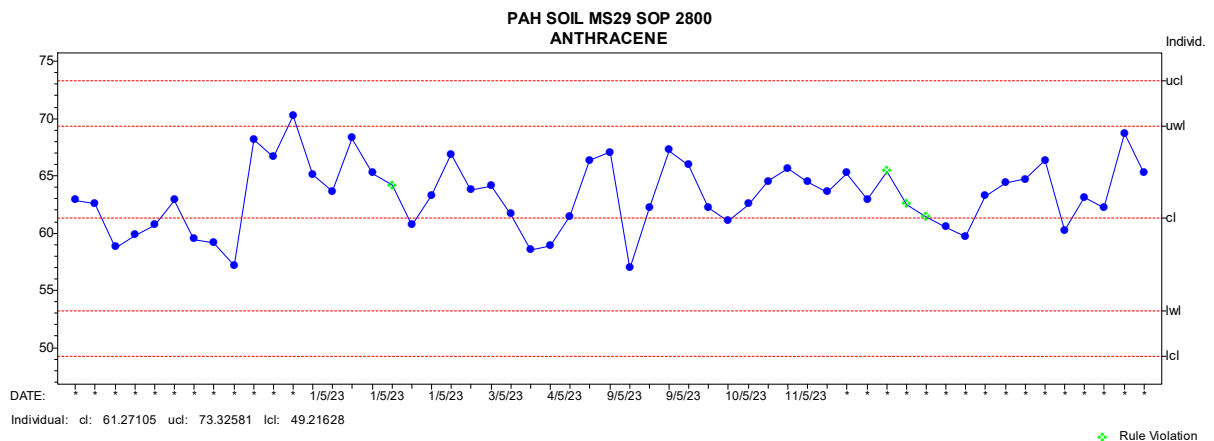
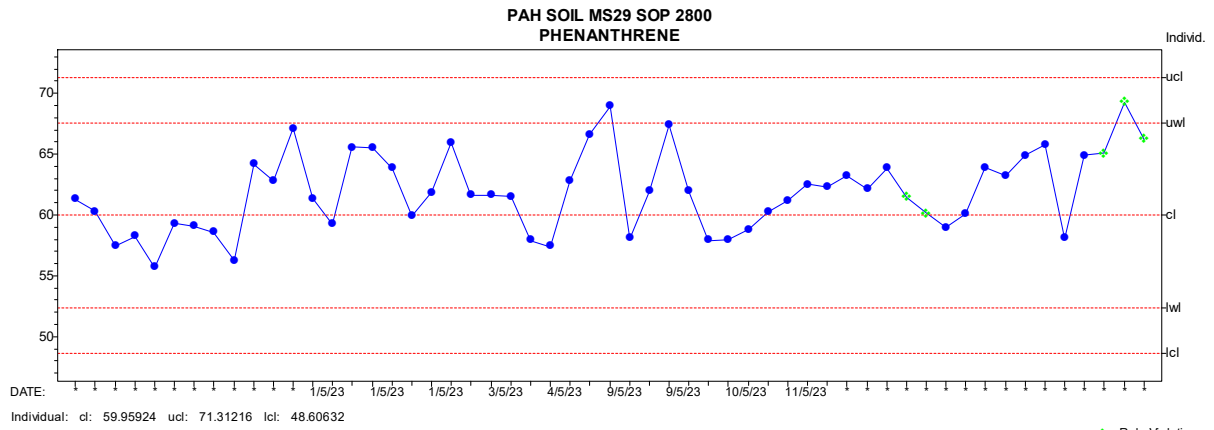


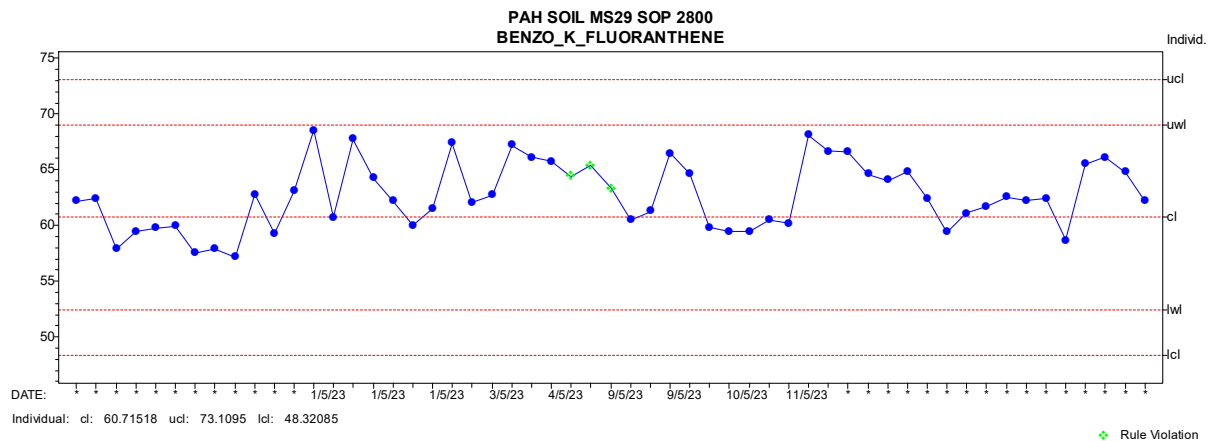
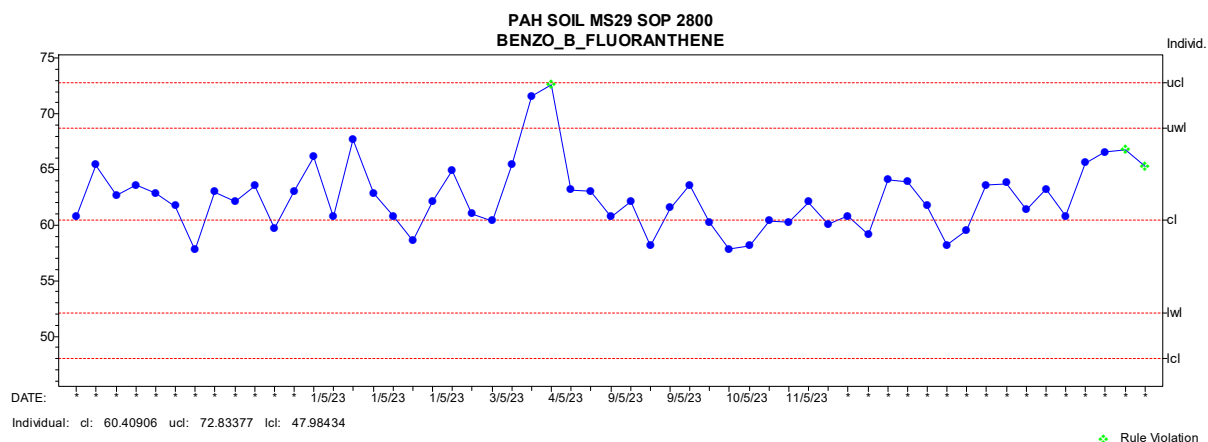
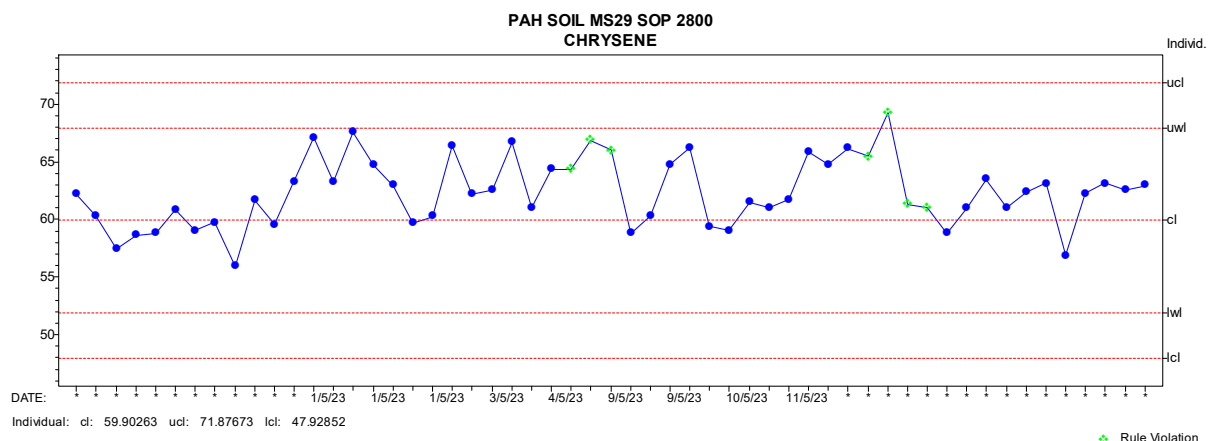
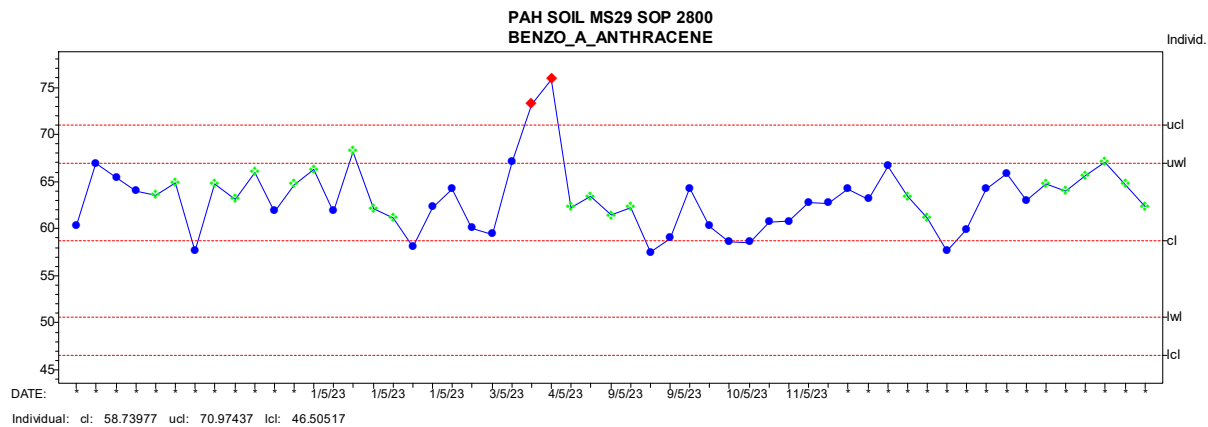
GCGCXX VPH CWG
TOTAL_VPH_C5_C10



