

PFAS Testing In Cambridge

An update on the progress of PFAS testing at the Cambridge Laboratory

What's been done and next steps

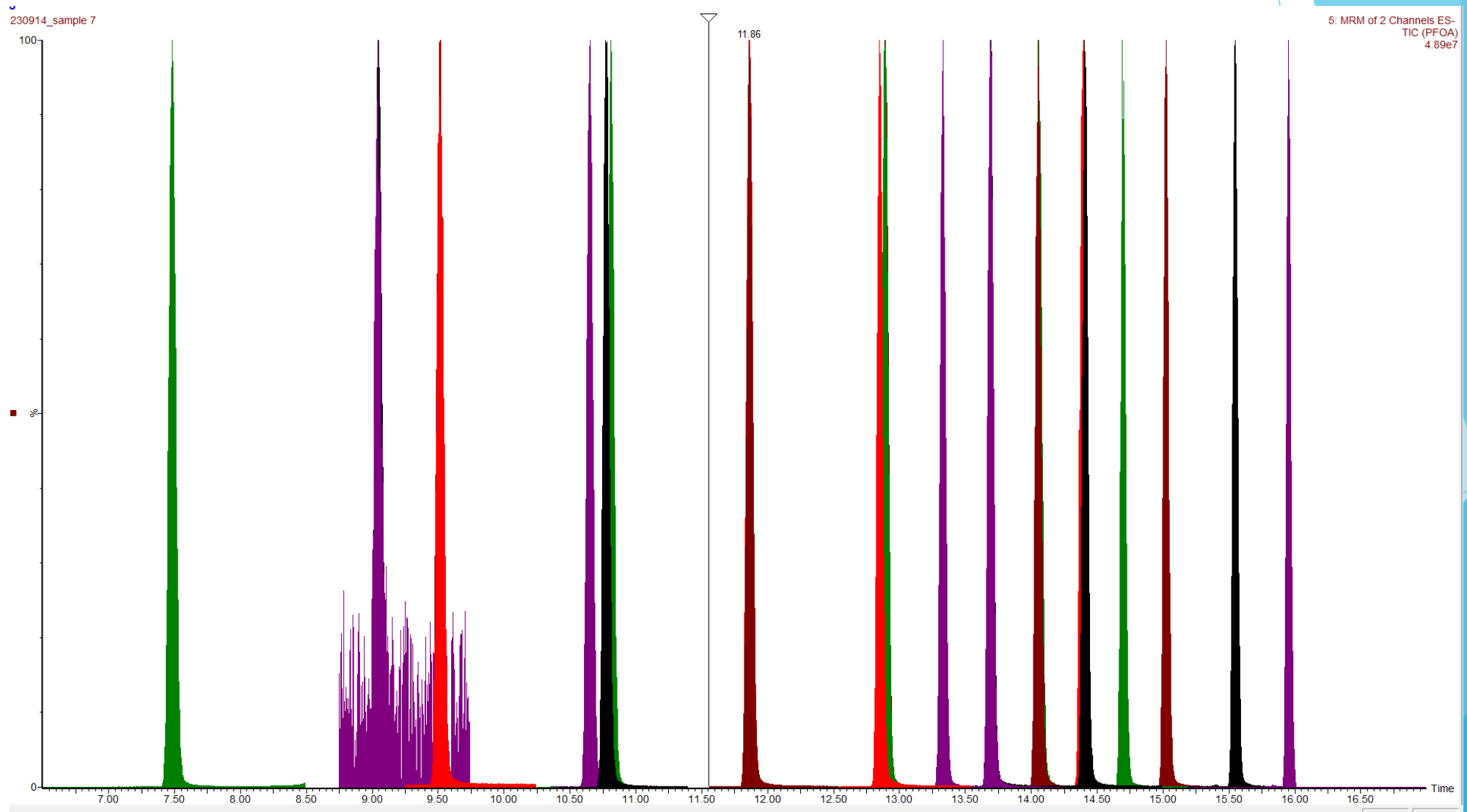
- ✓ Instrument purchase and setup
- ✓ Initial week of training on instrument, software, and method
- ✓ Develop method
- ✓ Solve contamination issue, get clean blanks
- ✓ Additional day of training to finalize analysis method
- ✓ Set up sample prep instruments
- ✓ Run finish water test sample-see branches and order standards
- ▶ **Run QC samples through sample prep and instrument**
- ▶ **Recalibrate for branches**
- ▶ **Discuss with DEP next steps to start certification process**