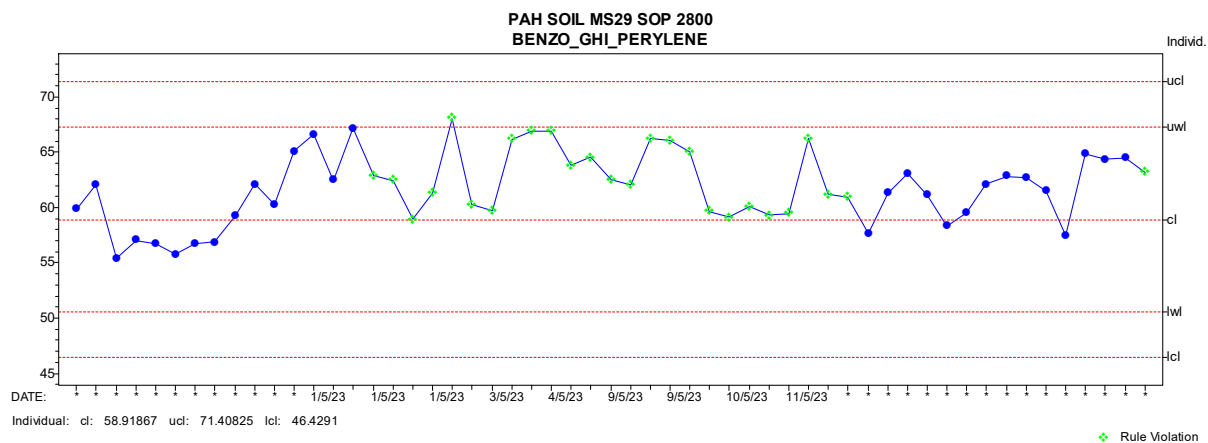
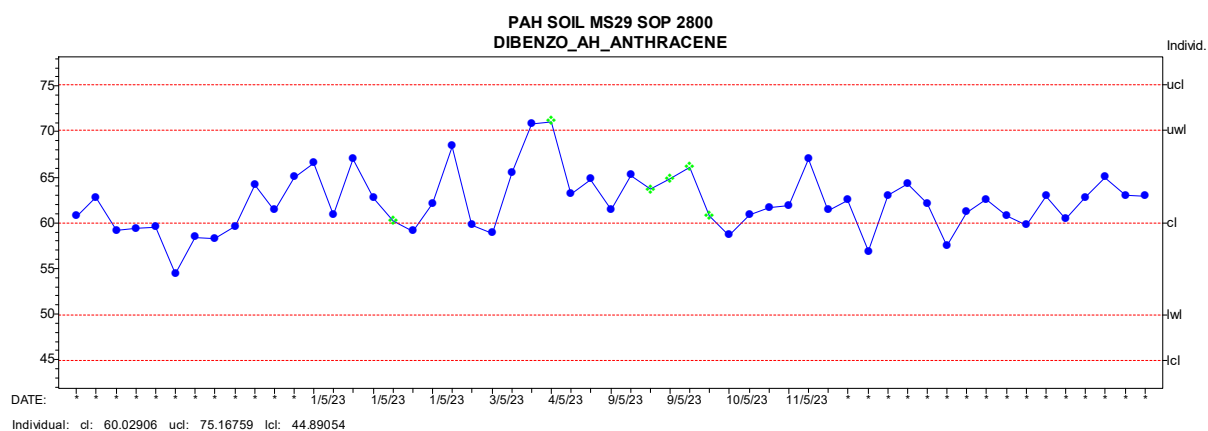
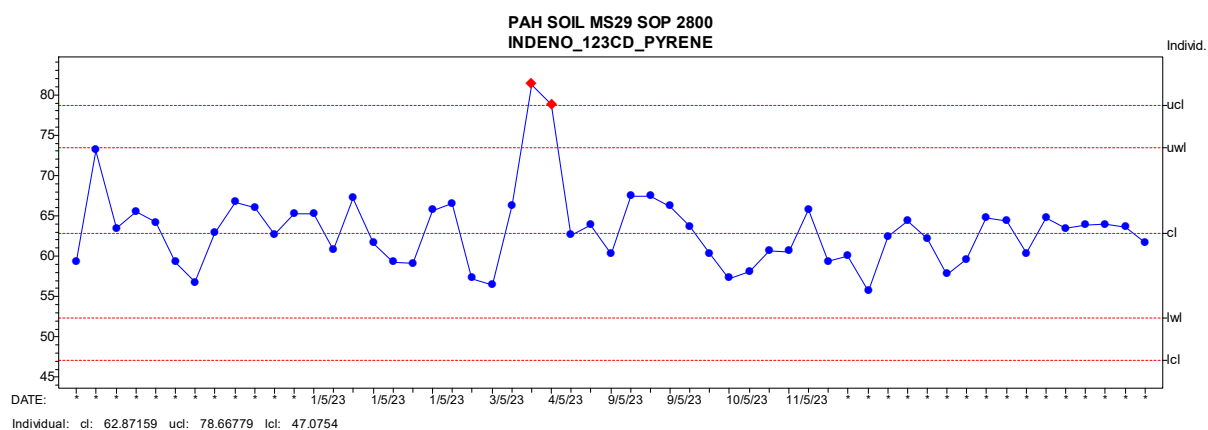
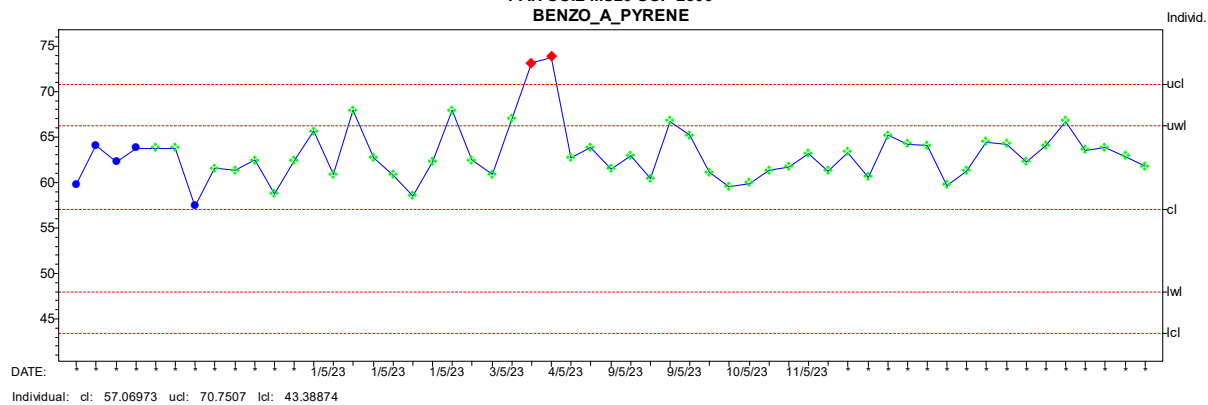
PAH SOIL MS29 SOP 2800
NAPHTHALENE

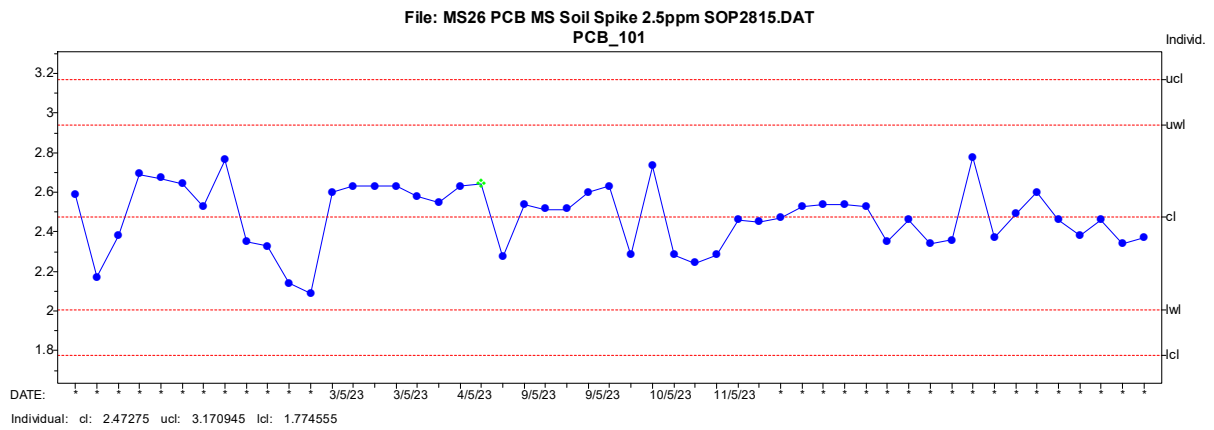
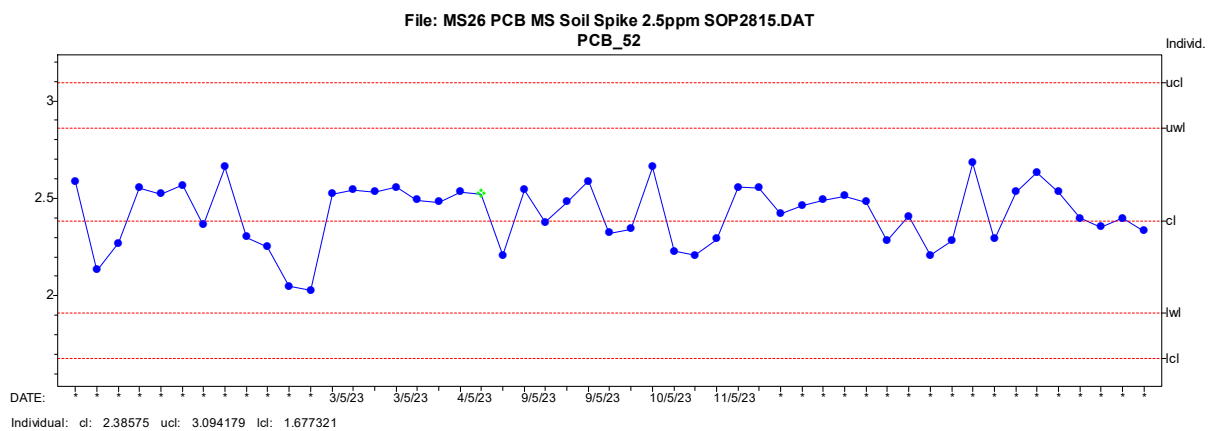
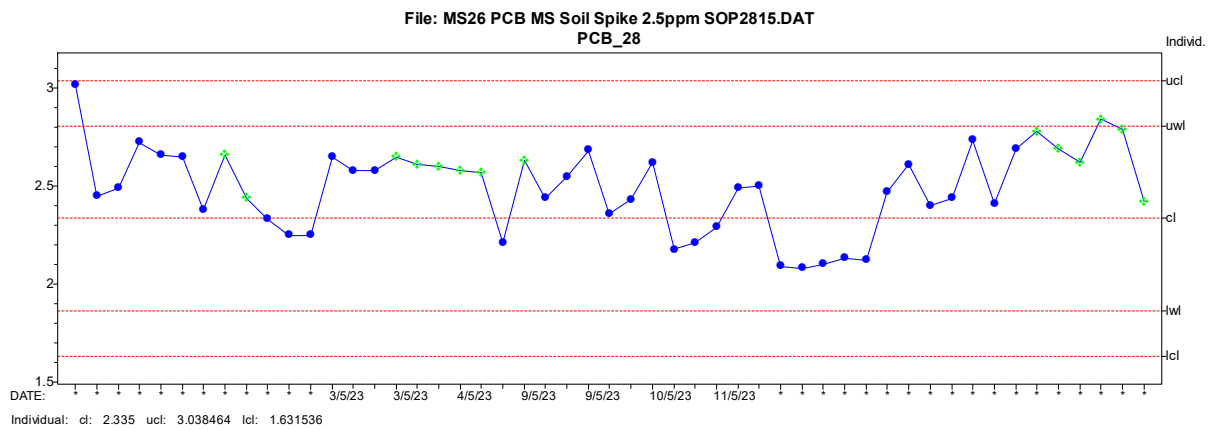
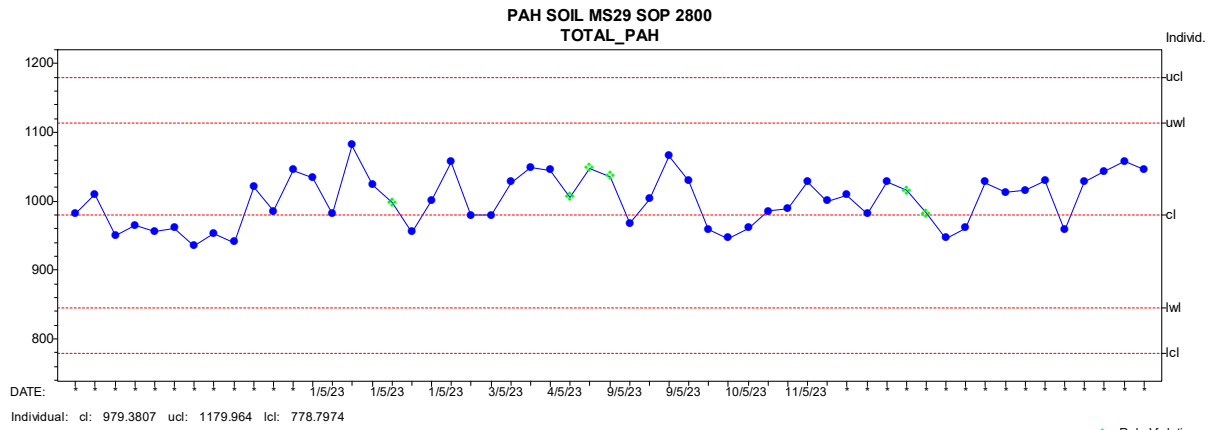