Waters Aquity and Xevo TQ Absolute

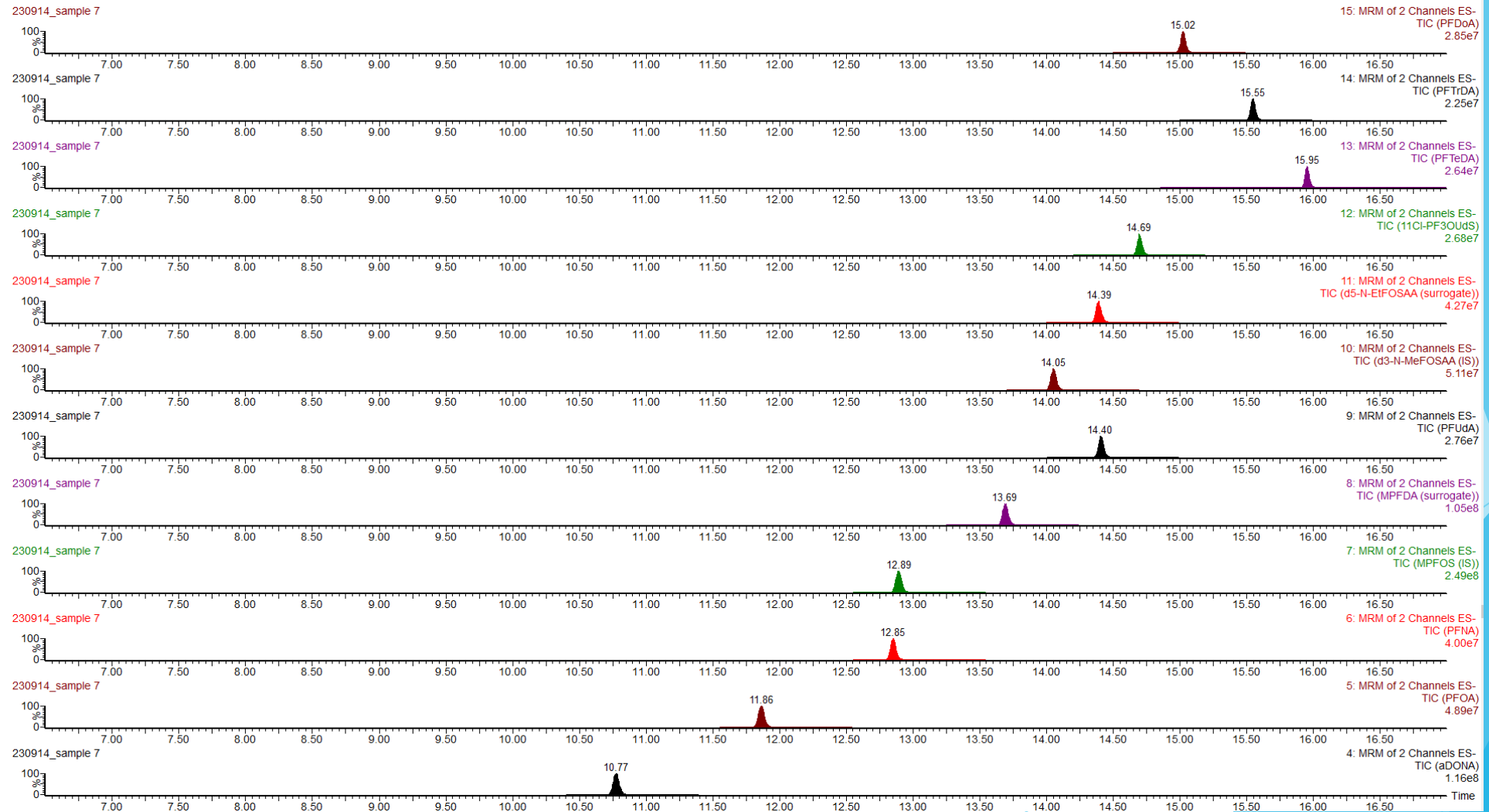
- ▶ Ultra High Purity Liquid Chromatograph and Tandem Mass Spectrometer
- ▶ Mass Spec, LC, UPS, Nitrogen Generator, Vacuum Pump