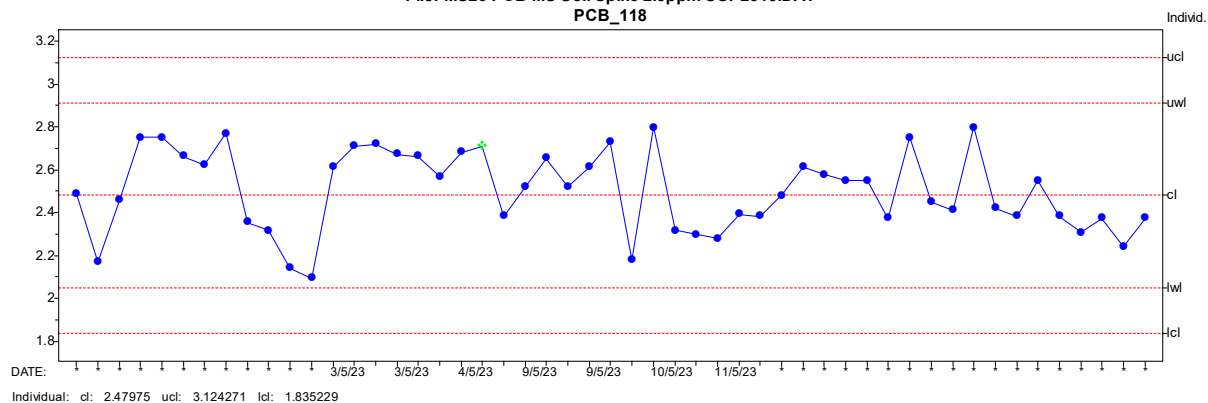


PAH SOIL MS29 SOP 2800
BENZO A PYRENE

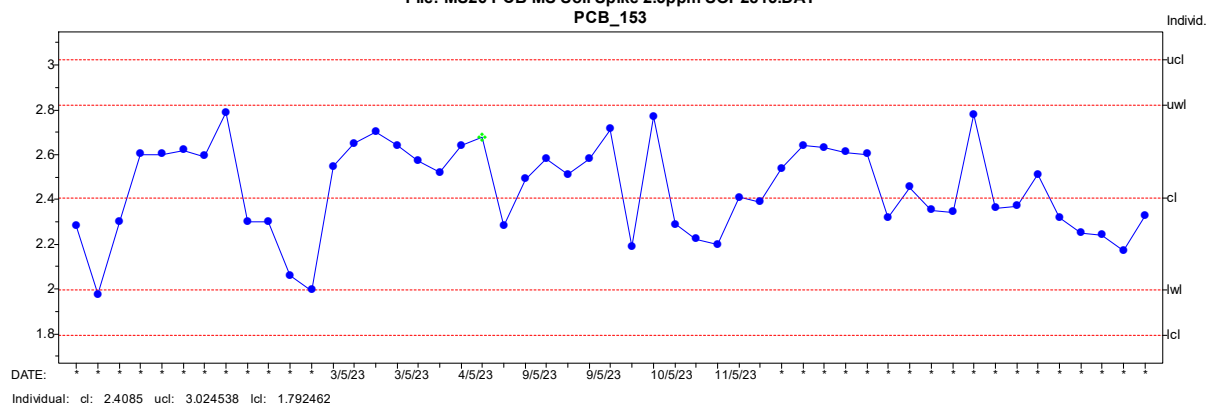




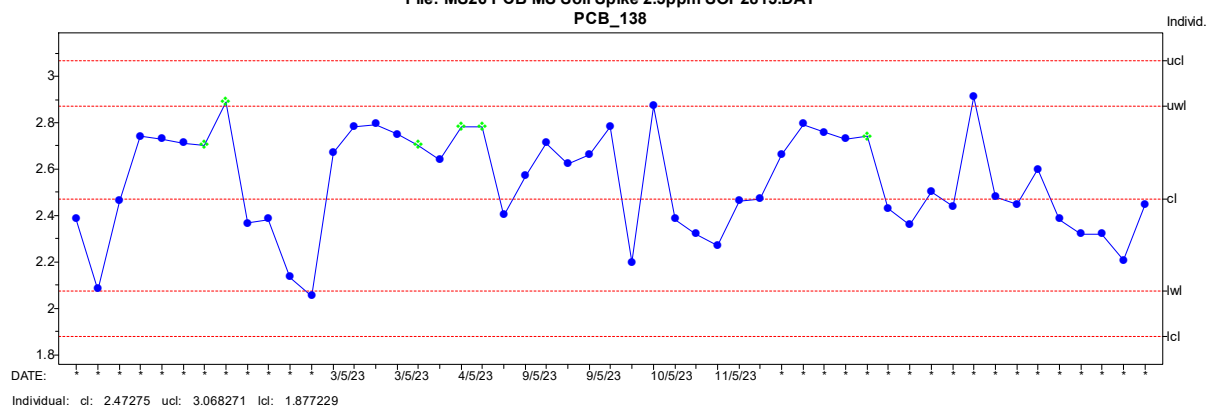
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PCB_118



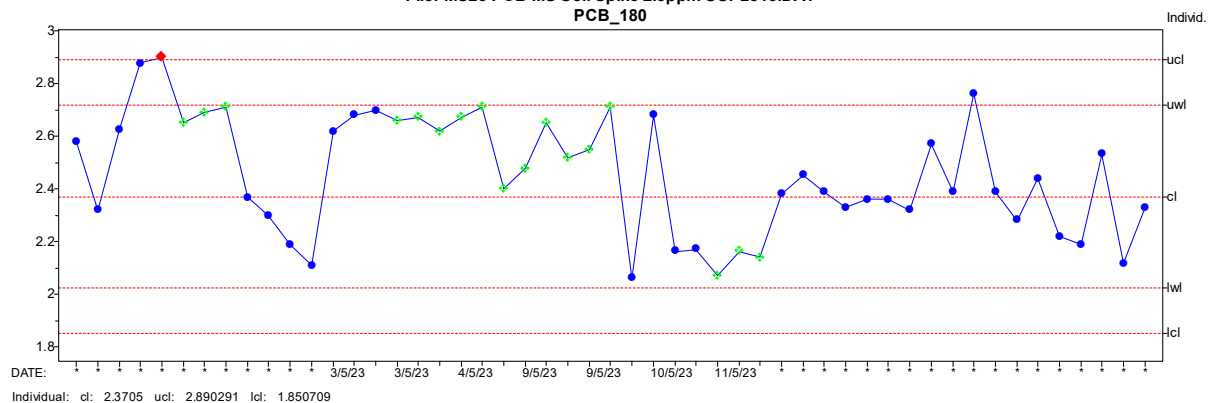
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PCB_153

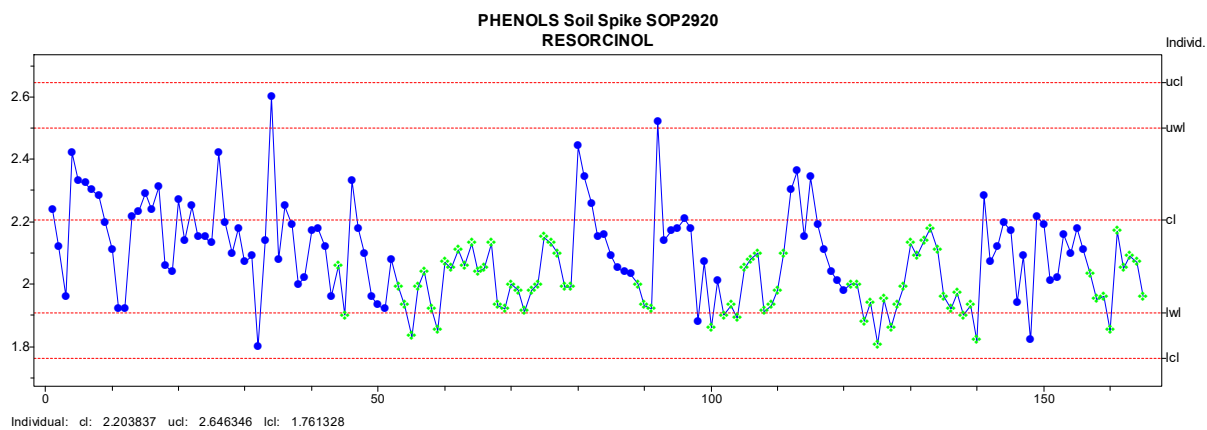


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PCB_138

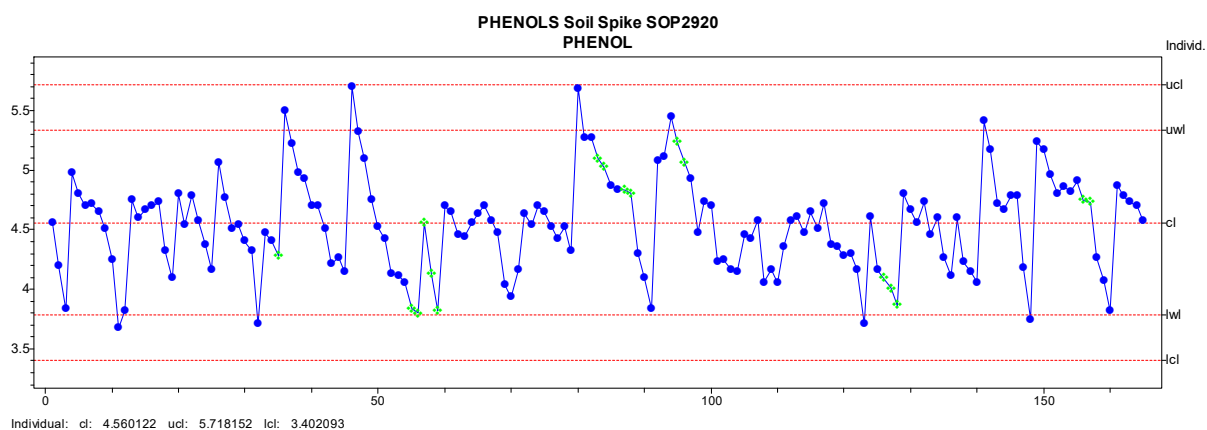


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PCB_180

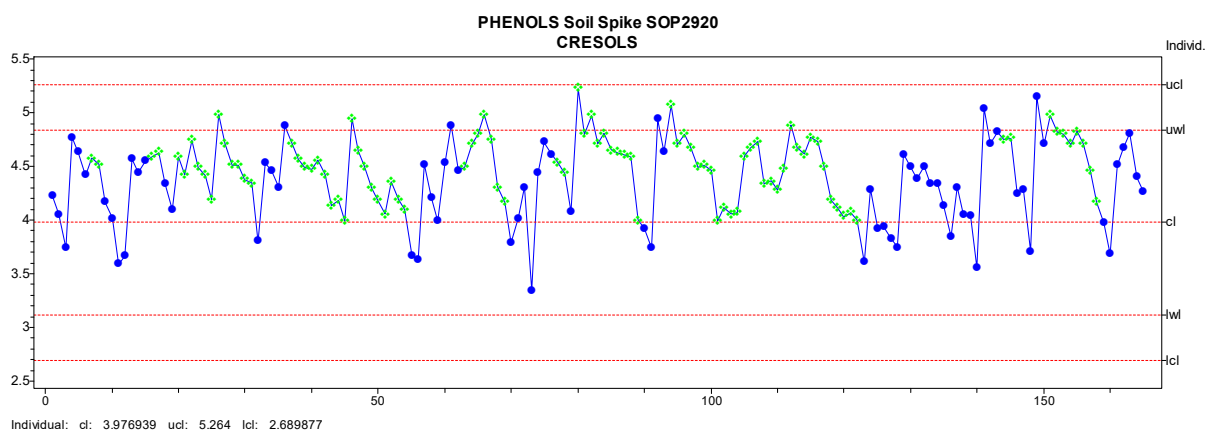