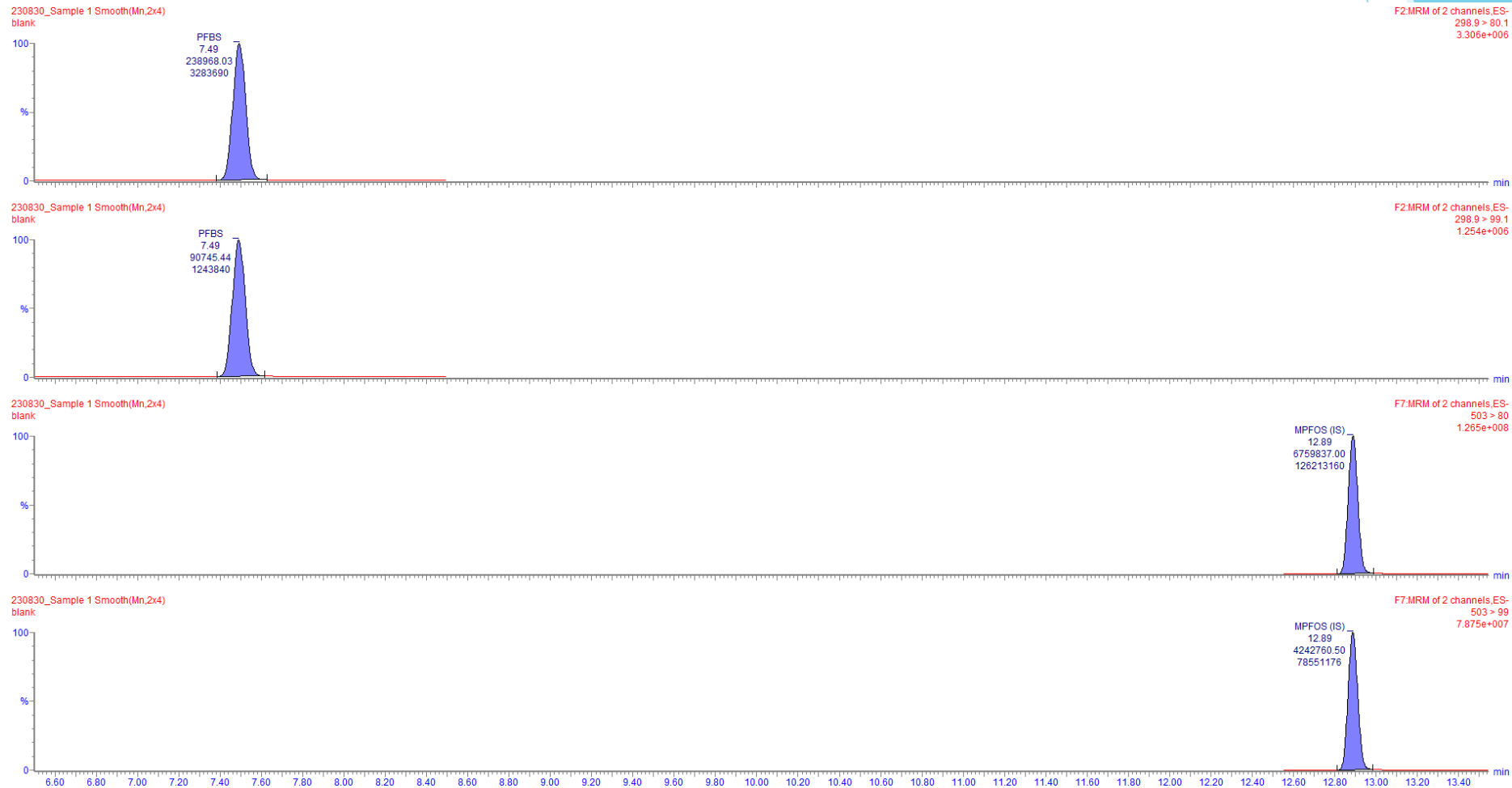
LC-MS chromatogram



LC-MS-MS Separates Peaks



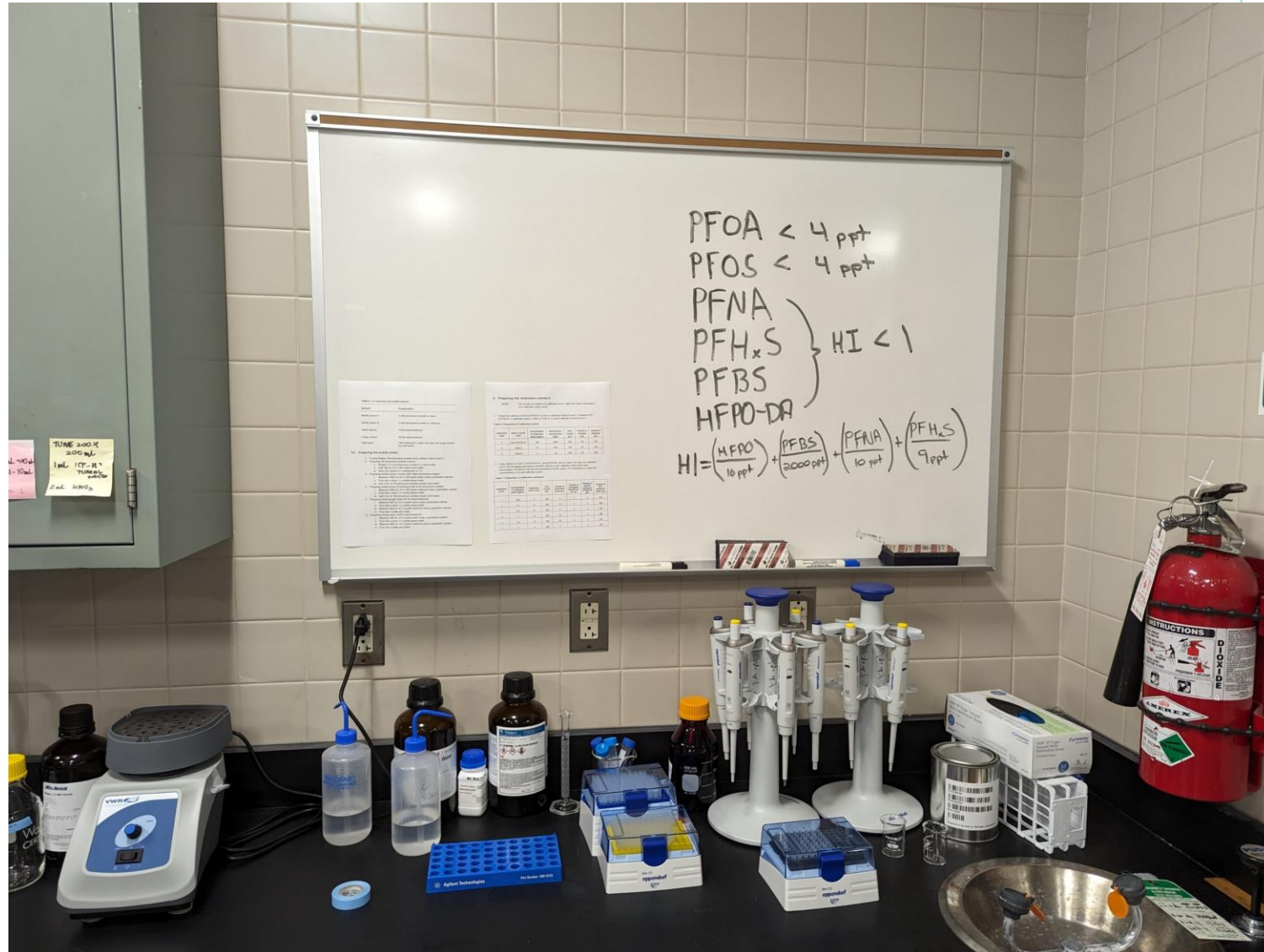