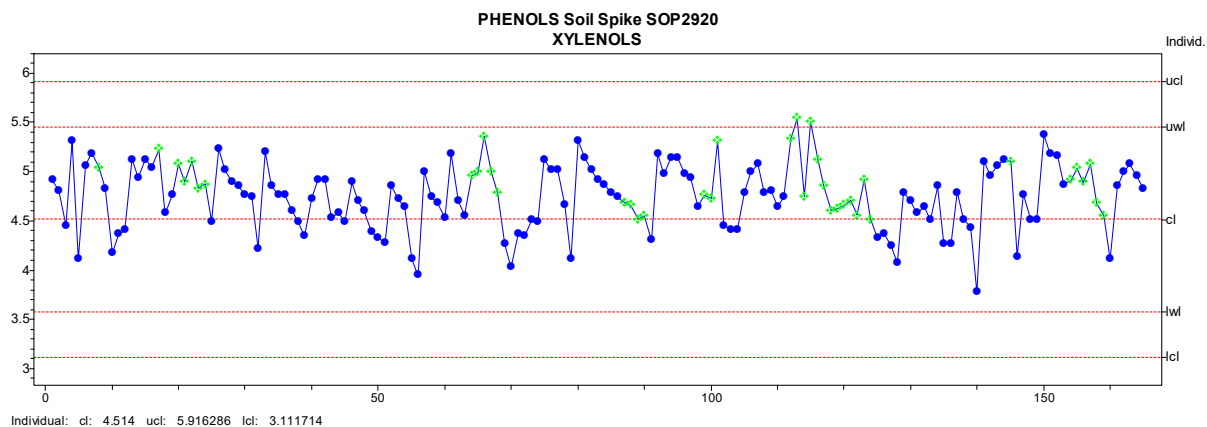
◇ Rule Violation



◇ Rule Violation

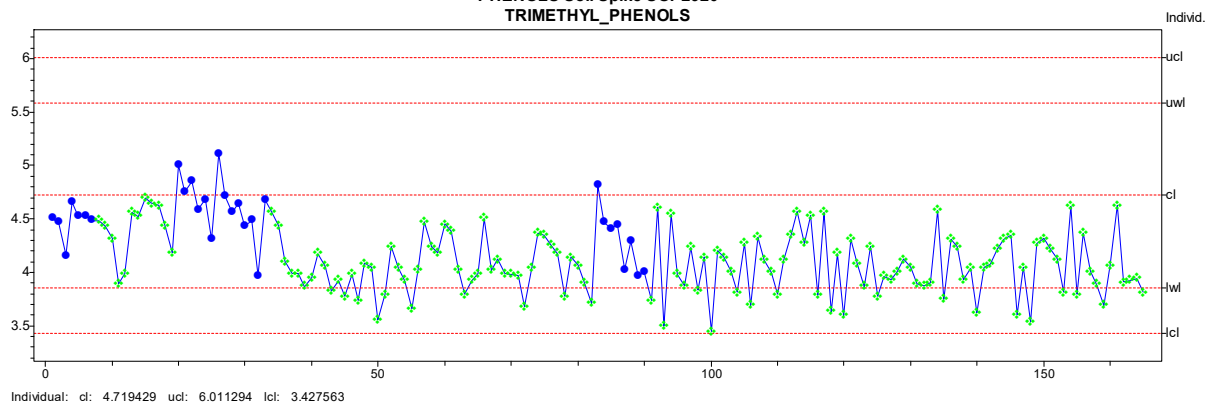


◇ Rule Violation

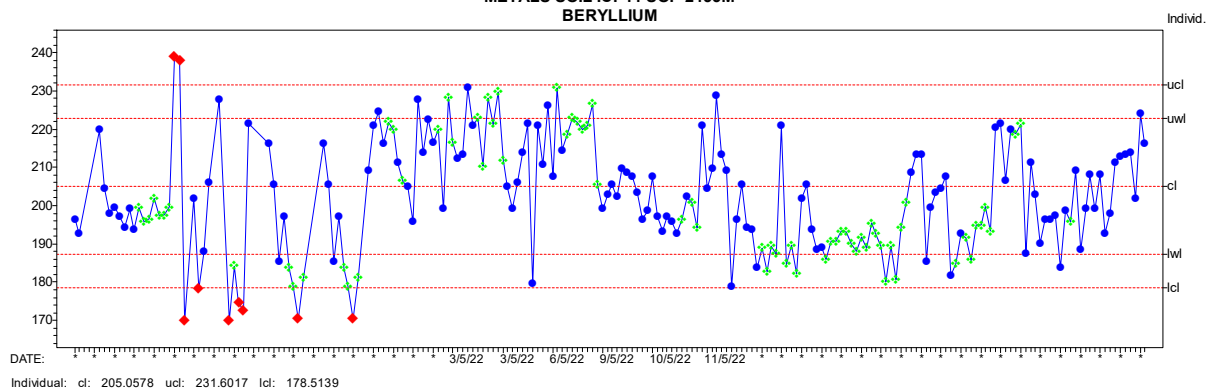


◇ Rule Violation

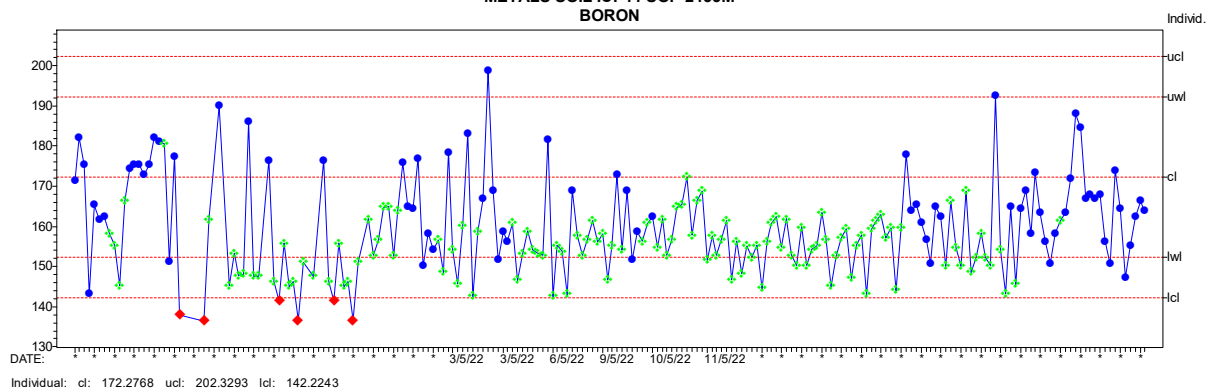
PHENOLS Soil Spike SOP2920
TRIMETHYL_PHENOLS