PFBS contamination-Contaminated Blank



PFBS contamination-Clean Blank



New Pipet Tips Solve Multi-Week Problem



Sample Extraction Units- Promochrom




Surrogate

True Value: 10 ppt
Required Range: 70-130%

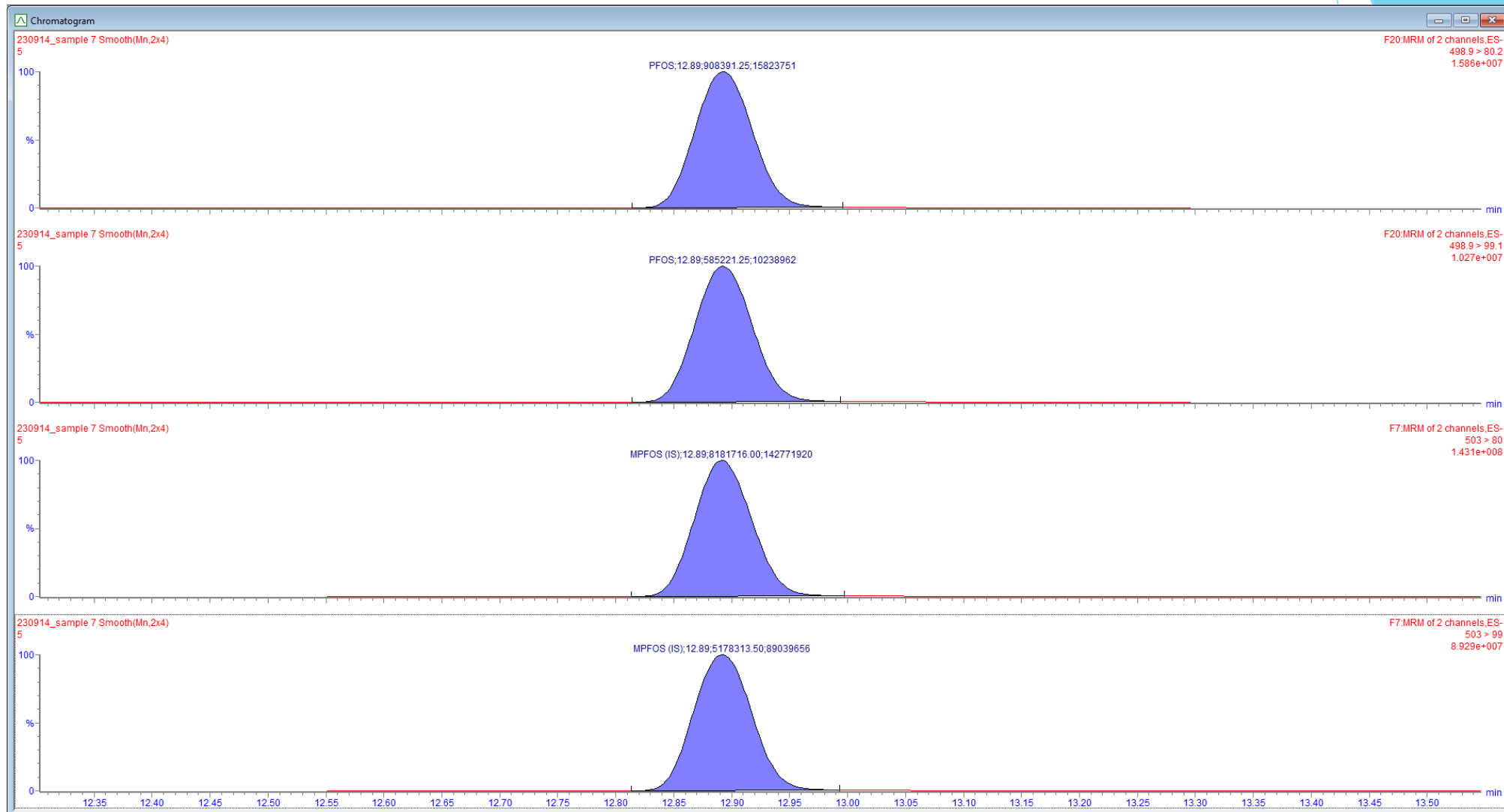
TargetLynx XS - untitled * - [Chromatogram]