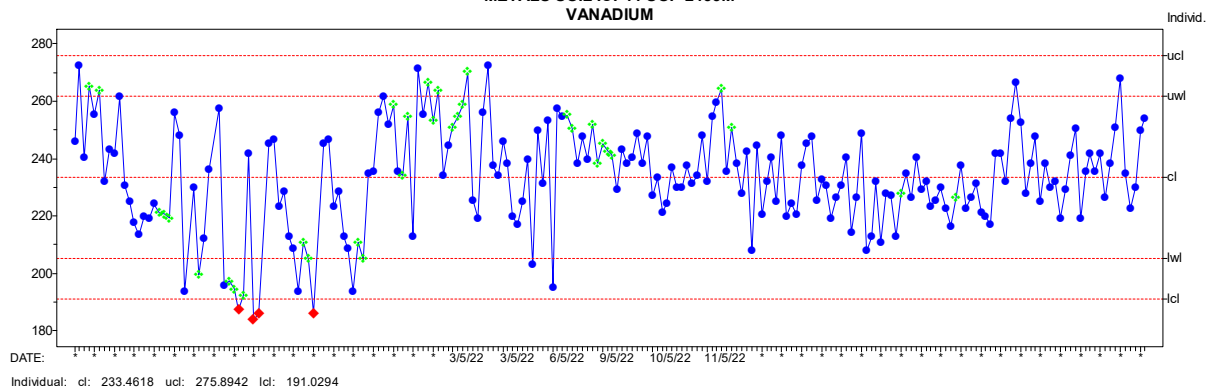
METALS SOIL ICP11 SOP 2455M
BERYLLIUM

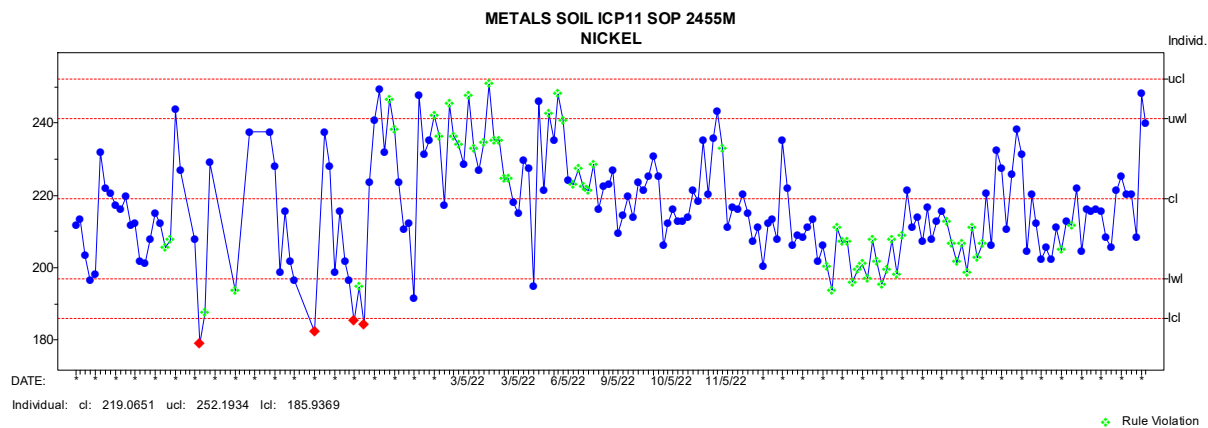
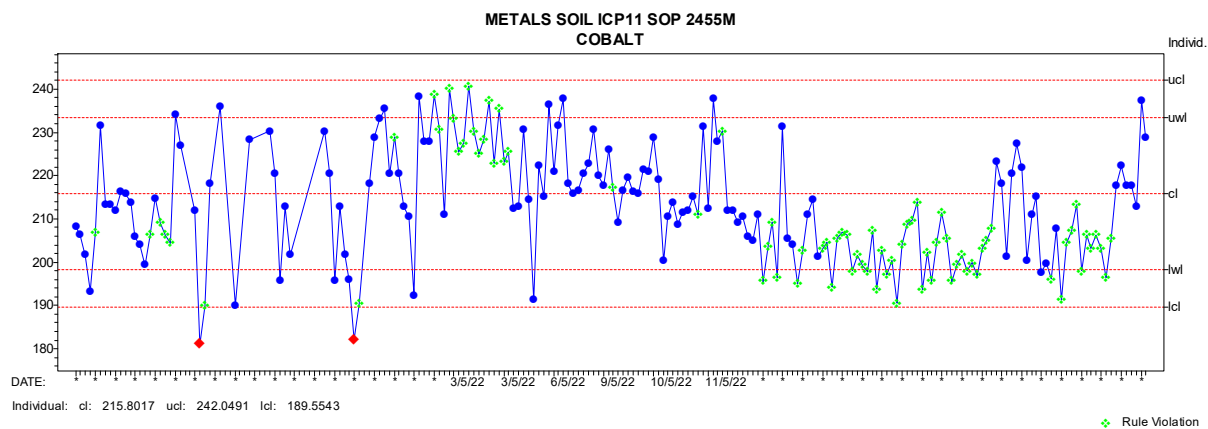
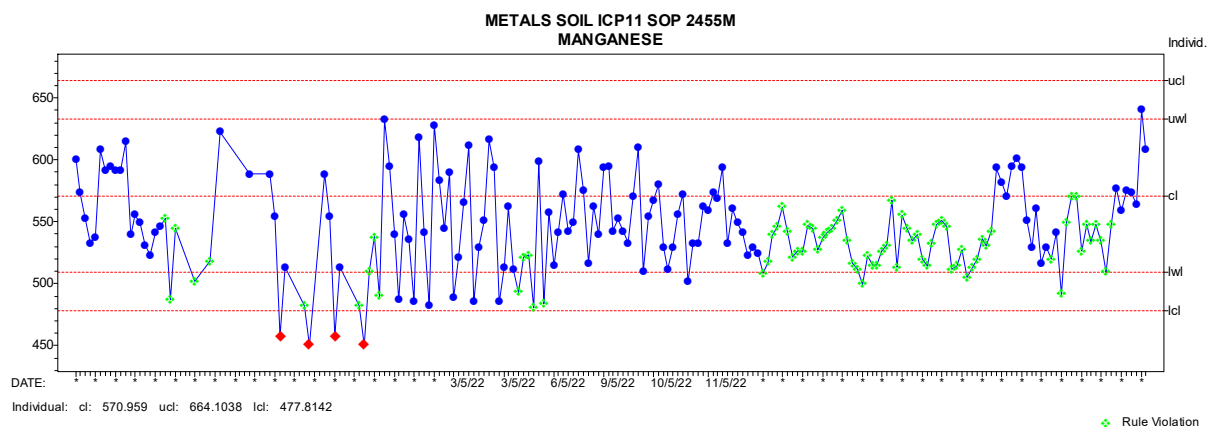
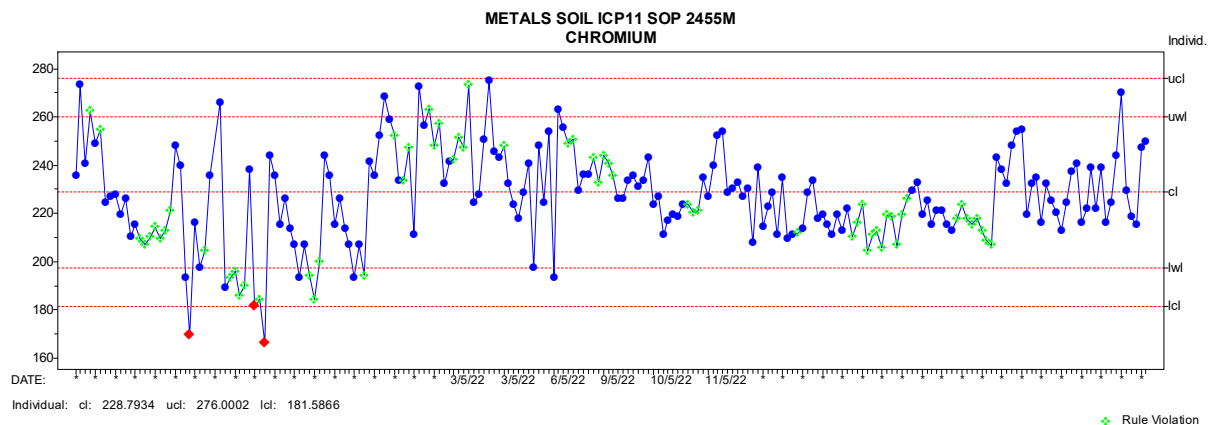


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BORON

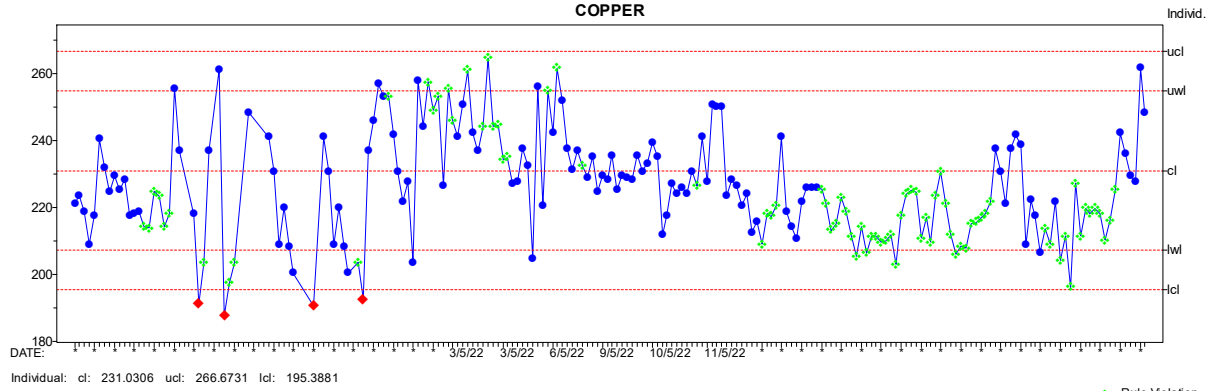


METALS SOIL ICP11 SOP 2455M
VANADIUM

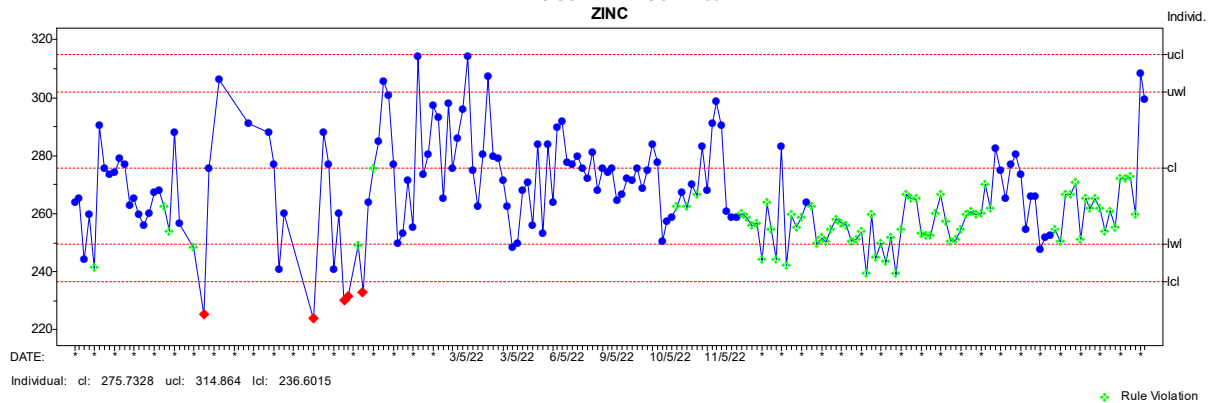




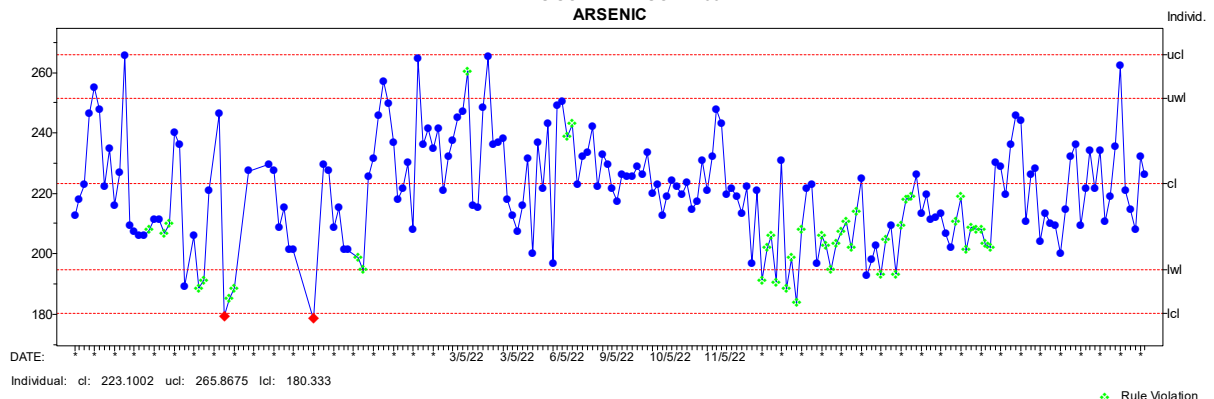
**METALS SOIL ICP11 SOP 2455M
COPPER**



**METALS SOIL ICP11 SOP 2455M
ZINC**



**METALS SOIL ICP11 SOP 2455M
ARSENIC**



**METALS SOIL ICP11 SOP 2455M
SELENIUM**