File Edit View Display Processing Window Help

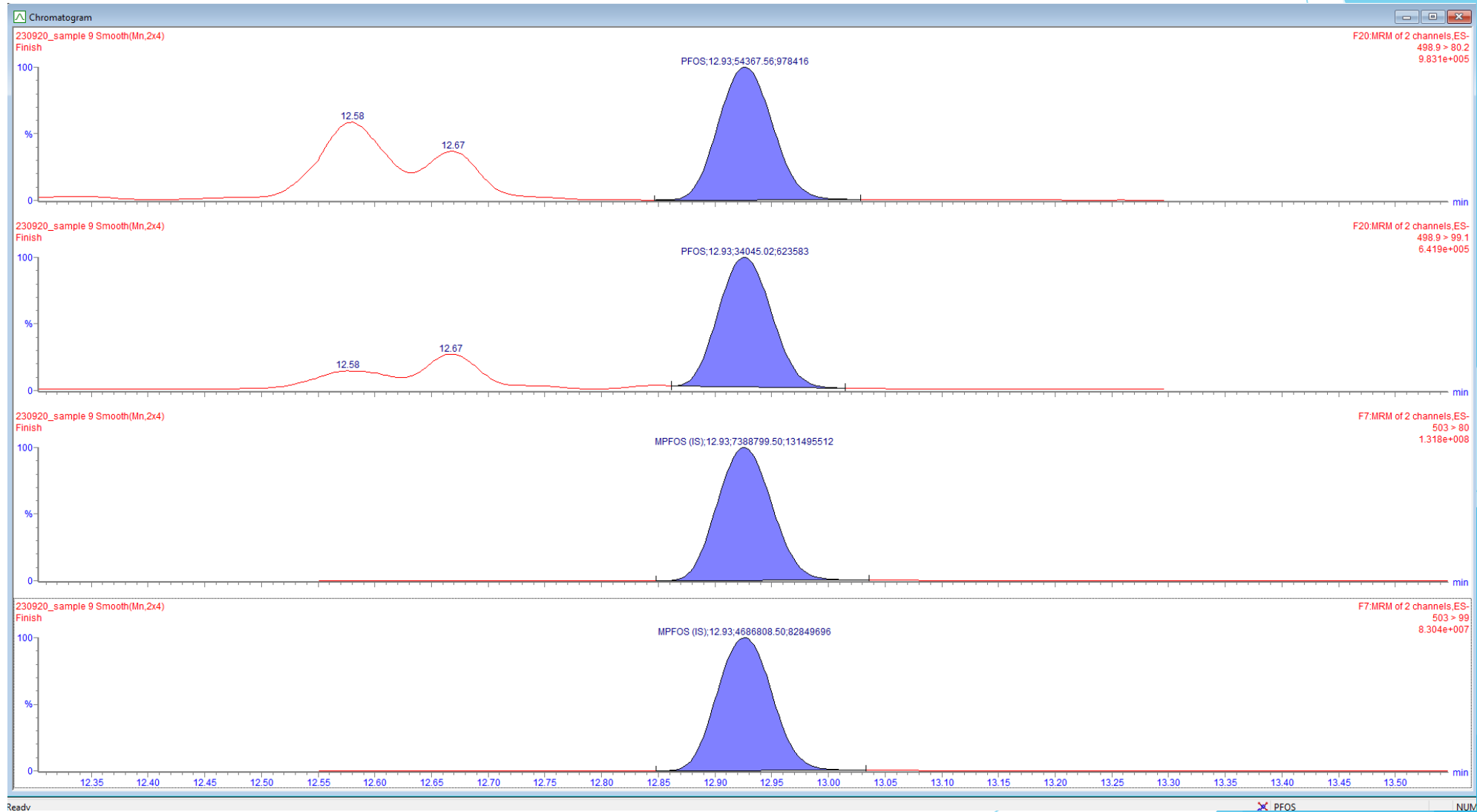


#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Primary Flags	Conc.	%Dev	S
1	230914_sample B	Blank		14.419	2442615.250	2099535.000	11.634	bb	11.296		
2	230914_sample 2	Standard	10.000	14.398	1881875.250	1768846.625	10.639	bb	10.330	3.3	
3	230914_sample 3	Standard	10.000	14.410	1890638.750	2062716.000	9.166	bb	8.899	-11.0	
4	230914_sample 4	Standard	10.000	14.398	1891783.625	1904065.875	9.935	bb	9.647	-3.5	
5	230914_sample 5	Standard	10.000	14.401	1965937.875	1787342.625	10.999	bb	10.680	6.8	
6	230914_sample 6	Standard	10.000	14.389	1962728.375	1952791.875	10.051	bb	9.759	-2.4	
7	230914_sample 7	Standard	10.000	14.392	2085919.875	1895400.250	11.005	bb	10.685	6.9	
8	230920_sample 9	Analyte		14.416	1914925.625	1620373.625	11.818	bb	11.474		
9	230921_sample 2	QC	10.000	14.452	2809172.250	2780294.000	10.104	bb	9.810	-1.9	

PFOS in Standard



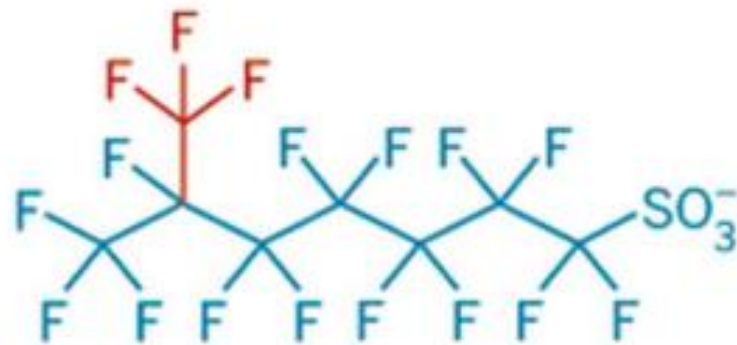
PFOS in Sample



Branched Vs. Linear



PFOS Linear Isomer



PFOS Branched Isomer (P6MHpS)

First Test Sample

	230920_sa...
PFHxA	1.6
PFHpA	0.8
PFOA	1.8
PFNA	0.1
PFDA	0.0
PFUdA	0.0
PFDoA	
PFTTrDA	
PFTeDA	0.0
PFBS	1.6
PFOS	0.3
PFHxS	0.5
HFPO-DA	0.0
aDONA	0.0
N-MeFOSAA	0.0
N-EtFOSAA	0.0
9Cl-PF3ONS	0.0
11Cl-PF3OUdS	0.0
MPFHxA (SURR)	
M2PFOA (IS)	9.0
MPFDA (SURR)	11.4
MPFOS (IS)	9.1
M3HFPO-DA (SURR)	11.3
d3-N-MeFOSAA (IS)	8.5
d5-N-EtFOSAA (SURR)	10.9

PFAS 6	
PFOA	1.8
PFNA	0.1
PFBS	1.6
PFOS	0.3
PFHxS	0.5
HFPO-DA	0.0
Total PFAS 6	ND

What comes next

- ▶ Discuss next steps to move towards certification with the DEP
- ▶ In the meantime
 - ▶ Recalibrate for branches
 - ▶ Run lots of quality control
 - ▶ Prepare A LOT of documentation (SOPs, Quality Control information, etc.)
 - ▶ Work on post processing data organization (how to get data from instrument into usable format)
 - ▶ Run non-compliance samples in treatment process and watershed
 - ▶ Ongoing training and collaboration with Waters and other laboratories running PFAS
 - ▶ Develop a watershed and process monitoring plan